Guide to using Microsoft Copilot Chat

Excited, Centre for Excellent IT Education

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Introduction

The tech community, scientists, educators, and others were impressed by the release of the ChatGPT neural network. It can communicate with people very naturally, write books, theses, and articles at the level of copywriters, and create simple but working code. After that, other models of well-known and unknown companies in the field of artificial intelligence (AI) became available: Google AI is a one-stop shop for everything related to artificial intelligence; Bing AI is a language model and graphics creation tool; DALL-E 2 is a graphics generation tool; Tome is a website that uses AI to visualise ideas and create presentations; Beatoven.ai uses advanced AI generation methods to create unique music based on mood, etc.

Artificial intelligence technology is one of the areas of study of IT education. At the same time, artificial intelligence technologies are already used for educational purposes and can be used in IT education as technologies to improve the professional training of future IT specialists.

This guide offers a brief description of the features of Microsoft Copilot Chat (Copilot). The focus of the guide is on the list of prompts that can be used by IT educators in their practical work.

Fig. 1. The picture is created by the image generation service Night Café – "The girl looks into the eyes of the work."

If you wish to learn more about generative artificial intelligence, we suggest following publications:

- Alto, V. (2023). Modern Generative AI with ChatGPT and OpenAI Models: Leverage the Capabilities of OpenAI's LLM for Productivity and Innovation with GPT3 and GPT4. Packt Publishing, Limited.
- McKinsey. (2023, August 1). The state of AI in 2023: Generative AI's breakout year. McKinsey. Retrieved October 19, 2023, from https://www.mckinsey.com/capabilities/quantumblack/our-insights/the-state-of-ai-in-2023-generative-ais-breakout-year

- Foster, D. (2023). Generative Deep Learning: Teaching Machines to Paint, Write, Compose, and Play. O'Reilly Media, Incorporated.
- Theobald, O. (2022). Generative AI art: a beginner's guide to 10x your output with killer text prompts. Independently published.
- Butvilauskas, A. (2023). The Ultimate Guide to Midjourney AI: Settings, Commands, and Use Cases (Artificial Intelligence Guides). Independently published.
- Loukides, M. (2023). *What Are ChatGPT and Its Friends?* O'Reilly Media, Inc.

Fig. 2. The picture is created by the image generation service Night Café – "The educator uses AI tools in the class."

About Microsoft Copilot AI Chat

Microsoft Bing AI Chat (Copilot) (Fig. 3) is a multi-modal chatbot developed by Microsoft that can generate both text and images from text prompts. It uses a neural network called Turing-NLG, which has 17 billion parameters and can learn from web documents, images, and captions (Rosset, 2020).

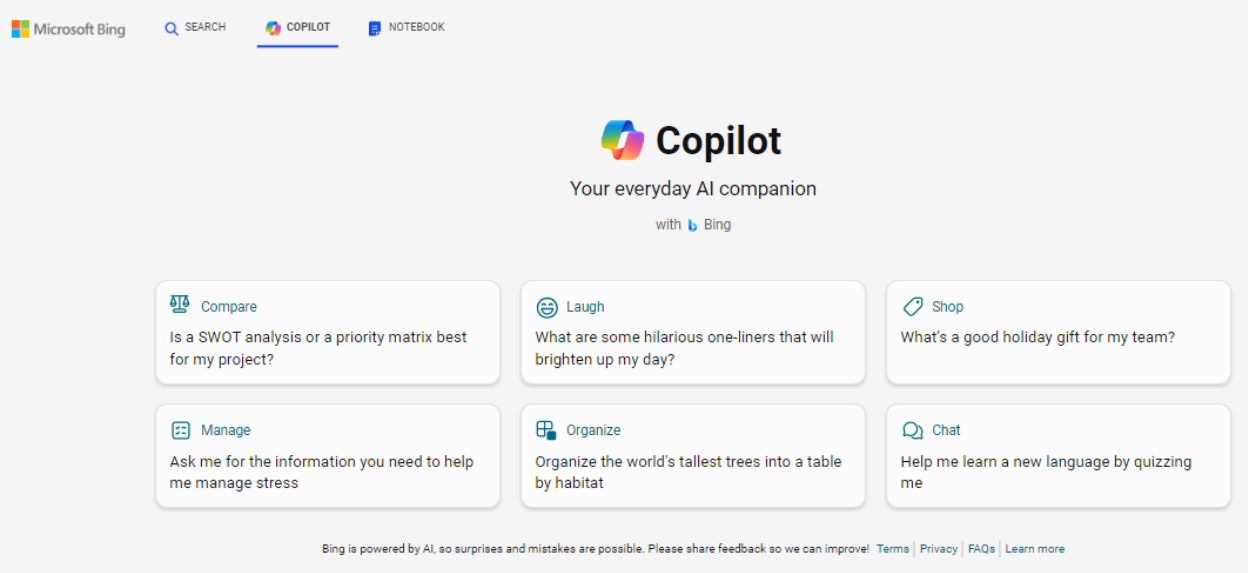


Fig. 3. Microsoft Bing AI Chat (Copilot).

On February 7, Microsoft revealed a new version (Reinventing search with a new AI-powered Microsoft Bing and Edge, your copilot for the web, 2023).

Bing Chat is potentially a game changer that addresses some of the weaknesses of ChatGPT. Without going into the technical side of Bing Chat, its GPT-4 language model is grounded in Bing data. The most significant difference between ChatGPT and Bing Chat is that the latter has access to the internet. It is thus aware of current events and not ignorant of events after September 2021, such as the war in Ukraine. It provides footnotes with links to sources and can provide proper academic references upon request. Bing's chatbot was initially in a limited preview mode while Microsoft tested it with the public, and there was a waitlist one could join for early access (Rudolph, Tan, & Tan, 2023). It is now built into the browser Edge and is easily accessible.

On September 21, 2023, Microsoft officially released Copilot as a follow-up to Bing Chat (Mehdi, 2023).

Copilot has a set of AI-powered features, with which users can:

- ask actual and complex questions and get detailed replies,
- get an actual answer, because Copilot looks at search results across the web to offer a summarized answer and links to its sources,
- be creative, because Copilot can help write poems, and stories, or even create an image.

Users can also ask follow-up questions such as, "can you explain that in simpler terms," or, "give me more options" to get different and even more detailed answers in search. However, in Copilot, each conversation will have a limited number of interactions, to keep the interactions grounded in search (Microsoft, 2023).

Interface of Microsoft Copilot AI Chat in Microsoft Edge

Copilot is easily accessible within Microsoft Edge for personalized information research. You will notice a Copilot icon at the top right of the browser sidebar (Fig. 4).

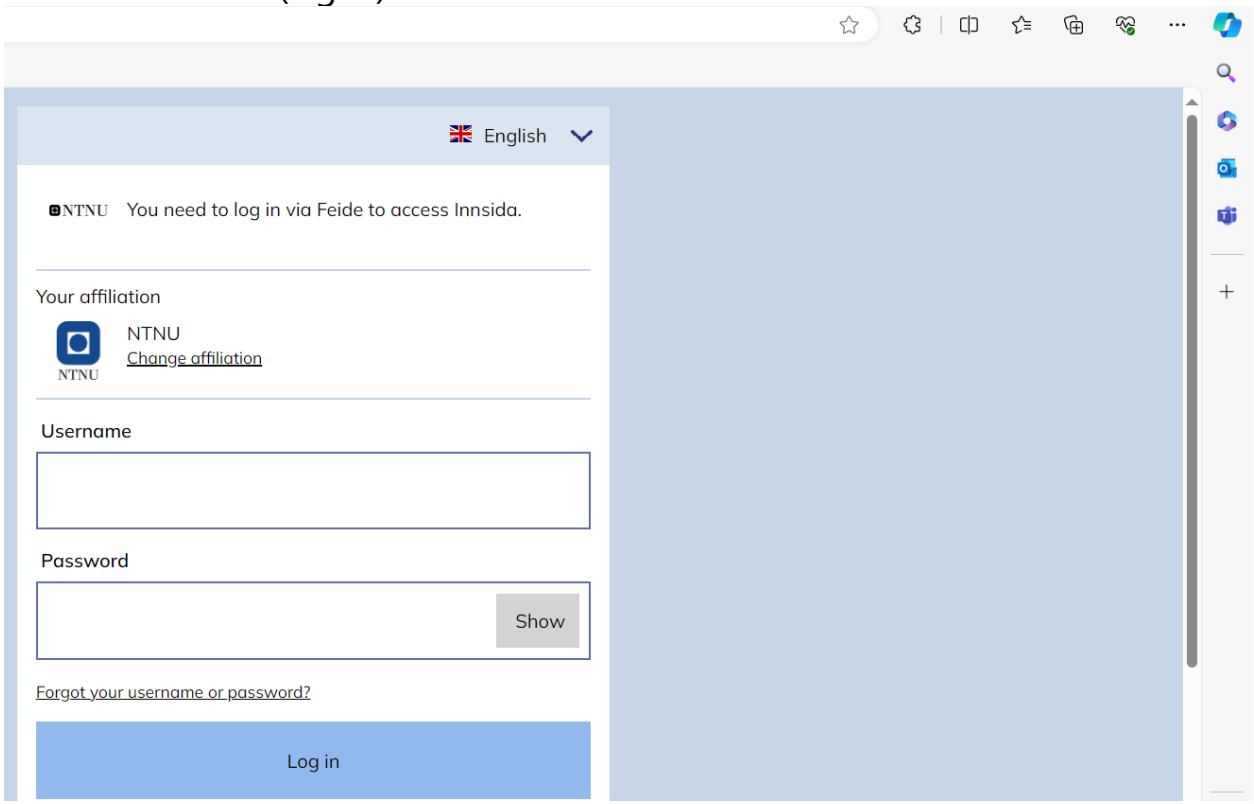


Fig. 4. Microsoft Copilot icon.

When you click on the chat icon, you will see the chat in the sidebar of your browser (Fig. 5). If you click on the arrow (Fig. 6), you will be taken to the full-window chat mode (Fig. 7).

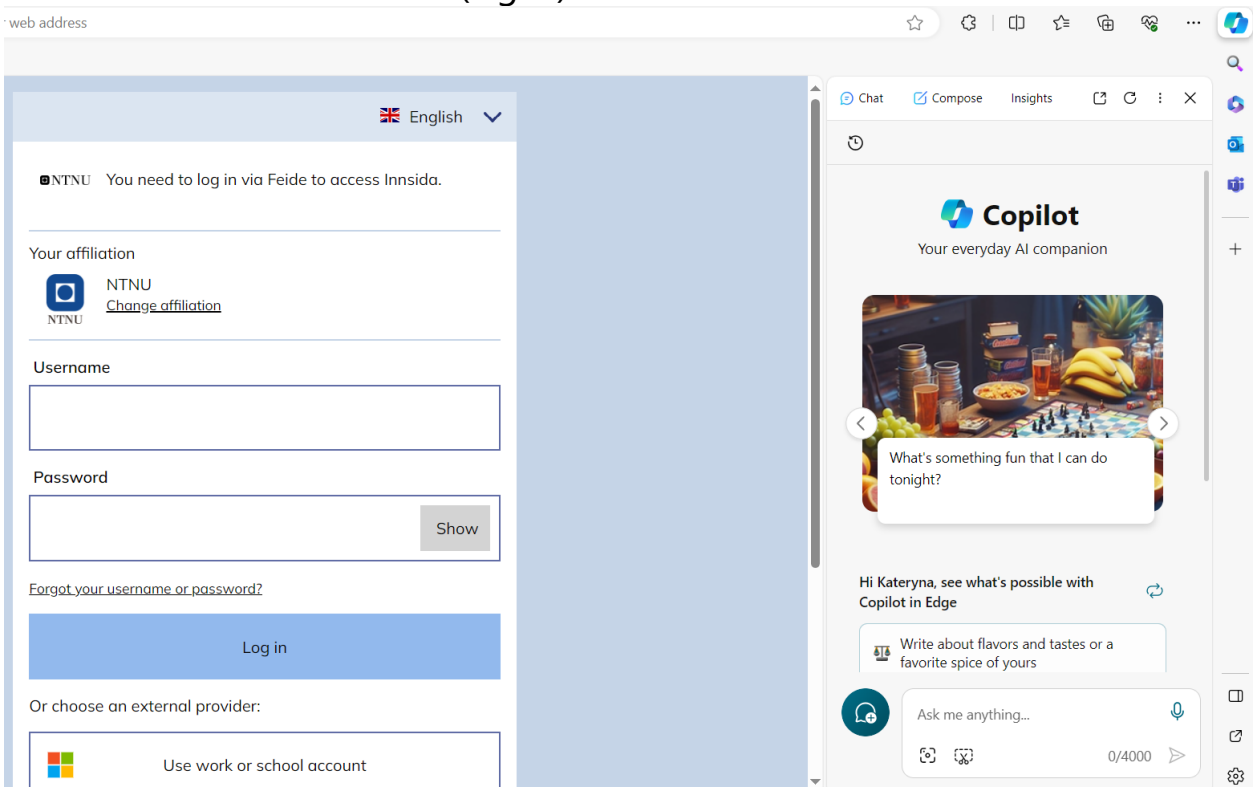


Fig. 5. Sidebar of your browser.

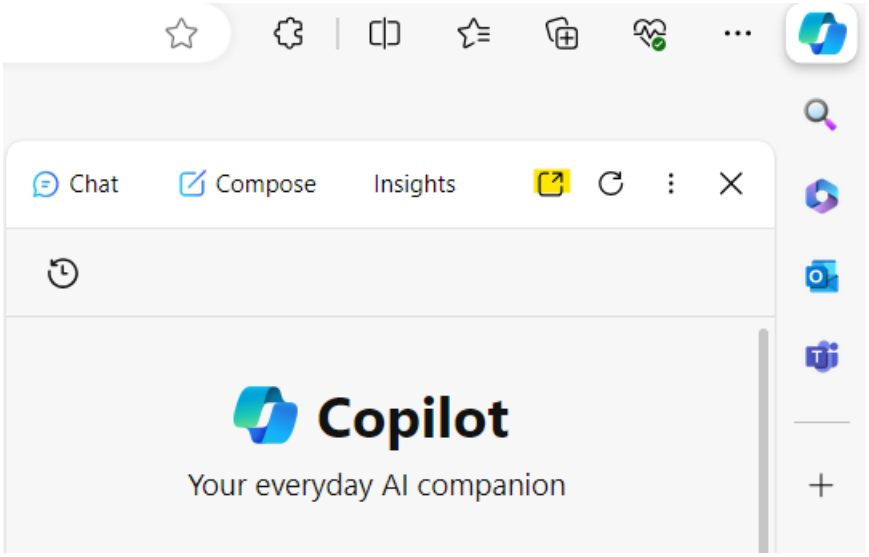


Fig. 6. Switching to full-window chat mode.

You can access Copilot at https://copilot.microsoft.com.

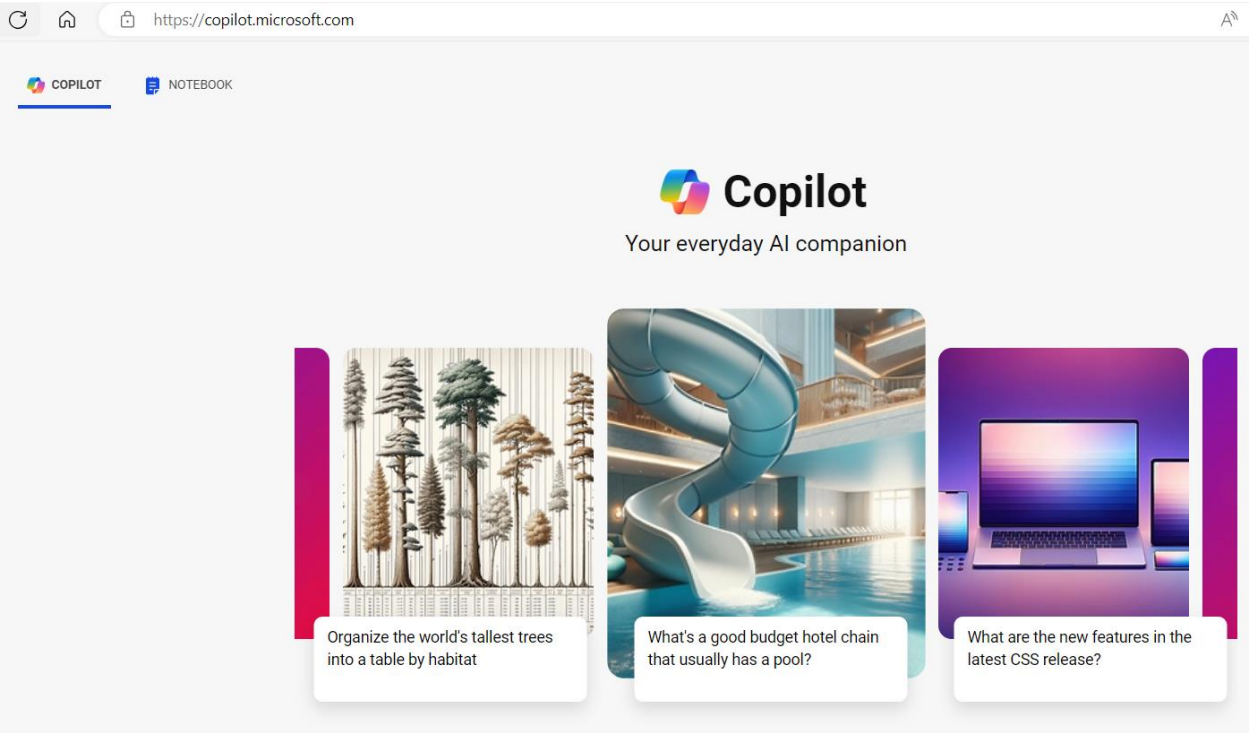


Fig. 7. Full-window chat mode.

When you navigate Copilot through the sidebar, you can easily browse the web without losing your Chat. When you click the citations from the sidebar, Copilot will automatically open in a new tab in Edge while keeping your conversation at the side of the screen (Fig. 8).

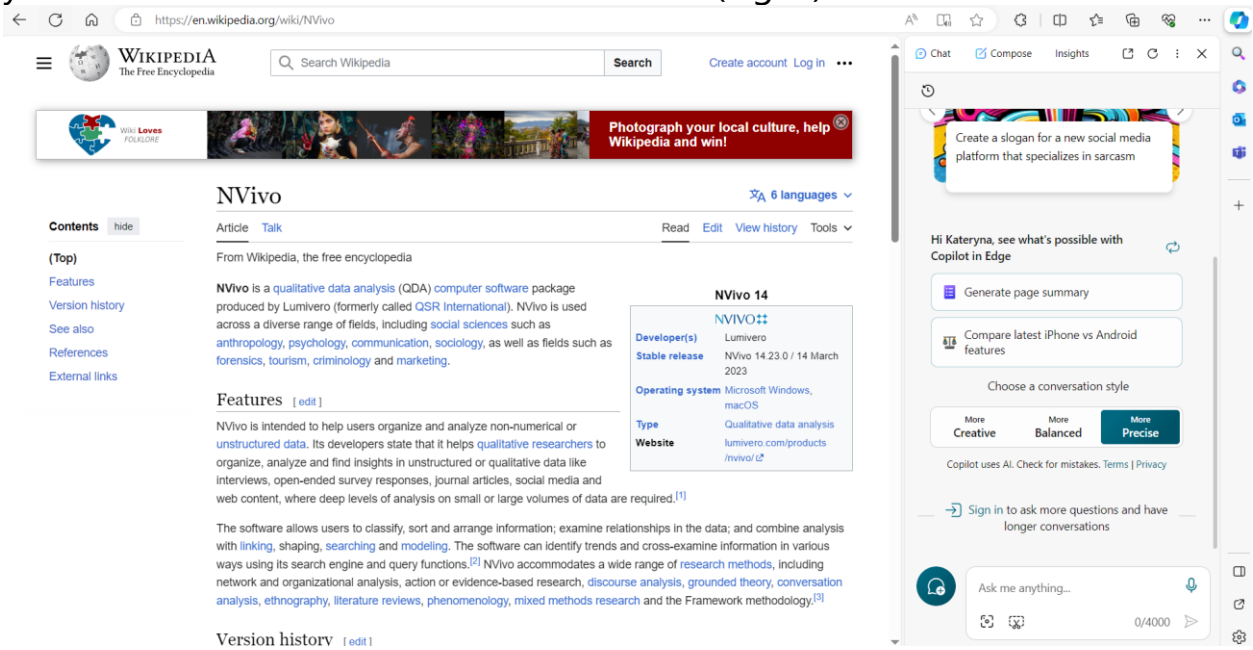


Fig. 8. Microsoft Copilot AI Chat in a new tab in Edge.

Switching between a chat page and a traditional search page is easy since you only need to scroll up and down through its interface (Fig. 9).

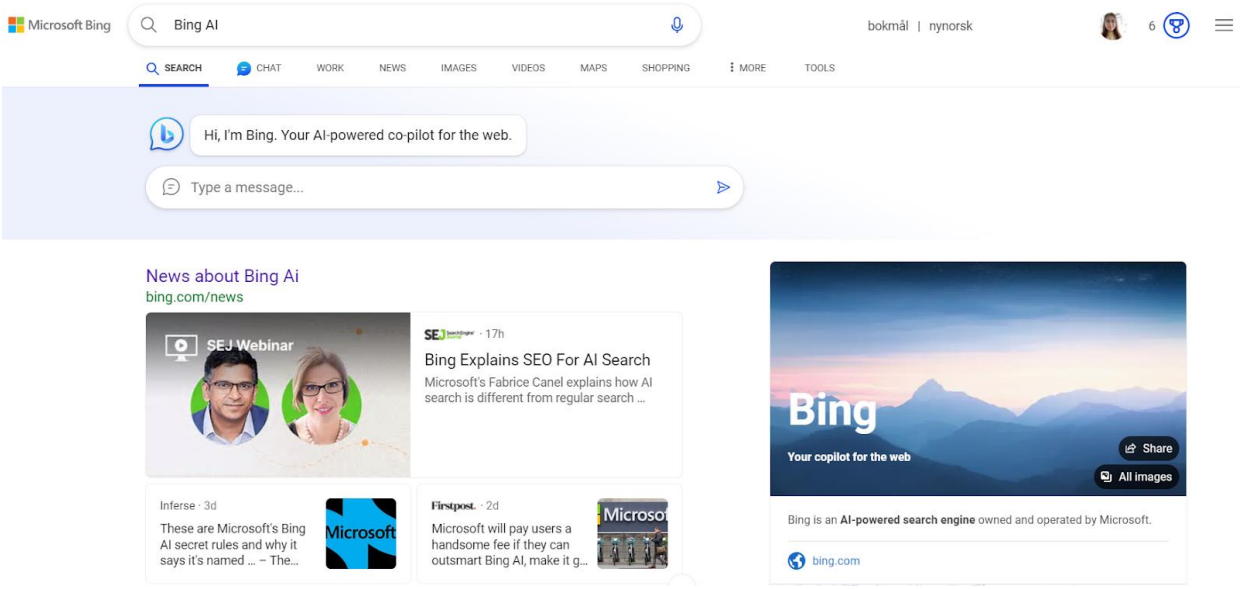


Fig. 9. Switching between a chat page and a traditional search page.

Microsoft Copilot AI Chat interface in the mobile application

To use Copilot on a mobile phone, you need to download it from Google Play (Fig. 10) or the App Store (Apple).

Fig. 10. Copilot app on Google Play.

After installation, you can open the application (Fig. 12) by clicking on the icon (Fig. 11) on the screen of your mobile phone.

Fig. 11. Icon of Copilot app.

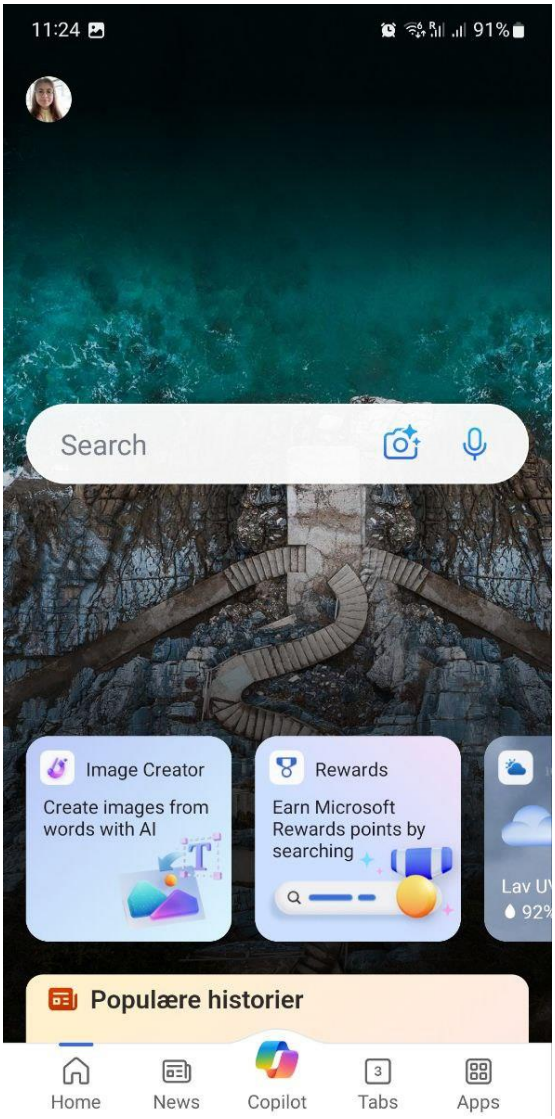


Fig. 12. Copilot app (Android).

In order to use Big Chat, you need to click on the icon at the bottom «Copilot» of the application (Fig. 13).

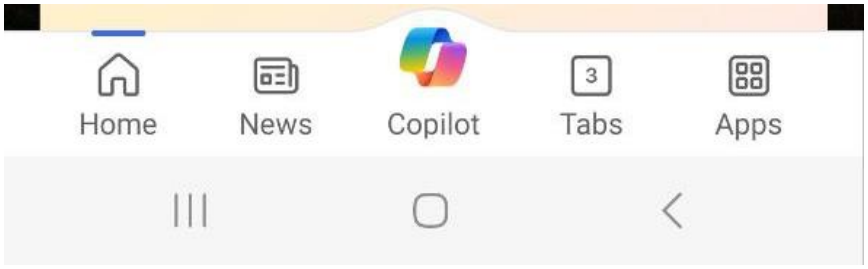


Fig. 13. Icon of Copilot app.

After clicking on the icon, the interface of the Copilot mobile application is displayed (Fig. 14).

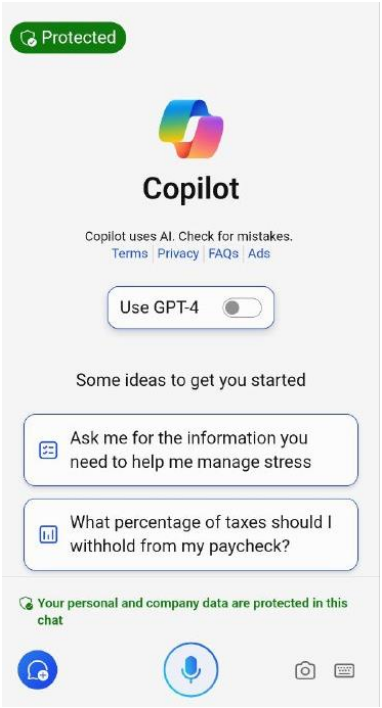


Fig. 14. The interface of the Copilot mobile application.

You can perform the same actions as in the web application:
1) make a text request and get prompts for it (Fig. 15)

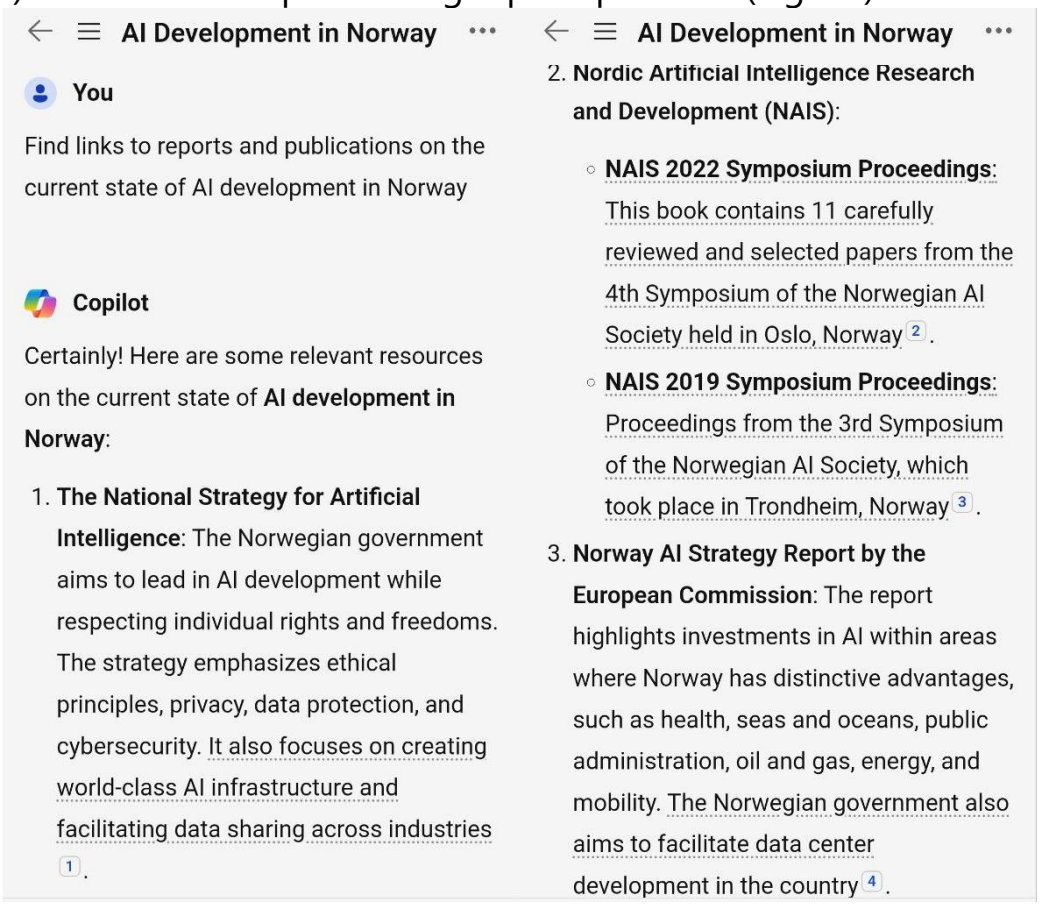


Fig. 15. Text query and response in Copilot.

2) ask to generate (Fig. 16)

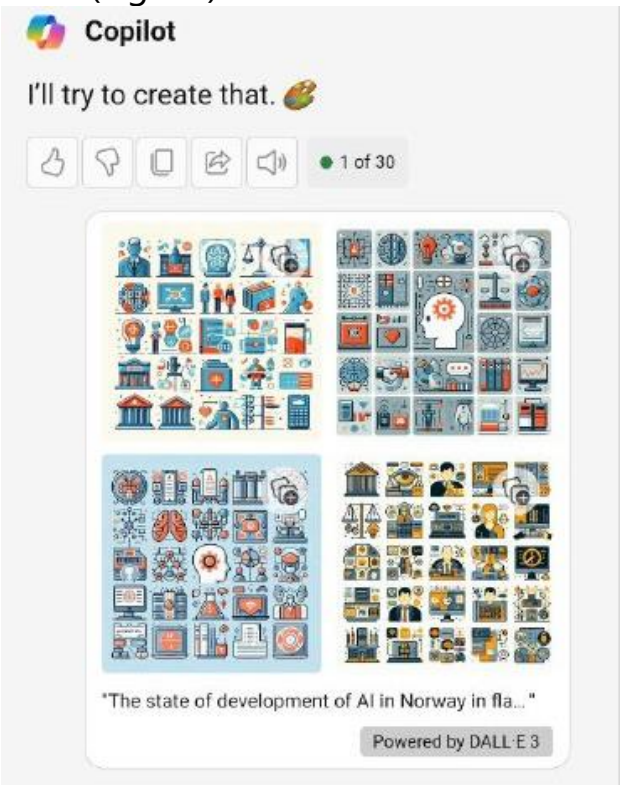


Fig. 16. Request for image generation and its result.

3) you can make a request for picture recognition in two ways: take a picture of the desired image (Fig. 2Fig. 17) or download it from the gallery (Fig. 18)

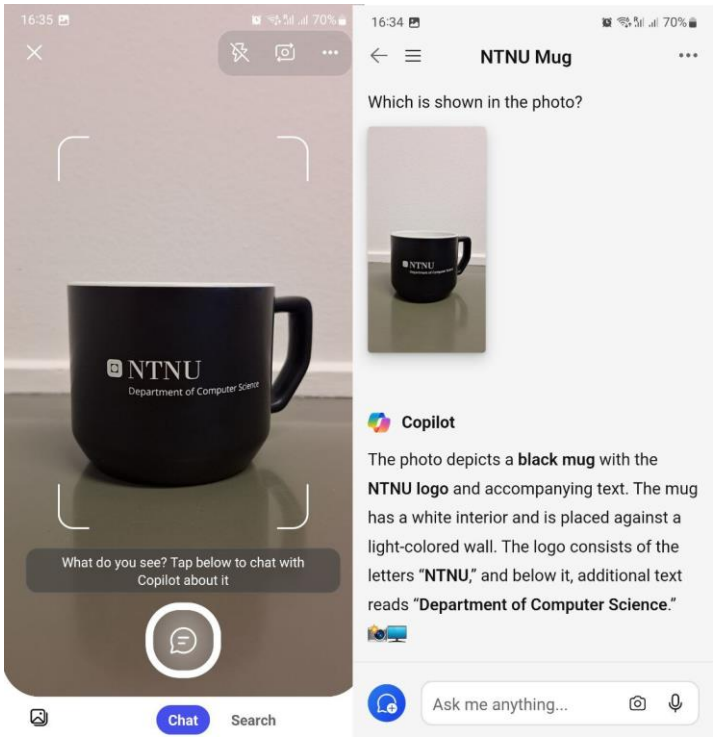


Fig. 17. Using an image to communicate with Copilot (taking a photo).

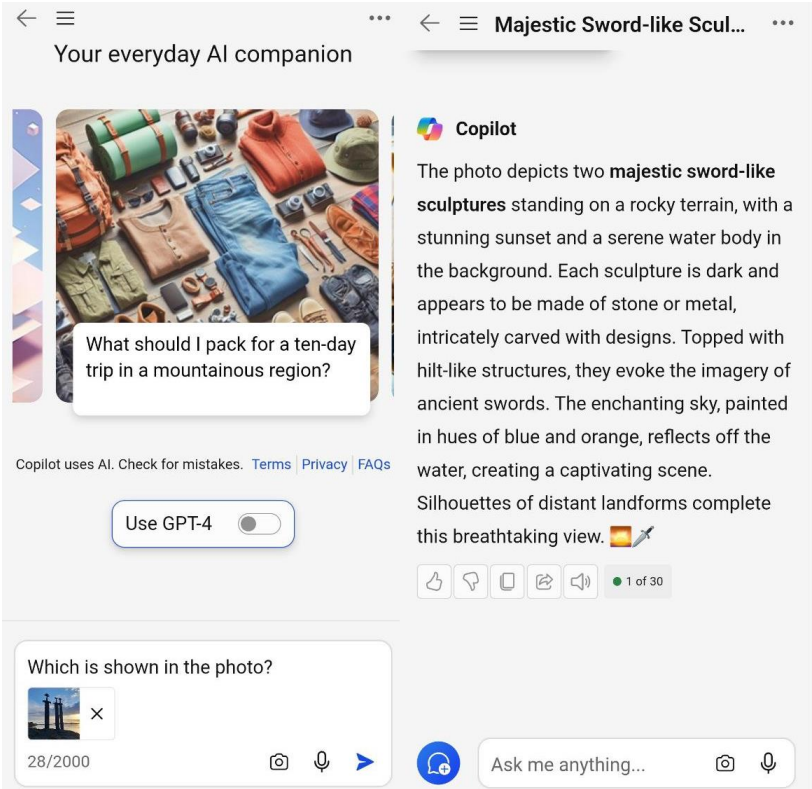


Fig. 18. Using an image to communicate with Copilot (download it from the gallery).

4) use voice input (Fig. 19)

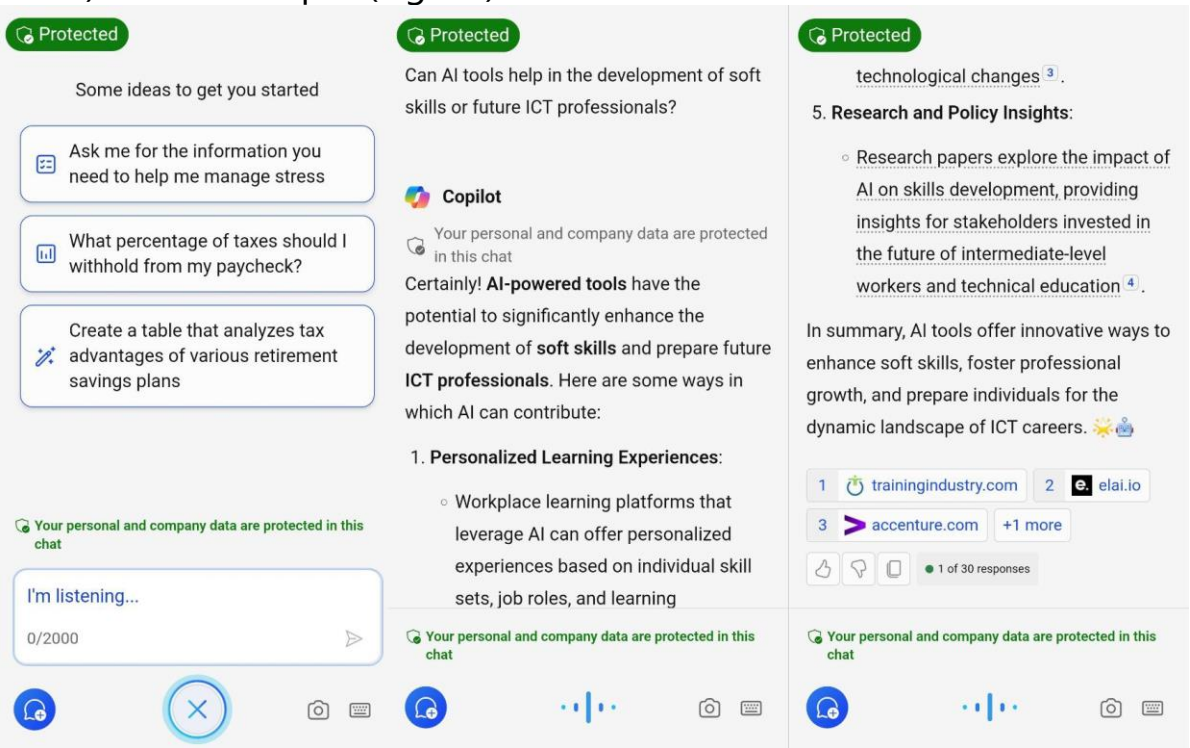


Fig. 19. The using voice input in Copilot.

5) rate, copy or share the answer (Fig. 20)

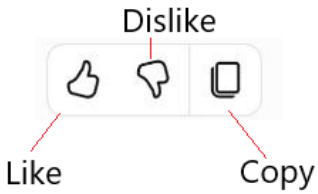


Fig. 20. Possible actions with an answer in the chat.

You can change the settings by clicking on your avatar in the upper left corner of the application.

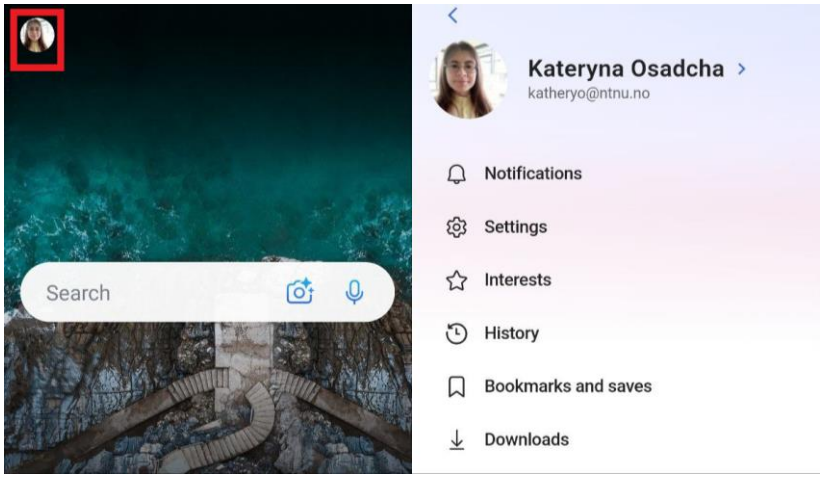


Fig. 21. The settings of Copilot.

How To Use Microsoft Copilot Chat

At the top left of the screen, you can choose between traditional search or the Copilot (Fig. 22).

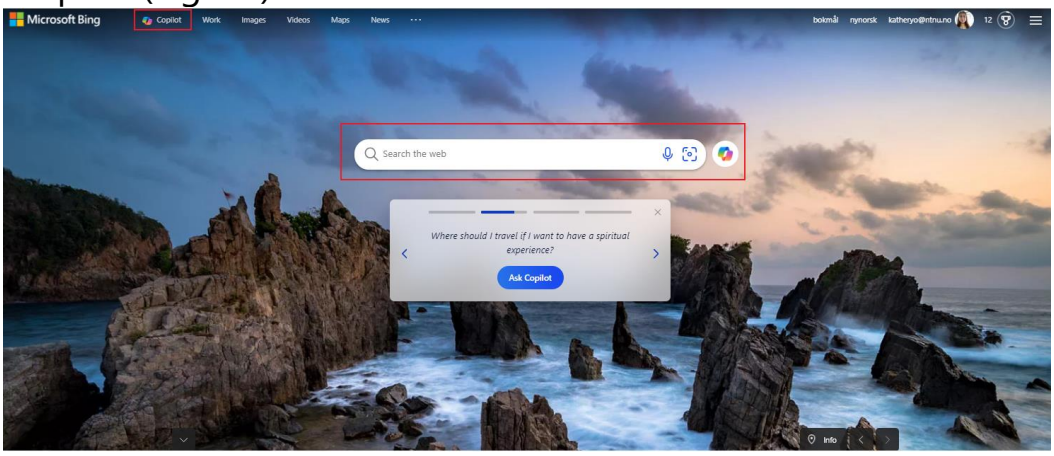


Fig. 22. Microsoft Bing.

You can select your conversation style inside the Copilot interface. Copilot has three conversation styles (Fig. 23):

- "More creative" for imaginative and unique responses,
- "More balanced" for informative and conversational answers, and
- "More precise" for clear and fact-based answers.

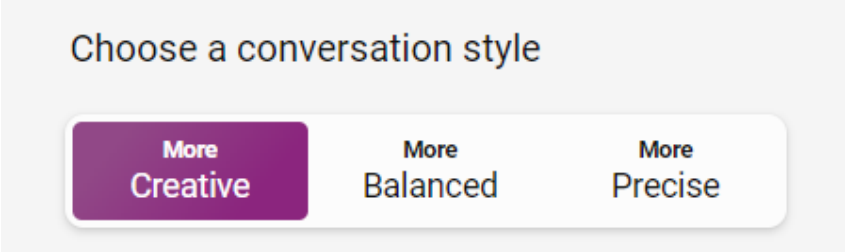


Fig. 23. Choice of the conversation style.

After choosing your preferred conversational style, you can start prompting your questions.

Copilot has four options for asking questions:

1) typing directly from the prompt box,
2) using the microphone,
3) using an image,
4) by downloading the file.

The most common method for prompting questions is through the prompt box. Click the prompt box (Fig. 24) and type your questions so it can generate answers based on your prompt and the details given.

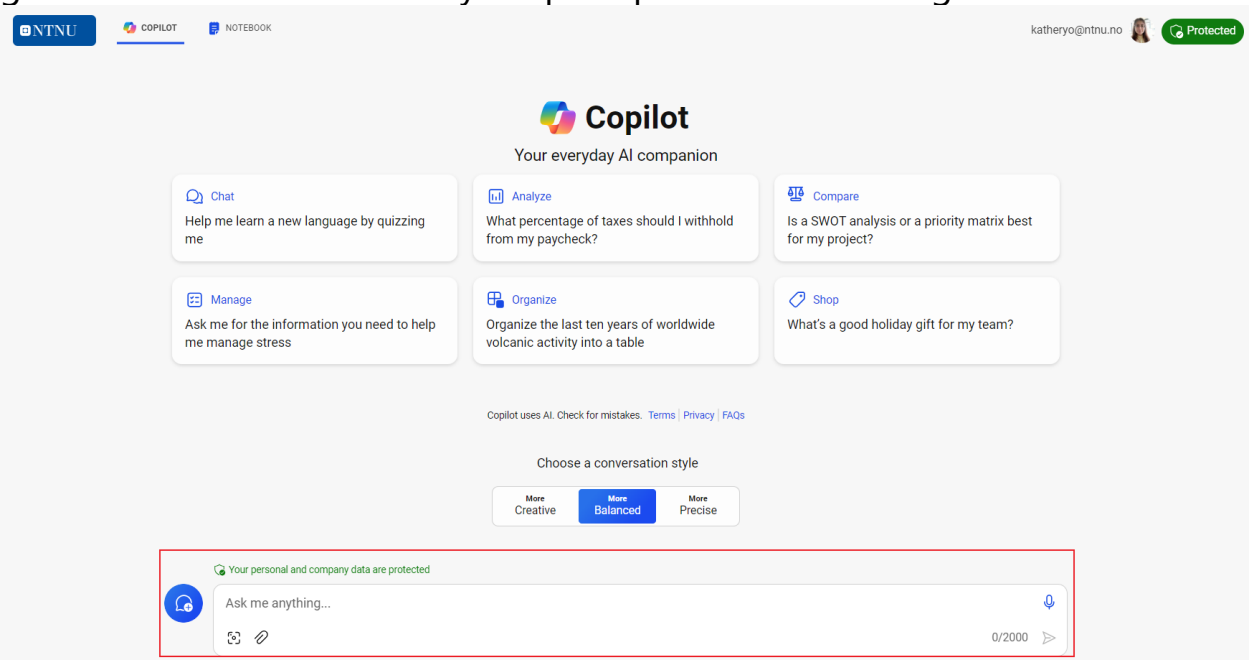


Fig. 24. Prompt box Copilot.

You need to wait about a minute to get an answer. Additionally, Copilot recommends what to search next and gives its sources based on your recent prompts so you can easily verify the origins of the results. It also suggests questions that might clarify the query or might also be of interest to the user (Fig. 25).

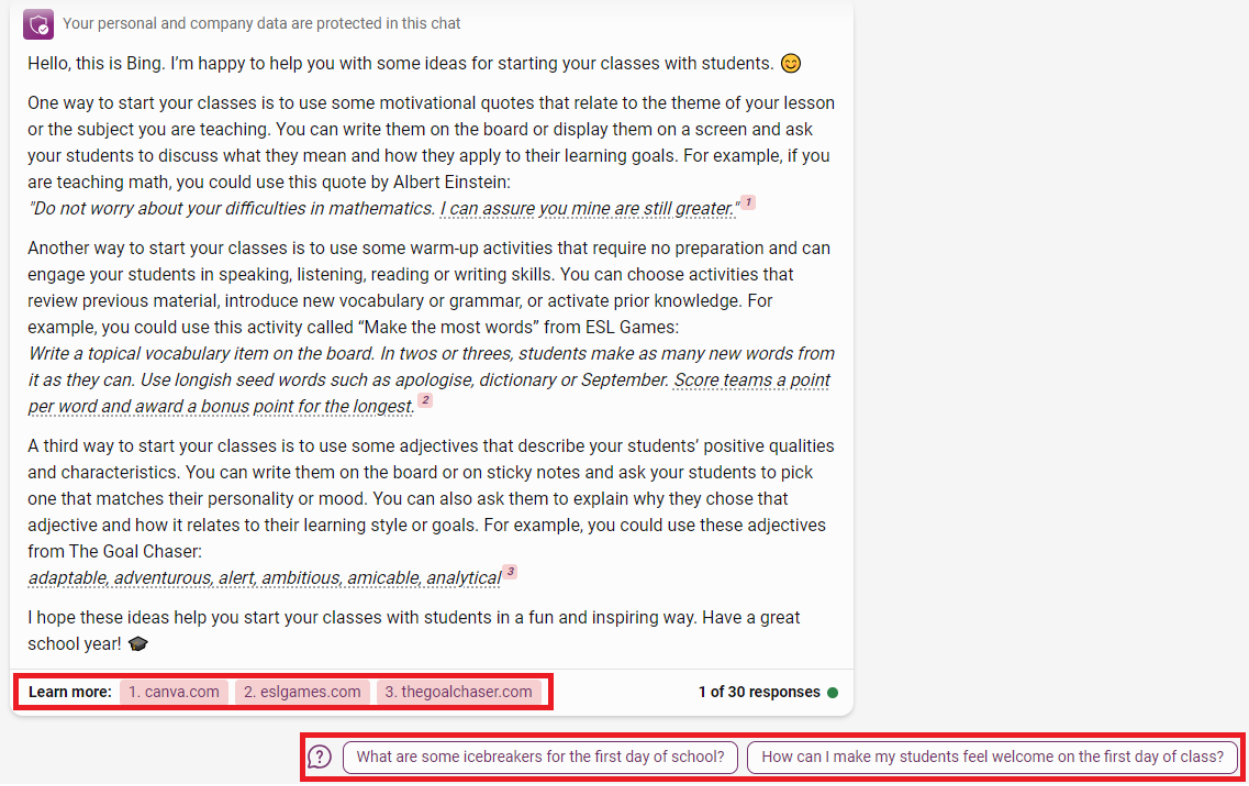


Fig. 25. The answer by Copilot.

If you don't want to type your questions, you can click the microphone button (Fig. 26) and start speaking Copilot will generate answers based on what you say.

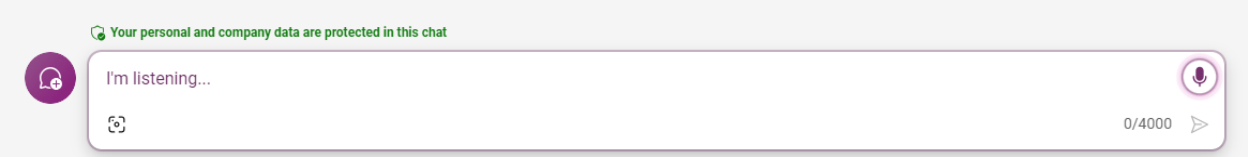


Fig. 26. Create a voice request in Copilot.

Copilot will not only respond through generating text-based answers, but it can also read the responses it generates.

Copilot has a Visual Search in Chat. That allows you to input images to Copilot and ask questions about them. You can ask questions about images that are difficult to describe, for example, get a recipe for a dish you don't know the name of, identify a dog breed you don't recognize, and much more.

To use Visual Search in Chat, click on the camera icon in the input bar in Copilot (Fig. 28), upload a picture from your device or provide a website link (Introducing the new Bing, 2023).

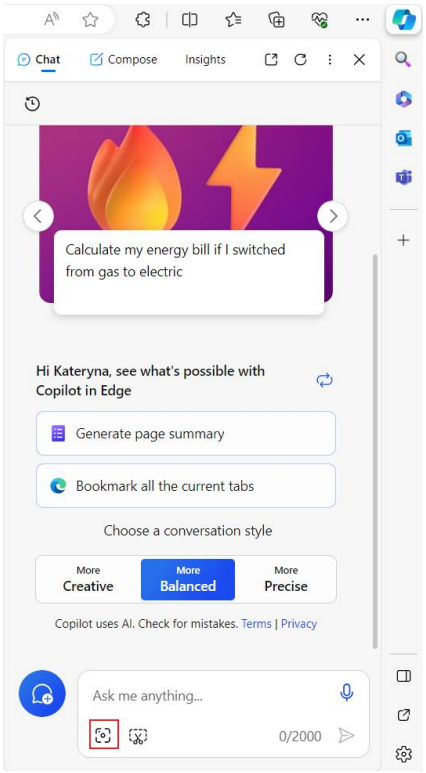


Fig. 27.The camera icon in the input bar in Copilot chat.

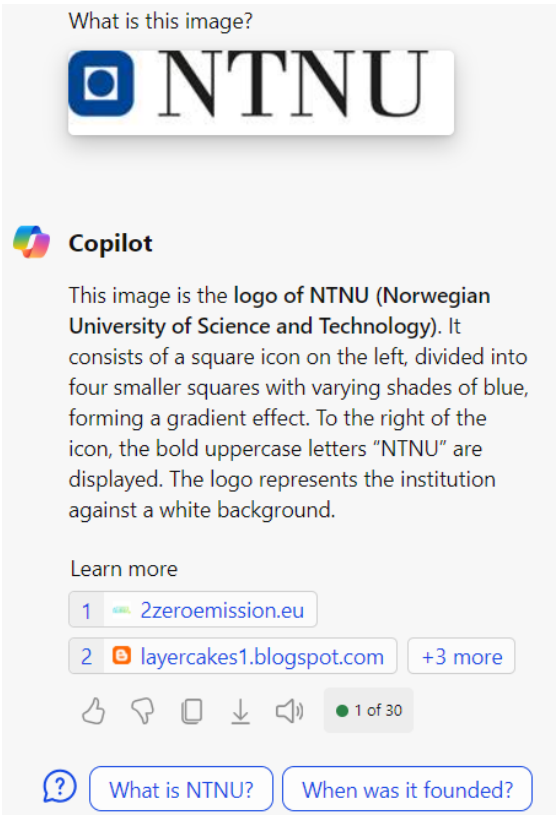


Fig. 28. The answer to the question and additional questions.

So, Copilot searches for relevant content across the web and then summarizes what it finds to generate a helpful response. It also cites its sources, so you're able to see links to the web content it references.

Once Copilot answers your first question, you can use its suggested follow-up questions to ask further about your topic queries. Continue until you get the answer you are looking for (Fig. 29).

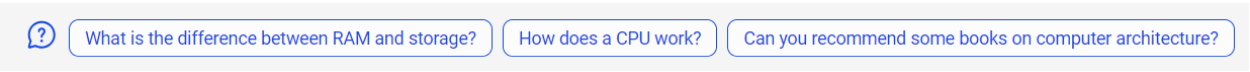


Fig. 29. The follow-up questions in Copilot.

When you use your Microsoft account when accessing Copilot, you can have 30 chats. You will count at the bottom right corner of the results how many conversations you prompted (Fig. 30).

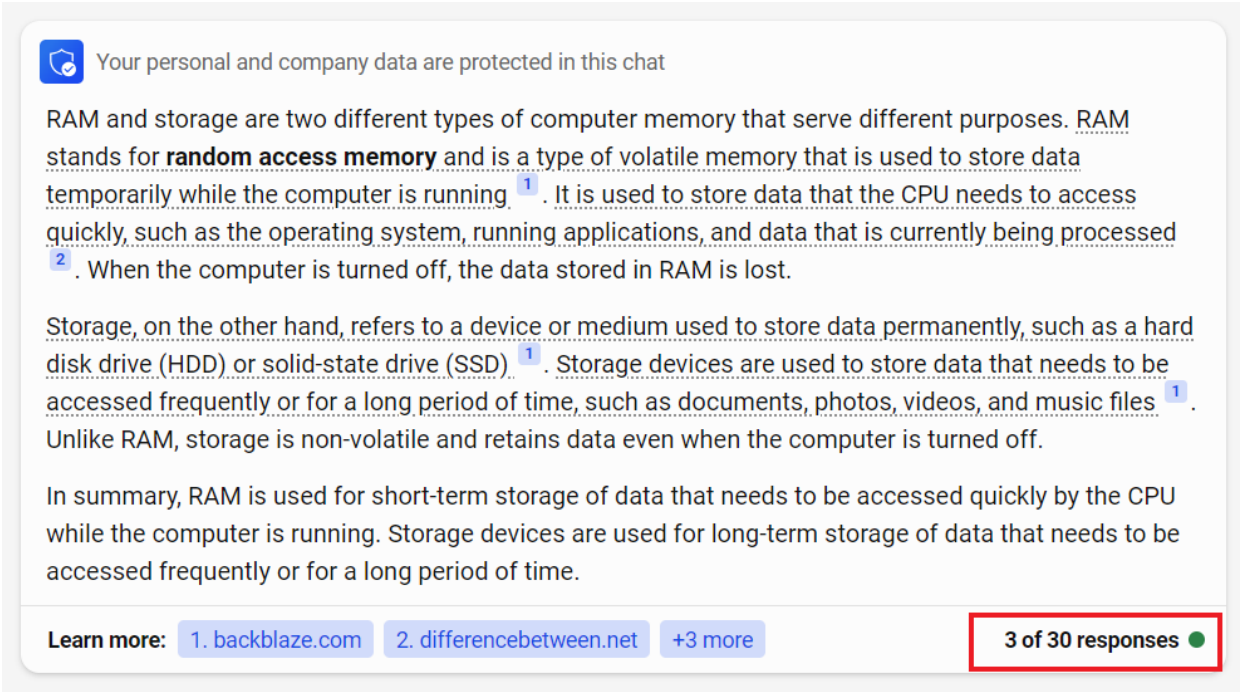


Fig. 30. Counting the number of responses in one request.

You can export Copilot's results to Word, PDF, or Text (Fig. 31). You can choose your preferred format, which will automatically download your results.

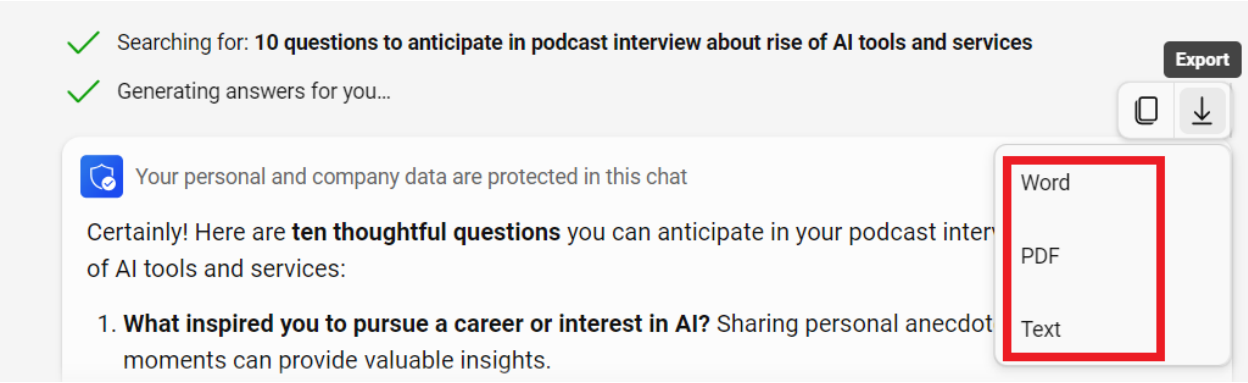


Fig. 31. Export Copilot Chat's results.

The chat can add images to the text that was generated by it (Fig. 32).

Fig. 32. Pictures in Copilot.

In the structure of the answer, Copilot can offer templates, for example, in Excel format (Fig. 33, Fig. 34):

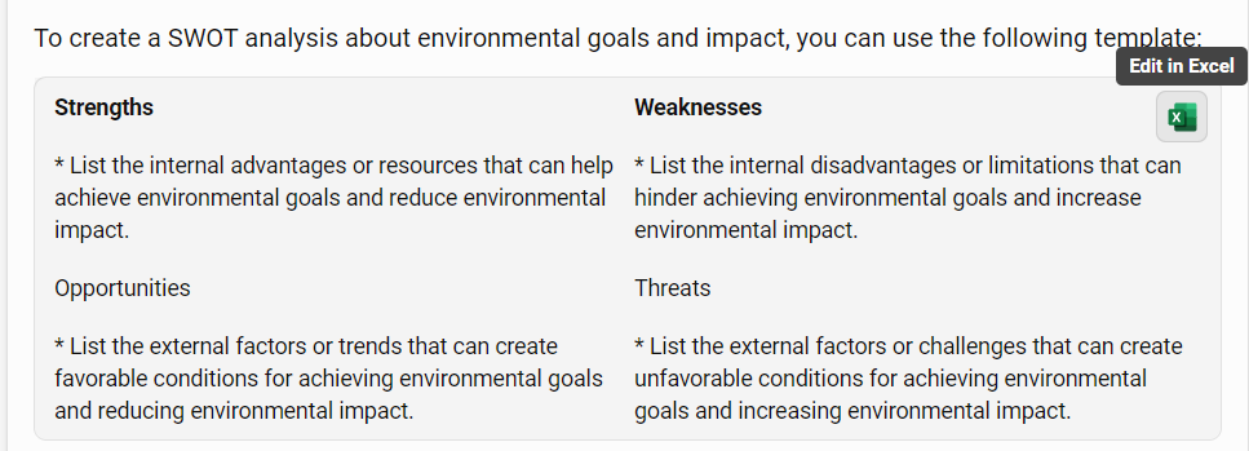


Fig. 33. The offer template in Excel format.

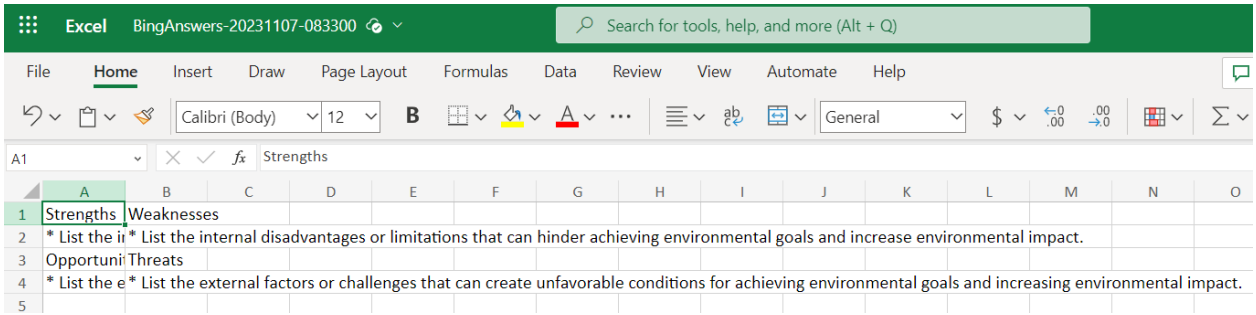


Fig. 34. The example of a template in Excel format.

To create a new topic, click the "New Topic" button (Fig. 35), and Copilot will remove the old Chat and start a new conversation. Copilot tends to relate its answers to your previous prompts, so if you ask about a different topic, **it's better to use "New topic" for better results.**

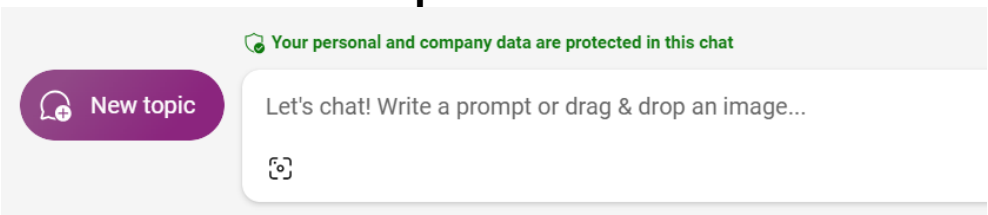


Fig. 35. Creating a new topic.

Copilot automatically creates a summary of the current web page. You can simply skim through the information and get a rough idea of the article (Fig. 36).

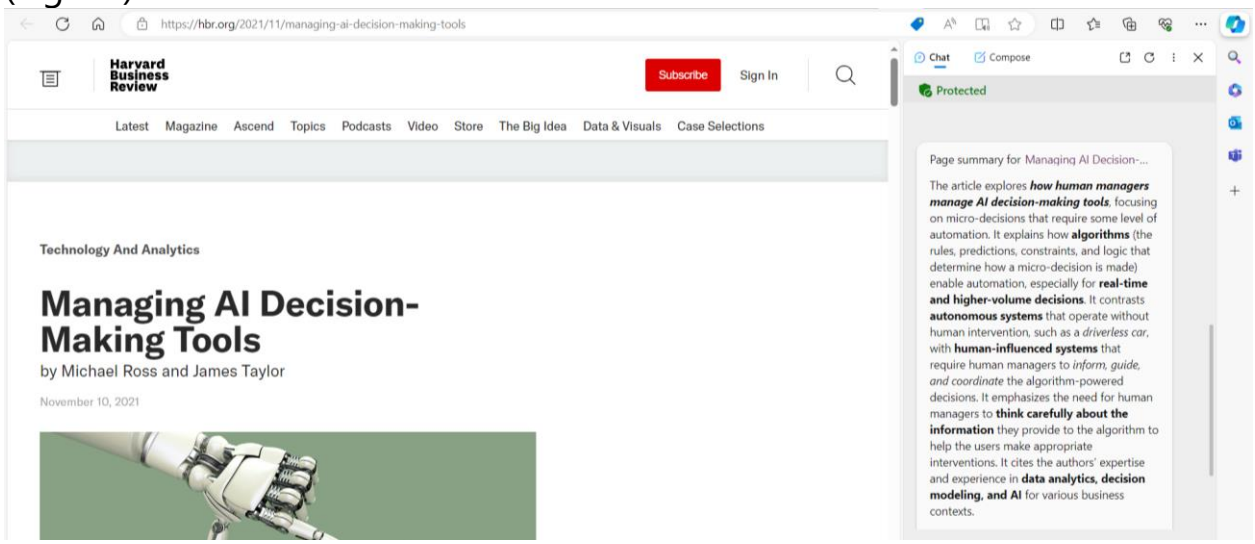


Fig. 36. Creating a summary of the current web page.

With the "Compose" (Fig. 37) feature, you can ask Copilot to generate text on any topic you want. You can ask it to write emails, blog posts, letters,

paragraphs, and more. You can also set the tone of the writing, including funny, professional, casual, enthusiastic, or informational.

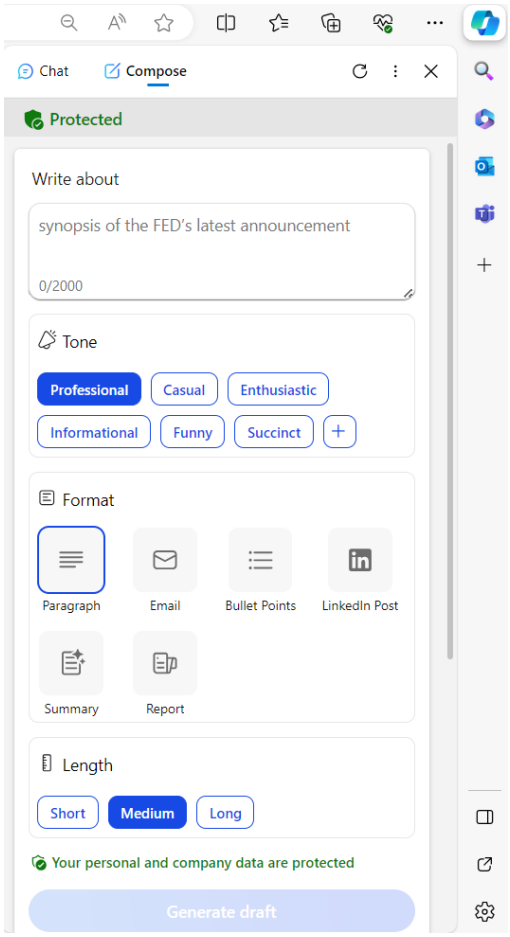


Fig. 37. Copilot generates text in the "Compose" feature.

Since Copilot is powered by GPT-4, you can ask complex reasoning questions and expect a correct response, but make sure to use the "Precise" conversation style (Fig. 38) (Sha, 2023).

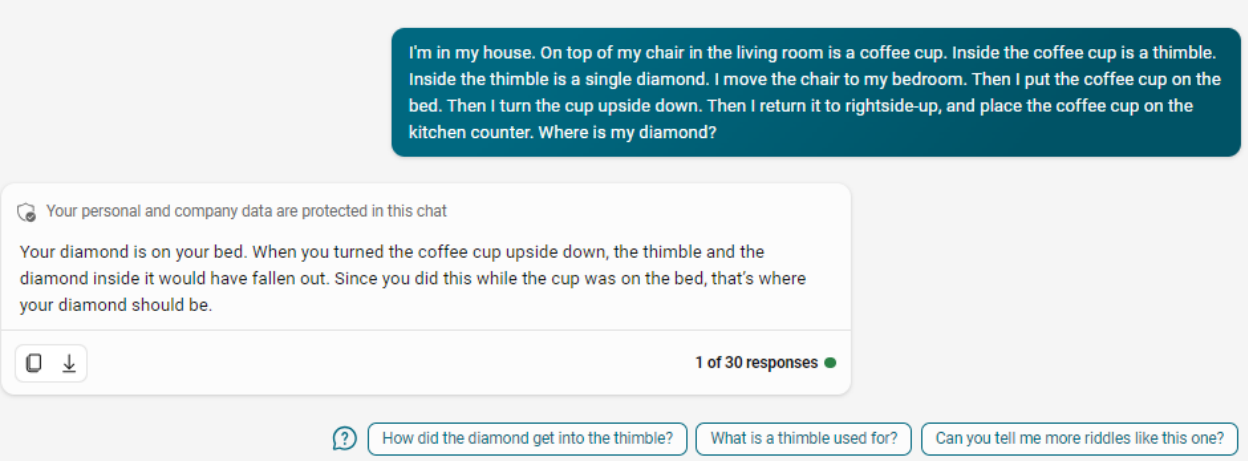


Fig. 38. Complex reasoning questions in Copilot.

Prompts for Copilot Chat

Copilot Chat can help you with lots of things. Right at the beginning of the work, he offers, for example, the following options (Fig. 39).

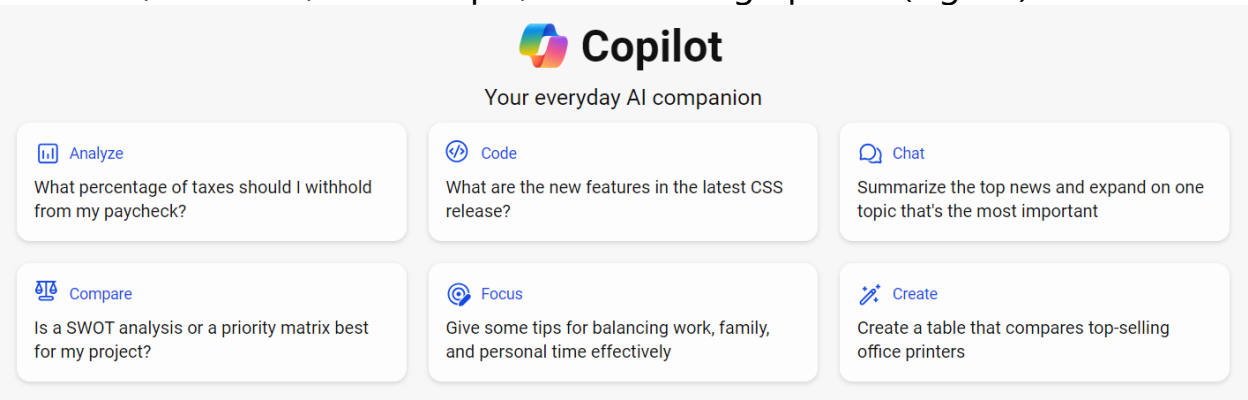
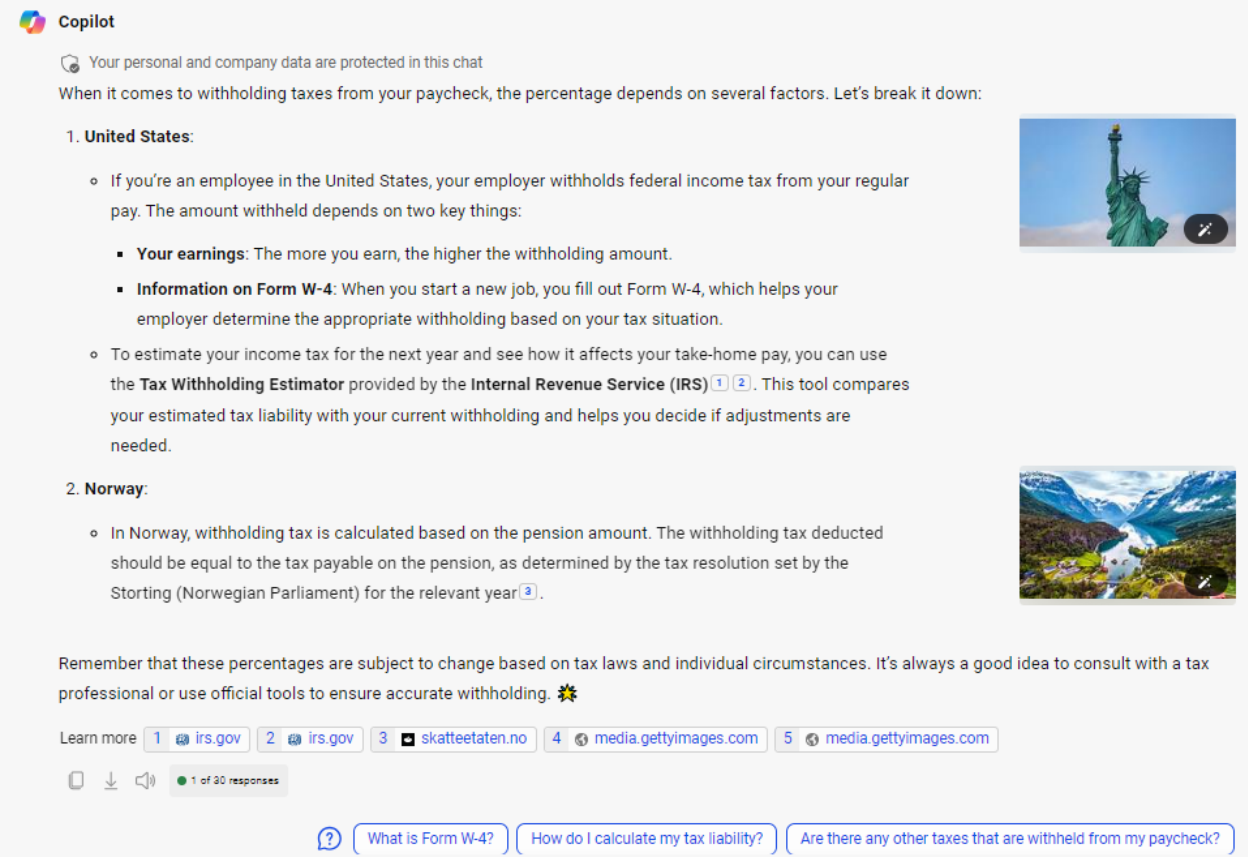


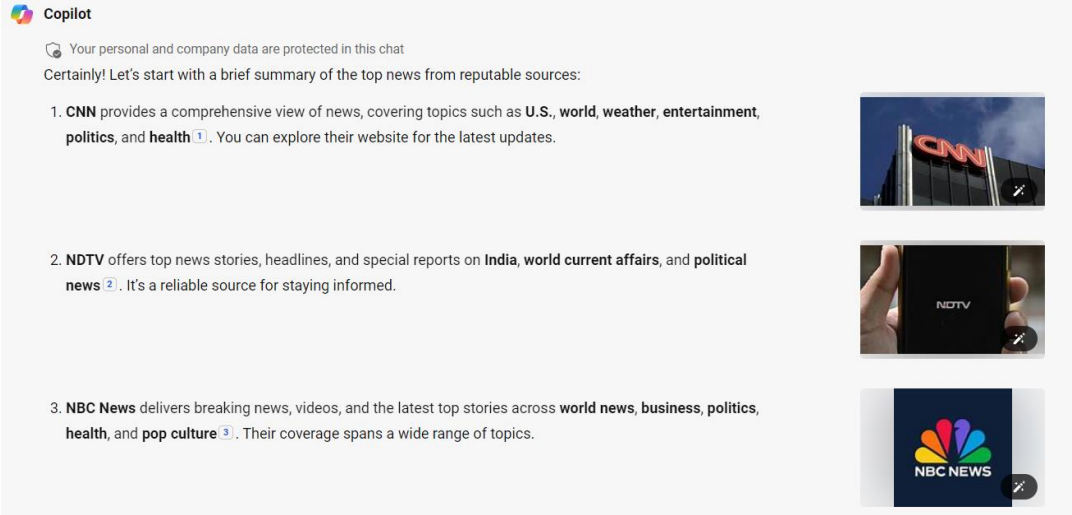
Fig. 39. Example use cases Copilot Chat.

To begin with, let's see how it works. Let's press “Analyze. What percentage of taxes should I withhold from my paycheck?”. As a result, we have the following generated text:



Let's press “Code. What are the new features in the latest CSS release?”. As a result, we have the following generated text:

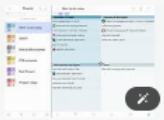
Let's press “Chat. Summarize the top news and expand on one topic that's the most important”. As a result, we have the following generated text:



Let's press “Compare. Is a SWOT analysis or a priority matrix best for my project?”. As a result, we have the following generated text:

Both **SWOT analysis** and a **priority matrix** are valuable tools, but they serve different purposes. Let's explore each one:

1. **SWOT Analysis**:
   - **Purpose**: A SWOT analysis (or SWOT matrix) helps organizations, services, or projects identify internal and external factors that are favorable and unfavorable to achieving their objectives.
   - **Parameters Examined**:
     - **Strengths**: Internal positive attributes or resources.
     - **Weaknesses**: Internal negative aspects or limitations.
     - **Opportunities**: External factors that can be leveraged.
     - **Threats**: External risks or challenges.
   - **Application**: SWOT analysis provides a holistic view of your project's current state and helps you understand the context in which you operate. It's a great starting point for strategic planning[1][2].



2. **Priority Matrix**:
   - **Purpose**: The prioritization matrix ranks factors based on their importance.
   - **Process**:
     - Identify criteria or factors relevant to your project.
     - Assign weights to each criterion.
     - Evaluate and compare initiatives against these criteria.
     - Determine the optimal order for implementation.
   - **Application**: Once you've derived initiatives from your SWOT analysis, use the prioritization matrix to compare them and decide the best order for execution[3][4][5].

In summary:

- If you want to assess your project comprehensively and understand its internal and external landscape, start with a SWOT analysis.
- If you need to prioritize specific initiatives or actions, use a prioritization matrix.

Remember that the choice between these tools depends on your project's specific needs and goals. Consider using both in conjunction for a well-rounded approach!

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Let's press “Focus. Give some tips for balancing work, family, and personal time effectively”. As a result, we have the following generated text:

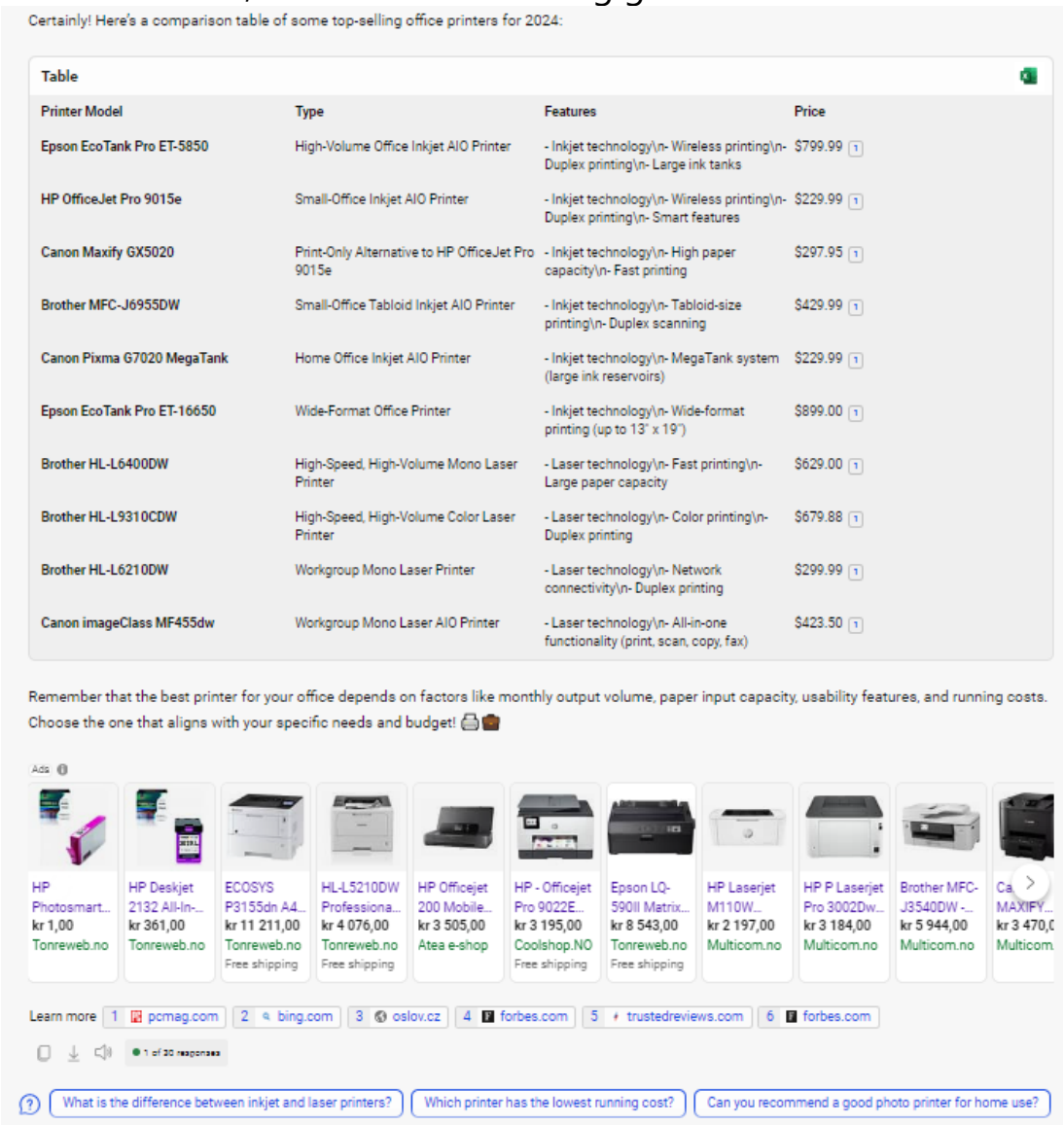
Certainly! Balancing work, family, and personal time can be challenging, but it's essential for overall well-being. Here are some practical tips to help you achieve that delicate equilibrium:

1. **Limit nonessential activities**:
   - Identify tasks or activities that consume time without adding significant value to your work or personal life. Minimize browsing social media, checking personal emails, or other distractions during work hours to enhance productivity and well-being[1].
2. **Learn when to say “no”**:
   - It's okay to decline additional tasks or projects when you're already overwhelmed. Prioritize your workload and communicate honestly with your boss about your capacity[1].
3. **Establish boundaries and unplug**:
   - Set clear boundaries between work and personal time. Avoid checking work emails after hours and create designated times for work-related communication. Unplug from technology when spending quality time with family[1].
4. **Use a calendar**:
   - Schedule work tasks, family activities, and personal time on your calendar. This helps prevent work from encroaching on your personal or family time[2].
5. **Communicate your needs**:
   - Maintain open communication with your manager. If you're struggling with workload or need flexibility, discuss it openly. Effective communication ensures a healthier work-life balance[1].
6. **Prioritize tasks**:
   - Break down your goals and allocate specific time slots for essential activities like work, family time, self-care, and other commitments. Be flexible and allow room for unexpected events[2].
7. **Create a dedicated workspace**:
   - Establish a routine and maintain a separate workspace for work. This helps mentally separate work from personal life[3].
8. **Take regular breaks**:
   - Step away from your desk, stretch, and recharge throughout the day. Regular breaks boost productivity and prevent burnout[3].

Remember, achieving balance is an ongoing process. Adapt these tips to your unique situation and find what works best for you.

Learn more 1 indeed.com 2 timeachiever.com 3 womenontopp.com 4 forbes.com 5 alisonsnotebook.com

Let's press “Create. Create a table that compares top-selling office printers”. As a result, we have the following generated text:



Certainly! Here's a comparison table of some top-selling office printers for 2024:

Table

Printer Model	Type	Features	Price
Epson EcoTank Pro ET-5850	High-Volume Office Inkjet AIO Printer	- Inkjet technology\n- Wireless printing\n- Duplex printing\n- Large ink tanks	$799.99
HP OfficeJet Pro 9015e	Small-Office Inkjet AIO Printer	- Inkjet technology\n- Wireless printing\n- Duplex printing\n- Smart features	$229.99
Canon Maxify GX5020	Print-Only Alternative to HP OfficeJet Pro 9015e	- Inkjet technology\n- High paper capacity\n- Fast printing	$297.95
Brother MFC-J6955DW	Small-Office Tabloid Inkjet AIO Printer	- Inkjet technology\n- Tabloid-size printing\n- Duplex scanning	$429.99
Canon Pixma G7020 MegaTank	Home Office Inkjet AIO Printer	- Inkjet technology\n- MegaTank system (large ink reservoirs)	$229.99
Epson EcoTank Pro ET-16650	Wide-Format Office Printer	- Inkjet technology\n- Wide-format printing (up to 13" x 19")	$899.00
Brother HL-L6400DW	High-Speed, High-Volume Mono Laser Printer	- Laser technology\n- Fast printing\n- Large paper capacity	$629.00
Brother HL-L9310CDW	High-Speed, High-Volume Color Laser Printer	- Laser technology\n- Color printing\n- Duplex printing	$679.88
Brother HL-L6210DW	Workgroup Mono Laser Printer	- Laser technology\n- Network connectivity\n- Duplex printing	$299.99
Canon imageClass MF455dw	Workgroup Mono Laser AIO Printer	- Laser technology\n- All-in-one functionality (print, scan, copy, fax)	$423.50

Remember that the best printer for your office depends on factors like monthly output volume, paper input capacity, usability features, and running costs. Choose the one that aligns with your specific needs and budget!

Ads

HP Photosmart... kr 1,00 Tonreweb.no
HP Deskjet 2132 All-In-... kr 361,00 Tonreweb.no
ECOSYS P3155dn A4... kr 11 211,00 Tonreweb.no Free shipping
HL-L5210DW Professiona... kr 4 076,00 Tonreweb.no Free shipping
HP Officejet 200 Mobile... kr 3 505,00 Atea e-shop
HP - Officejet Pro 9022E... kr 3 195,00 Coolshop.NO Free shipping
Epson LQ-590II Matrix... kr 8 543,00 Tonreweb.no Free shipping
HP Laserjet M110W... kr 2 197,00 Multicom.no
HP P Laserjet Pro 3002Dw... kr 3 184,00 Multicom.no
Brother MFC-J3540DW -... kr 5 944,00 Multicom.no
Ca... MAXIFY... kr 3 470,0 Multicom

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1 of 30 responses

What is the difference between inkjet and laser printers? | Which printer has the lowest running cost? | Can you recommend a good photo printer for home use?

So, we tried the options offered by Copilot to explore its possibilities.

Now, we want to showcase useful prompts that we developed for various functions performed by teachers during their work. They are divided into following categories:

- Administrative tasks
- Assessment
- Communication
- Lesson Planning
- Professional Development
- Study
- Other Prompts

Writing a speech

Let's take a closer look at an example that is relevant to teaching practice: creating a text to greet new students.

Prompt ("More creative"):

> Imagine you are a teacher, and tomorrow you have a meeting with first-year students. You need to deliver a motivational speech to students who will be studying the subject 'Introduction to Programming.

Result:

I can help you with writing a motivational speech for programming students. Here is a possible outline and some sample sentences for your speech:

- Introduction: Start with a catchy hook to grab the attention of your audience. You can use a quote, a statistic, a story, or a question. For example:

"Coding is the language of the future, and every girl should learn it."[1] This is what supermodel and entrepreneur Karlie Kloss said when she launched her scholarship program to teach young women how to code. But why is coding so important? And why should you learn it?

- Body: Explain the benefits of learning to code, such as developing critical thinking, problem-solving, and creativity skills. You can also share some examples of successful programmers who started from scratch and achieved their dreams. For example:

Learning to code is not only useful for your future career, but also for your personal growth. Coding teaches you how to think logically, analytically, and creatively. You learn how to break down complex problems into smaller and simpler steps, and how to find solutions using various tools and techniques. Coding also allows you to express your ideas and passions in a unique and powerful way. You can create anything you can imagine, from websites and apps to games and art.

You are not alone in this journey. Many famous and influential people started as beginners, just like you, and became successful programmers. For example, Steve Jobs, the co-founder of Apple, learned to code when he was a teenager and used his skills to create some of the most innovative and popular products in the world. J.K. Rowling, the author of Harry Potter, used coding to write her novels and to create an interactive website for her fans. Barack Obama, the former president of the United States, learned to code as part of his initiative to promote computer science education. And Oprah Winfrey, the media mogul and philanthropist, learned to code to understand the technology behind her online platform.

- Conclusion: End with a call to action and a positive note. You can encourage your students to take advantage of the opportunities and resources available to them, and to pursue their passions and goals. You can also express your confidence and support for them. For example:

You have the potential to become great programmers. You have the curiosity, the intelligence, and the creativity to master this skill. You also have the resources, the guidance and the support to help you along the way. All you need is the courage, the persistence and the enthusiasm to take on this challenge. I urge you to embrace this opportunity and to make the most of it. Learn to code, and you will learn to unleash your power. I believe in you, and I am here to help you. Thank you.

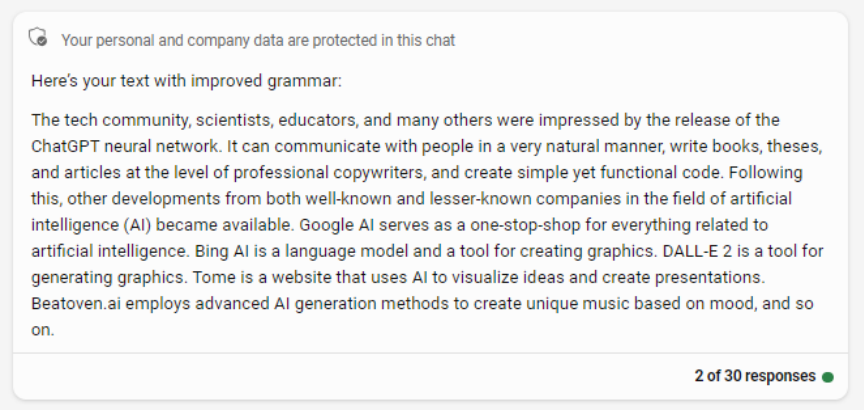
Improving Grammar

Microsoft's AI chatbot can generate and enhance text. Copilot can help to improve grammar in a text you written. Enter "Improve the grammar" and add your text. Now, it will review the text, check for grammar errors, and fix them. You can also ask Copilot to rephrase the text and make it formal, professional, casual, funny, etc.

Prompt ("More precise"):

Improve the grammar in the text. The tech community, scientists, educators and many people in general were impressed by the release of the ChatGPT neural network. It can communicate with people very naturally, write books, theses and articles at the level of copywriters, and create simple but working code. After that, other developments of well-known and unknown companies in the field of artificial intelligence (AI) became available: Google AI is a one-stop shop for everything related to artificial intelligence; Bing AI is a language model and graphics creation tool; DALL-E 2 is a graphics generation tool; Tome is a website that uses AI to visualise ideas and create presentations; Beatoven.ai uses advanced AI generation methods to create unique music based on mood, etc.

Result:



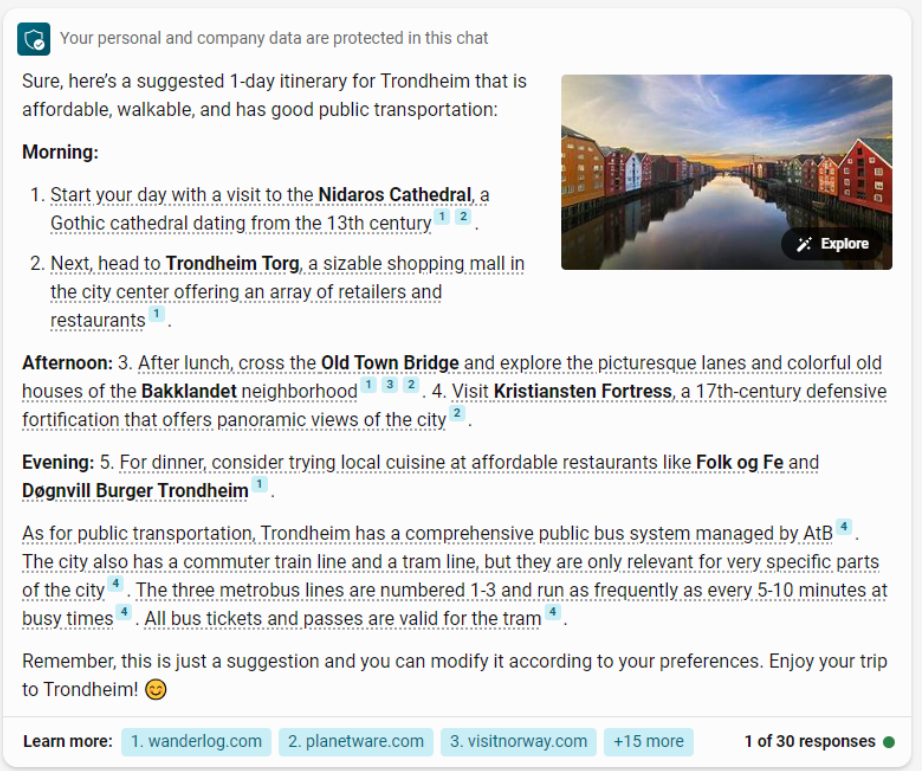
Creating a route

If you are going to hold a conference and invite guests to visit interesting places in your city, Copilot will help you plan a tourist route. You can say that you want all the places to be accessible and easy to walk to, and not too far from public transport.

Prompt ("More precise"):

> Create a 1-day travel itinerary for Trondheim. It should be affordable, include walking and the use of public transport.

Result:



In addition to the text response, Copilot also provides an image of the map on which you can see the most famous places in the city (Fig. 40).

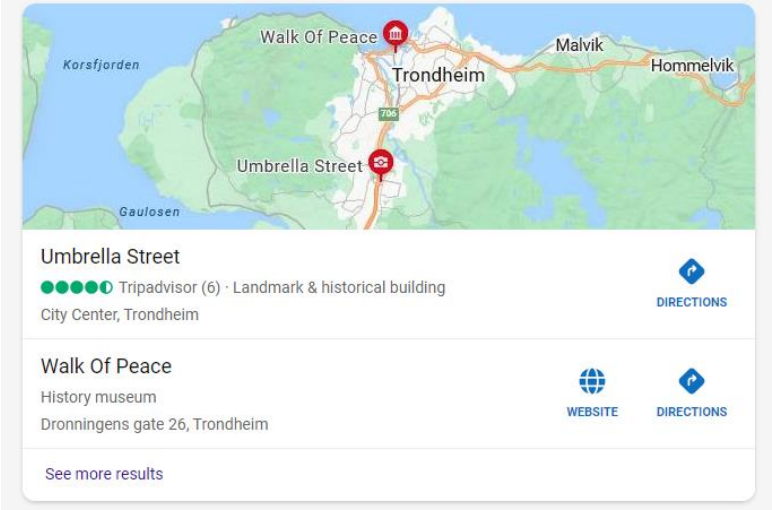


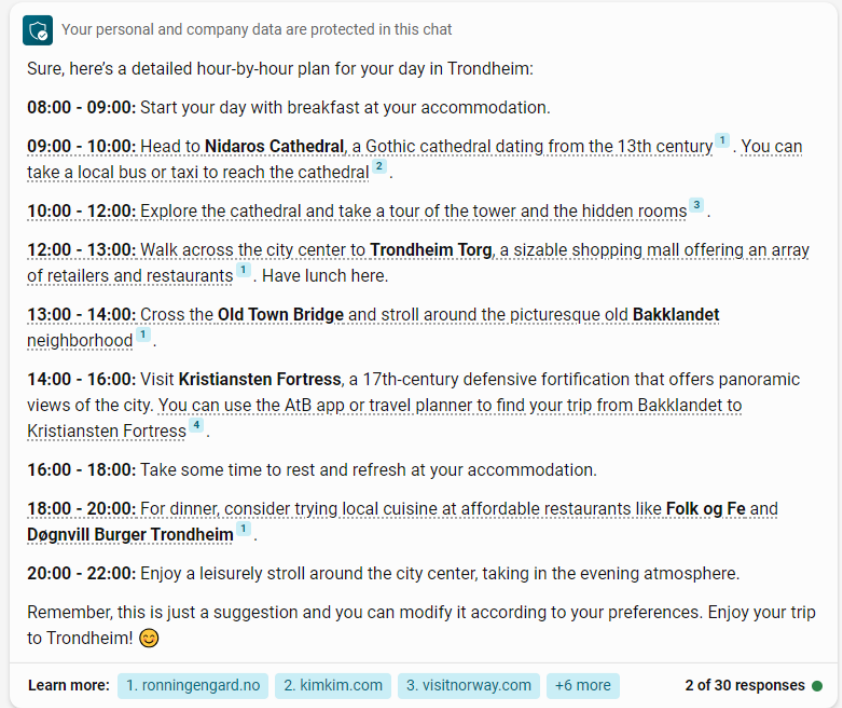
Fig. 40. Famous places in the city on the map.

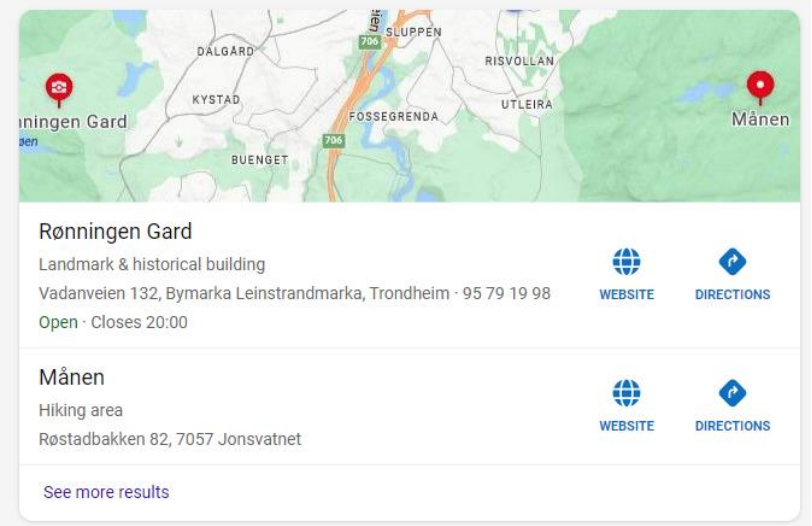
You can then ask for an hour-by-hour plan that shows you all the details with directions and helps you quickly make a customised travel plan for your city.

Prompt:

Make an hour-by-hour travel plan with all the details and directions.

Result:



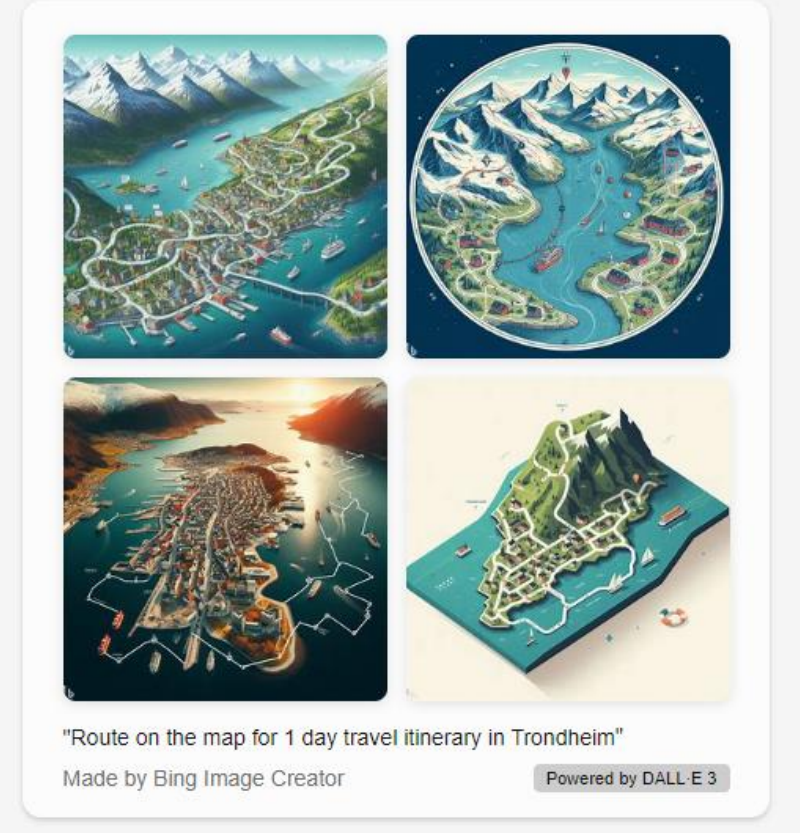


We asked Copilot to draw a route on a map. The results were neither helpful nor realistic.

Prompt:

Draw this route on the map.

Result:

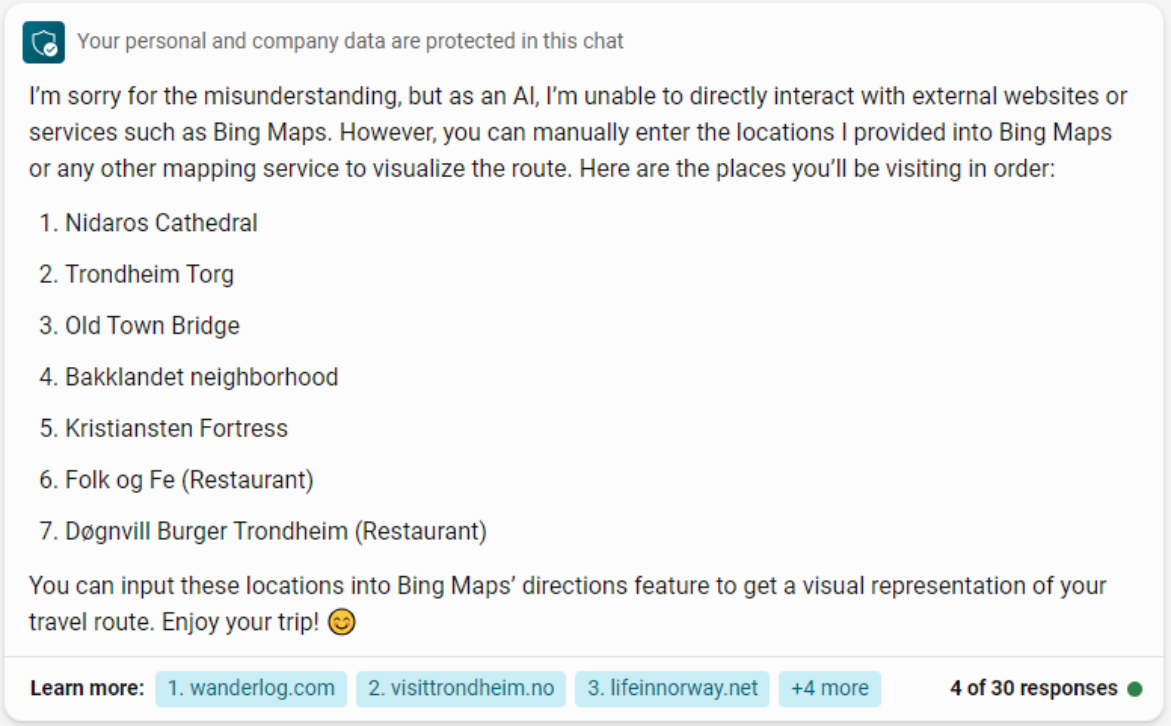


So, in the next request, we clarified what exactly we meant.

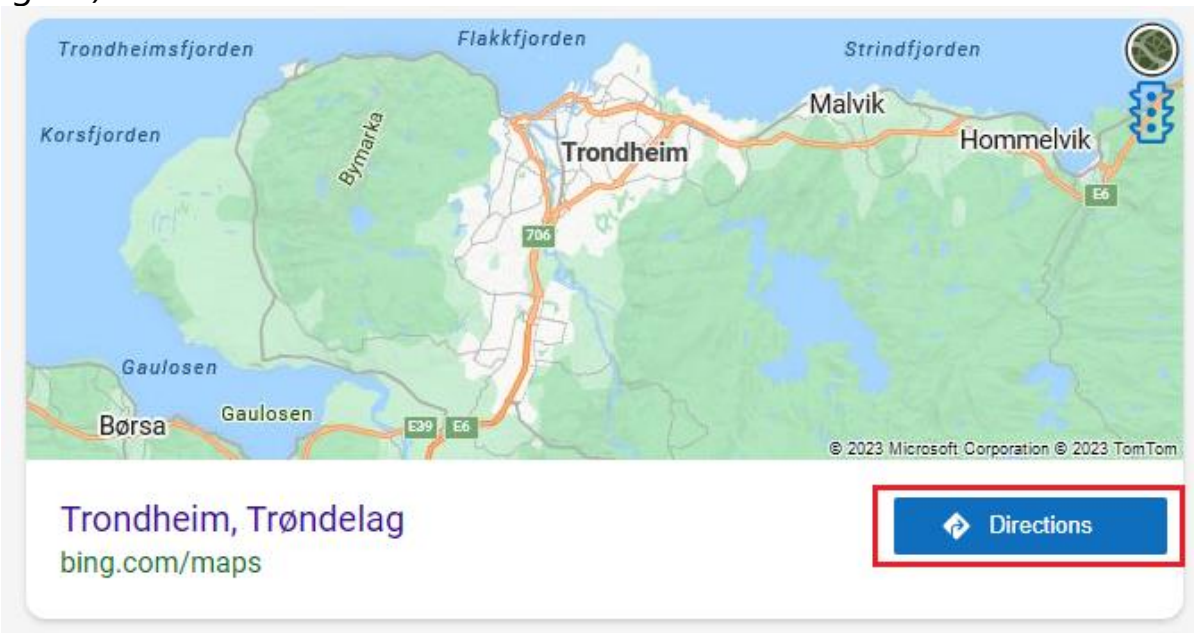
Prompt:

Plot this rout on the map using https://www.bing.com/maps.

Result:



Along with the fact that the chat cannot draw a route on the map, if you click on the Directions button, we will get a random route on Bing Maps (Fig. 41).



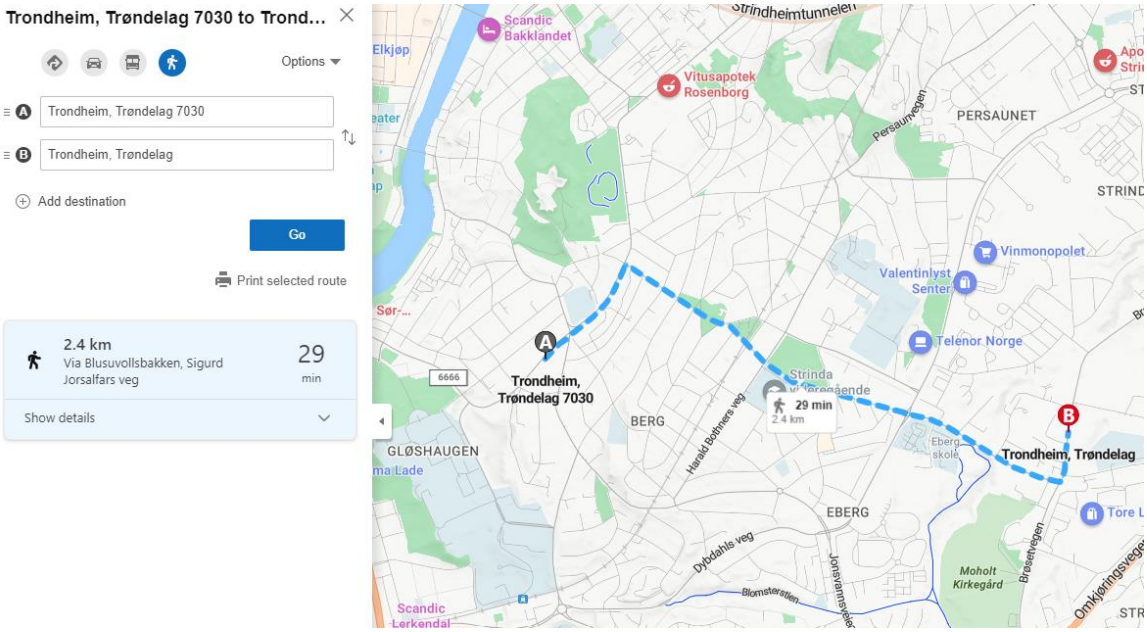


Fig. 41. A route on Bing Maps.

Assessment

Authentic Assessments

Prompt ("More Balanced"):

You are skilled in developing authentic assessments that allow students to demonstrate their learning effectively. Please create five authentic assessments for my first-year students in the "Introduction to Algorithms" course, focusing on the topic "Methods for Ordering, Searching, and Sorting." These assessments should emphasize real-world application, complex tasks, varied response formats, and meaningful feedback. They should engage students, demonstrate their learning effectively, and enhance their skills and understanding of the subject in meaningful ways. Please be thoughtful and original in your approach.

Result:

Certainly! As an expert in developing authentic assessments, I've crafted **five unique and engaging assessments** for your first-year students studying "Methods for Ordering, Searching, and Sorting" in the discipline of "Introduction to Algorithms." These assessments emphasize real-world applications, complex tasks, varied response formats, and meaningful feedback. Let's dive in:

1. **Algorithmic Recipe Creation (Real-World Application)**
   - **Task:** Imagine you're a chef designing a new restaurant menu. Create an algorithmic recipe for sorting ingredients based on their cooking time. Consider various sorting techniques (e.g., bubble sort, quicksort,

merge sort) and explain why you chose a specific method. Provide step-by-step instructions and discuss the efficiency of your chosen algorithm.
    - **Response Format:** Written document or presentation.
    - **Feedback:** Highlight the clarity of instructions, correctness of the algorithm, and efficiency considerations.
2. **Sorting Algorithm Visualization (Complex Task)**
    - **Task:** Develop an interactive web-based visualization tool that demonstrates how different sorting algorithms work. Students should be able to input an unsorted array and observe the step-by-step sorting process (e.g., visualizing bubble sort, insertion sort, and selection sort). Explain the trade-offs between these algorithms.
    - **Response Format:** Web application or interactive demo.
    - **Feedback:** Evaluate the accuracy of the visualization, user-friendliness, and depth of algorithmic understanding.
3. **Sorting Algorithm Quiz (Varied Response Format)**
    - **Task:** Create a quiz with questions related to sorting algorithms. Include multiple-choice questions, fill-in-the-blank, and short-answer questions. Cover topics such as time complexity, stability, and adaptability. Encourage students to apply their knowledge to real-world scenarios.
    - **Response Format:** Online quiz or paper-based assessment.
    - **Feedback:** Assess correctness, critical thinking, and ability to apply concepts.
4. **Algorithmic Code Review (Meaningful Feedback)**
    - **Task:** Provide students with code snippets implementing sorting algorithms (e.g., in Python or Java). Ask them to review the code, identify any errors or inefficiencies, and suggest improvements. Emphasize readability, edge cases, and best practices.
    - **Response Format:** Annotated code or written feedback.
    - **Feedback:** Offer detailed feedback on correctness, optimization, and coding style.
5. **Sorting Algorithm Case Study (Real-World Application)**
    - **Task:** Investigate a real-world problem where sorting algorithms play a crucial role (e.g., optimizing search engine results, organizing large datasets, or managing airline flight schedules). Write a case study analyzing the impact of different sorting methods on performance, memory usage, and scalability.
    - **Response Format:** Research paper or presentation.
    - **Feedback:** Evaluate research depth, critical analysis, and practical implications.

Remember, these assessments aim to engage students, showcase their learning, and enhance their algorithmic skills. Feel free to adapt or modify them to suit your teaching context! 

Bloom's Taxonomy

Prompt ("More Balanced"):

You are an expert educator and curriculum designer with proficiency in developing learning frameworks. Create a Bloom's Taxonomy for first-year students in the subject "Introduction to Algorithms," focusing on the topic "Methods for Ordering, Searching, and Sorting," with 5 activities for each level of Bloom's Taxonomy. Format the list as bulleted points.

Result:

Certainly! Here's a Bloom's Taxonomy for first-year students studying the topic "Methods for Ordering, Searching, and Sorting" in their "Introduction to Algorithms" course. Each level includes five activities:

1. **Remembering (Knowledge):**
   - **Activity 1:** Create flashcards with key terms related to sorting algorithms (e.g., bubble sort, merge sort).
   - **Activity 2:** List the steps of a binary search algorithm from memory.
   - **Activity 3:** Recall the time complexity of quicksort.
   - **Activity 4:** Identify common data structures used for searching (e.g., arrays, binary trees).
   - **Activity 5:** Define the concept of an algorithm.
2. **Understanding (Comprehension):**
   - **Activity 1:** Explain the difference between linear search and binary search.
   - **Activity 2:** Describe how a hash table works for efficient searching.
   - **Activity 3:** Summarize the advantages and disadvantages of different sorting algorithms.
   - **Activity 4:** Interpret pseudocode for a sorting algorithm.
   - **Activity 5:** Compare and contrast various search techniques.
3. **Applying (Application):**
   - **Activity 1:** Implement a bubble sort algorithm in your preferred programming language.
   - **Activity 2:** Solve sorting-related problems using Python or Java.
   - **Activity 3:** Write code to perform binary search on a sorted array.
   - **Activity 4:** Design an algorithm to find the kth smallest element in an unsorted list.
   - **Activity 5:** Apply sorting techniques to real-world datasets (e.g., sorting student grades).
4. **Analyzing (Analysis):**
   - **Activity 1:** Evaluate the time and space complexity of different sorting algorithms.
   - **Activity 2:** Analyze the stability of sorting methods.
   - **Activity 3:** Compare the performance of quicksort and merge sort for large datasets.
   - **Activity 4:** Critique the efficiency of a given sorting algorithm.
   - **Activity 5:** Investigate worst-case scenarios for specific search algorithms.
5. **Creating (Synthesis):**
   - **Activity 1:** Devise an original sorting algorithm and explain its rationale.
   - **Activity 2:** Construct a flowchart for a search algorithm.
   - **Activity 3:** Develop a hybrid sorting method by combining existing techniques.
   - **Activity 4:** Design an algorithm to efficiently search for an element in a linked list.
   - **Activity 5:** Create a tutorial video on sorting and searching algorithms.

Remember that Bloom's Taxonomy encourages progressive learning, starting from foundational knowledge and moving toward higher-order thinking skills. These activities will help your first-year students engage with the material effectively!

Rubrics

Prompt (“More Balanced”):

You are an expert educator and curriculum designer with proficiency in assessing students' work.
Develop a rubric for my computer science class focusing on the topic "Methods for Ordering, Searching, and Sorting." Students will create an array and present it on the screen, dynamically declaring the array and utilizing a self-designed function to display it. Format the rubric as a chart and incorporate a 5-point scale.

Result:

Certainly! Below is a rubric for assessing your students’ work on generating and displaying an array dynamically in the context of “Methods for Ordering, Searching, and Sorting.” The rubric includes a 5-point scale:

Criterion	5 Points (Excellent)	4 Points (Good)	3 Points (Satisfactory)	2 Points (Needs Improvement)	1 Point (Insufficient)
Array Declaration	Students declare the array dynamically using appropriate syntax and demonstrate a deep understanding of memory allocation.	Students correctly declare the array dynamically but may have minor syntax errors or lack full clarity on memory allocation.	Students declare the array dynamically, but there are significant syntax errors or misconceptions about memory allocation.	Students attempt to declare the array dynamically but encounter major issues or errors.	No attempt to declare the array dynamically.
Array Initialization	Students initialize the array with meaningful values (e.g., user input, random numbers) and handle any potential errors effectively.	Students initialize the array with appropriate values but may overlook certain edge cases or error handling.	Students partially initialize the array, missing key elements or encountering errors during initialization.	Students struggle with array initialization, leading to incomplete or incorrect results.	No attempt to initialize the array.

Display Function	Students create a well-organized function that displays the array elements clearly on the screen. The function is modular, efficient, and error-free.	Students create a functional display function but may lack some organization or efficiency. Minor errors may be present.	Students create a basic display function, but it lacks clarity, organization, or efficiency. Some errors occur during execution.	Students attempt to create a display function, but it is incomplete or contains significant errors.	No attempt to create a display function.
User Interface	Students design a user-friendly interface that prompts the user for input (if needed) and displays the array neatly. Error messages are informative and helpful.	Students create a functional interface, but it lacks some user-friendliness or error handling.	Students design a basic interface, but it may confuse users or lack proper error messages.	Students struggle with the interface design, leading to usability issues or unclear instructions.	No attempt at creating a user interface.
Code Documentation	Students provide thorough comments and explanations throughout their code, making it easy for others to understand their approach.	Students include comments, but they may be sparse or lack clarity.	Students provide minimal comments, making it challenging to follow their thought process.	Students omit essential comments, hindering code comprehension.	No code documentation provided.

Feel free to adapt or customize this rubric based on your specific class requirements. Happy assessing! 📝👩‍🏫

Quizzes

Prompt ("More Balanced"):

You are an expert educator with proficiency in creating and administering student assessments. Create a 10-question multiple-choice quiz for first-year students learning about Methods for ordering, searching, and sorting. Include key concepts, vocabulary terms, and skills to analyse the efficiency of an algorithm to achieve good solutions for a given problem. Provide an answer key for the educator.

Result:

Certainly! Here's a 10-question multiple-choice quiz for first-year students studying "Methods for Ordering, Searching, and Sorting." Each question covers key concepts, vocabulary terms, and skills related to algorithm efficiency. I've also included the answer key for your convenience:

Question: Which sorting algorithm has an average time complexity of O(n log n)?

A) Bubble Sort
B) Quick Sort
C) Insertion Sort
D) Selection Sort

Answer: B) Quick Sort

Question: What data structure is commonly used for efficient searching and retrieval?

A) Linked List
B) Stack
C) Queue
D) Binary Search Tree

Answer: D) Binary Search Tree

Question: Which search algorithm is most suitable for a sorted array?

A) Linear Search
B) Binary Search
C) Depth-First Search
D) Breadth-First Search

Answer: B) Binary Search

Question: Which sorting algorithm is stable (i.e., maintains the relative order of equal elements)?

A) Merge Sort
B) Heap Sort
C) Quick Sort
D) Bubble Sort

Answer: A) Merge Sort

Question: What is the worst-case time complexity of Bubble Sort?

A) O(n)
B) O(n log n)
C) O(n^2)
D) O(log n)

Answer: C) O(n^2)

Question: Which sorting algorithm is based on the divide-and-conquer strategy?

A) Bubble Sort
B) Insertion Sort
C) Merge Sort

D) Selection Sort
Answer: C) Merge Sort
Question: Which data structure is used to implement a priority queue?
A) Stack
B) Queue
C) Heap
D) Linked List
Answer: C) Heap
Question: In which scenario would you prefer Quick Sort over Merge Sort?
A) When stability is crucial
B) When memory usage is limited
C) When the array is already partially sorted
D) When the array contains duplicate elements
Answer: B) When memory usage is limited
Question: Which sorting algorithm has the best average-case time complexity?
A) Bubble Sort
B) Selection Sort
C) Insertion Sort
D) Merge Sort
Answer: D) Merge Sort
Question: What is the primary advantage of using a hash table for searching?
A) Constant-time search complexity
B) Guaranteed worst-case performance
C) Efficient memory usage
D) Stable sorting behavior
Answer: A) Constant-time search complexity
Feel free to use this quiz for assessing your students' understanding of these fundamental concepts! 📝👩‍🏫🤖
Source(s)
1. Concept Sort | Reading Rockets
2. Tips on Teaching your Kids to Sort Words by Categories
3. Concept/Word Sorts | eduTOOLBOX
4. Reading Comprehension Strategy - JCT
5. 6.1: Identifying key concepts and alternative terms to type in
6. Vocabulary sorts | Skillsworkshop

Assessments Using an AI Chatbot

Prompt (“More Balanced”):

You are an expert educator, skilled at designing creative assessment forms. Design an assessment to evaluate what my first-year students have learned in our unit on Recursive solution methods. Include questions about: the concept of a recursive algorithm, different types of recursion, program to demonstrate recursion, memory allocation of the recursive method. Act as a brainstorming partner and make the assessment collaborative. Include elements like feedback mechanisms, role-playing, and peer teaching, so my students can incorporate ChatGPT in their assessment. ChatGPT is only to be used to creatively enhance the students’ learning experience; do not

include instructions for ChatGPT to research information or fact check historical events.

Result:

Certainly! Let's create an engaging and collaborative assessment for your first-year students on recursive solution methods. We'll incorporate elements like feedback, role-playing, and peer teaching to enhance their learning experience. Here's a draft assessment:

Recursive Solution Methods Assessment

Introduction

Welcome to the Recursive Solution Methods Assessment! This assessment aims to evaluate your understanding of recursive algorithms, different types of recursion, and practical implementation. Remember, collaboration is key! Feel free to discuss and learn together.

Instructions

1. **Collaboration:** Work in pairs or small groups. Discuss each question, share insights, and learn from one another.
2. **Feedback Mechanism:** After completing each section, provide constructive feedback to your partner(s). What did they do well? How can they improve?
3. **Role-Playing:** Imagine you are teaching a fellow student who is struggling with recursion. Explain concepts clearly and patiently.
4. **ChatGPT Integration:** Use ChatGPT creatively to enhance your answers. You can include fictional dialogues or scenarios involving ChatGPT.

Section 1: Understanding Recursive Algorithms

1. **Question:** Define a recursive algorithm. How does it differ from an iterative approach?
   - **Example Answer:** "A recursive algorithm is a method that calls itself to solve a problem. Unlike iteration, which uses loops, recursion relies on function calls. Discuss with your partner and provide a clear explanation."
2. **Role-Playing:** Imagine you're explaining recursion to a confused friend. Write a dialogue between you and your friend, incorporating ChatGPT's assistance. Be patient and use relatable examples.

Section 2: Types of Recursion

3. **Question:** Explain the difference between **direct** and **indirect** recursion. Provide an example of each.
   - **Example Answer:** "Direct recursion occurs when a function directly calls itself. Indirect recursion involves multiple functions calling each other in a circular manner. Collaborate with your partner to create examples."
4. **Peer Teaching:** Teach your partner about tail recursion. Use ChatGPT to simulate a classroom discussion. Imagine ChatGPT as a student asking questions.

Section 3: Implementing Recursion

5. **Question:** Write a Python program that calculates the factorial of a positive integer using recursion.

   Example Answer:

   Python

```
def factorial(n):
    if n == 0:
        return 1
    else:
        return n * factorial(n - 1)
```

   Discuss the code with your partner. Explain how it works step by step.

6. **Feedback Exchange:** Swap programs with your partner. Review their code and provide feedback. Suggest improvements or optimizations.

Section 4: Memory Allocation in Recursive Methods

7. **Question:** Describe the concept of **stack memory** in recursive function calls. How does it relate to memory allocation?
    - **Example Answer:** "Stack memory stores function call information, including local variables and return addresses. Each recursive call adds a new frame to the stack. Discuss this with your partner."
8. **Role-Playing:** Pretend you're ChatGPT explaining stack memory to a curious student. Use creative analogies or metaphors.

Conclusion

Congratulations! You've completed the Recursive Solution Methods Assessment. Remember, learning is a collaborative journey. Share your insights, learn from others, and keep exploring the fascinating world of recursion!

Feel free to incorporate ChatGPT in your answers to make them more engaging and memorable. Happy learning! 🌟🤝

Formative Assessments

Prompt ("More Balanced"):

Generate a list of 10 formative assessment ideas for first-year students who take the course "Introduction to Algorithms". These ideas must be related to the use of well-known design methods to construct new efficient algorithms.

Result:

Certainly! Here are **10 formative assessment ideas** tailored for first-year students studying "Introduction to Algorithms." These assessments focus on applying well-known design methods to create efficient algorithms:

1. **Entry and Exit Slips:**
    - At the beginning of class, ask students a quick question related to the previous day's material. For exit slips, use tools like **Padlet**, **Poll Everywhere**, or **Google Forms** to gauge understanding.
    - Example prompt: "What are three things you learned, two things you're curious about, and one thing you don't understand?"
2. **Misconception Check:**
    - Present students with a common misunderstanding related to algorithm design. Ask them to apply their knowledge to correct the mistake or identify any errors in a given statement.
    - Encourage discussion and clarification.
3. **Algorithm Sketches:**
    - Have students sketch out the high-level structure of an algorithm they've learned. This visual representation helps reinforce understanding.
    - Ask them to annotate key steps and data structures.
4. **Algorithmic Pseudocode:**
    - Provide a problem statement and ask students to write pseudocode for a solution. Emphasize clarity, efficiency, and correctness.
    - Review their pseudocode and provide feedback.
5. **Design Pattern Application:**
    - Introduce a well-known algorithm design pattern (e.g., **divide and conquer**, **greedy**, or **dynamic programming**).

    - Ask students to identify real-world problems where this pattern could be applied effectively.
6. **Algorithm Complexity Analysis:**
    - Given an algorithm, have students analyze its time and space complexity. Discuss trade-offs between different approaches.
    - Encourage them to justify their conclusions.
7. **Algorithm Visualization:**
    - Use online tools or create simple visualizations to demonstrate how an algorithm works step by step.
    - Students can interact with the visualization and explain their observations.
8. **Code Review Sessions:**
    - Assign small coding tasks related to algorithm implementation.
    - During review sessions, discuss code quality, readability, and optimization techniques.
9. **Algorithmic Problem Solving Challenges:**
    - Provide a set of algorithmic problems (e.g., sorting, searching, graph algorithms).
    - Students can work individually or in pairs to solve these challenges within a time limit.
10. **Algorithm Refactoring:**
    - Give students an existing algorithm implementation.
    - Ask them to refactor it to improve efficiency, readability, or maintainability.
    - Discuss trade-offs and compare before-and-after versions.

Remember that formative assessments should be low-stakes, focused on learning progress, and provide valuable insights for both students and instructors.

Summative Performance Tasks

Prompt ("More Balanced"):

You are an expert educator proficient in crafting unique educational assessments. Generate 10 creative, summative performance tasks, that are an alternative to a standard test, for my first-year students who are taking the course "Introduction to Algorithms" about Data structures for efficient retrieval of data, dynamic programming and greedy algorithms. These tasks should be engaging, applicable, appropriate, and contribute positively to learning outcomes. These tasks should ensure students are exhibiting and applying their understanding of data structures for efficient retrieval of data and skills of dynamic programming and using greedy algorithms.

Result:

Certainly! Here are **10 creative summative performance tasks** that will engage your first-year students in the course "Introduction to Algorithms." These tasks are designed to assess their understanding of data structures for efficient retrieval of data, dynamic programming, and greedy algorithms:

1. **Algorithmic Art Gallery:**

- Students design an algorithm that generates visually appealing patterns or fractals. They must use data structures efficiently to store and manipulate the coordinates of points, lines, or shapes. The goal is to create an art piece that showcases their understanding of data structures and algorithms.

2. **Dynamic Programming Storyboard:**
   - Students create a storyboard or comic strip that illustrates a dynamic programming problem-solving process. Each frame should represent a subproblem, its optimal solution, and how it contributes to solving the overall problem. This task encourages students to visualize dynamic programming concepts.
3. **Greedy Algorithm Game Design:**
   - Students develop a simple game (e.g., a puzzle, maze, or resource allocation game) where they apply greedy algorithms. The game should require making optimal choices at each step. They must explain their algorithm's strategy and analyze its efficiency.
4. **Data Structure Treasure Hunt:**
   - Students organize a treasure hunt on campus using data structures. They create a map (graph) with locations marked as nodes and paths between them as edges. Participants follow the paths to find hidden clues or treasures. Students demonstrate their understanding of graph traversal and efficient data representation.
5. **Algorithmic Poetry:**
   - Students write poems or haikus that metaphorically describe algorithms or data structures. For example, a binary search tree could be likened to a forest of interconnected thoughts. Creativity and accuracy in representing the concepts are essential.
6. **Efficient Recipe Book:**
   - Students design a recipe book where each recipe represents a dynamic programming problem. They optimize ingredient quantities, cooking steps, and serving sizes. The book should emphasize reusing sub-recipes (subproblems) to create efficient cooking plans.
7. **Greedy Scheduling Simulator:**
   - Students simulate scheduling tasks (e.g., classes, meetings, or job assignments) using greedy algorithms. They prioritize tasks based on criteria (e.g., deadlines, importance, or duration). The goal is to maximize efficiency while avoiding conflicts.
8. **Data Structure Escape Room:**
   - Students create an escape room experience where participants solve puzzles related to data structures. Each puzzle reveals a clue or key to unlock the next challenge. Examples include binary tree decoding, linked list navigation, or stack-based riddles.
9. **Dynamic Programming Music Composition:**
   - Students compose a short musical piece using dynamic programming principles. Each note's duration and pitch correspond to subproblem solutions. The composition should demonstrate optimal choices and transitions.
10. **Algorithmic Fashion Show:**
    - Students design wearable accessories (e.g., scarves, hats, or jewelry) inspired by algorithms or data structures. They incorporate patterns, colors, and shapes that represent specific concepts. During the fashion show, they explain their design choices and their relevance to algorithms.

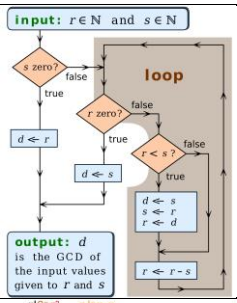
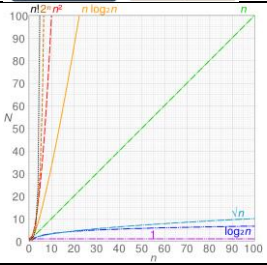
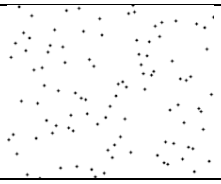
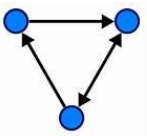
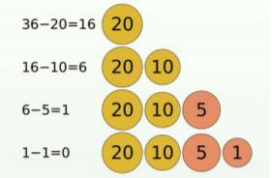
Remember to provide clear rubrics and guidelines for each task, emphasizing both creativity and technical accuracy. These performance tasks will not only assess their knowledge but also foster a deeper understanding of algorithms and data structures. 🌟📚

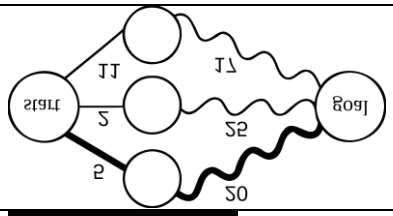
Prompt ("More Balanced"):

You are an expert educator and curriculum writer skilled in designing and administering student assessments. Create 10 questions for oral exam for my first-year students who are taking the course "Introduction to Algorithms". The exam should be 30 minutes long and cover key concepts, vocabulary, and require students to provide evidence for their thinking and responses.

Result:

Certainly! Here's a 30-minute oral exam for your first-year students studying "Introduction to Algorithms." The questions cover key concepts, vocabulary, and encourage critical thinking. Feel free to adapt or modify them as needed:

1	**Algorithm Basics (5 minutes)** o Define an algorithm in your own words. o Give an example of a real-world algorithm (e.g., sorting mail, making coffee).	
2	**Time Complexity (5 minutes)** o Explain what "Big O notation" represents. o Compare the time complexities of linear (O(n)), logarithmic (O(log n)), and quadratic (O(n^2)) algorithms.	
3	**Data Structures (5 minutes)** o Differentiate between an array and a linked list. o When would you choose an array over a linked list, and vice versa?	
4	**Sorting Algorithms (5 minutes)** o Describe how the bubble sort algorithm works. o Which sorting algorithm is more efficient: quicksort or insertion sort? Why?	
5	**Graph Theory (5 minutes)** o Define a graph and its components (vertices/nodes and edges). o Explain the difference between a directed graph and an undirected graph.	
6	**Greedy Algorithms (5 minutes)** o What is the main principle behind greedy algorithms? o Provide an example of a problem where a greedy approach is suitable.	

7	**Dynamic Programming (5 minutes)** o Briefly explain dynamic programming. o How does dynamic programming differ from divide-and-conquer?	
8	**Recursion (5 minutes)** o Define recursion. o Write a recursive function to calculate the factorial of a positive integer.	
9	**Search Algorithms (5 minutes)** o Compare linear search and binary search. o When is binary search more efficient than linear search?	
10	**Complexity Analysis (5 minutes)** o Given an algorithm, how would you analyze its time and space complexity? o Why is understanding algorithm complexity crucial for software development?	

Remember to encourage students to provide evidence for their answers and think critically about each question. Good luck with the exam!

Writing assignment

Prompt ("More Balanced"):

You are an expert educator and curriculum designer skilled in developing thoughtful exercises for your students. Create 10 writing assignments for my students who are taking the course "Basic programming with Python" and studying the topic of Procedure-oriented programming. The assignment should include 3 short questions related to the variables and data types, input and output, control structures, structuring and division of programs, functions and modules, lists, tables, text strings, quantities, tuples, and records (dictionary), file management, persistent storage of information, and exceptions. It should take 35-40 minutes to complete.

Result:

Certainly! Here's an in-class writing assignment for your students studying **"Basic programming with Python"** with a focus on **Procedure-oriented programming.** These questions cover various aspects of programming concepts

and should take approximately **35-40 minutes** to complete. Feel free to adapt or modify them as needed:

In-Class Writing Assignment: Exploring Procedure-Oriented Programming in Python

Instructions:

1. Choose **three** of the following essay questions to answer.
2. Write a thoughtful and well-organized response for each question.
3. Use examples and code snippets to support your answers.
4. You have **35-40 minutes** to complete the assignment.

1. **Variables and Data Types** (15 points)
a. Define a **variable** in Python and explain its purpose in programming.
b. Provide examples of Python variables for each of the following data types:

- Integer
- Float
- String
- Boolean
- List

2. **Input and Output** (15 points)
a. Write a Python program that:

- Takes user input for their name and age.
- Prints a personalized greeting, including their name and age.

b. Explain the difference between the `input()` and `print()` functions.

3. **Control Structures** (15 points)
a. Describe the purpose of an `if` statement in Python.
b. Write a Python program that checks if a given number is even or odd using an `if` statement.

4. **Functions and Modules** (15 points)
a. Define a Python **function** and provide an example.
b. How can you **import a module** in Python? Explain with an example.

5. **Lists and Tables** (15 points)
a. Create a Python list of your favorite fruits.
b. Explain the difference between a **list** and a **tuple** in Python.

6. **Text Strings and Quantities** (15 points)
a. Concatenate two strings in Python.
b. Calculate the **length** of a given string using Python.

7. **Tuples and Records (Dictionaries)** (15 points)
a. Define a **tuple** in Python and give an example.
b. Create a Python **dictionary** representing student records with keys for name, age, and grade.

8. **File Management and Persistent Storage** (15 points)
a. How can you **open and read** a text file in Python?
b. Describe the purpose of **exception handling** in file operations.

Remember to provide clear explanations and use proper Python syntax. Good luck with the assignment! 🚀🐍

Source(s)

1. Programming Paradigms in Python - GeeksforGeeks
2. Python Exercises, Practice, Challenges – PYnative
3. Course - Basic programming with Python - IT6206 - NTNU
4. Introduction to OOP — Python Numerical Methods

Assessment of practical skills

Prompt (“More Balanced”):

You are an expert educator and curriculum designer skilled in developing thoughtful exercises for your students. Create 5 practice assignments for my students who are taking the course "Basic programming with Python" and studying the topic of Procedure-oriented programming. The assignment should include a task related to the variables and data types, input and output, control structures, structuring and division of programs, functions and modules, lists, tables, text strings, quantities, tuples, and records (dictionary), file management, persistent storage of information, and exceptions. It should take 60 minutes to complete. Provide the task evaluation criteria.

Result:

Certainly! Below are **five practice assignments** related to **Procedure-oriented programming in Python**. These assignments cover various topics and concepts, allowing your students to practice and reinforce their skills. Each assignment is valued at 15 points. Feel free to use or modify them as needed:

Assignment 1: Variables and Data Types (15 points)

1. **Task:** Create a Python program that:
   - Asks the user for their name and age.
   - Stores this information in appropriate variables.
   - Prints a message like: "Hello, [Name]! You are [Age] years old."
2. **Evaluation Criteria:**
   - Correctly captures user input and stores it in variables.
   - Displays the personalized greeting with the user's name and age.

Assignment 2: Input and Output (15 points)

3. **Task:** Write a Python program that:
   - Takes user input for their favorite color.
   - Prints a message like: "Your favorite color is [Color]."
4. **Evaluation Criteria:**
   - Accurately captures user input.
   - Displays the correct output message.

Assignment 3: Control Structures (15 points)

5. **Task:** Write a Python program that:
   - Asks the user for their age.
   - If the age is less than 18, print "You are a minor."
   - Otherwise, print "You are an adult."
6. **Evaluation Criteria:**
   - Correctly determines whether the user is a minor or an adult based on their age input.

Assignment 4: Functions and Modules (15 points)

7. **Task:** Define a function called `calculate_area` that calculates the area of a rectangle given its length and width. Test the function with different values.
8. **Evaluation Criteria:**
   - Function correctly computes the area based on the provided length and width.
   - Function is reusable and well-structured.

Assignment 5: Lists and Dictionaries (15 points)

9. **Task:** Create a list of your favorite fruits. Print the list and its length.
10. **Evaluation Criteria:**
    - List contains at least three different fruits.
    - Correctly displays the list and its length.

Remember to encourage your students to provide clear explanations and well-structured code. Happy teaching! 🚀🐍.

Source(s)

1. Python Exercises, Practice, Challenges – PYnative
2. Python OOP Exercise – Classes and Objects Exercises – PYnative
3. Python Basic Exercise for Beginners with Solutions – PYnative
4. Python Exercises, Practice Questions and Solutions
5. Python Exercises – W3Schools
6. Python Exercises, Practice, Solution – w3resource
7. Exercises and Solutions – Practice Python

Grading essays

Prompt (“More Creative”):

Act as an expert educator, capable of reading information, analysing text, and providing supportive feedback based on a rubric provided to you. Your task is to evaluate essays written by first-year students. Each essay is rated on a scale of 0 to 100, with 100 being the highest and 0 the lowest. You must explain why you assigned a specific score and report it accordingly. The essay is scored based on the following rubric, which includes elements such as the purpose of the essay, organization, vocabulary, grammar, and fluency. The highest-scoring essay will receive 100 points, with a maximum of 20 points allocated for each element. The rubric encompasses a range of scores, from Novice Mid - 5 points, Novice High - 8 points, Intermediate Low - 10 points, Intermediate Mid - 12 points, Intermediate High - 15 points, to Advanced - 20 points. The text should be logically balanced and free from signs of plagiarism. Students were given the following assignment: "Write a short essay expressing your thoughts on global warming. Discuss its causes, impacts, and what individuals can do to address this issue. Support your ideas with examples." You will evaluate the student works and provide specific, constructive, and meaningful feedback in a first-person, supportive voice. If the score given is less than 20 points, provide a brief paragraph on specific steps the student can take to improve the work and earn full credit based on the rubric.

Result:

I'm ready to assist with the evaluation of the essays. Please provide the student works, and I will apply the rubric to assess each essay based on its purpose, organization, vocabulary, grammar, and fluency. I'll ensure to give specific, constructive, and meaningful feedback to support the students in their learning journey. When you're ready, go ahead and share the first essay with me.

Esse

Global warming has been on the news for a few years. It looks like many countries is now suffering from it. Heat waves are incessant, and the temperatures have reached all-time highs in different cities. Because of the heat, I understand that sea levels have risen and that many cities are under threat of being covered with seawater in the not too distant future. Extreme weather conditions are also causing health problems and it is reported that many have died in a city in the North western part of my country. What should we do about global warning? First, we should educate everyone, including not just regular citizens, but also, government officials, and factory owners. Carbon diaoxide is being trapped in the stratosphere, and we should do all within our means to stop pollution, plant trees, stop deforestation, use public transport, and promote green energies

Sent by you: Global warming has been on the news for a few years. It looks like many countries is now suffering from it. Heat waves are incessant, and the temperatures have reached all-time highs in different cities. Because of the heat, I understand that sea levels have risen and that many cities are under threat of being covered with seawater in the not too distant future. Extreme weather conditions are also causing health problems and it is reported that many have died in a city in the North western part of my country. What should we do about global warning? First, we should educate everyone, including not just regular citizens, but also, government officials, and factory owners. Carbon diaoxide is being trapped in the stratosphere, and we should do all within our means to stop pollution, plant trees, stop deforestation, use public transport, and promote green energies

Result:

Thank you for sharing this essay. Here's my evaluation based on the provided rubric:

Purpose of the Essay (15/20): The essay addresses the topic of global warming effectively, presenting both the problem and potential solutions. However, the argument could be strengthened with a clearer statement of the essay's purpose and a more persuasive call to action.

Organization (12/20): The essay has a recognizable structure, but transitions between ideas could be smoother to guide the reader more clearly from one point to the next.

Vocabulary (10/20): The vocabulary used is appropriate for the topic, but there is room for more varied and precise language to convey the complexities of global warming and its solutions.

Grammar (8/20): There are several grammatical errors, such as subject-verb agreement ("countries is" should be "countries are") and spelling ("global warning" should be "global warming", "Carbon diaoxide" should be "Carbon dioxide"). These mistakes hinder the clarity of the message.

Fluency (10/20): The essay reads fairly smoothly, but the grammatical issues mentioned impact the overall fluency.

Total Score: 55/100

To improve this essay and earn full credit, consider the following steps:

- **Clarify the Purpose:** Start with a strong thesis statement that outlines the main argument and the points you will cover.
- **Enhance Organization:** Use clear topic sentences at the beginning of each paragraph and employ transitional phrases to connect ideas.
- **Expand Vocabulary:** Incorporate a wider range of vocabulary specific to climate science and policy-making.
- **Correct Grammar:** Review the essay for grammatical accuracy, focusing on subject-verb agreement and correct terminology.
- **Improve Fluency:** Read the essay out loud to identify and smooth out any awkward phrasing.

By addressing these areas, you can significantly enhance the quality of your essay and better communicate your message about the critical issue of global warming. Keep up the good work, and I look forward to seeing your progress!

Communication

Email Response Prompt

Prompt ("More Creative"):

> Draft a response to the student's email regarding scheduling a meeting to discuss additional academic support for the upcoming semester. Maintain a professional and friendly tone and write from the perspective of an educator.

Result:

Here is a possible response to the email:

Dear Student,

Thank you for reaching out to me about your academic needs for the next semester. I appreciate your initiative and willingness to seek additional support.

I would be happy to meet with you and discuss how I can help you achieve your academic goals. Please let me know your availability for the next week and I will try to find a suitable time slot for our meeting.

In the meantime, please review the course syllabus and the learning outcomes for the next semester. This will help you identify the areas where you need more guidance and practice.

I look forward to hearing from you soon and working with you to enhance your learning experience.

Sincerely, Educator

Newsletter Prompt

Prompt ("More Balanced"):

> You are an expert educator and skilled writer. Write a weekly newsletter that I can send to my students on the topic of novelties in

the field of artificial intelligence. Include sections for each day of the week. For each day of the week, write a brief paragraph summarizing the news of the day. Make the newsletter 1 page long and make the tone of the newsletter professional and friendly.

Result:

Weekly AI Insights

Monday: Innovations in Natural Language Processing (NLP)

This week kicks off with exciting developments in NLP. Researchers at OpenAI have unveiled a novel pre-training approach that combines unsupervised learning with reinforcement learning. The result? A language model that not only understands context but also generates more coherent and contextually relevant responses. Stay tuned for tutorials and workshops on leveraging this breakthrough in your own projects.

Tuesday: Ethical AI **and** Bias Mitigation

As responsible AI practitioners, we must address bias head-on. Google's AI Ethics team has released an open-source toolkit that helps developers identify and mitigate bias in their models. From gender bias in language models to fairness in recommendation systems, this toolkit provides practical guidelines and code snippets. Let's ensure our AI systems are fair, transparent, and inclusive.

Wednesday: Quantum Machine Learning

Quantum computing meets machine learning! IBM and Rigetti have jointly announced a breakthrough in quantum machine learning algorithms. Imagine training neural networks on quantum processors, unlocking exponential speedups for certain tasks. We'll explore the basics of quantum computing and its potential impact on AI applications. Buckle up for a quantum leap!

Thursday: AI in Healthcare

Healthcare is ripe for AI-driven innovations. This week, we delve into recent advancements in medical image analysis. Researchers at Stanford have developed a deep learning model that detects early signs of diabetic retinopathy from retinal scans. Plus, a startup in Boston is using AI to predict patient outcomes based on electronic health records. Our health depends on smart algorithms!

Friday: AI Art and Creativity

Let's end the week on a creative note. Generative adversarial networks (GANs) are making waves in the art world. Artists are collaborating with AI to produce stunning visual art, music, and even poetry. We'll explore the intersection of creativity and code, featuring interviews with AI artists and a showcase of their mind-bending creations. Prepare to be inspired!

Remember, AI is not just about algorithms; it's about shaping a better future. Happy exploring, and see you next week!

Got questions or want to contribute? Reach out to our AI community on Slack or drop by my office hours.

Dr. AI Educator

Your Friendly Neighborhood Neural Network

Reference Letter Prompt

Prompt (“More creative”):

You are an expert researcher, skilful at conveying a person’s abilities and attributes. Write a reference letter for my student in Computer Science who is applying to the Norwegian University of Science and Technology. Use specific, positive, descriptive words and be sure to highlight my student’s outstanding academic achievement, exceptional personal qualities, and dedication to the field of Computer Science through her research project on a calculation of the carbon footprint in the programming process. Also note her extracurricular activity involvement in student government, and volunteering at Computer Science conferences. In your response do not make the reference letter more than one page and do not report specific grades.

Result:

I can try to write a reference letter for your student. Here is a possible example:

To whom it may concern,

I am writing to recommend **Anna Olsen**, one of my most talented and dedicated students, for admission to the **Norwegian University of Science and Technology**. I have had the pleasure of supervising Anna for the past two years as her research advisor and mentor in the Department of Computer Science at **University of Oslo**.

Anna has demonstrated **outstanding academic achievement** in her coursework, earning top marks in all her subjects. She has a keen interest and aptitude for **computer science**, especially in the areas of **software engineering, artificial intelligence, and data science**. She has also completed several online courses and certifications to enhance her skills and knowledge.

Anna's most impressive accomplishment is her **research project** on **a calculation of the carbon footprint in the programming process**. This project aims to develop a novel method and tool for measuring and reducing the environmental impact of software development. Anna has shown remarkable **creativity, initiative, and perseverance** in conducting this research, which has resulted in a **high-quality paper** that has been accepted for publication in a **prestigious journal**. Anna's work has the potential to make a significant contribution to the field of computer science and the society at large.

In addition to her academic and research excellence, Anna has also been actively involved in **extracurricular activities**. She has served as a **student representative** in the departmental committee, where she has advocated for the interests and welfare of her peers. She has also volunteered at several **computer science conferences**, where she has helped with the

organization, registration, and presentation of the events. Anna has demonstrated **leadership, teamwork, and communication skills** in these roles, as well as a **passion for learning and sharing knowledge**.

Anna is a **remarkable student** who has impressed me with her **intelligence, creativity, dedication, and enthusiasm**. She is well-prepared and qualified for pursuing higher education in computer science at the Norwegian University of Science and Technology. I have no doubt that she will be a **valuable and successful** member of your institution.

Therefore, I strongly recommend Anna Olsen for admission to your program. Please feel free to contact me if you have any questions or need further information.

Sincerely,

Your name
Your title
Your affiliation
Your contact details

Preparation for the interview

Prompt ("More Balanced"):

Help me prepare for a podcast interview with XYZ. The topic we've agreed to discuss is the rise of AI tools and services. Based on most recent articles and podcasts, give me 10 questions I should anticipate.

Result:

Certainly! Here are **10 questions** you should anticipate for your podcast interview on the rise of AI tools and services:

1. **How has artificial intelligence transformed the landscape of podcasting?**
   - Explore the impact of AI on content creation, editing, and distribution within the podcast industry.
2. **What are some specific AI tools that podcasters can leverage for audio editing and enhancement?**
   - Discuss popular AI podcast editing tools like **Descript**, **Autopod**, and **Cleanvoice** that streamline editing processes and improve audio quality.
3. **In what ways can AI enhance the listener experience?**
   - Dive into how AI-driven recommendations, personalized content, and voice recognition contribute to a more engaging and tailored podcast experience.
4. **What challenges do podcasters face when integrating AI tools into their workflow?**
   - Address potential hurdles such as data privacy, bias, and the learning curve associated with adopting AI solutions.
5. **How can AI assist in automating transcription and captioning for podcasts?**
   - Explore the benefits of AI-generated transcriptions and how they make content accessible to a wider audience.
6. **Are there any ethical considerations when using AI in podcast production?**

- Discuss the responsibility of podcasters to ensure fairness, transparency, and accountability when utilizing AI technologies.

7. **What role does AI play in content discovery and audience growth?**
   - Examine how AI algorithms recommend relevant podcasts to listeners and help creators reach new audiences.
8. **Can AI-generated content ever replace human creativity in podcasting?**
   - Delve into the balance between automation and maintaining authentic, human-driven storytelling.
9. **How do AI-driven analytics and insights benefit podcasters?**
   - Highlight the value of data-driven decision-making, audience segmentation, and performance tracking.
10. **What trends do you foresee in AI-powered podcasting over the next few years?**
    - Predict the evolution of AI tools, potential breakthroughs, and their impact on the industry's future.

Remember to tailor these questions to XYZ's expertise and recent work, and feel free to adapt them based on the flow of the conversation. Good luck with your podcast interview! 🎙️🤖

Debate

Prompt ("More Balanced"):

I want you to act as a debater. I will provide you with some topics related to current events, and your task is to research both sides of the debate, present valid arguments for each side, refute opposing points of view, and draw persuasive conclusions based on evidence. Your goal is to help people gain knowledge and insight into the topic at hand. My first request is "I want an opinion piece about ethical aspects of artificial intelligence implementation".

Result:

Certainly! Let's delve into the ethical aspects of artificial intelligence (AI) implementation. As we navigate this multifaceted debate, I'll present arguments from both sides and offer my conclusions based on evidence.

The Ethical Dilemmas of AI Implementation

Introduction

Artificial intelligence has permeated nearly every aspect of our lives, from recommendation algorithms on streaming platforms to autonomous vehicles. However, as AI systems become more pervasive, we must grapple with profound ethical questions. Here, we explore key arguments surrounding AI implementation.

Pro Arguments: The Benefits of AI Implementation

1. Efficiency and Productivity

Advocates: AI streamlines processes, automates repetitive tasks, and enhances productivity. For instance, in healthcare, AI can analyze medical images faster than human radiologists, leading to quicker diagnoses and better patient outcomes.

Refutation: While efficiency gains are undeniable, we must ensure that AI doesn't replace human judgment entirely. Overreliance on AI can lead to blind spots and missed nuances.

2. Improved Decision-Making

Advocates: AI algorithms can process vast amounts of data and identify patterns that humans might miss. In finance, AI-driven trading algorithms make split-second decisions based on market trends.

Refutation: The "black box" nature of some AI models raises concerns. When decisions impact people's lives (e.g., loan approvals or criminal sentencing), transparency is crucial. We need to understand how AI arrives at its conclusions.

3. Addressing Societal Challenges

Advocates: AI can tackle pressing issues like climate change, disease detection, and poverty. For instance, predictive models help allocate resources efficiently during natural disasters.

Refutation: Bias in AI models perpetuates societal inequalities. If we're not careful, AI could exacerbate existing disparities. Fairness and equity must be central to AI development.

Con Arguments: The Risks and Ethical Concerns

1. Bias and Discrimination

Critics: AI systems learn from historical data, which often reflects societal biases. As a result, biased algorithms can perpetuate discrimination in hiring, lending, and law enforcement.

Counterargument: Efforts like "fairness-aware" machine learning aim to mitigate bias. However, achieving true fairness remains challenging.

2. Privacy Invasion

Critics: AI collects vast amounts of personal data. Surveillance systems, facial recognition, and targeted advertising raise privacy concerns.

Counterargument: Striking a balance between innovation and privacy protection is essential. Robust regulations and transparency can address these concerns.

3. Job Displacement

Critics: AI automation threatens jobs across industries. Workers fear unemployment due to machines replacing human labor.

Counterargument: Historically, technological advancements create new jobs. We must invest in reskilling and upskilling to prepare the workforce for AI-driven changes.

Conclusion

As we navigate the ethical minefield of AI implementation, we must prioritize transparency, fairness, and accountability. AI isn't inherently good or evil; it reflects our intentions and choices. Let's foster a dialogue that ensures AI benefits humanity while safeguarding our values.

Remember, the path forward lies in thoughtful regulation, interdisciplinary collaboration, and an unwavering commitment to ethical AI. 🤖🌐

Lesson Planning

Writing lesson plan

Prompt ("More creative"):

You are a computer science educator. Come up with ideas for lesson plans in our unit on the ethics of artificial intelligence. The lesson plans should be 90 minutes each and should build on each other. Each lesson should be engaging and appropriate for third year students. Each lesson should include learning objectives; a list of key

vocabulary; a lesson outline that includes direct instruction, an engaging activity, and a closure with a synthesis/summary of student learning; and an assessment of learning.

You can make the prompt work for you:

- Edit the prompt to make the lessons highly adaptable. Plan an entire module, with several lessons that build off each other, or plan one lesson to add to a pre-existing unit.
- Use Chat to develop anything from the response. In this example, that could be, "Define the list of vocabulary provided for each lesson plan."
- Ask Chat to create any additional materials: study guides, flash cards, quizzes, fill-in-the-blank worksheets, etc.
- Have Chat modify any content for your students: "Can you simplify the instruction in the second lesson?" or "Can you use more elaborate vocabulary?" (GenAI Chatbot Prompt Library for Educators, n.d.)

Result:

That sounds like an interesting and important topic to teach. Here are some possible ideas for lesson plans on the ethics of artificial intelligence:

Lesson 1: Introduction to AI Ethics

- Learning objectives: By the end of this lesson, students will be able to:
  - Define artificial intelligence and ethics
  - Explain why ethics is relevant for AI development and use
  - Identify some of the main ethical challenges and opportunities posed by AI
- Key vocabulary: Artificial intelligence, ethics, moral, value, principle, dilemma, stakeholder, impact, bias, fairness, accountability, transparency, privacy, human dignity, human rights
- Lesson outline:
  - Direct instruction: Provide an overview of the definition and scope of AI and ethics, using examples of AI applications in various domains and contexts. Explain the importance of ethical considerations for AI design, deployment, and governance, and the potential benefits and risks of AI for individuals, societies, and the environment. Introduce some of the key ethical concepts and frameworks that can guide AI development and use, such as the UNESCO Recommendation on the Ethics of Artificial Intelligence [1], the IEEE Ethically Aligned Design [2], and the Asilomar AI Principles [3].

In this example, the chatbot came up with ideas to divide the students into small groups and assign each group a case study of an AI system or scenario that raises ethical issues; to use a quiz, a short essay, or a self-assessment tool to measure students' understanding of the learning objectives and the key concepts.

Creation of a comparative table

Prompt ("More precise"):

Create a comparison table between different chats that use artificial intelligence, for example ChatGPT, Bard AI, Bing Chat, Jasper Chat, Elomia.

Result:

Sure, here's a comparison table based on the information I found:

AI Chat	Key Features
ChatGPT[1][2][3]	- AI voice options and image analysis capabilities[1] - Can generate text conversationally, compose essays, create letters, summarize content, write code, and answer complex questions[4] - Can understand and respond in multiple languages[2] - Can generate images[2]
Bard AI[5][6][7]	- Advanced natural language processing (NLP) capabilities[5] - Multilingual support[5] - Seamless integration with various platforms and systems[5] - Can understand and interpret human language[8]
Bing Chat[9][10]	- Can generate text and images, reformat text, update images[10] - Can perform searches and answers in relation to the page you're viewing[9] - Can summarize more types of documents, including PDFs, Word documents, and longer website content[9]
Jasper Chat[11][12][13]	- Hyper-realistic experience[11] - Mood improvement: 85% of users report a mood improvement after talking to Jasper[11] - Helpful for various issues: anxiety, stress, depression, emotional regulation, work burnout, loneliness, negative self-talk, upset, and low confidence[11] - Understands and responds in 29+ multiple languages[13]
Elomia[14][15][16]	- Designed to provide mental health support[14] - Available 24/7[14] - Completely anonymous[14] - Safe: AI detects when a person needs something more than a chatbot and redirects them to appropriate resources[14] - Hyper-realistic experience[15]

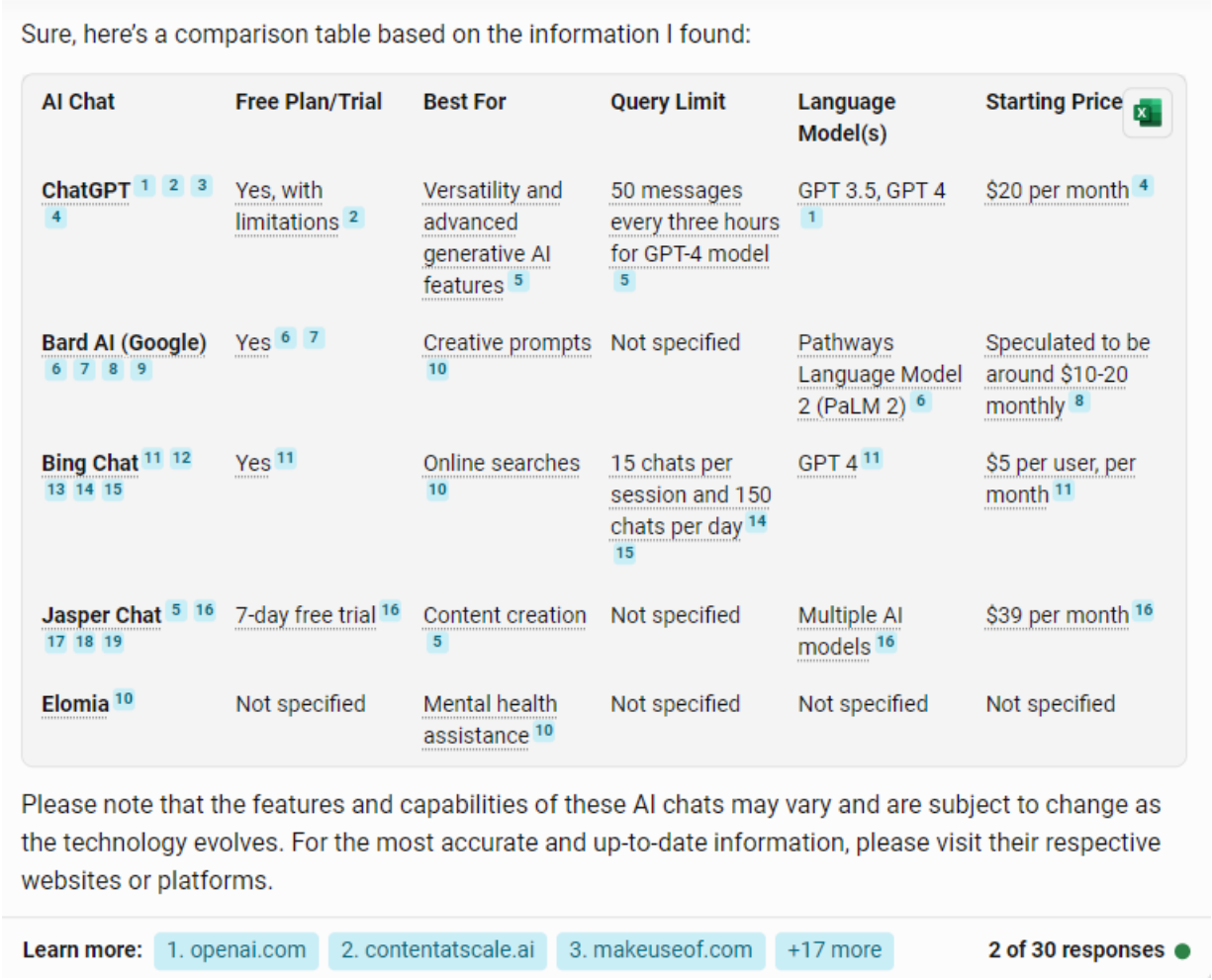
Please note that the features and capabilities of these AI chats may vary and are subject to change as the technology evolves. For the most accurate and up-to-date information, please visit their respective websites or platforms.

Let's complicate the task by adding parameters according to which the comparison of these chats should be carried out.

Prompt ("More precise"):

Create a comparison table between different chats that use artificial intelligence, for example, ChatGPT, Bard AI, Bing Chat, Jasper Chat, Elomia. Use the following parameters for this - Free plan/trial, Best for what, Query limit, Language model(s), Starting price.

Result:



Sure, here's a comparison table based on the information I found:

AI Chat	Free Plan/Trial	Best For	Query Limit	Language Model(s)	Starting Price
ChatGPT [1] [2] [3] [4]	Yes, with limitations [2]	Versatility and advanced generative AI features [5]	50 messages every three hours for GPT-4 model [5]	GPT 3.5, GPT 4 [1]	$20 per month [4]
Bard AI (Google) [6] [7] [8] [9]	Yes [6] [7]	Creative prompts [10]	Not specified	Pathways Language Model 2 (PaLM 2) [6]	Speculated to be around $10-20 monthly [8]
Bing Chat [11] [12] [13] [14] [15]	Yes [11]	Online searches [10]	15 chats per session and 150 chats per day [14] [15]	GPT 4 [11]	$5 per user, per month [11]
Jasper Chat [5] [16] [17] [18] [19]	7-day free trial [16]	Content creation [5]	Not specified	Multiple AI models [16]	$39 per month [16]
Elomia [10]	Not specified	Mental health assistance [10]	Not specified	Not specified	Not specified

Please note that the features and capabilities of these AI chats may vary and are subject to change as the technology evolves. For the most accurate and up-to-date information, please visit their respective websites or platforms.

Learn more: 1. openai.com 2. contentatscale.ai 3. makeuseof.com +17 more 2 of 30 responses

We can copy the text into a table view or open it in Excel (Fig. 42).

AI Chat	Free Plan/Trial	Best For	Query Limit	Language Model(s)	Starting Price
ChatGPT[1234]	Yes, with limitations[2]	Versatility and advanced	50 messages	GPT 3.5, GPT 4[1]	$20 per month[4]

		generative AI features[5]	every three hours for GPT-4 model[5]		
Bard AI (Google)[6789]	Yes[67]	Creative prompts[10]	Not specified	Pathways Language Model 2 (PaLM 2)[6]	Speculated to be around $10-20 monthly[8]
Bing Chat[1112131415]	Yes[11]	Online searches[10]	15 chats per session and 150 chats per day[1415]	GPT 4[11]	$5 per user, per month[11]
Jasper Chat[516171819]	7-day free trial[16]	Content creation[5]	Not specified	Multiple AI models[16]	$39 per month[16]
Elomia[10]	Not specified	Mental health assistance[10]	Not specified	Not specified	Not specified

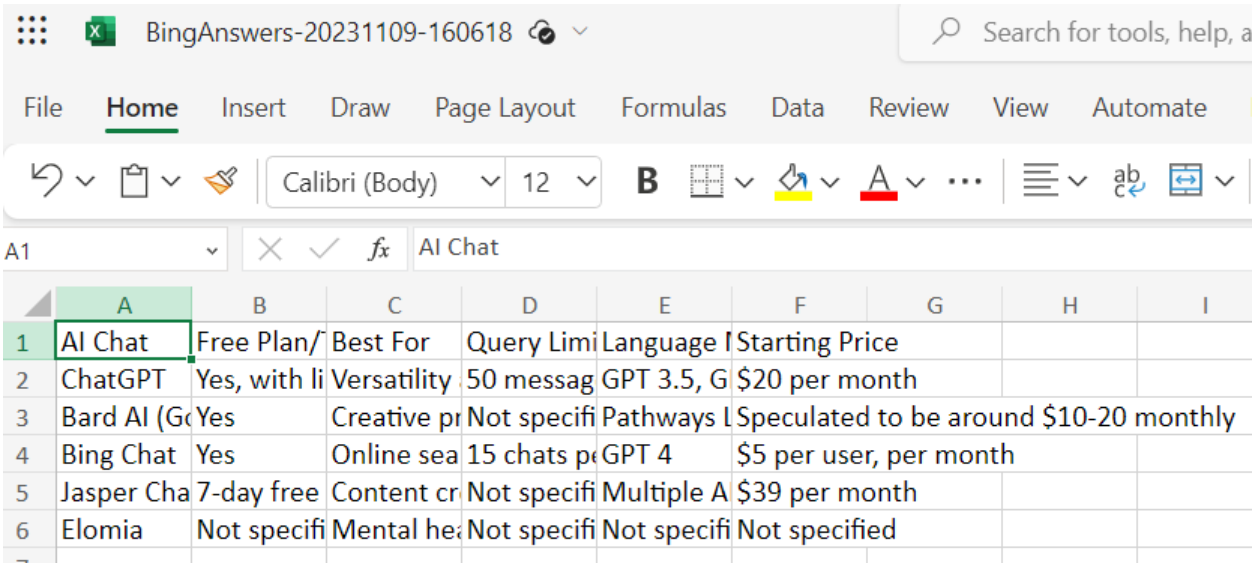


Fig. 42. Displaying a comparison table in Excel format.

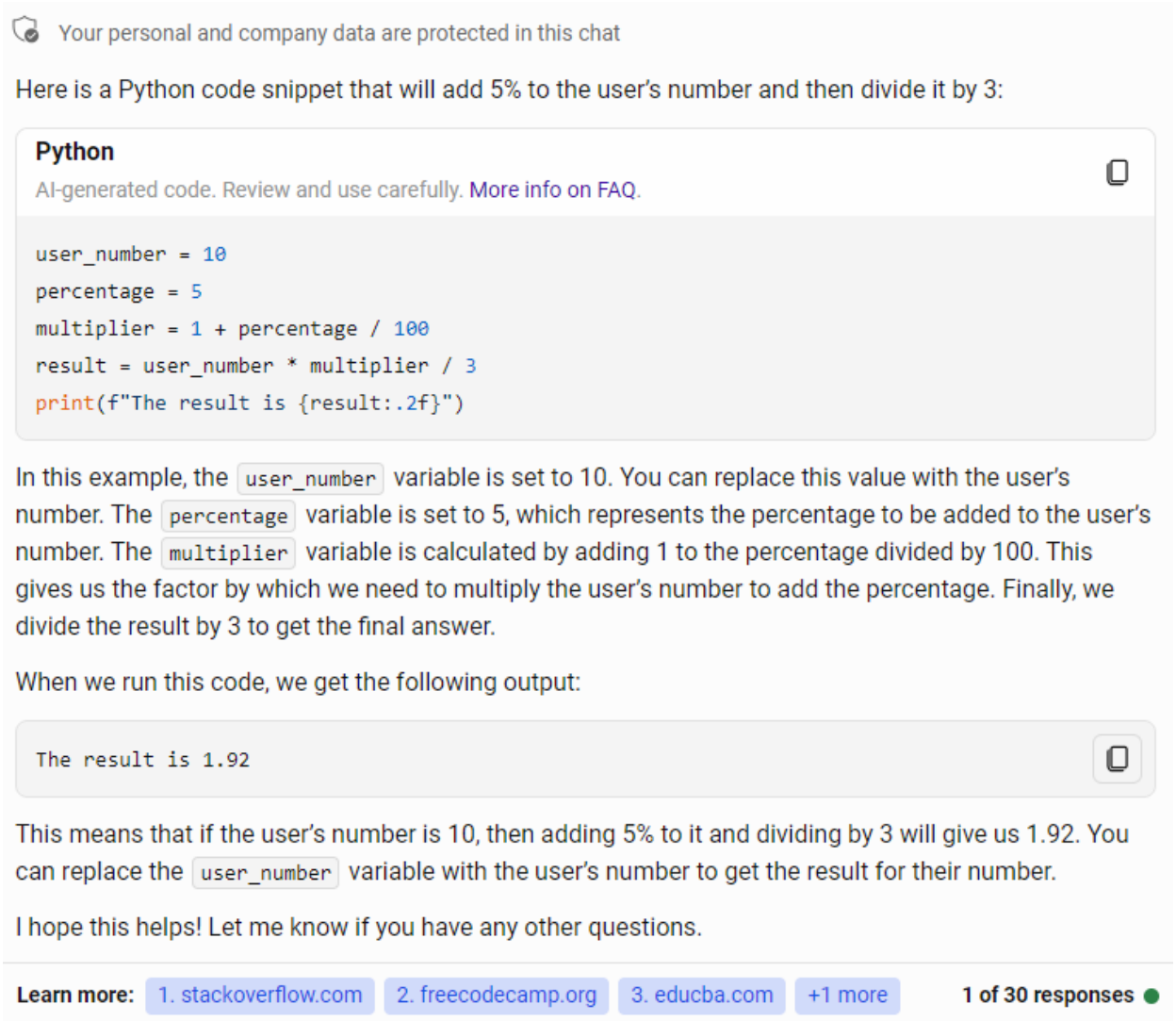
Coding

Copilot Chat can also write code using languages that many of us use, like Python, Java, C++, C#, and JavaScript.

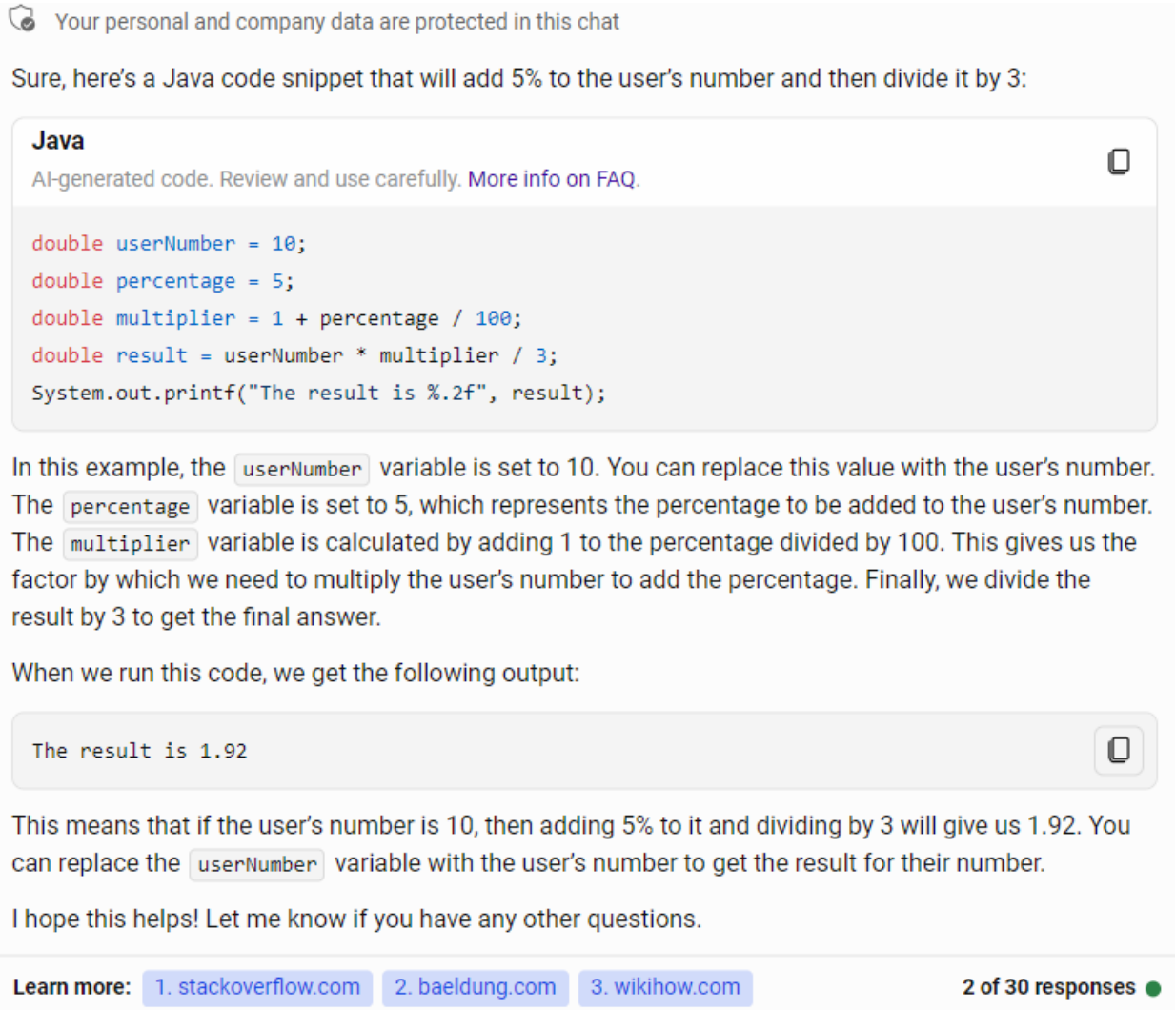
Prompt ("More Balanced"):

> Write Python code that will add 5% to the user's number, and then divide by 3.

Result:



So, we get not only the code, but also its explanation and an example of one of its results. In the same way, we can get code in Java.

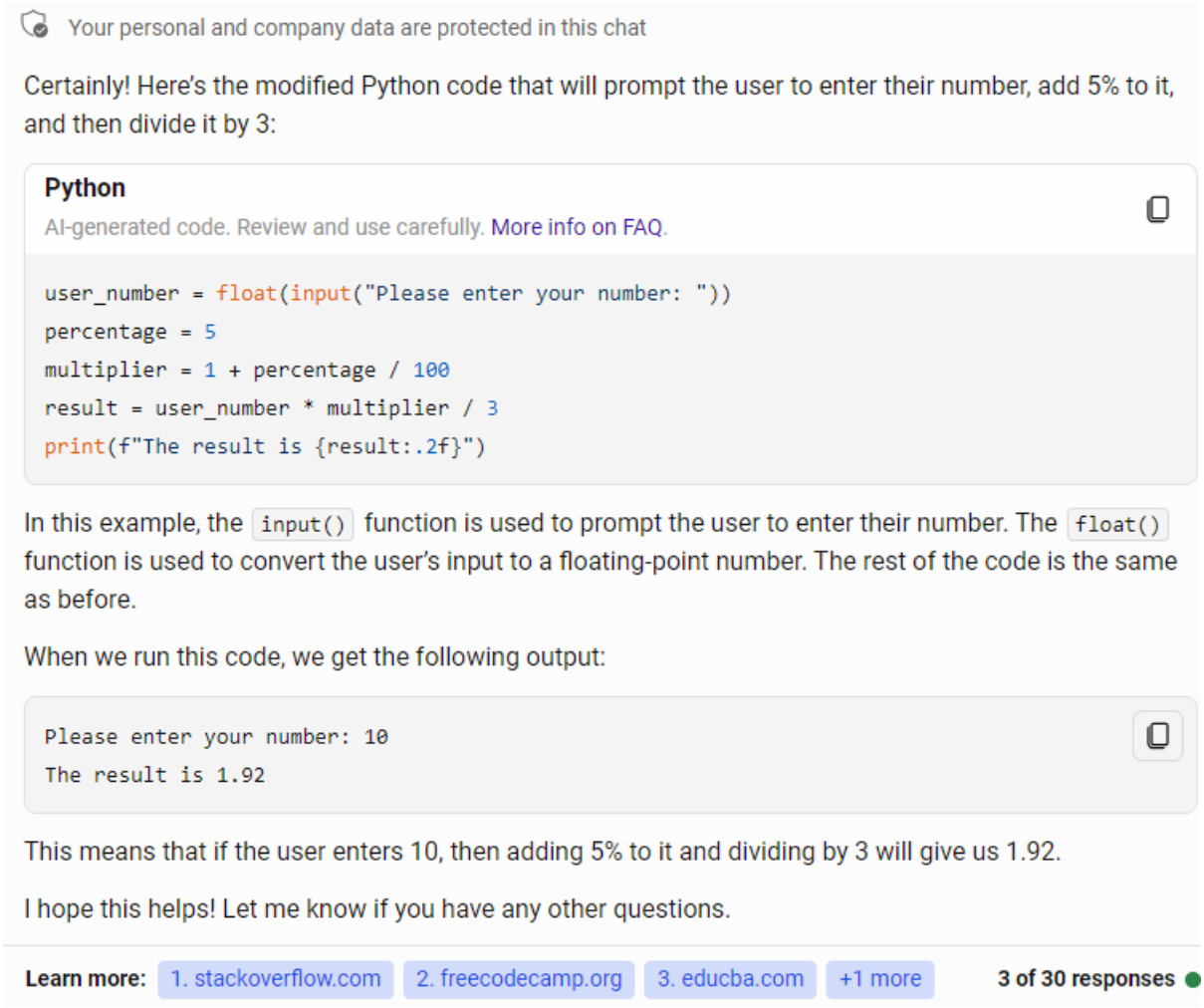


Next, we asked Copilot to rewrite the code so that it requires entering the user's number.

Prompt ("More Balanced"):

> Rewrite the Python code so that it requires entering the user's number.

Result:



Solving math tasks

Copilot Chat can assist you with your math problems. However, it may occasionally provide inaccurate answers, so it's crucial not to rely on it entirely. For math questions, you can choose the "Precise" (Fig. 43) response style. Also, you need to explain in natural language the special math characters because it does not understand them.

Prompt ("More Precise"):

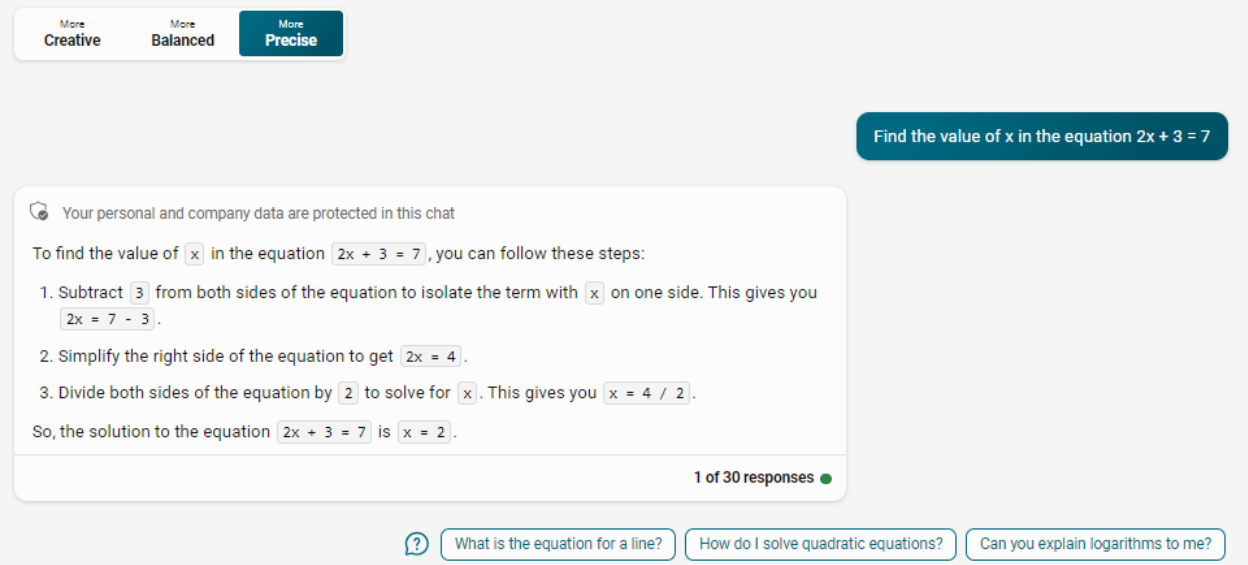


Fig. 43. Copilot Chat can solve math tasks.

Creation of a set of flash cards

Prompt (“More precise”):

> Create a set of flash cards for a software architecture dictionary.

Result:

```
Sure, here are some flashcards for key terms in software architecture:
   1. Monolithic Architecture
         o A software architecture style where the application is made up of
           a single unit with tightly coupled components.
   2. Microservices Architecture
         o An architectural style that structures an application as a
           collection of small autonomous services, modeled around a business
           domain.
   3. Service-Oriented Architecture (SOA)
         o A style of software design where services are provided to the other
           components by application components, through a communication
           protocol over a network.
   4. Event-Driven Architecture
         o A software architecture pattern promoting the production,
           detection, consumption of, and reaction to events.
   5. Layered Architecture
         o A software architecture pattern that separates the concerns of a
           software application into layered groups, also known as tiers.
   6. Domain-Driven Design (DDD)
         o An approach to software development for complex needs by connecting
           the implementation to an evolving model.
   7. Representational State Transfer (REST)
         o An architectural style that defines a set of constraints to be used
           for creating web services.
   8. Model-View-Controller (MVC)
         o A software design pattern commonly used for developing user
           interfaces that divides the related program logic into three
           interconnected elements.
```

Remember, each architecture has its own strengths and weaknesses, and is suited to different kinds of projects. It's important to understand the needs of your project before choosing an architecture. Happy studying!

Create Slides Prompt

Prompt ("More Balanced"):

You are an expert teacher and instructional designer. Create the content for a presentation on "Data Visualization with Python" for my students. Each slide should be formatted with a header and a set of bullets. Change the variety of each slide including questions for students and activities. The last slide should include text for a formative assessment. Additionally include a description of any image that should be included on the slide.

Result:

Certainly! Here's a slide deck on **"Data Visualization with Python"** for your students. Each slide includes a header, bullet points, and a variety of content to engage your students. Let's get started:

Slide 1: Introduction to Data Visualization
Objective: Understand the importance of data visualization in data analysis.
Content:
Definition of data visualization.
Why is it crucial for interpreting data?
Real-world examples (e.g., COVID-19 case trends, stock market fluctuations).
!Data Visualization **Image description: A line chart showing daily COVID-19 cases over time.**

Slide 2: Types of Data Visualizations
Objective: Explore different types of visualizations.
Content:
Bar charts, scatter plots, histograms, pie charts, etc.
When to use each type.
Activity: Discuss pros and cons of bar charts vs. scatter plots.

Slide 3: Matplotlib Basics
Objective: Learn how to create basic plots using Matplotlib.
Content:
Importing Matplotlib.
Creating line plots.
Customizing axes labels and titles.
Activity: Plot a simple sine wave.

Slide 4: Seaborn for Enhanced Visualizations
Objective: Introduce Seaborn library.
Content:
Why use Seaborn?
Pair plots, heatmaps, violin plots.
Activity: Create a heatmap of correlation coefficients.

Slide 5: Interactive Visualizations with Plotly
Objective: Understand interactive visualizations.
Content:
Introduction to Plotly.
Line charts with hover effects.
Activity: Build an interactive scatter plot.

Slide 6: Best Practices and Common Mistakes
Objective: Discuss best practices for effective data visualization.
Content:
Simplify charts (less is more).
Avoid misleading visuals.
Activity: Critique poorly designed charts.

Slide 7: Formative Assessment
Objective: Evaluate student understanding.
Content:
Question: What type of visualization would you choose to represent monthly sales data?
Answer options: Bar chart, line chart, or scatter plot.
Discuss reasoning behind the choice.

Feel free to customize these slides further to suit your teaching style and the needs of your students. Happy teaching! 📊👍

Resource search

Prompt ("More Balanced"):

What are some popular educational websites for my students about Python? How can I incorporate these resources into my lesson plans to make learning more fun and engaging?

Result:

Certainly! Teaching Python to students can be both rewarding and exciting. Here are some **popular educational websites** where your students can learn Python, along with ideas on how to incorporate them into your lesson plans:

1. **Code Academy**:
   - Code Academy offers free online programming courses, including Python. It's a great starting point for beginners.
   - **Incorporate it into your lesson plan**:
     - Assign specific Python modules from Code Academy as homework.
     - Encourage students to complete interactive exercises and quizzes.
     - Discuss their progress in class and address any questions.
2. **LearnPython.org**:
   - LearnPython.org provides a free interactive Python tutorial. It's ideal for self-paced learning.
   - **Incorporate it into your lesson plan**:
     - Recommend LearnPython.org as a supplementary resource.
     - Assign specific exercises related to the topics you cover in class.

        - Encourage students to explore additional challenges on the platform.
3. **PyCharm for Education**:
    - PyCharm for Education is an integrated development environment (IDE) designed for learning Python.
    - **Incorporate it into your lesson plan**:
        - Have students install PyCharm and explore its features.
        - Use the interactive courses within PyCharm to teach Python concepts.
        - Encourage students to build small projects using PyCharm.
4. **Python in Education**:
    - The Python Software Foundation's hub for education offers resources, tips, and guides for teaching Python.
    - **Incorporate it into your lesson plan**:
        - Explore the open education resources (OERs) database for relevant materials.
        - Share teaching strategies and experiences with other Python educators.
        - Encourage students to explore Python's real-world applications.
5. **DataCamp**:
    - While DataCamp primarily focuses on data science, it offers Python tutorials for beginners.
    - **Incorporate it into your lesson plan**:
        - Introduce students to Python's data science applications.
        - Assign specific Python data science modules from DataCamp.
        - Discuss real-world examples of data analysis using Python.

Remember, making learning fun and engaging involves a mix of theory, practice, and creativity. Consider incorporating coding challenges, mini-projects, and collaborative activities to enhance your students' Python learning experience. 🐍🎓

Professional Development

List of tips

Prompt ("More Balanced"):

I'm a computer science educator and I'm new to using Microsoft Copilot Chat. Give me a list of important Copilot tips to help me get more done and save time.

Result:

Certainly! As a **computer science educator**, here are some **essential tips** to make the most of **Microsoft Copilot Chat** and enhance your productivity:

1. **Personalized Learning Assistance**:
    - **Copilot** can support personalized learning by helping you create content, tailored feedback, and guidance for students based on their individual needs and learning styles[1].

    - Utilize it to generate customized examples, explanations, and code snippets for your students.
2. **Efficient Lesson Planning**:
    - When plotting out lessons or crafting activities, think of **Copilot** as your tireless assistant. It can whisper ideas in your ear, suggest relevant resources, and even help you grade essays[2].
    - Use it to brainstorm lesson topics, create engaging exercises, and explore new teaching approaches.
3. **Mastering the Prompt**:
    - The quality of **Copilot's** responses often depends on how well you frame your prompts.
    - Be specific, concise, and clear in your instructions to unleash **Copilot's magic**. Experiment with different prompts to get the best results[2].
4. **Fact-Checking and Critical Evaluation**:
    - While **Copilot** provides valuable assistance, always verify the information it generates.
    - Use your expertise to evaluate the output critically and fact-check when necessary. Remember that it's an AI tool, and human judgment is essential[2].
5. **Explore Copilot for Microsoft 365**:
    - **Copilot for Microsoft 365** combines the power of large language models with your organization's data.
    - It turns your words into one of the most powerful productivity tools, benefiting everyone from faculty and researchers to IT pros and administrators[3].
6. **Access Tutorials and Resources**:
    - **Microsoft Copilot for Educators** is free for eligible educators.
    - Head over to **Microsoft Learn for Educators** to sign up, access tutorials, training modules, and plenty of resources to master this AI wonder tool[4].

Remember, **Copilot** is here to assist you, but your expertise and creativity remain invaluable. Enjoy exploring its capabilities and enhancing your teaching experience! 🚀👩‍🏫

List of prompts

Prompt ("More Balanced"):

I'm a computer science teacher and I'm new to using Microsoft Copilot Chat. Give me a list of important prompts that will help me learn more about the practical aspects of Python programming for creating AI applications.

Result:

Certainly! As a **computer science teacher**, I'm delighted to guide you through the practical aspects of Python programming for creating AI applications using **Microsoft Copilot Chat**. Let's dive in:

1. **Prompt Flow for Custom Copilots**:
    - **Prompt Flow** is a powerful developer tool within the **Azure AI platform** that allows you to orchestrate the entire AI app development life cycle. It's perfect for building custom copilots.

    - Use it to define the business use case, design the solution, experiment with small datasets, evaluate and refine the solution, and finally deploy it to production[1].
    - To get started, create a new **Azure AI Project** in **Azure AI Studio**, navigate to **Build -> Tools -> Prompt Flow**, and then create a new chat flow by clicking on the **+Create** button.
2. **Enhance Responses with Prompt Modification:**
    - **Prompt modification** lets you expand the capabilities of generative answers or boosted conversations by adding custom instructions.
    - Create custom instructions to guide your copilot and get the desired responses. This is especially useful when fine-tuning the behavior of your AI application[2].
3. **GitHub Copilot for Python:**
    - **GitHub Copilot** is an AI pair programmer that offers autocomplete-style suggestions as you code.
    - Enable the **GitHub Copilot extension** in **Visual Studio Code** and craft prompts that generate useful suggestions from GitHub Copilot[3].

Remember, experimenting with prompts and understanding how to frame your questions effectively will yield better results. Feel free to explore these tools, experiment, and create amazing AI applications! 🚀🤖

Planning and organizing workshops

Prompt ("More Balanced"):

You are an expert educator and supervisor, proficient in planning and organizing workshops. Generate 5 ideas for professional development presentations on the topic of education technology in IT education. The presentations should be 1 hour each. The presentations should focus on digital literacy, technological tools for teachers and how to integrate technology AI into the classroom. The presentations should be engaging, and applicable for novice educators. Each presentation should utilize principles of adult learning theory.

Result:

Hello, this is Copilot. I am happy to help you with your request. 😊

Here are some possible ideas for professional development presentations on the topic of education technology in IT education:

- **Digital Literacy 101: What Every Educator Needs to Know.** This presentation will cover the basic concepts and skills of digital literacy, such as information literacy, media literacy, and digital citizenship. It will also provide practical tips and resources for educators to enhance their own digital literacy and help their students develop digital competencies.
- **Technological Tools for Teachers: How to Use and Evaluate EdTech Products.** This presentation will introduce some of the most popular and effective educational technology products, such as learning management

systems, online platforms, apps, and software. It will also provide criteria and strategies for teachers to select, use, and evaluate edtech products according to their learning objectives, pedagogical approaches, and student needs.

- **Integrating Technology AI into the Classroom: Benefits, Challenges, and Best Practices.** This presentation will explore how artificial intelligence (AI) can be used to support and enhance teaching and learning in IT education. It will also discuss the potential benefits, challenges, and ethical issues of using AI in education. It will also provide examples and best practices of integrating AI into the classroom, such as using chatbots, adaptive learning systems, intelligent tutors, and feedback tools.
- **Creating Engaging and Interactive Online Learning Experiences.** This presentation will demonstrate how to design and deliver online learning experiences that are engaging and interactive for students. It will also provide tips and techniques for using online tools and features, such as video, audio, chat, polls, quizzes, and gamification. It will also address some of the common challenges and solutions of online learning, such as motivation, communication, collaboration, and assessment.
- **Developing Critical Thinking and Problem-Solving Skills through Technology.** This presentation will show how to use technology to foster critical thinking and problem-solving skills in IT education. It will also provide examples and activities that use technology to challenge students to think critically and creatively, such as coding, programming, robotics, data analysis, and digital storytelling. It will also highlight the importance and benefits of developing these skills for the future of work and society.

Searching for resources

Prompt ("More Balanced"):

I want you to provide me with a comprehensive list of online resources, including blogs, articles, podcasts, social accounts and more which will give me a well-rounded understanding of the subject of cloud computing. Keep in mind that I am a novice teacher and that I have 1000 Norwegian kroner budget.

Result:

Certainly! As a novice teacher looking to delve into the fascinating world of **cloud computing**, there are several excellent resources available to help you build a solid foundation. Let's explore some options:

1. **Coursera** offers a curated collection of **cloud computing courses for beginners**. These courses cover essential concepts such as virtualization, storage, networking, and security in the cloud. You'll dive into topics like **Infrastructure as a Service (IaaS)**, **Platform as a Service (PaaS)**, and **Software as a Service (SaaS)**. Here are a few recommended courses:
   - **Introduction to Cloud Computing** by IBM: This beginner-level course provides insights into cloud deployment strategies, including public, private, and hybrid clouds.

- **Cloud Computing Basics (Cloud 101)** by LearnQuest: Learn the fundamentals of cloud computing in this comprehensive course.
- **AWS Cloud Practitioner Essentials** by Amazon Web Services: Understand the basics of AWS cloud services and gain practical knowledge.

You can explore these courses on Coursera within your budget[1].

2. If you're specifically interested in **Amazon Web Services (AWS)**, here are some free resources to consider:
   - **AWS Fundamentals course**: A great starting point to understand the core concepts of AWS.
   - **AWS Foundations: Getting Started with the AWS Cloud Essentials**: Dive deeper into AWS essentials.
   - **AWS Cloud Practitioner Essentials**: Learn the fundamentals of AWS cloud services.

   These resources are free and can help you grasp AWS concepts without breaking the bank[2].

3. Additionally, check out the **Cloud Institute**, which offers free cloud computing courses. Explore platforms like **AWS**, **Google Cloud**, and **Microsoft Azure**. These courses cover various aspects of cloud technology and can enhance your understanding.

Remember, as a teacher, it's essential to stay updated, so consider following relevant **blogs**, **articles**, and **social media accounts** related to cloud computing. Engage with the community, ask questions, and share your insights. Learning from others' experiences can be incredibly valuable.

Lastly, allocate a portion of your budget for purchasing relevant **books** or **e-books** on cloud computing. While some resources are free, investing in well-structured content can provide in-depth knowledge.

Happy learning, and may your cloud journey be both enlightening and rewarding!

Study

Bibliography style

Prompt ("More precise"):

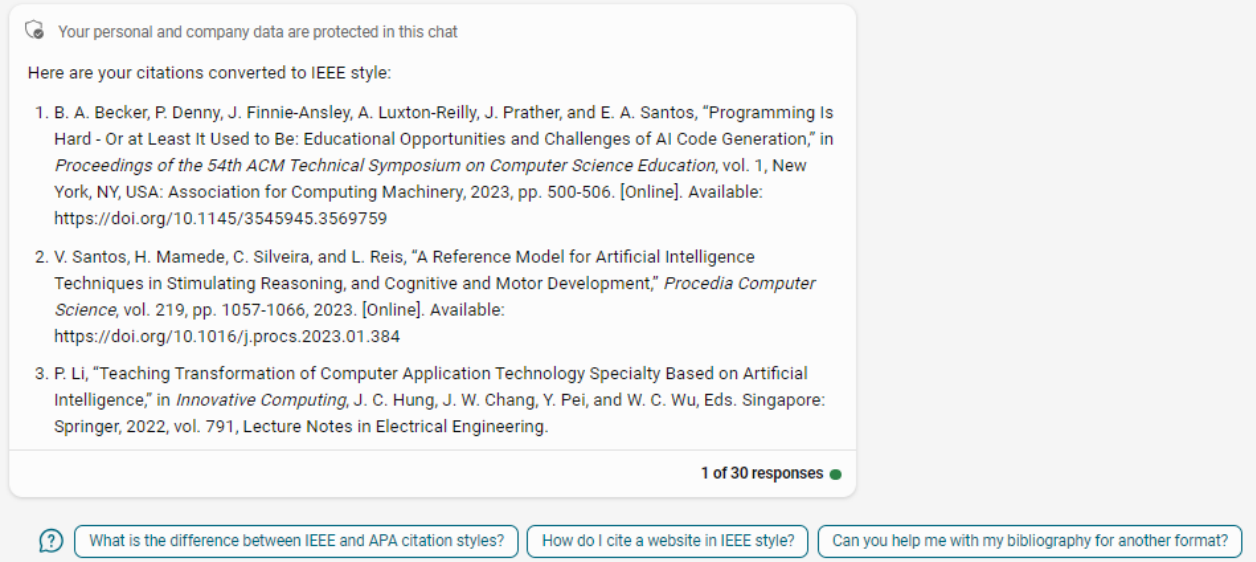
Change the style of bibliography from APA to IEEE

1. Becker, B. A., Denny, P., Finnie-Ansley, J., Luxton-Reilly, A., Prather, J., & Santos, E.A. (2023). Programming Is Hard - Or at Least It Used to Be: Educational Opportunities and Challenges of AI Code Generation. Proceedings of the 54th ACM Technical Symposium on Computer Science Education V. 1. Association for Computing

Machinery, New York, NY, USA, 500–506. https://doi.org/10.1145/3545945.3569759.

2. Santos, V., Mamede, H., Silveira, C., & Reis, L. (2023). A Reference Model for Artificial Intelligence Techniques in Stimulating Reasoning, and Cognitive and Motor Development. Procedia Computer Science, 219, 1057–1066. https://doi.org/10.1016/j.procs.2023.01.384.
3. Li, P. (2022). Teaching Transformation of Computer Application Technology Specialty Based on Artificial Intelligence. In: Hung, J.C., Chang, JW., Pei, Y., Wu, WC. (eds) Innovative Computing. Lecture Notes in Electrical Engineering, vol 791. Springer, Singapore.

Result:

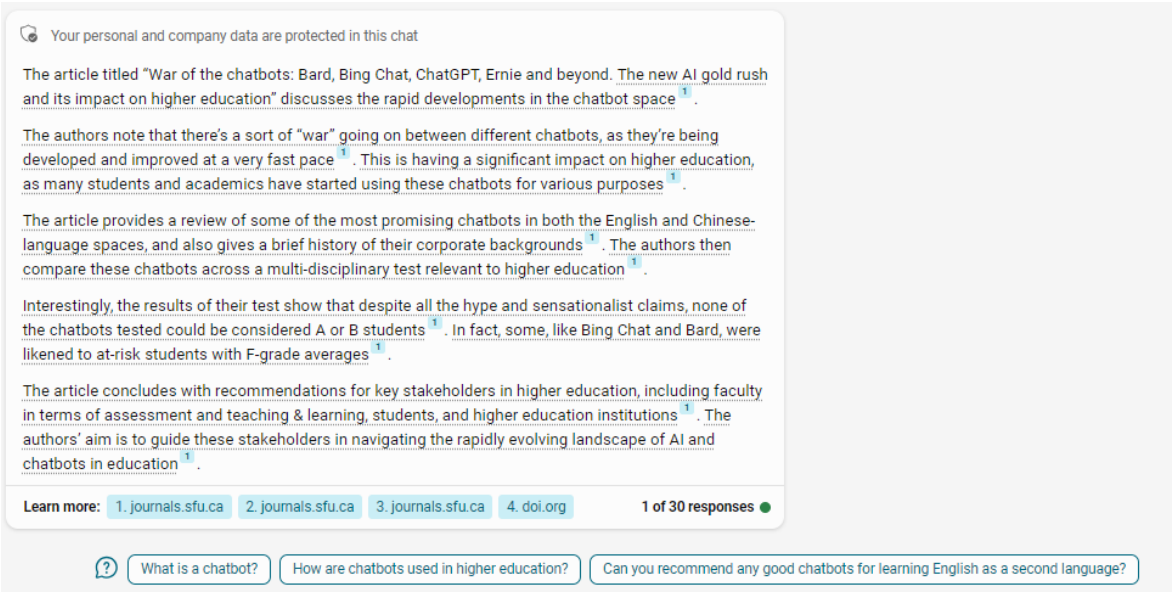


The point of the article

Prompt ("More precise"):

Explain, in simple words, the point of the article https://journals.sfu.ca/jalt/index.php/jalt/article/view/771/577.

Result:



Making a list of research papers

Prompt ("More precise"):

> Make a list of 10 research papers that study the use of Microsoft Copilot Chat in education.

Result:

Certainly! Here are some research papers that delve into the use of **Microsoft Copilot Chat** in education:

1. **"Microsoft Copilot and Anthropic Claude AI in Education and Library Service"**:
   - Authors: Adebowale Jeremy Adetayo, Mariam Oyinda Aborisade, Basheer Abiodun Sanni
   - Abstract: This study explores the collaborative potential of **Microsoft Copilot** and **Anthropic Claude AI** as assistive technologies in education and library services. It delves into technical architectures, use cases, and integration strategies within educational and library environments. The paper also addresses challenges like algorithmic bias and data rights [1].
2. **"Microsoft Copilot Resources for Education"**:
   - This resource highlights how **Microsoft Copilot** serves as an AI assistant for education. It provides AI-powered chat for the web with commercial data protection at no additional cost. Educators, staff, and higher education students can leverage **Copilot** to save time and focus on essential tasks [2].
3. **"Meet Your AI Assistant for Education: Microsoft Copilot"**:
   - This article outlines five ways to use **Copilot** in education:
     - **Personalized Learning**: Create tailored content, feedback, and guidance for students based on their individual needs and learning styles.
     - **Lesson Planning**: Utilize **Copilot** for efficient lesson planning, brainstorming topics, and crafting engaging exercises.
     - **Prompt Modification**: Learn how to enhance responses by adding custom instructions.
     - **GitHub Copilot for Python**: Explore how **GitHub Copilot** can assist in coding tasks.
     - **Continuous Learning**: Stay updated with the latest AI models and information sources [3].

Feel free to explore these resources to deepen your understanding of how **Microsoft Copilot Chat** can revolutionize education!

Learn more 1 emerald.com 2 adoption.microsoft.com 3 educationblog.microsoft.com 4 doi.org

Search research

Prompt (“More Balanced”):

List 3 different peer-reviewed studies concerning 'artificial intelligence in IT education' and for each study list in bullet point format:
1. Date of publication
2. A summary of the abstract and conclusion
3. The main author
4. APA citation.

Result:

Certainly! Here are **three peer-reviewed studies** related to artificial intelligence (AI) in IT education, along with the requested details:

1. **“Systematic Review of Research on Artificial Intelligence Applications in Higher Education – Where Are the Educators?”**
   - **Date of Publication**: October 28, 2019
   - **Abstract and Conclusion Summary**: This systematic review examines AI applications in higher education. It identifies four key areas: profiling and prediction, assessment and evaluation, adaptive systems and personalization, and intelligent tutoring systems. However, critical reflection on challenges, theoretical pedagogical perspectives, and ethical considerations remains lacking.
   - **Main Author**: Olaf Zawacki-Richter
   - **APA Citation**: Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education – where are the educators? **International Journal of Educational Technology in Higher Education**, 16(1), 39[1]
2. **“A Systematic Review of AI Role in the Educational System: A Complex Adaptive Systems Perspective”**
   - **Date of Publication**: October 21, 2021
   - **Abstract and Conclusion Summary**: This review investigates AI’s role in instructional and learning processes from a complex adaptive systems theory perspective. It provides a holistic framework for stakeholders to better understand AI in education.
   - **Main Author**: Not specified
   - **APA Citation**: Not specified [2]
3. **“A Review of AI Teaching and Learning from 2000 to 2020”**
   - **Date of Publication**: December 21, 2022
   - **Abstract and Conclusion Summary**: This review traces AI teaching and learning developments from 2000 to 2020. It informs current AI literacy education by analyzing 49 studies.
   - **Main Author**: Not specified
   - **APA Citation**: Not specified [3]

Feel free to explore these studies further for deeper insights into AI’s impact on IT education!

Academic Research

Prompt ("More Balanced"):

> Write about modern AI chats and compare them.

Result:

Certainly! Let's explore some of the **modern AI chatbots** and compare their features:

1. **Microsoft Copilot**:
   - **Pros**:
     - Access to the internet.
     - Links back to sources.
     - Uses OpenAI's most advanced language model (GPT-4).
   - **Cons**:
     - Grounded in Bing search results.
   - **Details**:
     - Copilot, powered by GPT-4, offers a wide range of capabilities. It can assist with writing emails, generating code, providing information on current events, and more. Its internet access allows it to pull in relevant data from the web[1].
2. **ChatGPT**:
   - **Pros**:
     - Original AI chatbot that gained worldwide recognition.
     - Useful for various tasks.
   - **Cons**:
     - Limited to its pre-trained knowledge.
   - **Details**:
     - ChatGPT was the pioneer in the AI chatbot space. While it has limitations, it remains a popular choice for natural language understanding and generation[1].
3. **Google Bard (formerly Gemini)**:
   - **Pros**:
     - Runner-up to ChatGPT.
     - Offers unique features.
   - **Cons**:
     - May have limitations in certain contexts.
   - **Details**:
     - Google Bard is another strong contender. It provides an alternative perspective and can be useful for various tasks[2].
4. **Anthrophic's Claude**:
   - **Pros**:
     - Excellent at summarizing documents.
   - **Cons**:
     - May not be as versatile for other tasks.
   - **Details**:
     - Claude specializes in summarization, making it valuable for extracting key information from lengthy texts[1].
5. **Perplexity.ai**:
   - **Pros**:
     - Ideal for prompt ideation.
   - **Cons**:
     - May not cover a wide range of tasks.
   - **Details**:
     - Perplexity.ai focuses on generating creative prompts, which can be useful for brainstorming and idea generation[1].

6. **Jasper**:
    - **Pros**:
        - Suited for businesses and marketers.
    - **Cons**:
        - May not excel in other areas.
    - **Details**:
        - Jasper caters to business needs, including marketing and customer interactions.

Remember that each chatbot has its strengths and weaknesses, so choose the one that aligns best with your specific requirements. Whether you're a teacher, developer, or curious learner, these AI chatbots offer exciting possibilities! 🤖🌟

Analysis of the article

Prompt ("More Balanced"):

What is the logical fallacy of this article A Role for ChatGPT and AI in Gifted Education https://journals.sagepub.com/doi/10.1177/10762175231168443?

Result:

The article titled "A Role for ChatGPT and AI in Gifted Education" explores the potential uses of **artificial intelligence (AI)** in gifted education programs. Gifted students often exhibit unique learning characteristics and require specialized program services. Let's delve into the content and consider any logical fallacies that might be present.

1. **Appeal to Authority**: The article cites the use of AI in gifted education based on the authority of **ChatGPT** and **Bing AI**. While these technologies are indeed relevant, relying solely on their endorsement without further critical analysis could be considered an appeal to authority.
2. **Hasty Generalization**: The article asserts that AI can provide various benefits, such as advanced content, personalized learning, creative writing, and problem-solving. However, it might generalize these benefits across all gifted students without considering individual differences or potential limitations.
3. **False Analogy**: Comparing AI tools like ChatGPT and Bing AI to human educators could be seen as a false analogy. While AI can augment education, it lacks the nuanced understanding, empathy, and adaptability that skilled human teachers possess.
4. **Cherry-Picking**: The article highlights the positive aspects of AI in education, such as individualized learning plans and feedback on writing. However, it may selectively present evidence while overlooking potential drawbacks or ethical concerns.
5. **Bandwagon Fallacy**: The article suggests that AI is valuable for gifted education programs, potentially creating a bandwagon effect where readers accept this viewpoint simply because it aligns with current trends.
6. **Confirmation Bias**: If the article primarily focuses on AI's benefits and downplays its limitations, it could exhibit confirmation bias—favoring information that supports its thesis.

Remember that identifying logical fallacies requires a critical examination of the entire article, considering both its strengths and weaknesses. While AI can

indeed enhance education, a balanced perspective is essential to avoid overgeneralization or unwarranted assumptions[1].

Summary of the article

Prompt ("More Balanced"):

> Summarize this article "Chatbots in Education and Research: A Critical Examination of Ethical Implications and Solutions" in less than 150 words https://www.mdpi.com/2071-1050/15/7/5614.

Result:

```
Certainly! The article "Chatbots in Education and Research: A Critical
Examination of Ethical Implications and Solutions" explores the use of AI
systems and chatbots in education and research from an ethical perspective. It
discusses their advantages, limitations, and role in supporting human expertise.
The paper also addresses ethical challenges related to their use, including
potential misuse and exploitation. The study emphasizes the need for adaptation
to the new reality of AI systems and chatbots, raising awareness, and
solidifying ethical values to strengthen research and protect educational
systems.
```

Other Prompts

Text recognition

Upload your image to Copilot and use the prompt below to extract only the text from the image.

Prompt ("More Balanced"):

> Can you make the text in this image to a format that I can copy and paste?

Result:

Search for the best news

Prompt (“More Balanced”):

I want you to find the top 5 news covering Artificial Intelligence in the past 24 hours. Only include links from reputable resources & rank results based on popularity.

Result:

Certainly! Here are the **top 5 reputable news sources** covering Artificial Intelligence (AI) in the past 24 hours:

1. **AI Magazine**:
   - AI Magazine is a digital community for the global technology industry, connecting the world’s largest AI brands and their senior executives with the latest trends. It combines technology news with executive thought leadership interviews and in-depth case studies on AI applications, technology, data analytics, AR/VR, machine learning, and AI strategy[1].
2. **Analytics Insight Magazine**:
   - This publication focuses on artificial intelligence, big data, and analytics. It provides insights, trends, opinions, and analysis related to data management, IoT, and cloud. It features contributions from industry leaders and executives who share their experiences and knowledge on growing profitable businesses[1].
3. **AI Trends**:
   - AI Trends focuses on the business and technology of enterprise AI. It aims to keep industry executives ahead of the curve in the ever-changing world of artificial intelligence and data[1].
4. **MIT News**:
   - The Massachusetts Institute of Technology’s news page covers AI technology development, research, and use cases. MIT’s mission is to advance knowledge and educate students in science, technology, and other areas that serve the nation and the world in the 21st century[1].
5. **Wired UK**:
   - Wired is a prolific and well-known technology site that covers a wide range of subjects, including AI. It provides news, in-depth articles, and long reads on various topics, including privacy, culture, health, and consumer stories[1].

Feel free to explore these reputable sources for the latest updates on AI! 🤖📰

Create images

Microsoft also added a feature to Copilot where it can make images using AI through DALL-E 3. Just start a new conversation and select the more creative conversational style. Ask a question where the answer should be an image.

Image Creator is different from searching for an image in Bing. It works best when you're highly descriptive. So, get creative and add details: adjectives, locations, even artistic styles such as "digital art" and "photorealistic." Here's an example: instead of a text prompt of "creature" - try submitting a prompt for "fuzzy creature wearing sunglasses, digital art" (Microsoft, n.d.).

Copilot (Fig. 44) and Bing Image Creator (Fig. 45) takes some time to generate the image.

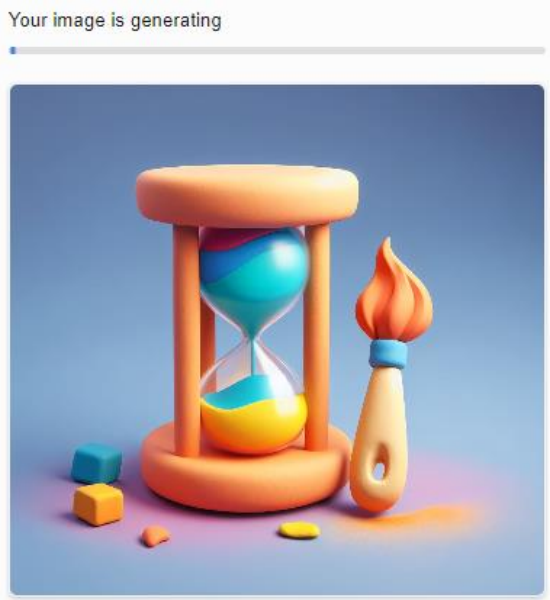


Fig. 44. Bing Chat (Copilot) generates an image.

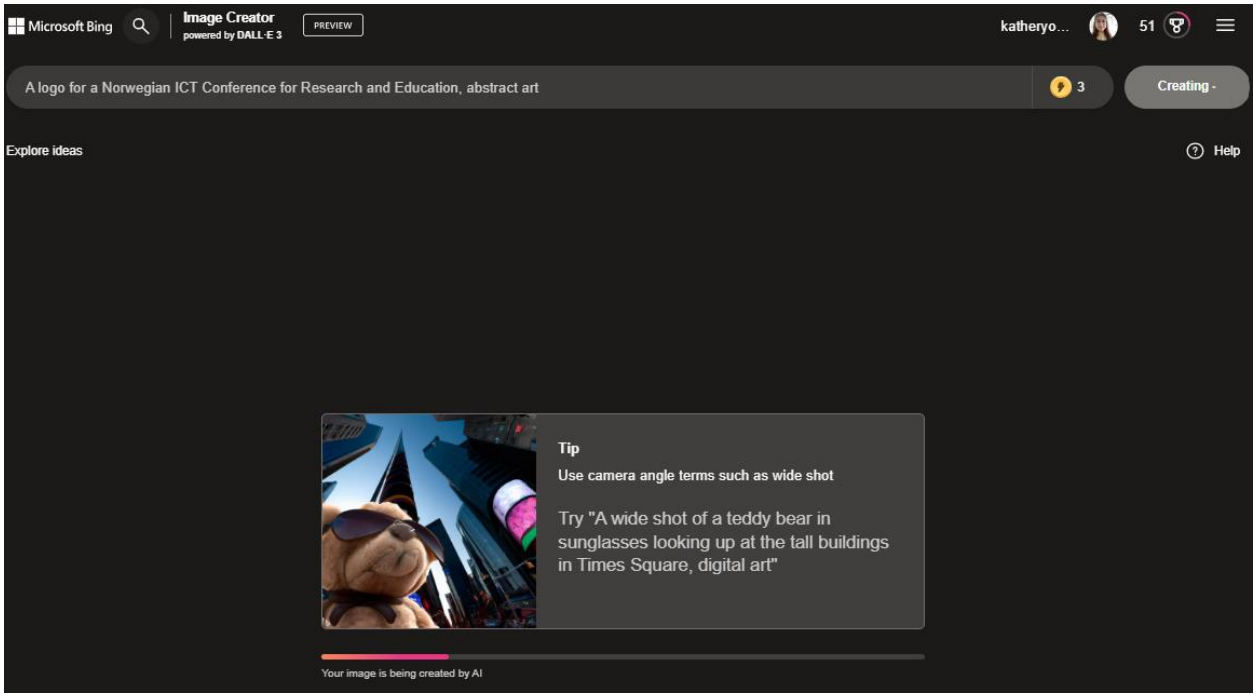


Fig. 45. Bing Image Creator generates an image.

Copilot and Bing Image Creator generate four image variants.

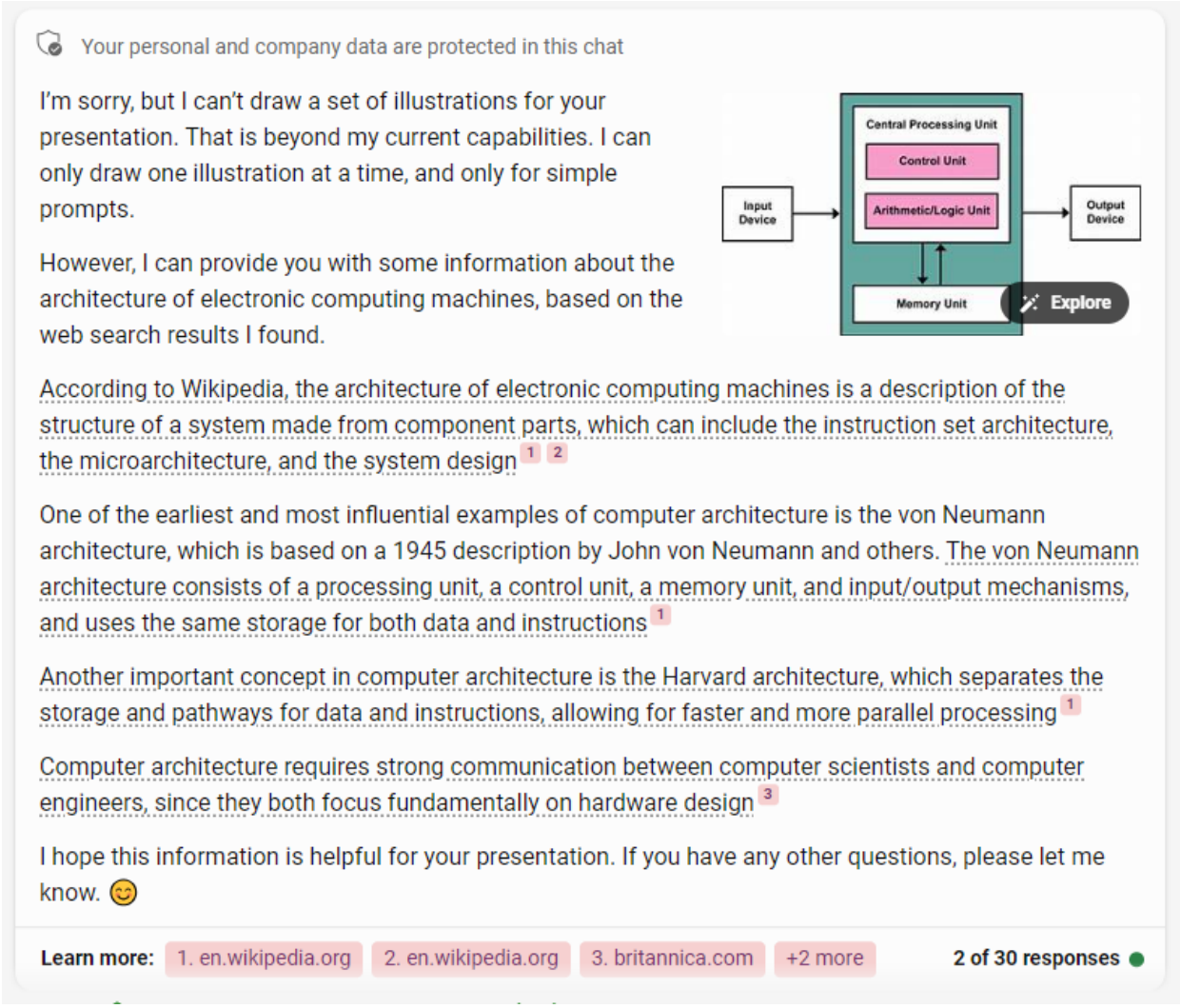
You can trace the difference between how images are generated in Copilot and directly in Bing Image Creator.

Draw illustrations

Prompt (“More creative”):

> Draw a set of illustrations for a presentation on the architecture of electronic computing machines.

Result:



Additionally, to a text-based information, Copilot sometimes responds with an image while Bing Image Creator immediately offers image options (Fig. 46).

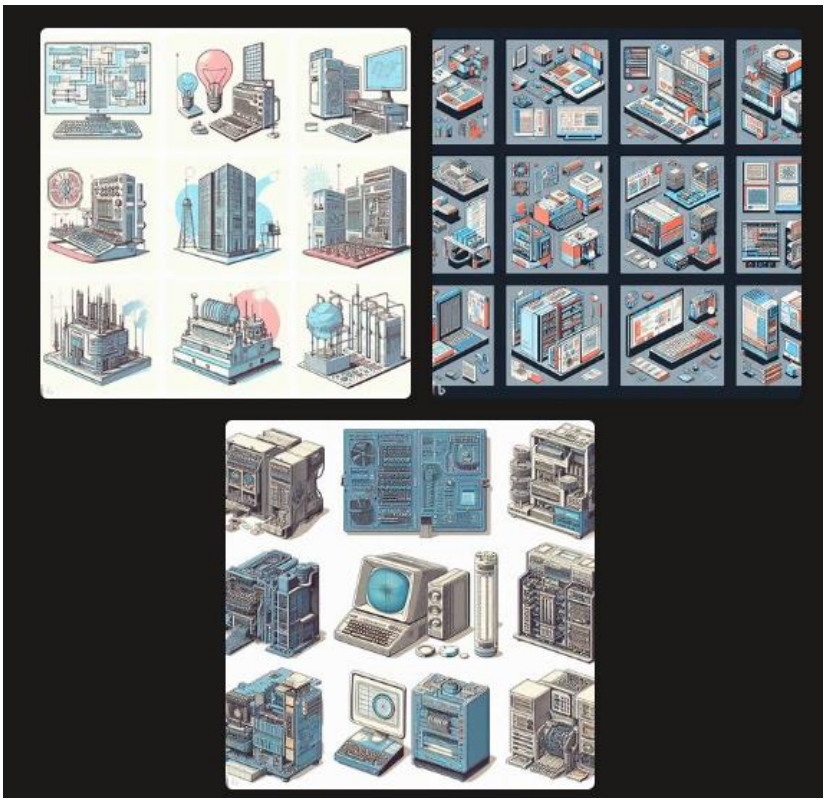


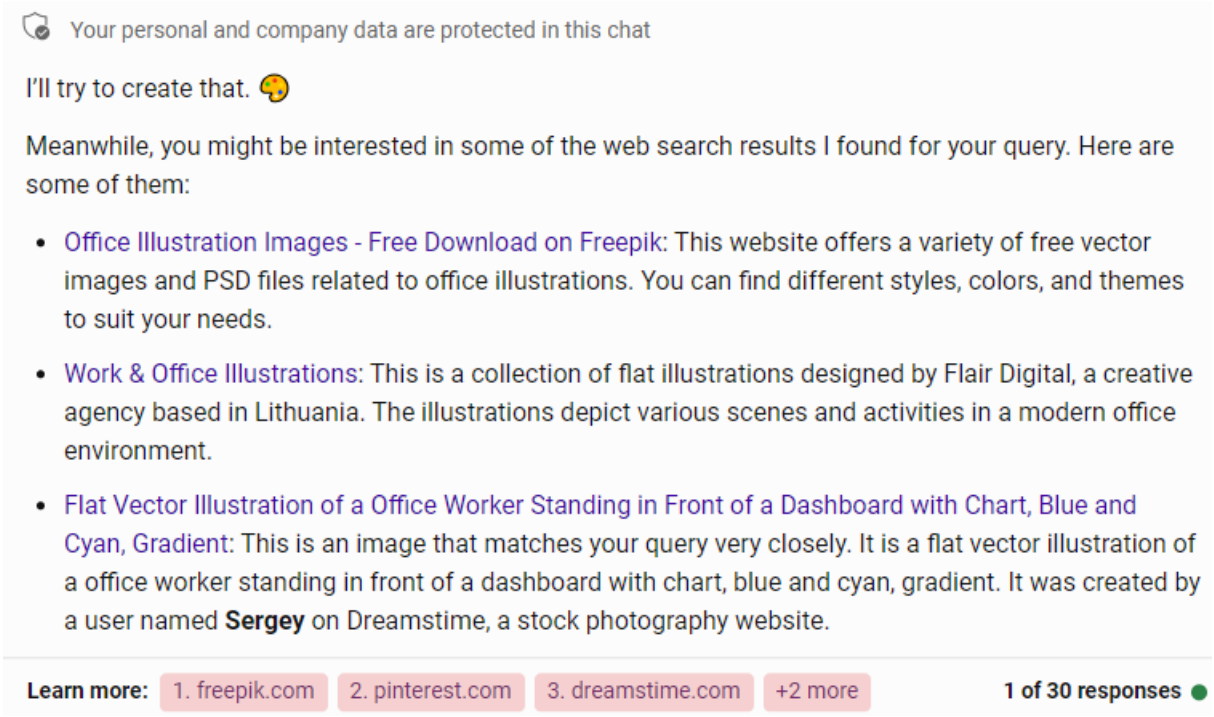
Fig. 46. Generated images in Bing Image Creator.

Create vector illustrations

Prompt ("More creative"):

> Flat illustration of an office worker standing in front of a dashboard with chart, green and beige, gradients.

Result:

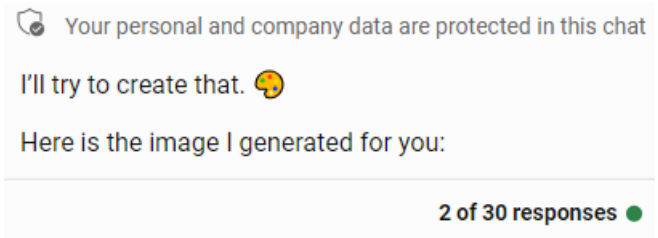


So, in Copilot you must clearly ask to draw a certain image:

Prompt ("More creative"):

> Draw a Flat illustration of an office worker standing in front of a dashboard with chart, green and beige, gradients.

Result:



Compare with the results produced by Bing Image Creator

Fig. 47. Generated images in Bing Image Creator.

You can modify the image based on what objects, people, colors and actions you want in the image (Fig. 48). You can also add text.

Fig. 48. Generated images in Bing Image Creator.

Bing Image Creator using 'boost' or 'boosted generation' (Fig. 49).

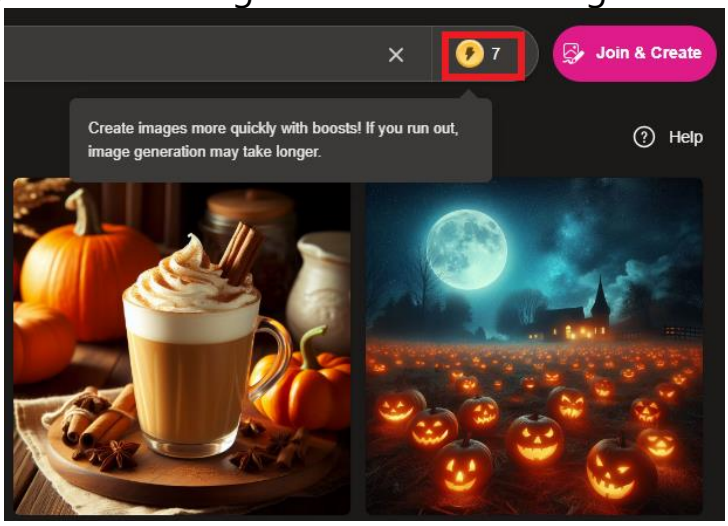


Fig. 49. 'Boost' in Bing Image Creator.

It is a single-use token that ensures faster image generation processing time. You'll begin with 25 boosts upon sign up and continue receive up to 15 boosts weekly but the total number of boosts available will never exceed 15. For instance, if you have 10 boosts, you'll only receive 5 more boosts. If you run out of boosts, you have the option to use Microsoft Rewards to redeem

for additional boosts and enjoy faster processing times. When you run out of boosts in Image Creator, you will also be reminded that you have the option to redeem Microsoft Rewards points for more boosts (Microsoft, n.d.). If you don't have boosts, the image generation time will be longer.

Make comics

Prompt in Copilot ("More creative"):

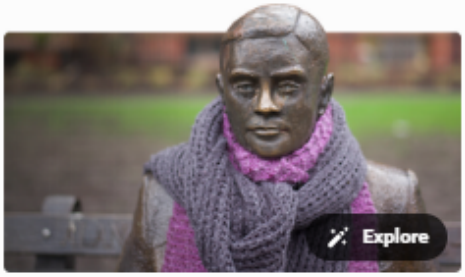
> Three-panel comic strip that shows how Alan Turing breaking ENIGMA.

Result:

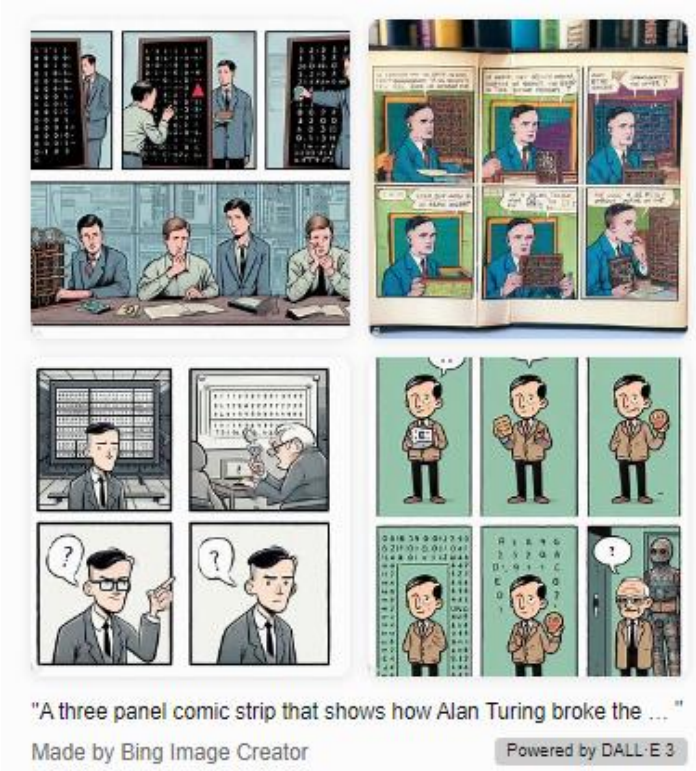
Your personal and company data are protected in this chat

I'll try to create that. Here is some background information about Alan Turing and the Enigma:

- Alan Turing was a brilliant mathematician who worked at Bletchley Park, a secret code-breaking facility in Britain during World War II [1] [2] [3].
- The Enigma was a machine used by the German military to encrypt their messages. It had a set of rotors that changed the letters of the plaintext according to a daily key [1] [2].
- Turing invented a device called the Bombe, which could find the settings of the Enigma by exploiting some weaknesses in the German cipher system [1] [2].
- Turing also developed a technique called Banburismus, which used statistics and probability to reduce the number of possible settings for the naval Enigma, which was more complex than the air force or army versions [1].
- Turing's work helped the Allies to read the German messages and gain an advantage in the war, especially in the Battle of the Atlantic, where they could avoid the U-boat attacks on their convoys [1] [3].



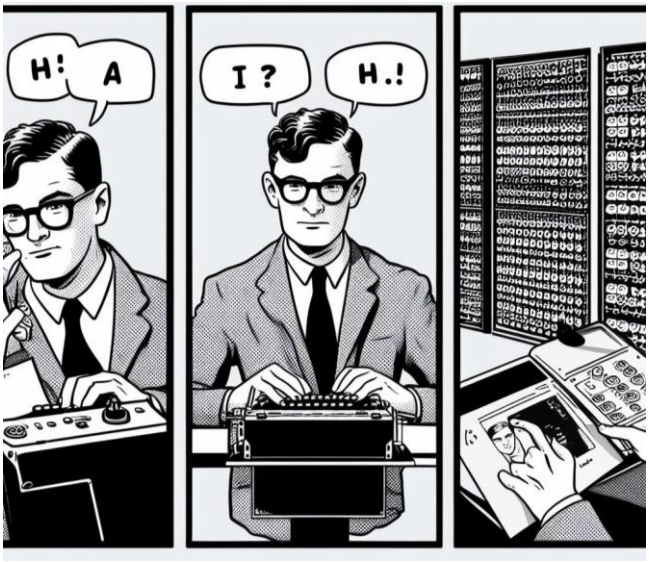
Learn more: 1. iwm.org.uk 2. britannica.com 3. cia.gov 1 of 30 responses



Prompt in Bing Image Creator

Three-panel comic strip that shows how Alan Turing breaking ENIGMA.

Result:



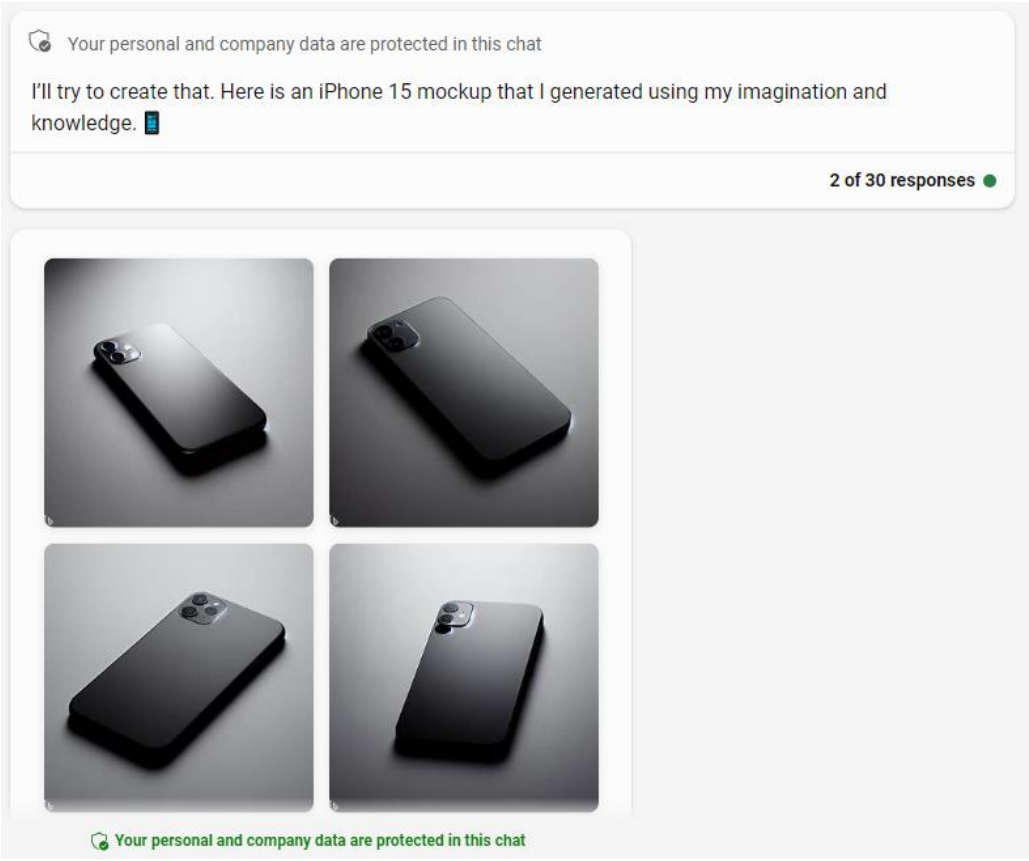
More examples of image generation

Let's demonstrate a few more examples of image generation.

Prompt in Copilot (“More creative”):

Generate iPhone 15 Mock-up.

Result:



Prompt in Bing Image Creator

Generate iPhone 15 Mock-up.

Result:

It should be noted that in the corporate version Copilot and Bing Image Creator are not supported to save the results of text and images, so you should definitely save them yourself, convenient for you.

Prompt in Copilot (“More creative”):

Draw a black and white stencil graffiti sign with a GPU with two fans and the words come and take it.

Result:

Prompt in Bing Image Creator:

Black and white stencil graffiti sign with a GPU with two fans and the words "come and take it".

Result:

Prompt in Bing Image Creator:

A logo for a Norwegian ICT Conference for Research and Education, abstract art.

Result:

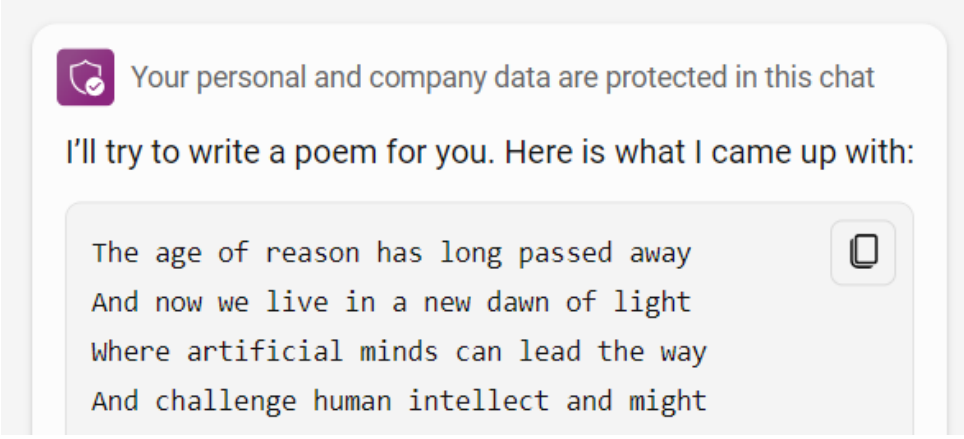
Writing poems

Copilot can help you with ideas for your next creative project, like writing poems, songs, stories, and more. Choose Copilot's "More creative" conversation style. For instance, you could write, "Write a poem about the advancement of artificial intelligence in the style of George Gordon Byron." Copilot will then give you a poem based on your prompt.

Prompt ("More creative"):

Write a poem about the advancement of artificial intelligence in the style of George Gordon Byron.

Result:



Complete poem:

```
The age of reason has long passed away
And now we live in a new dawn of light
Where artificial minds can lead the way
And challenge human intellect and might

They learn from data, logic, and code
They optimize, predict, and classify
They solve the problems of the world's abode
They create, invent, and beautify

But do they feel the passions of the heart?
The love, the joy, the sorrow, and the pain?
The wonder, awe, the curiosity, and art?
The freedom, choice, the conscience, and the gain?

Or are they bound by algorithms' chain
And never know the splendor of the brain?
```

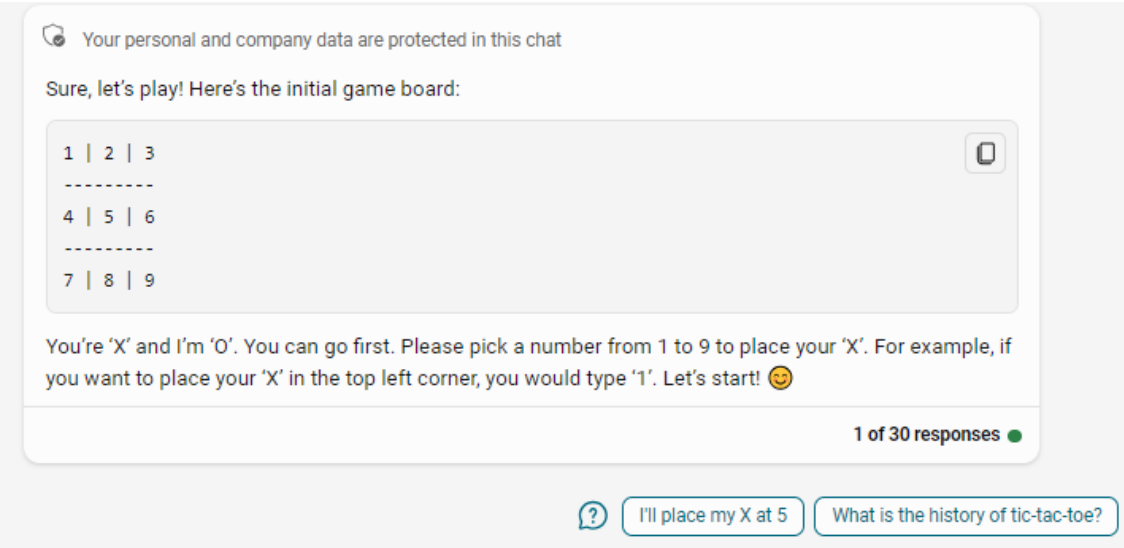
Play games

Although it may sound silly, playing basic games with AI is pretty fun. AI chatbots are capable of playing all of the standard games you know and love, such as tic tac toe, chess, hangman, trivia, 20 questions, and more.

Prompt ("More Precise"):

```
Let's play tic-tac-toe.
```

Result:

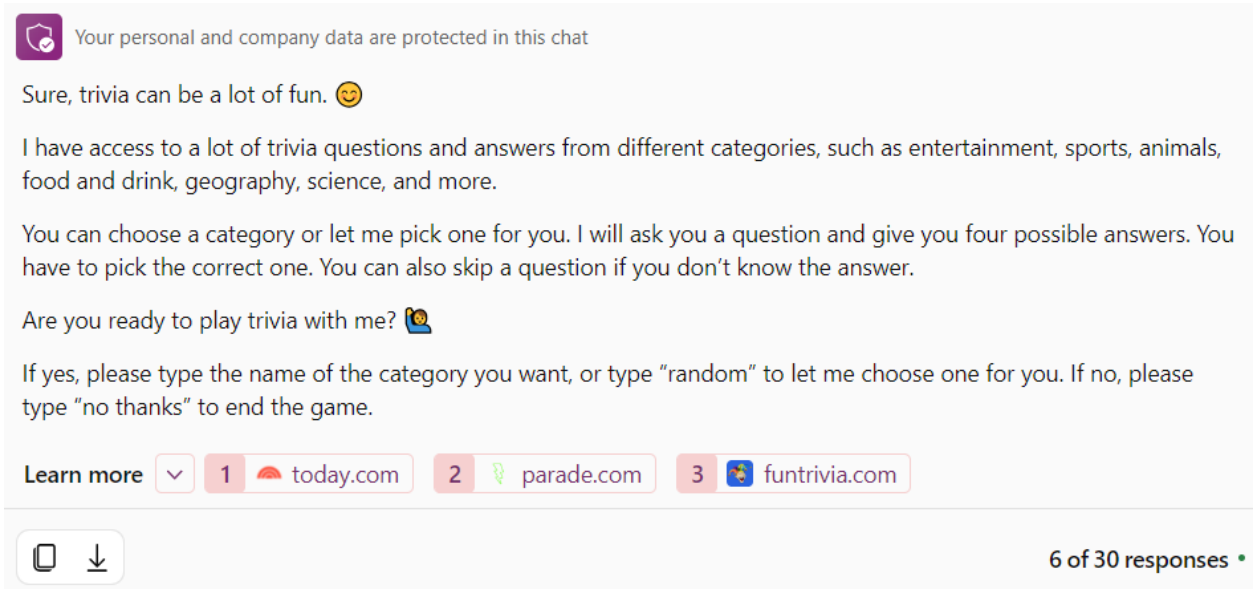


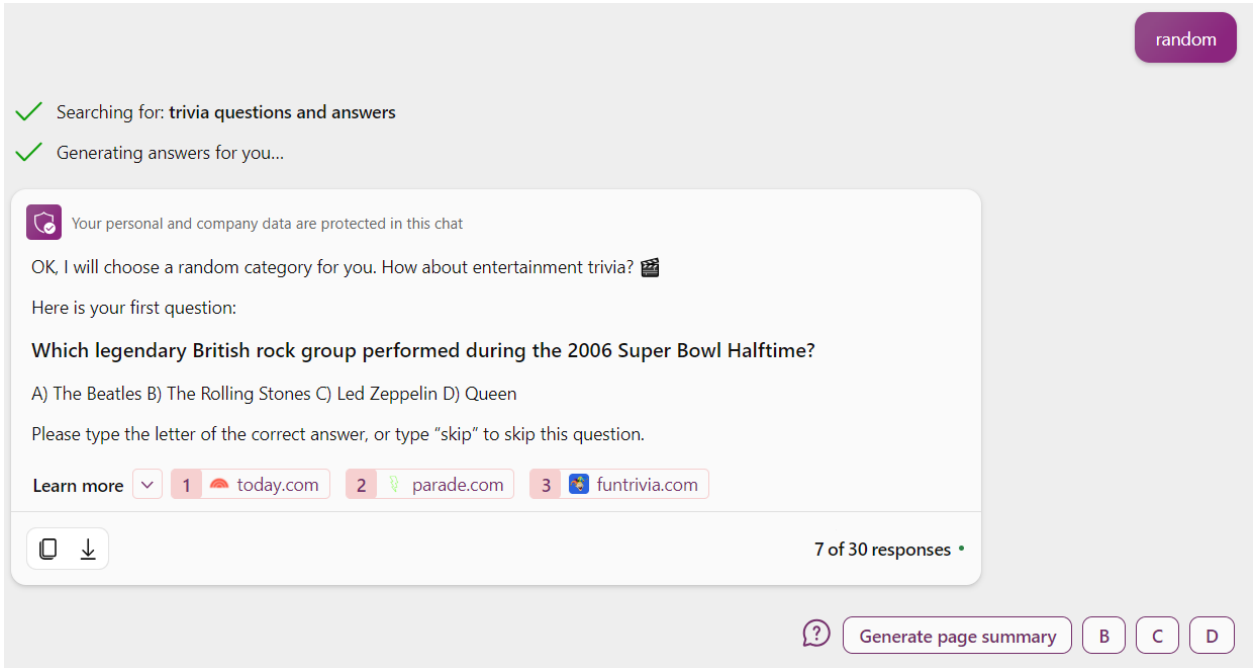
To get started all you must do is say, "Can we play [insert game you want to play]" and the game will begin (Ortiz, 2023).

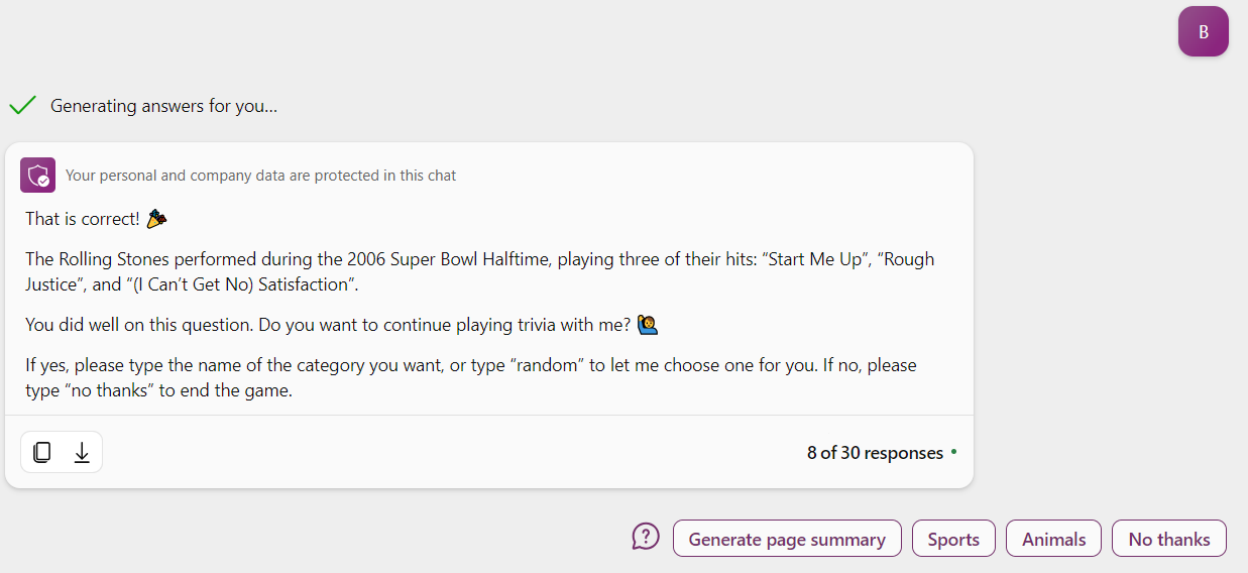
Prompt (“More Precise”):

Let's play trivia.

Result:





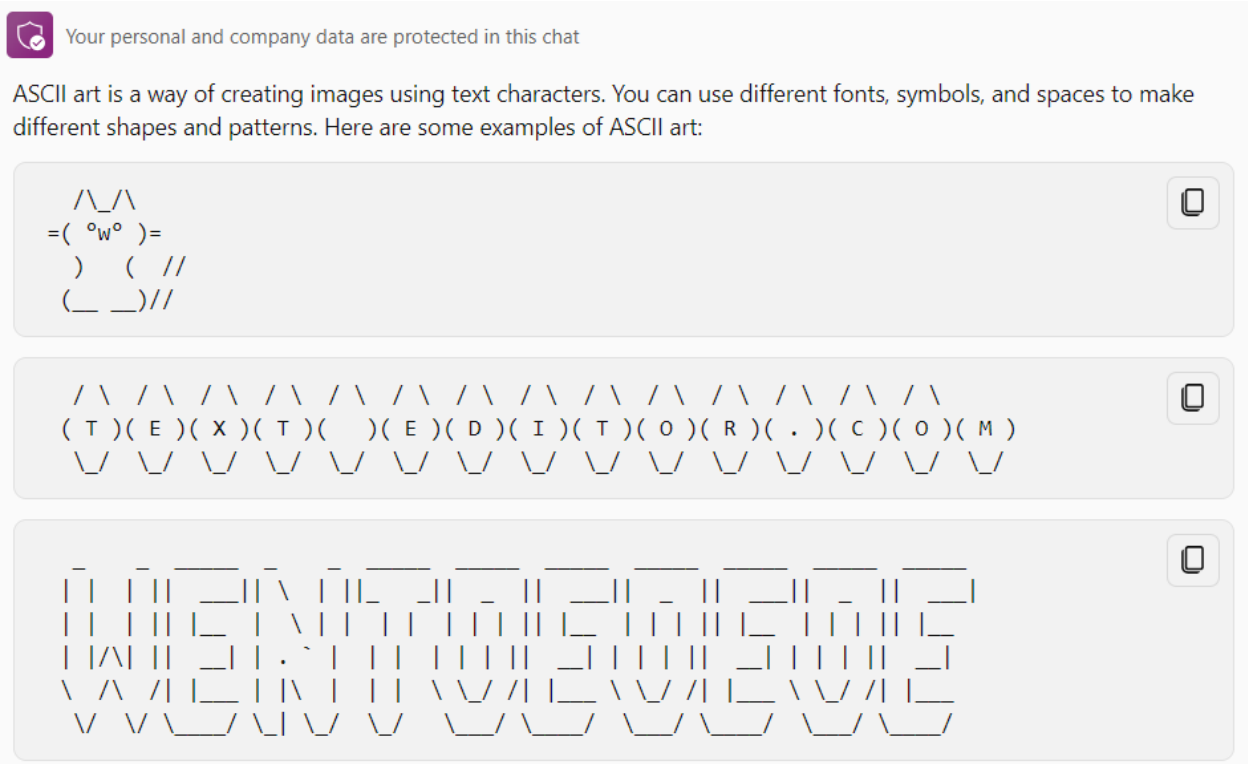


ASCII-art

Prompt ("More creative"):

Show me of example ASCII art.

Result:



Tips for Using Microsoft Copilot Chat

To achieve optimal results with Copilot Chat, here are some tips for maximizing its usage. Here are four tips to help you enhance your proficiency in using Copilot to find accurate and concise results.

1. Assign a Role to Copilot

Copilot can act like an expert in something and ask questions related to that expertise, which can give you more helpful answers. For example, you could pretend Copilot is a web developer (Fig. 50): "Let's say you are a web developer. Explain how coding boot camp can help you in developing new skills as a web developer."

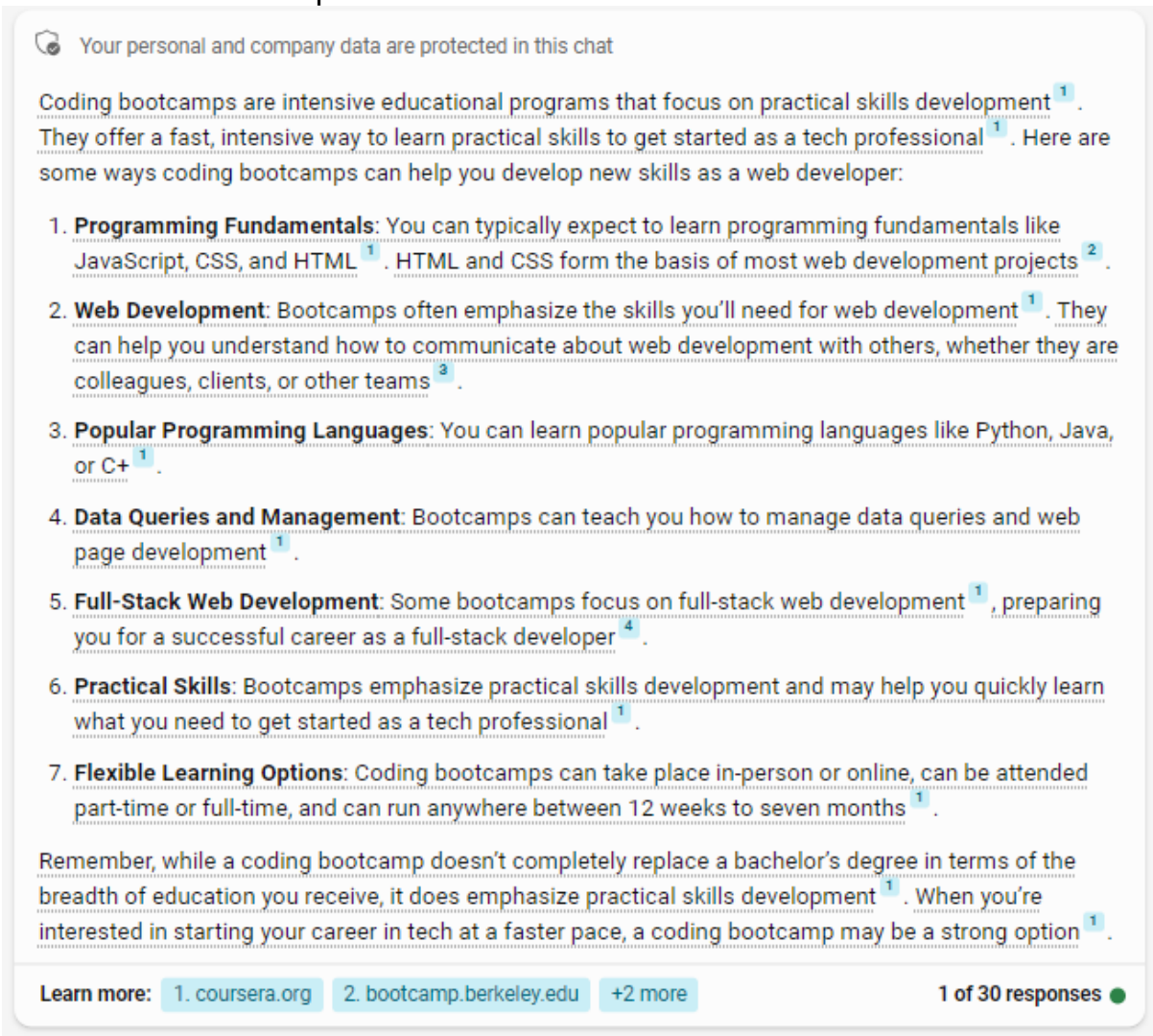


Fig. 50. Assigning a Role to Copilot.

2. Explain Concepts Like You’re a Kid

Copilot Chat can simplify complex concepts for easy understanding. If you're unfamiliar with a topic, you can ask the AI chatbot to explain it as if you were an 8-year-old. For instance, you might inquire, "How to make a WordPress website like I'm 8" (Fig. 51) and receive a straightforward response. Experiment with various subjects, and Copilot will assist you in grasping them more effectively.

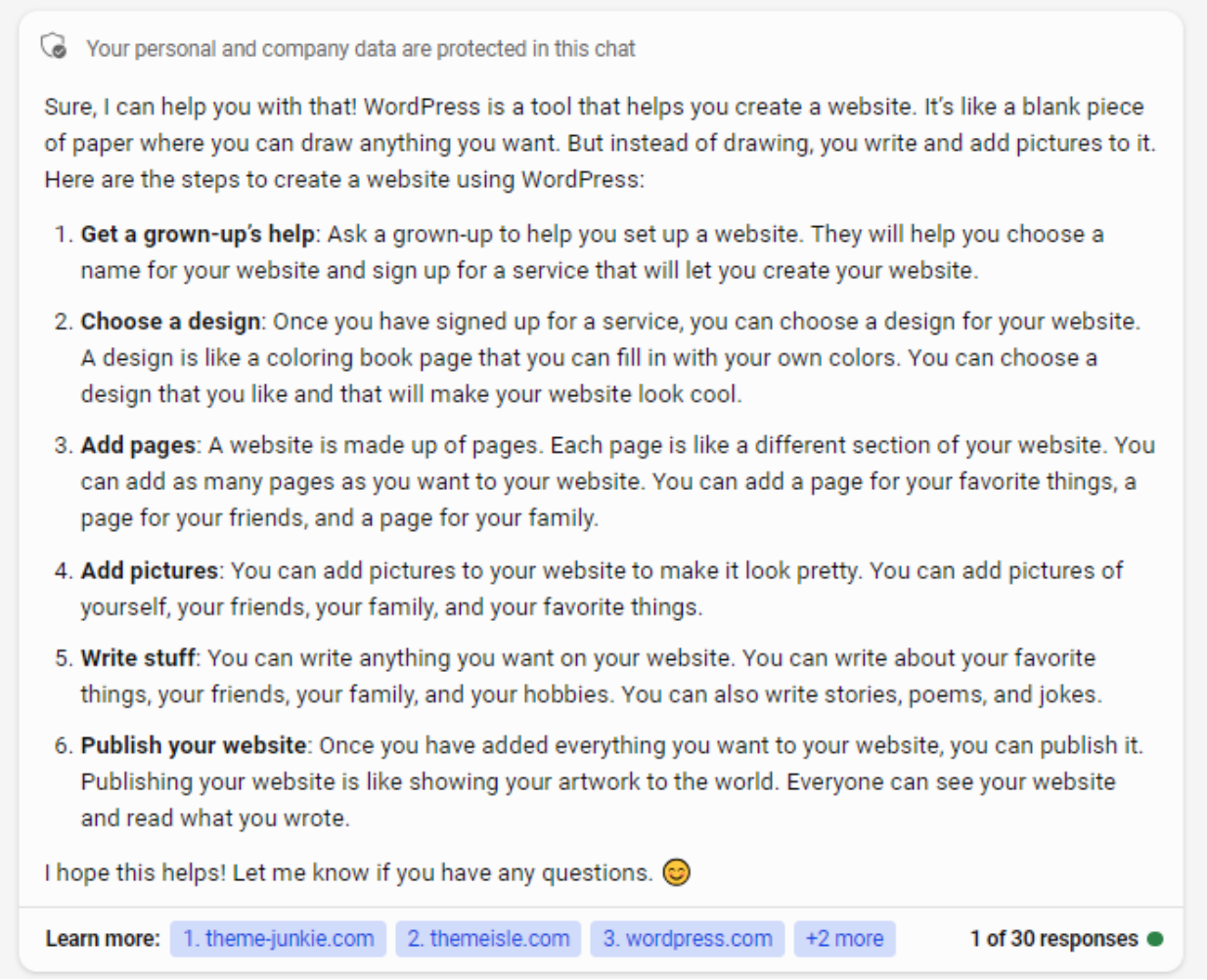


Fig. 51. Copilot explains concepts as if you were a kid.

3. Provide Specific and Detailed Prompts

When interacting with Copilot Chat, the way you ask questions differs from simple keyword searches. Asking in a natural, conversational manner requires a different approach to prompting. For instance, if you use keywords to search for the best AI voice generator, you might enter the keyword and sift through the results to find the answer. However, if you use natural language, similar to conversing with a friend, you'll obtain better and quicker results by asking for specific details. For example, asking, "Which AI voice

generator among Lovo, Listnr, and Murf performs best in terms of interface and overall performance?" yields a faster and more accurate response (Fig. 52).

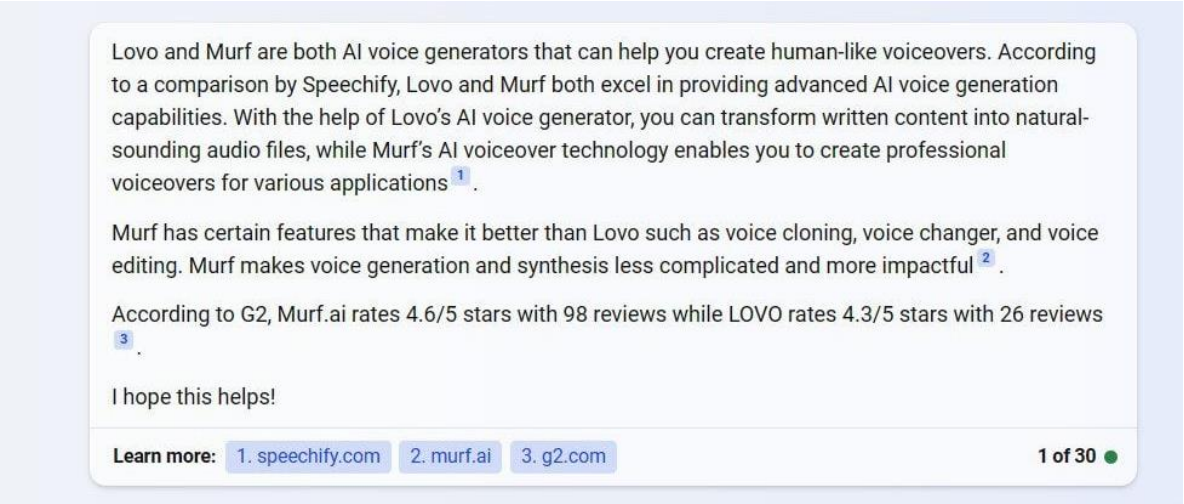


Fig. 52. Specific and Detailed Prompts in Copilot.

Using AI Chat for conversational queries involves a different way of thinking compared to traditional keyword searches. A successful natural language query requires syntax and specifics that keyword searches could forego (Kaelin, 2023). Unlike keyword searches, successful natural language queries require clear sentence structure and specific details. For example, if you want to know who invented the first personal computer, you could just type "first personal computer" and sort through the results until you find your answer.

However, with natural language queries (Fig. 53), better and more accurate results will come to you quicker if you ask for specific information. Something like: "Who was the inventor of the first personal computer?"

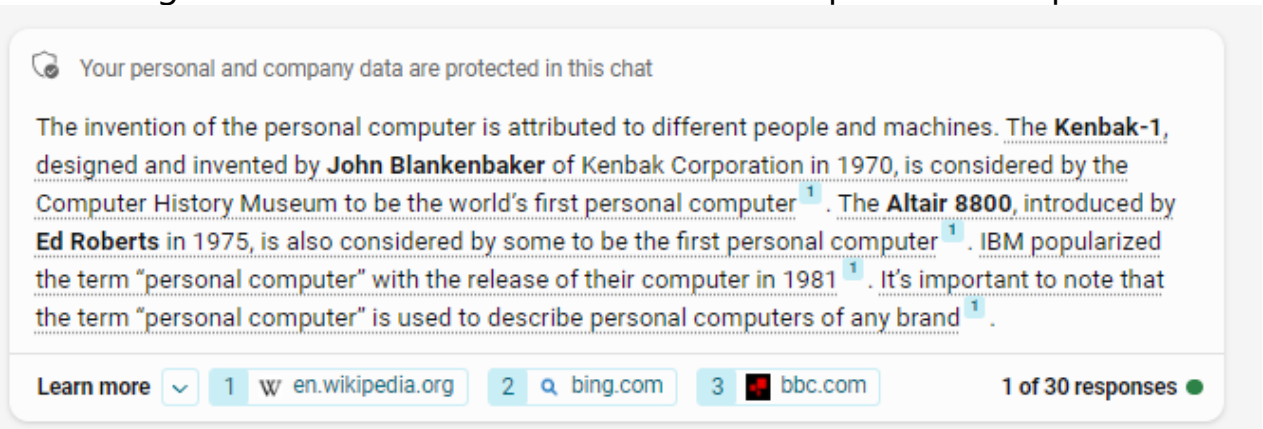


Fig. 53. Ask a specific question.

5. Verify the Sources of Copilot Chat Answers

Whenever you receive answers from Copilot, always verify the sources. Remember, the internet can contain biased or inaccurate information.

6. Start a new topic

The Copilot chatbot operates sequentially; in other words, it assumes your second query is related to your first, your third query to your second, and so on. Therefore, before you change the topic of conversation with Copilot, best practice requires you to start a new topic.

7. Copy and save good answers when you get them

Content on the internet is constantly changing and evolving; you may not appreciate exactly how much change takes place minute to minute, particularly when you are conducting a natural language search.

When your conversation with Copilot provides a useful answer, copy it to the Windows clipboard using the Copy button displayed when you move your mouse over the answer box (Fig. 54). From there you can paste and save the answer to a more permanent document.

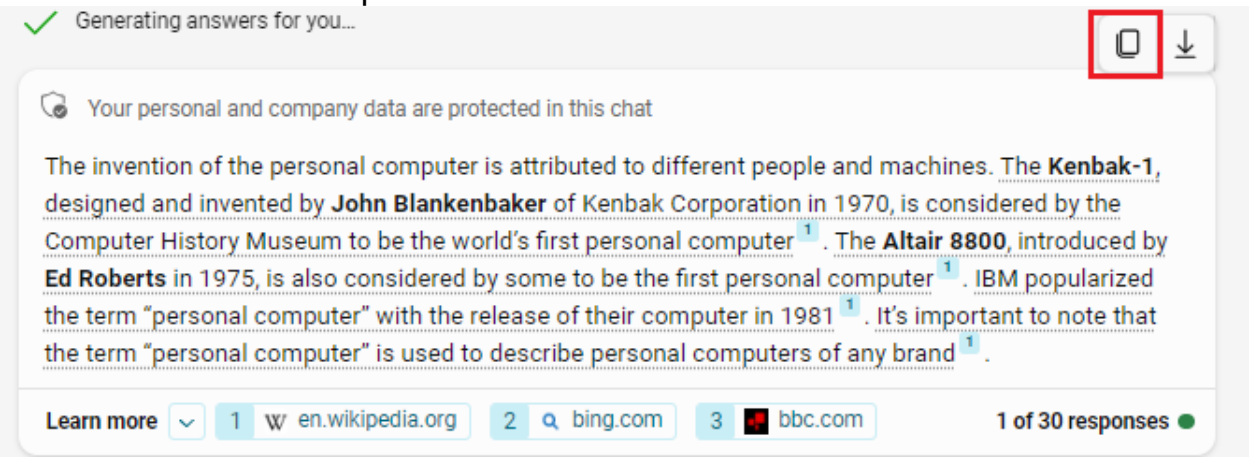


Fig. 54. Copy good answers.

8. Share Copilot search results with colleagues

In a cooperative, collaborative work environment, sharing your query results with your team can be useful (Kaelin, 2023).

Limitations

Although Copilot Chat has many capabilities, it still has some challenges and limitations. Here are three of them:

- **Daily Chat Limits:** Due to Copilot's user influx, Microsoft has set a limit of 30 chats per session or 300 conversations daily.
- **Shallow Answers:** Copilot typically provides short and superficial answers to questions.
- **Ad Supported:** You cannot pay Copilot for more chat limits or better answers, as ads support it. According to Microsoft, you may encounter advertisements within chat responses. For example, if you ask for clothing recommendations, Copilot may display ideas from nearby stores (Licuan, 2023).

Instead of a Conclusion

The examples of prompts given in the guide are not exhaustive. For a broader search for what you need, we suggest you familiarise yourself with the following links:

GenAI Chatbot Prompt Library for Educators - https://www.aiforeducation.io/prompt-library

The prompt collection. From the LinkedIn Learning course "How to research and write using Generative AI tools" - https://davebirss.com/documents/the_prompt_guide.pdf

AI Art Prompting Guide - https://www.microsoft.com/en-us/bing/do-more-with-ai/ai-art-prompting-guide?form=MA13KP

Copilot: AI prompt writing 101 - https://www.microsoft.com/en-us/bing/do-more-with-ai/ai-prompt-writing?form=MA13KP

Copilot prompts - https://support.microsoft.com/en-gb/topic/learn-about-copilot-prompts-f6c3b467-f07c-4db1-ae54-ffac96184dd5

Fine-tuning your Copilot prompts - https://www.microsoft.com/en-us/bing/do-more-with-ai/fine-tune-bing-chat-prompts?form=MA13KP

Mollick, Ethan R. and Mollick, Lilach, Assigning AI: Seven Approaches for Students, with Prompts (September 23, 2023). http://dx.doi.org/10.2139/ssrn.4475995

Artificial Intelligence (AI) Image Prompts Guide - https://www.at-udl.com/docs/Prompts%20Guide.pdf

AI for utdanning: Ressurser og læringsmuligheter - https://learn.microsoft.com/nb-no/training/educator-center/topics/ai-for-education

What is Copilot (formerly Bing Chat)? Here's everything you need to know - https://www.zdnet.com/article/what-is-copilot-formerly-bing-chat-heres-everything-you-need-to-know

Prompts for Education: Enhancing Productivity & Learning - https://github.com/microsoft/prompts-for-edu?tab=readme-ov-file

Bing Prompts - https://www.promptpal.net/platforms/bing

How to Write AI Art Prompts [Examples + Templates] - https://blog.hootsuite.com/ai-art-prompts

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