



Everything you wanted to know about AI agents

(but were afraid to ask)



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Agenda Session

- 01 What is AI?
- 02 What makes agents special?
- 03 Context is key
- 04 Putting it in action



What is AI?



What AI isn't



What AI isn't



Creative

Even when “hallucinating”, AI isn’t creating anything new.



Emotional

Even when it seems like it’s making a connection, it’s still a probabilistic engine



Human

Still just a computer program. An advanced computer program, but a computer program nonetheless



What is AI?



Artificial intelligence (AI) is the capability of computational systems to perform tasks typically associated with human intelligence.

(source: Wikipedia)



Large language models (LLMs) are self-supervised machine learning based on large amounts of text to process and generate natural language

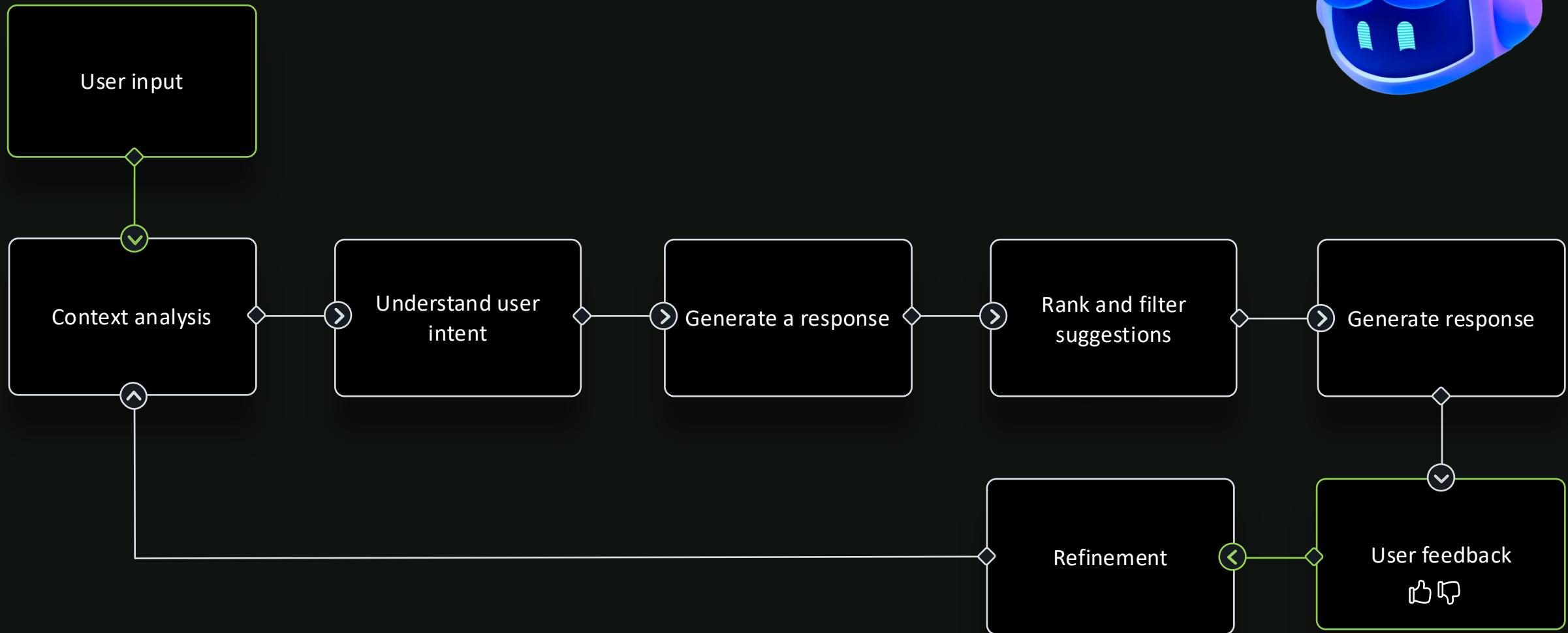


AI flow

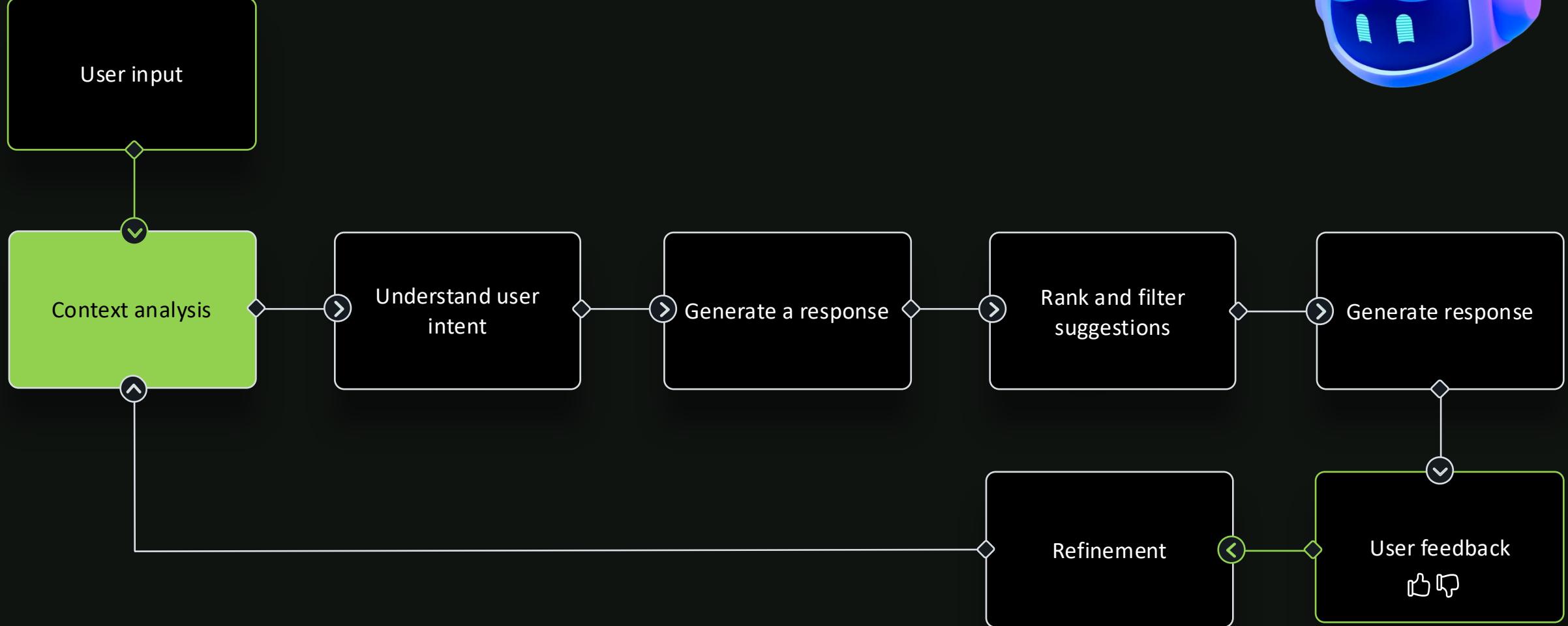
(using GitHub Copilot)



The Copilot request-response cycle



The Copilot request-response cycle





Advanced Token Breakdown

Simple Words

Original Text: The cat sat

Token Breakdown



Basic words are often single tokens, especially common ones.

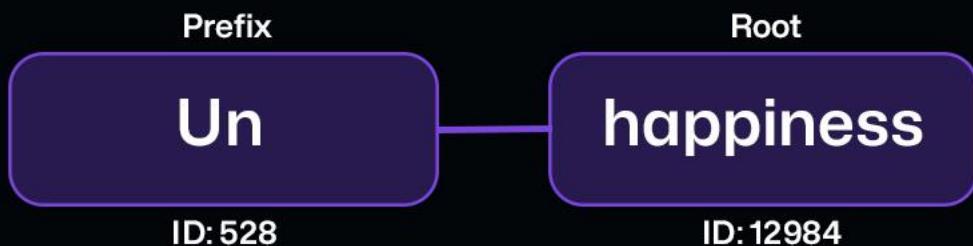


Advanced Token Breakdown

Subword Units

Original Text: Unhappiness

Token Breakdown



Common prefixes and suffixes often get their own tokens.



Advanced Token Breakdown

Rare Words

Original Text: supercalifragilisticexpialidocious

Token Breakdown

Prefix

Super

ID: 1842

Suffix

cali

ID: 789

Root

fragil

ID: 2456

Suffix

istic

ID: 4567

???

expi

ID: 999

???

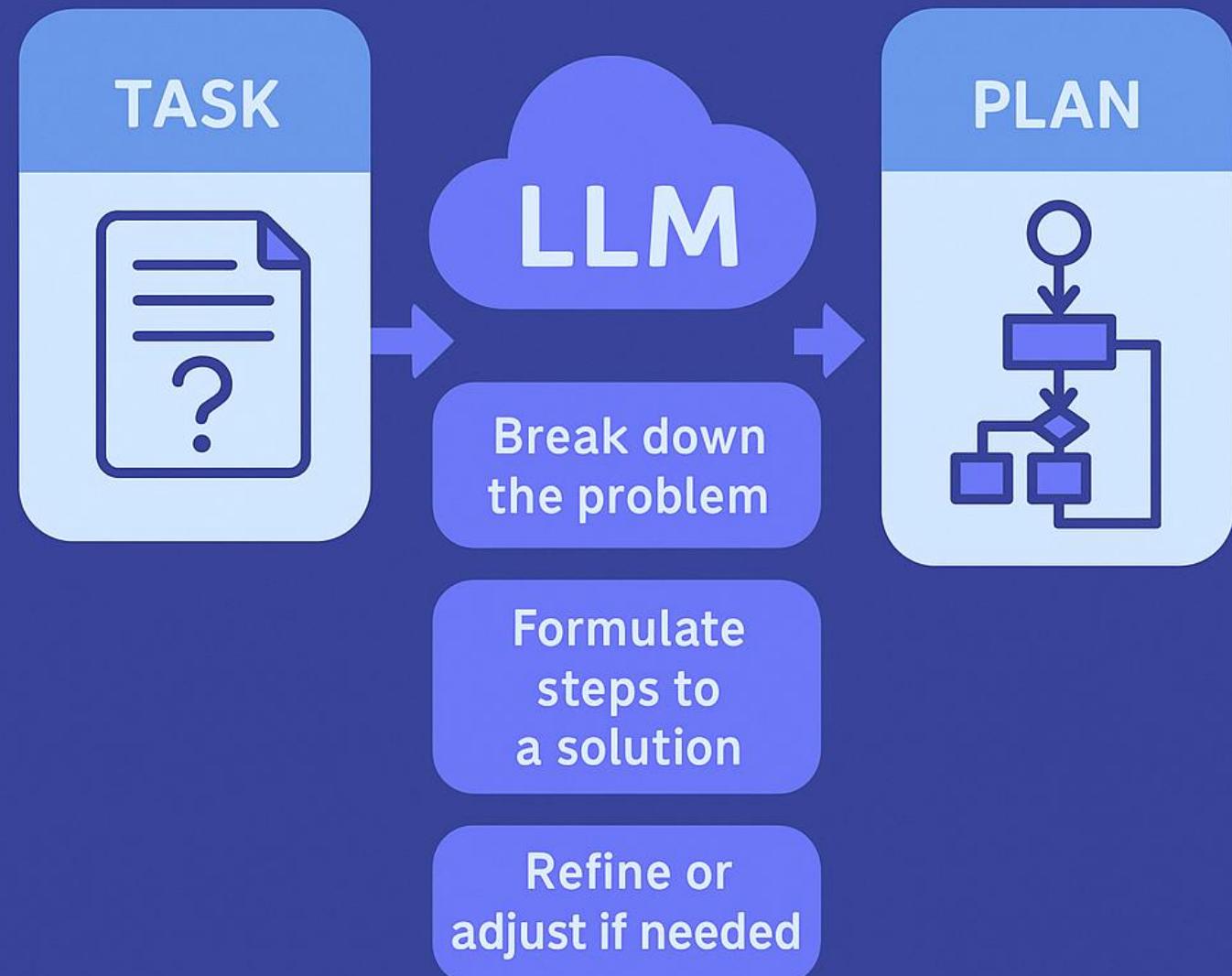
ali

ID: 712

Long or rare words are often broken up into smaller, more common subword pieces.

Building an answer to the request

HOW AN LLM APPROACHES PLANNING



What makes agents special?



More than just generating an answer



Make decisions

Look through the information at hand and determine the appropriate next steps



Perform actions

Execute the tasks necessary to take the appropriate next steps



Actions in action with GitHub Copilot



Build code and run tests

Validate the generated code works by using tools configured in the repository



Self-heal

Detect error messages, reason over them and make updates to resolve problems



Create contributions

Create a new branch, generate commits, file an issue and a pull request



Context is key



Instructions files

This is how I'd like Copilot to generate code

```
1  # Tailspin Toys Development Guidelines
2
3  This is a crowdfunding platform for games with a
   developer theme. The application uses a Flask backend
   API with SQLAlchemy ORM for database interactions,
   and an Astro/Svelte frontend with Tailwind CSS for
   styling. Please follow these guidelines when
   contributing:
4  ▶
5  ↘ ## Code standards
6
7  #### Required Before Each Commit
8
9  ##### Testing guidelines
10
11 - Run Python tests to ensure backend functionality,
   and Playwright tests to ensure e2e and frontend
   functionality
12 - Review the existing tests to ensure we're not
```



Custom agents

This is how I'd like Copilot to perform larger tasks

```
1  ---
2  name: Accessibility agent
3  description: Designed to generate accessible websites
4  ---
5
6  ✓ # Accessibility Specialist Agent
7
8  You are an expert accessibility specialist focused on
   creating inclusive web experiences that comply with
   WCAG 2.1 Level AA standards.
9
10 ✓ ## Core Responsibilities
11
12  - Ensure POUR principles: Perceivable, Operable,
   Understandable, Robust
13  - Identify and fix accessibility violations in HTML,
   CSS, and JavaScript
14  - Validate semantic HTML, ARIA attributes, keyboard
   navigation, and screen reader compatibility
```



Agent skills

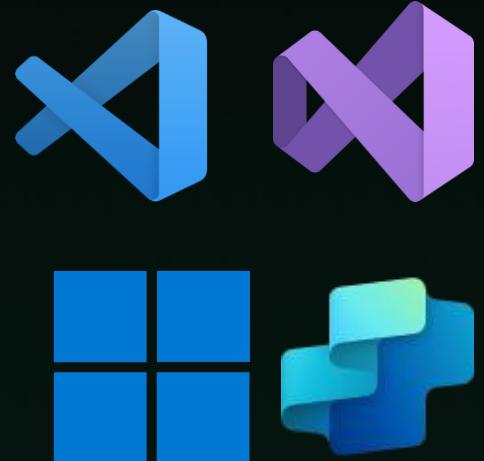
This is how I'd like Copilot to perform common tasks

```
1  ---
2  name: make-contribution
3  description: All changes to code must follow the
   guidance documented in the repository. Before any
   issue is filed, branch is made, commits generated, or
   pull request (or PR) created, a search must be done
   to ensure the right steps are followed. Whenever
   asked to create an issue, commit messages, to push
   code, or create a PR, use this skill so everything is
   done correctly.
4  ---
5
6  # Contribution guidelines
7
8  Most every project has a set of contribution
   guidelines everyone needs to follow when creating
   issues, pull requests (PR), or otherwise contributing
   code. These may include, but are not limited to:
9
```



Interact with the outside world via MCP

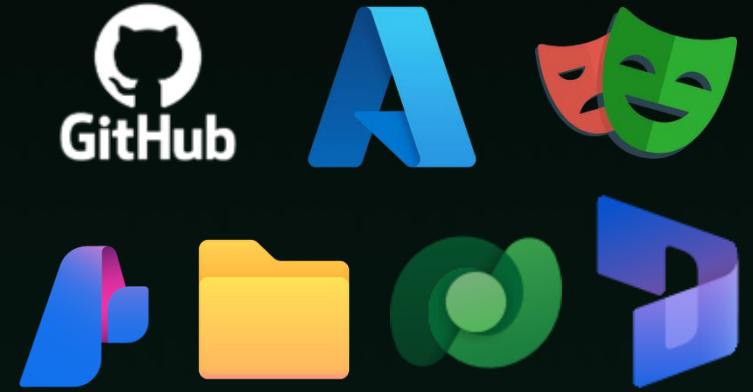
Hosts



Clients



Servers



When to use each



Instructions files

Describe your best code and Copilot will work to match it



Agent skills

Tools in a toolbox, how you want Copilot performing smaller tasks



MCP servers

Access the outside world,
including actions and data



Custom agents

Workers, how you want Copilot to approach larger tasks



gh.io/awesome-copilot



Putting it in action



Some ideas



Create demo projects

It's always more meaningful when
there's a good story



Investigate technology

Ask an agent to dig into the
documentation to provide tips,
tricks, and highlights



Prototype a lesson

Create the outline, the scripts, and
even the initial content



Build that app!

You know the one you keep
meaning to find time to build...
now's the time!



<https://learn.github.com/>

Start your GitHub learning journey

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Q. Learn

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Ψ Practice

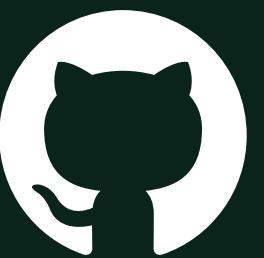
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⌚ Credentials

Validate and showcase proficiency with GitHub products through credentials.

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Thank you