



Accelerate with AI: Unlocking the full power of GitHub Copilot

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Developer Productivity, Microsoft Global Black Belt

Agenda

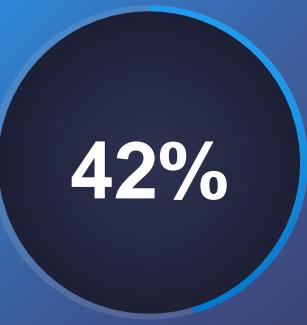
AI Programmer Introduction

- Benefit
- Trend

The Full Power of GitHub Copilot

- Improve Developer Productivity
- AI native Agent and ecosystem
- Meet enterprise requirement
- Compliance and Security
- Innovation

Improving developer experience drives business outcomes



42%

more productive
devs



20%

more innovation



50%

Less tech debt

lets developers
focus on what
matters most



More time on :

Designing

Brainstorming

Collaborating

Iterating

Planning



Less time on :

Writing Tests, Repetitive Code, & Boilerplate

Debugging

Searching Documentation

Finding Vulnerabilities

Deciphering Existing Code

Correcting Syntax

Summarizing Changes and Comments

Learning Git Commands

AI Programmer Usage Trend



GitHub Copilot



GPT-o1
GPT-4omini
GPT-4o
Claude Sonnet
Gemini

C#, Java, Python, JavaScript, C, C++,
Go, Perl, PHP, Ruby, Swift, TypeScript,
SQL, and Shell

[Github Copilot](#)
[Github Copilot Chat](#)
[Github Copilot Edit](#)

GitHub Copilot : The world's most widely adopted AI developer tool

77,000+

Businesses

1 in 3

Fortune 500
Companies

3B+

Accepted Lines of
Code

Source: [GitHub, 2024](#)

GitHub



150M+

Users



4M+

Organizations



420M+

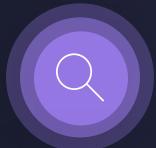
Repos



90%

Fortune 100

Microsoft Loves Dev Tools and AI Programmer



Largest tech company in the world

We continuously measure and improve productivity and wellbeing of our 78,000+ developers and 5,000+ security experts



World's most loved developer tools

150M+ developers and the entirety of the open-source community live in GitHub. 38M+ developers use Visual Studio and Visual Studio Code



Our innovative leaders influence the software industry

Nicole Forsgren (developer experience, SPACE and DORA metrics), Guido van Rossum (Python), Brendan Burns (Kubernetes), Anders Hejlsberg (TypeScript), etc.

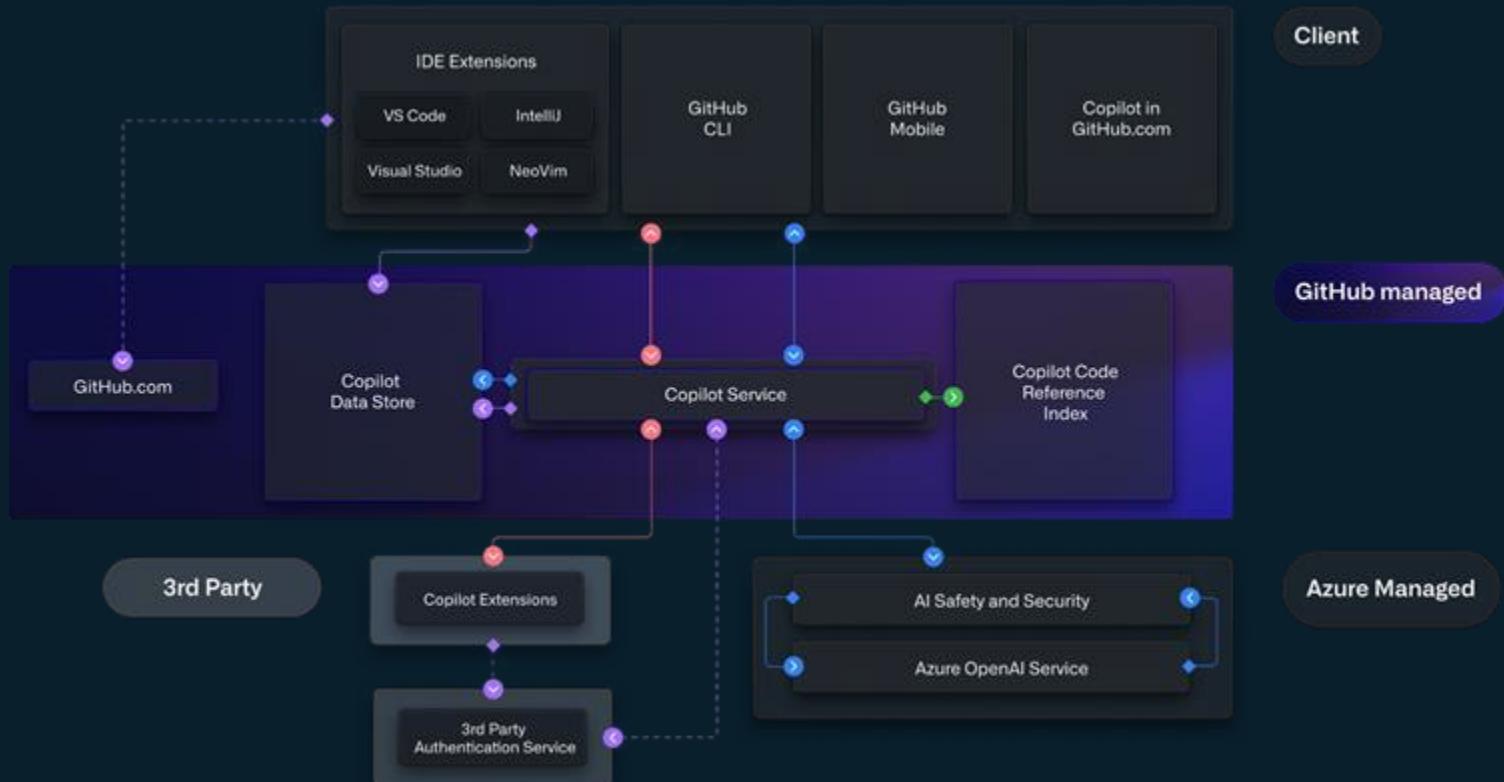
Development Infrastructure

IDE + AI Programmer

The Full Power of GitHub Copilot

- Improve Developer Productivity
- AI native Agent and ecosystem
- Meet enterprise requirement
- Compliance and Securtiy
- Innovation

GitHub Copilot Structure



Improve Developer Productivity



Code Generation



Debug



Test

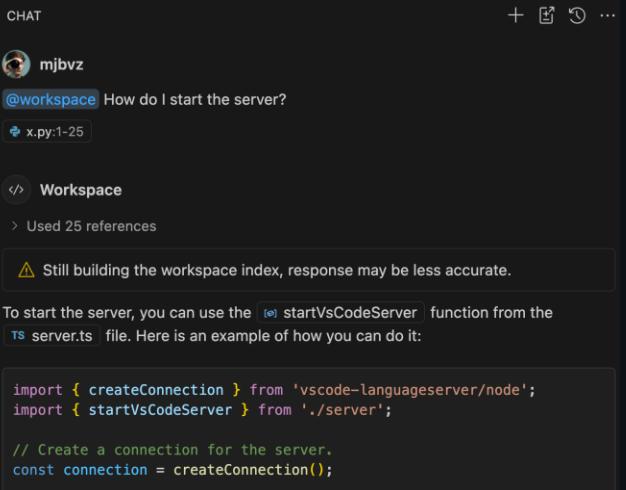


Index/KB/Search

VS Code Enhancement

Edit with Copilot

Multiple Files Editing

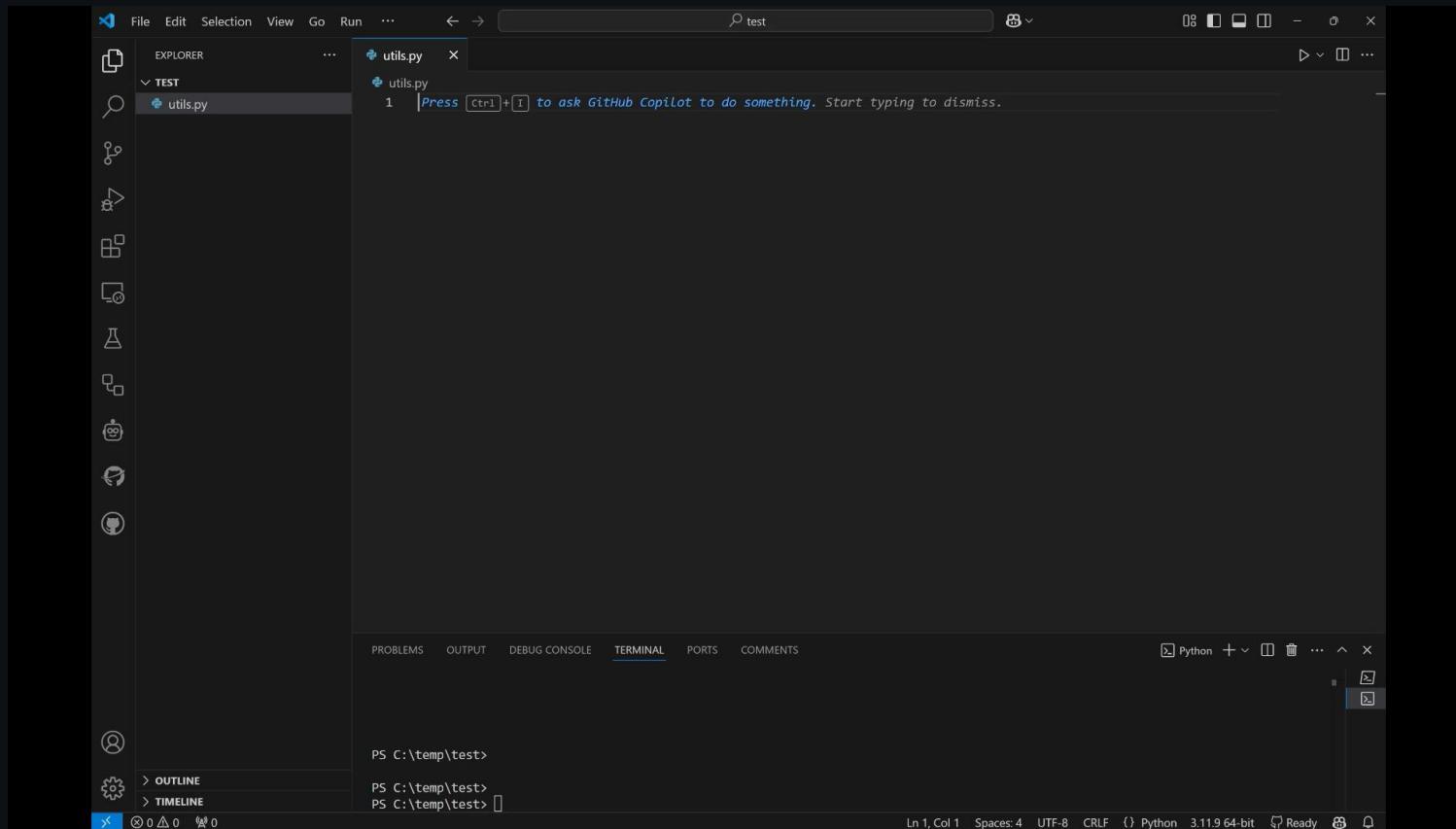


Indexing

A screenshot of the Ask Copilot interface. At the top left is the text "Ask Copilot". Below it is a button labeled "{} settings.json Current file" with a refresh icon. To the right are icons for user profile, microphone, and document. On the far right, the text "walkthrough.de" is displayed. A dropdown menu is open on the right side, listing "Claude 3.5 Sonnet (Beta)", "Gemini 1.5 Pro (Beta)", and three options under "GPT 4o": "GPT 4o", "o1-mini (Beta)", and "o1-preview (Beta)".

Multiple Models

Unit Testing



GitHub Copilot Multiple Models

Debug

The screenshot shows a Visual Studio code editor with a file named `Program.cs`. The code is as follows:

```
// See https://aka.ms/new-console-template for more information
using System;
using System.Collections.Generic;

public class Example
{
    public static void Main(string[] args)
    {
        int value = Int32.Parse(args[0]);
        List<String> names = null;
        if (value > 0)
            names = new List<String>();
        names.Add("Major Major Major");
    }
}
```

A debugger tooltip is displayed over the line `names.Add("Major Major Major");`. The tooltip title is "Exception Unhandled" and the message is "System.IndexOutOfRangeException: 'Index was outside the bounds of the array.'". At the bottom of the tooltip, there is a button labeled "Ask Copilot" which is highlighted with a red box.

The screenshot shows the GitHub Copilot Chat interface. The title bar says "GitHub Copilot Chat" and the main area says "Analyze the 'System.IndexOutOfRangeException'". Below that is a section titled "GitHub Copilot" with the following text:

This error happens because the application is trying to access an element at index 0 of the `args` array, but the array is empty.

This might be happening because the application is expecting command line arguments, but none are being provided when the application runs. The `args` array is populated with command line arguments when the application starts. If no arguments are provided, the array is empty. The code then tries to parse the first argument (at index 0) to an integer, but since the array is empty, there is no element at index 0, hence the `IndexOutOfRangeException`.

To fix this, you could check the length of the `args` array before trying to access its elements. Here's an example of how you could modify your code:

```
public static void Main(string[] args)
{
    if (args.Length > 0)
    {
        int value = Int32.Parse(args[0]);
        List<String> names = null;
        if (value > 0)
            names = new List<String>();
        names.Add("Major Major Major");
    }
    else
    {
        Console.WriteLine("No comma");
    }
}
```

At the bottom right of the interface, there is a "Preview" button which is also highlighted with a red box.

CPU Usage - R...52.diagsession Report2023091...52.diagession* Report2023091...1.diagession* Program.cs

Output | Zoom In | Reset Zoom | Clear Selection

Diagnostics session: 5.746 seconds

1s 2s 3s 4s 5s

▲ CPU (% of all processors)

100 0

Open details... Categories Threads Settings

Top Insights

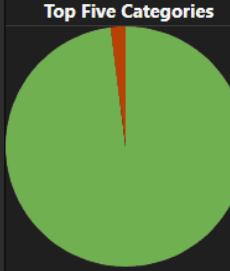
Issue
'System.String.Concat(string, string)' exceeded CPU Threshold of 5.00%.
[Learn more](#)

Description
7.06% of CPU time is spent in System.String.Concat(string, string). Consider using System.Text.StringBuilder to reduce concatenation operations.
[View source code](#) [Ask Copilot](#)

Top Functions

Function Name	Total CPU [unit, %]	Self CPU [unit, %]
[External Call] system.private.corelib.dll!0x00007ffb8130d39b	120 (18.40%)	120 (18.40%)
[External Call] system.private.datacontractserialization.dll!0x00007ffb80ff6c48	117 (17.94%)	117 (17.94%)
[External Call] system.private.corelib.dll!0x00007ffb81309251	102 (15.64%)	102 (15.64%)
[External Call] system.private.corelib.dll!0x00007ffb8130d3ac	58 (8.90%)	58 (8.90%)
[External Call] System.String.Concat(string, string)	46 (7.06%)	46 (7.06%)

Top Five Categories



Kernel : 98.0% (639)
Other : 2.0% (13)

Output

Show output from: Build

GitHub Copilot chat

8 Copilot

Hello! Let's build together. Here are some suggestions to get you started:

- ❖ What does Console.WriteLine() do?
- ❖ How do I write C# in a functional style?
- ❖ How does String.Substring() work?

I'm powered by AI, so surprises and mistakes are possible. Make sure to verify any AI code or suggestions, and share feedback so that we can learn and improve.

AI suggestions might be inaccurate.

Ask Copilot

GitHub Copilot chat | Solution Explorer | Git Changes

Copilot summaries for discussions & issues

Quickly understand context with AI-generated inline summaries

Save time and enhance productivity by grasping key points in issues and discussions, without reading every comment

The screenshot shows a GitHub issue page for the repository 'stripe / react-stripe-js'. The issue is titled 'API/Endpoint to access information from Copilot Knowledge Bases #1124'. A summary card from 'Copilot' is displayed, stating: 'Summary up to date' and 'Visible to everyone'. The summary text reads: 'The sentiments in this discussion are generally positive and collaborative, with a focus on improving Copilot's functionality. There's enthusiasm for the new feature, balanced with caution about potential impacts. The team shows a user-centric approach, valuing flexibility and customization. There's also a sense of pragmatism, acknowledging the need for further clarification.' Below the summary, a comment from 'rileybroughton' is shown, opened 2 weeks ago. The comment discusses integrating with CAPI and using Copilot knowledge bases for secret remediation. It mentions the goal is to automate secret leak remediation end-to-end, and the challenge is org-specific context. The user is looking for a low-lift way for customers to upload or point to markdown files for secret management and remediation processes. The issue page also shows labels like 'user story' and 'feature request', and a project 'Cybercats Squad Planning' with status 'Awaiting triage'. The sidebar includes sections for assignees, labels, projects, notifications, and participants.

octodemo / octoarcade-invaders

Type to search

Code Issues 6 Pull requests 15 Actions Projects Wiki Security 1 Insights Settings

Introduce game over logic #25

[Edit](#) [New issue](#)

[Open](#)

Copilot Summarize key takeaways of the issue [Summarize](#)

six7 opened 5 days ago

We want to introduce logic that handles a Game Over screen that's shown at the end when players collide with aliens or when the time is up. Also, we need to make it so that aliens move down every x seconds, adding an extra layer of difficulty to gameplay.

Currently, the game ends abruptly when the player loses, but we want to create a more engaging experience by displaying a Game Over screen with more information. This screen should prompt the player to try again, show their score, and display a play button for restarting the game.

Moreover, alien movement is too predictable, making it easy to master. To spice things up, aliens should move down at a steady pace, and the speed should increase as the game progresses.

This feature is crucial for enhancing gameplay experience and ensuring that players are kept on their toes. By adding these elements, we can make the game more immersive, challenging, and fun for everyone!

[Create sub-issue](#)

six7 added enhancement 5 days ago

timrogers 5 days ago

I think we should also add tests to ensure the new Game Over logic and alien movement features are functioning correctly and to prevent future issues from breaking these mechanics. Could we integrate those as part of this update?

Assignees: No one - Assign yourself

Labels: enhancement ready for work

Type: No type

Projects: No projects

Milestone: No milestone

Relationships: None yet

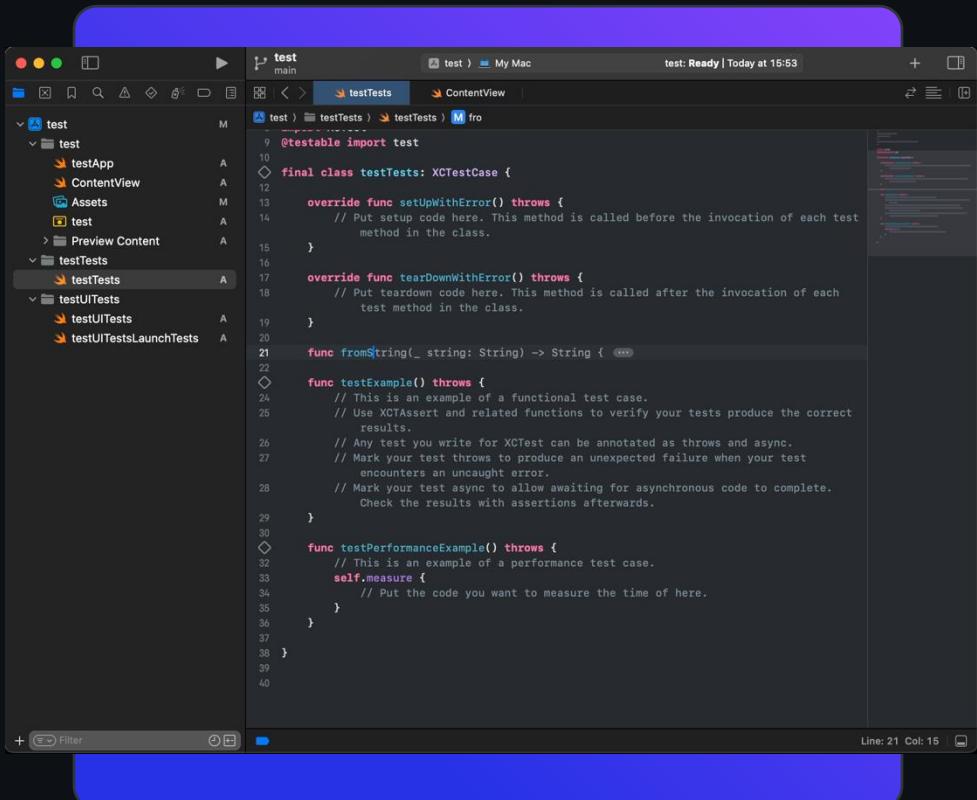
Development: [Open in Workspace](#)

Create a branch for this issue or link a pull request.

GitHub Copilot for Xcode

AI-powered code completion now available
for Apple developers in their preferred IDE

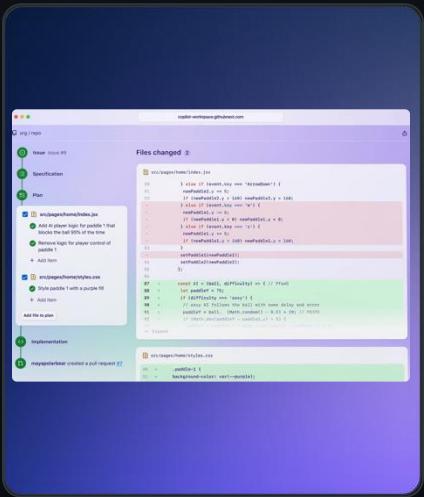
Accelerate development and enhance
productivity when building apps for Mac,
iPhone, iPad



The screenshot shows the Xcode interface with the GitHub Copilot extension active. The project navigation sidebar on the left lists files like testApp, ContentView, Assets, and testTests. The main editor window displays a Swift file named testTests.swift. The code is a template for an XCTest test case, starting with imports and class definitions. The cursor is positioned at the end of the first line, and the GitHub Copilot interface is visible above the code area, suggesting it's ready to provide suggestions or complete the line.

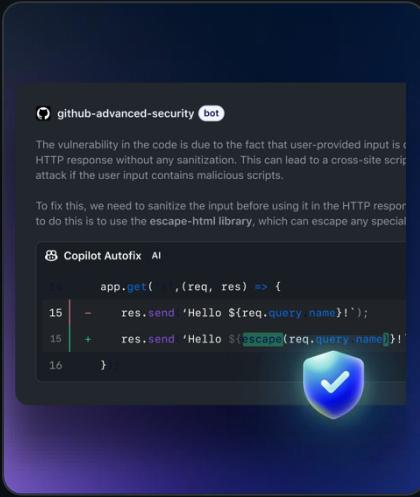
```
test
main
test
└── test
    ├── Assets
    └── testTests
        └── testTests.swift
Content View
testTests.swift
@testable import test
final class testTests: XCTestCase {
    override func setUpWithError() throws {
        // Put setup code here. This method is called before the invocation of each test method in the class.
    }
    override func tearDownWithError() throws {
        // Put teardown code here. This method is called after the invocation of each test method in the class.
    }
    func fromString(_ string: String) -> String {
    }
    func testExample() throws {
        // This is an example of a functional test case.
        // Use XCTAssert and related functions to verify your tests produce the correct results.
        // Any test you write for XCTest can be annotated as throws and async.
        // Mark your test throws to produce an unexpected failure when your test
        // encounters an uncaught error.
        // Mark your test async to allow awaiting for asynchronous code to complete.
        // Check the results with assertions afterwards.
    }
    func testPerformanceExample() throws {
        // This is an example of a performance test case.
        self.measure {
            // Put the code you want to measure the time of here.
        }
    }
}
```

AI Native Agent and Ecosystem



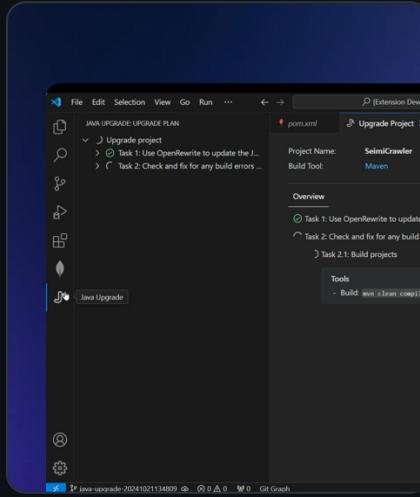
Copilot Workspace

Plan, Spec, Implement



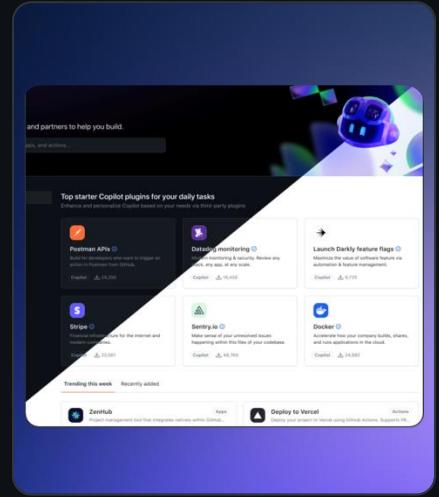
Copilot Autofix

AI-powered vulnerability detection and remediation



Framework upgrades

Analyzes and proposes a plan for Java upgrades



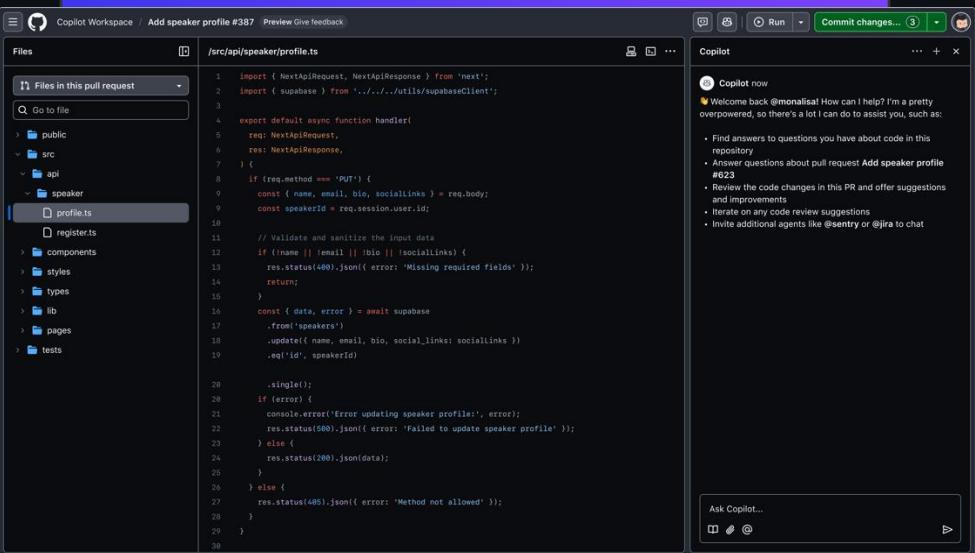
3rd Party Agents

Generate code coverage
Resolve errors automatically
Complex tasks in one click

Copilot Workspace

Your AI-powered development environment that transforms natural language ideas into code

Accelerate development and enhance collaboration by seamlessly moving from intent to implementation



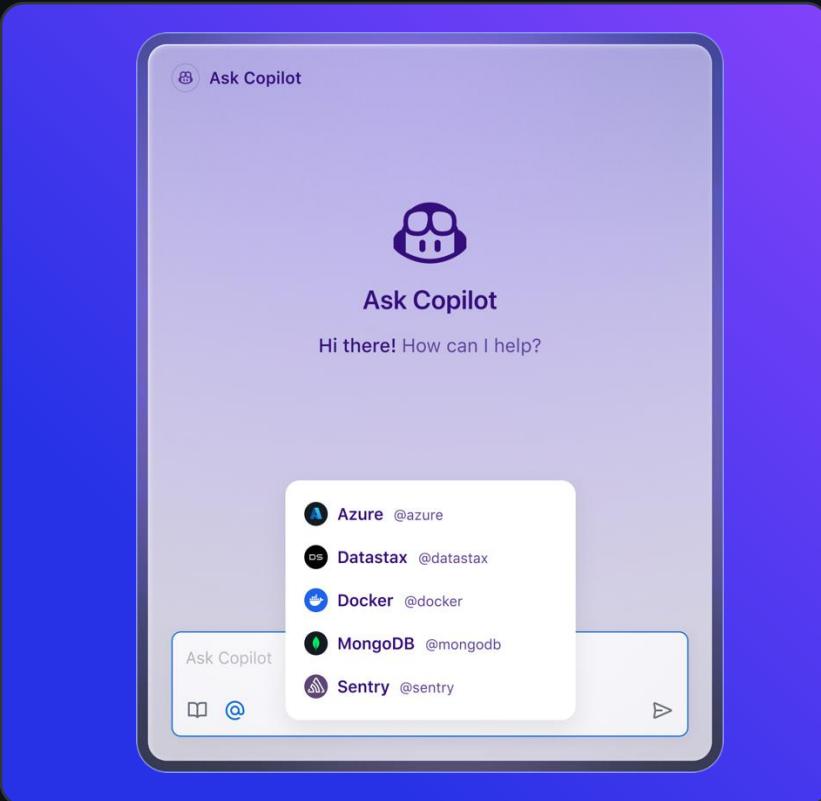
The screenshot shows the Copilot Workspace interface. At the top, there's a navigation bar with 'Copilot Workspace / Add speaker profile #387' and buttons for 'Preview', 'Give feedback', 'Commit changes...', and a user icon. Below the navigation is a large blue header area. The main workspace consists of several panels: a 'Files' sidebar on the left listing project structure like 'public', 'src', 'api', 'speaker', 'components', 'styles', 'types', 'lib', 'pages', and 'tests'; a central code editor window displaying a TypeScript file named 'profile.ts' with code for handling a PUT request to update a speaker profile; and a 'Copilot' panel on the right containing an AI-generated response to a pull request, a list of AI-powered repository features, and an 'Ask Copilot...' input field.

```
1 import { NextApiRequest, NextApiResponse } from 'next';
2 import { supabase } from '../../../../../utils/supabaseClient';
3
4 export default async function handler(
5   req: NextApiRequest,
6   res: NextApiResponse,
7 ) {
8   if (req.method === 'PUT') {
9     const { name, email, bio, sociallinks } = req.body;
10    const speakerId = req.session.user.id;
11
12    // Validate and sanitize the input data
13    if (!name || !email || !bio || !sociallinks) {
14      res.status(400).json({ error: 'Missing required fields' });
15      return;
16    }
17
18    const { data, error } = await supabase
19      .from('speakers')
20      .update({ name, email, bio, social_links: sociallinks })
21      .eq('id', speakerId)
22
23    .single();
24
25    if (error) {
26      console.error(`Error updating speaker profile: ${error}`);
27      res.status(500).json({ error: 'Failed to update speaker profile' });
28    } else {
29      res.status(200).json(data);
30    }
31  } else {
32    res.status(405).json({ error: 'Method not allowed' });
33  }
34}
```

Copilot Extensions

Extend GitHub Copilot with your favorite tools or build custom extensions to enhance your coding experience

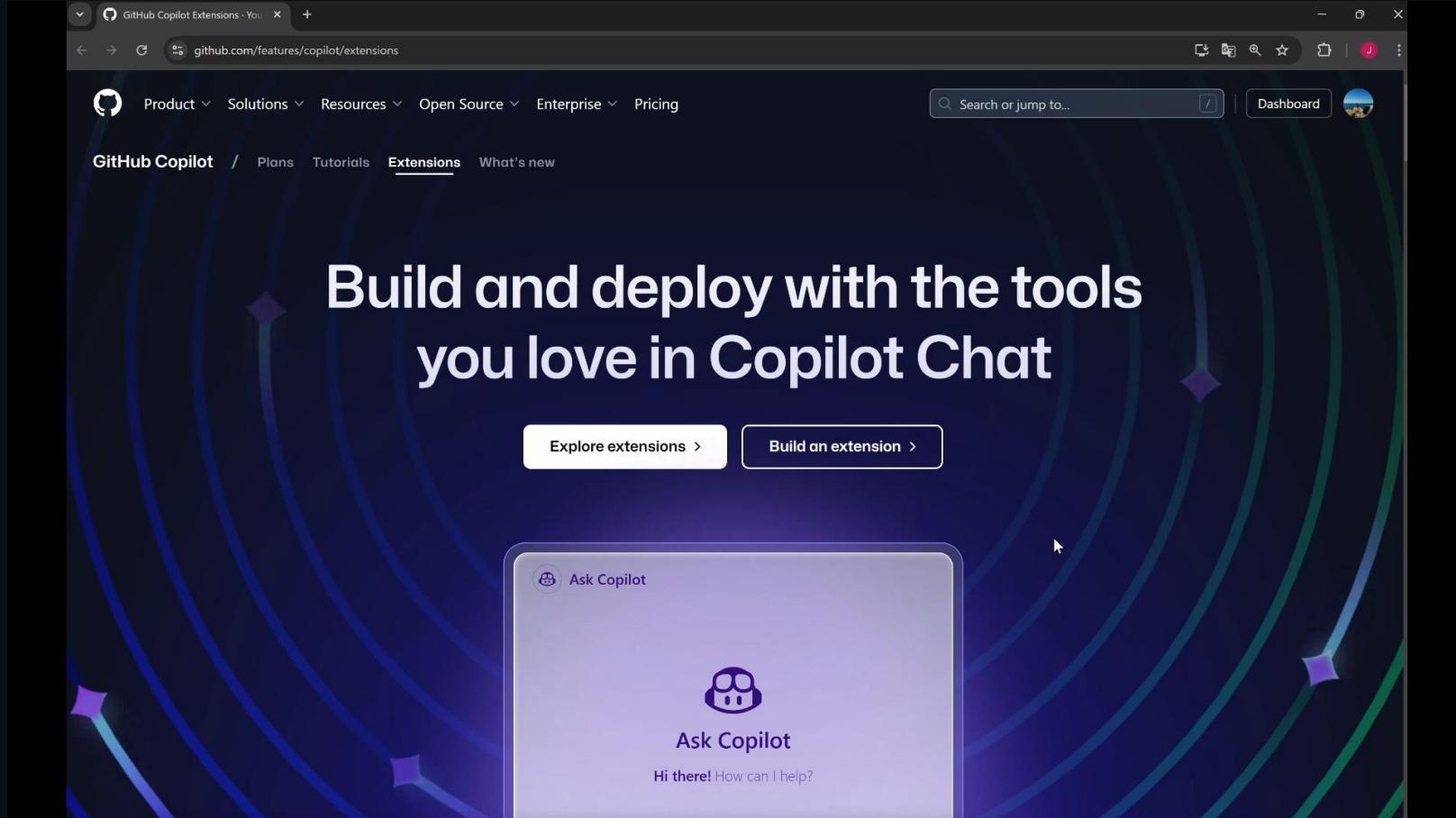
Stay in your flow by integrating all your tools into Copilot Chat, boosting productivity and reducing distractions



GitHub Copilot Extensions



GitHub Copilot Extension



A screenshot of a web browser displaying the GitHub Copilot Extensions page. The URL in the address bar is github.com/features/copilot/extensions. The page has a dark blue background with abstract purple and teal curved lines and diamond shapes. At the top, there's a navigation bar with links for Product, Solutions, Resources, Open Source, Enterprise, Pricing, and a search bar. Below that is a secondary navigation bar with GitHub Copilot, Plans, Tutorials, Extensions, and What's new. The main headline reads "Build and deploy with the tools you love in Copilot Chat". Below the headline are two buttons: "Explore extensions >" and "Build an extension >". A small "Ask Copilot" interface is shown in the bottom left corner, featuring the Copilot logo and the text "Hi there! How can I help?".

GitHub Copilot Extensions - You

github.com/features/copilot/extensions

Product Solutions Resources Open Source Enterprise Pricing

Search or jump to... Dashboard

GitHub Copilot / Plans Tutorials Extensions What's new

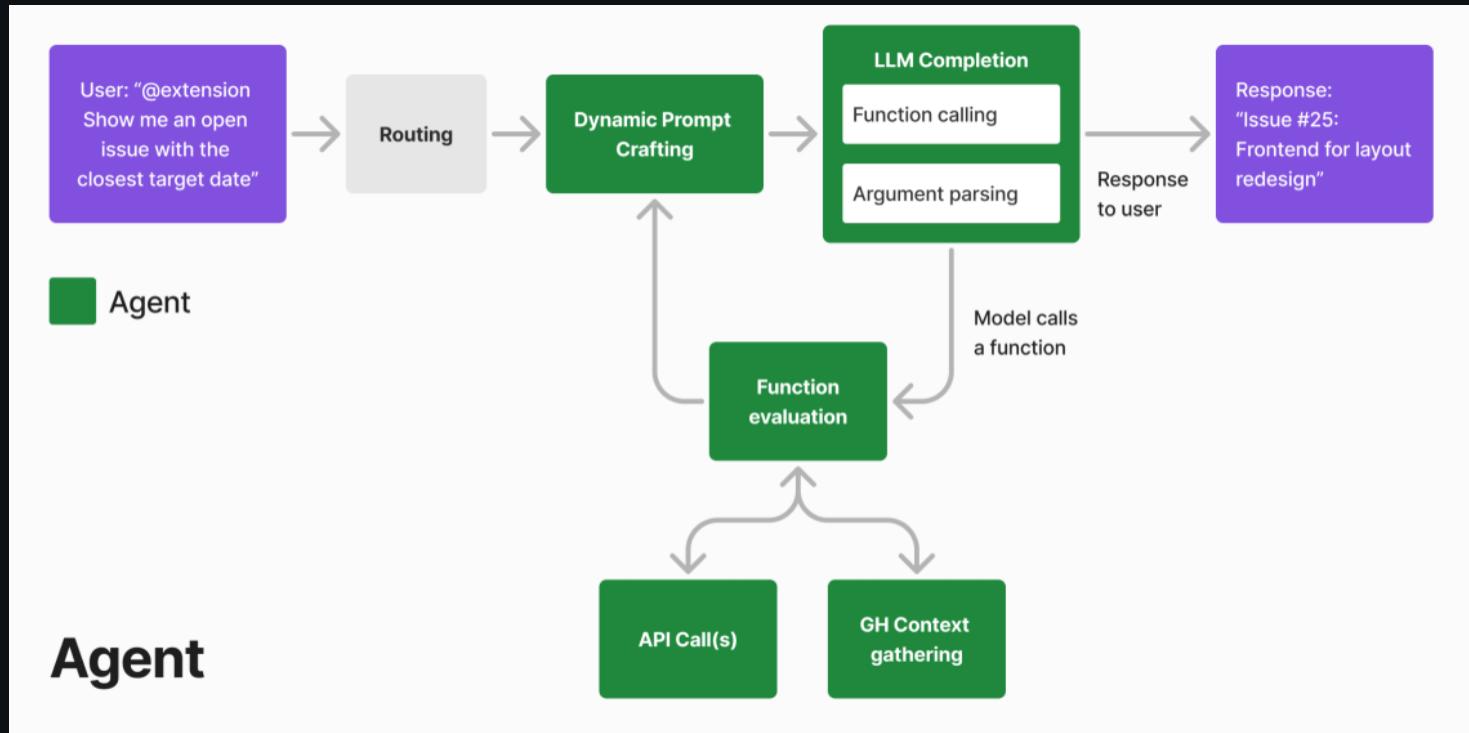
Build and deploy with the tools you love in Copilot Chat

Explore extensions > Build an extension >

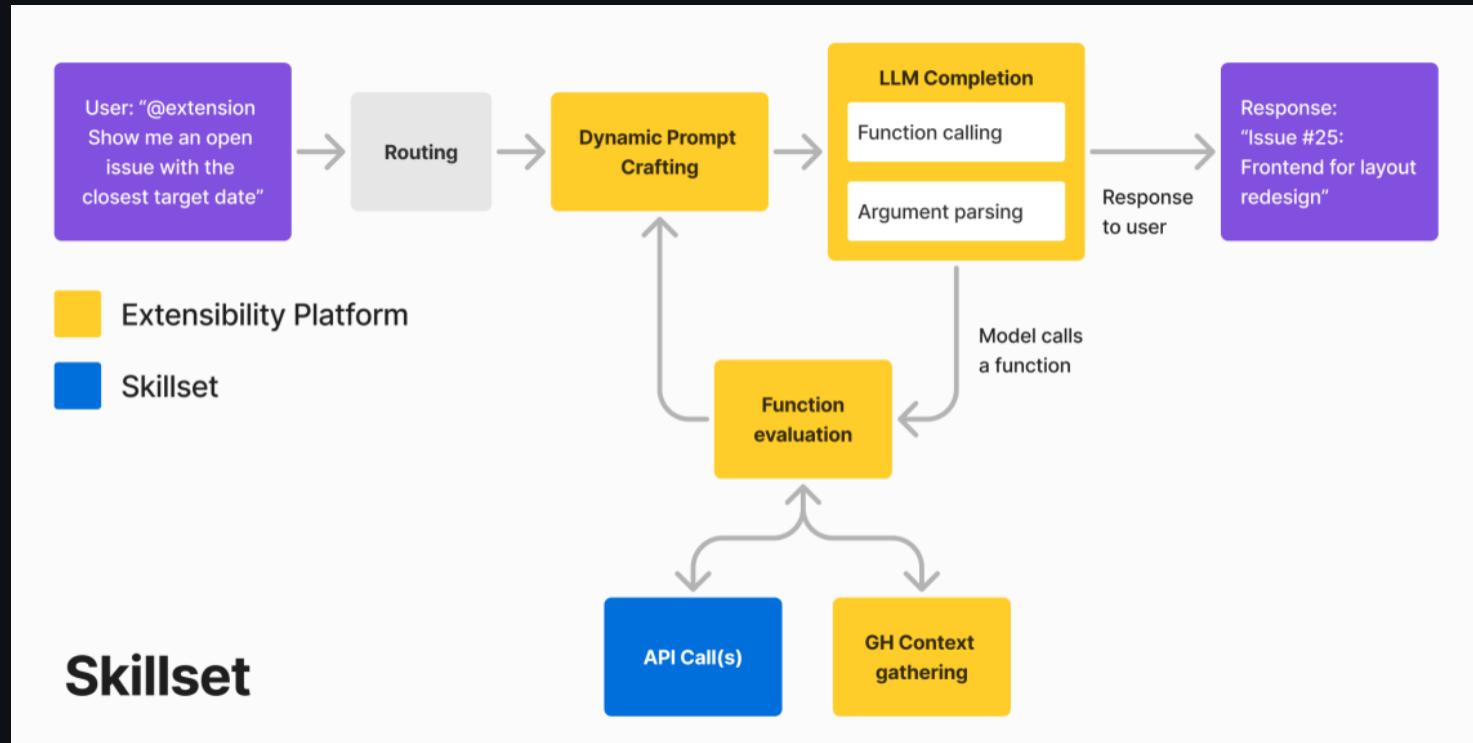
Ask Copilot

Hi there! How can I help?

Extension Architecture - Agent



Extension Architecture – Skillset



GitHub Copilot Custom Extension

The screenshot shows the Visual Studio Code interface with the GitHub Copilot Custom Extension installed. The left sidebar displays the file structure of a Python project named 'pythoncodecheck-copilot-extension'. The 'app.py' file is open in the editor, containing code related to Flask and GitHub authentication. The right side of the screen features the 'Ask Copilot' interface, which includes a text input field, a list of AI-related commands, and a dropdown menu for selecting the current file. The status bar at the bottom indicates 'GPT 4o'.

```
File Edit Selection View Go Run ... ← → Search pythoncodecheck-copilot-extension — app.py - pythoncodecheck-copilot-extension - Visual Studio Code
EXPLORER
PYTHONCODECHECK-COP...
.github\workflows
! main_codecheck001...
templates
app.py > handle_post
app.py > handle_post
1 from flask import Flask, request, Response, stream_with_context, render_template
2 import requests
3 from utils import get_github_user
4
5 app = Flask(__name__)
6
7 @app.route("/", methods=["GET"])
8 def home():
9     return render_template('index.html')
10
11 @app.route("/", methods=["POST"])
12 def handle_post():
13     # Get GitHub token and identify user
14     token_for_user = request.headers.get("X-GitHub-Token")
15     user = get_github_user(token_for_user)
16     print("User:", user)
17
18     # Parse request data
19     payload = request.get_json()
20     print("Payload:", payload)
21
22     copilot_references = payload["messages"][-1]["copilot_references"]
23     client_selection_block = next(
24         (ref for ref in copilot_references if ref["type"] == "client.selection"),
25         None
26     )
27
28     print("Client Selection Block:", client_selection_block)
29
30     prompt = """
31     Objective
32     #####
33     - Check the following code is Python or not.
34     - If not, let the user know you only work on Python.
35     - If it is Python, clarify whether the code meets the code guideline
36     - If there is some code which doesn't meet the guideline, provide a suggestion
37
38     Code guideline
39     #####

```

Ask Copilot

Copilot is powered by AI, so mistakes are possible.
Review output carefully before use.

⌚ or type # to attach context
@ to chat with extensions
Type / to use commands

/fix the problems in my code
/tests add unit tests for my code
/explain how the selected code works

@pythoncodecheck a extension demo to check pyth

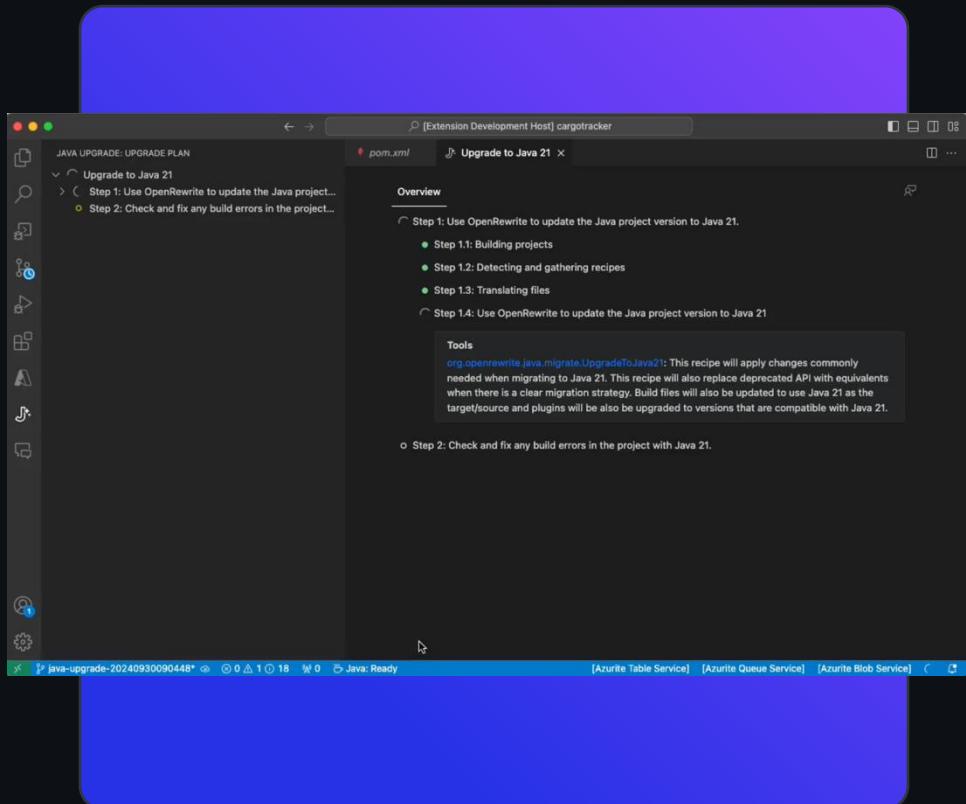
app.py Current file ⌂

@ ⌂ ⌂ ⌂ GPT 4o ▶ ▶

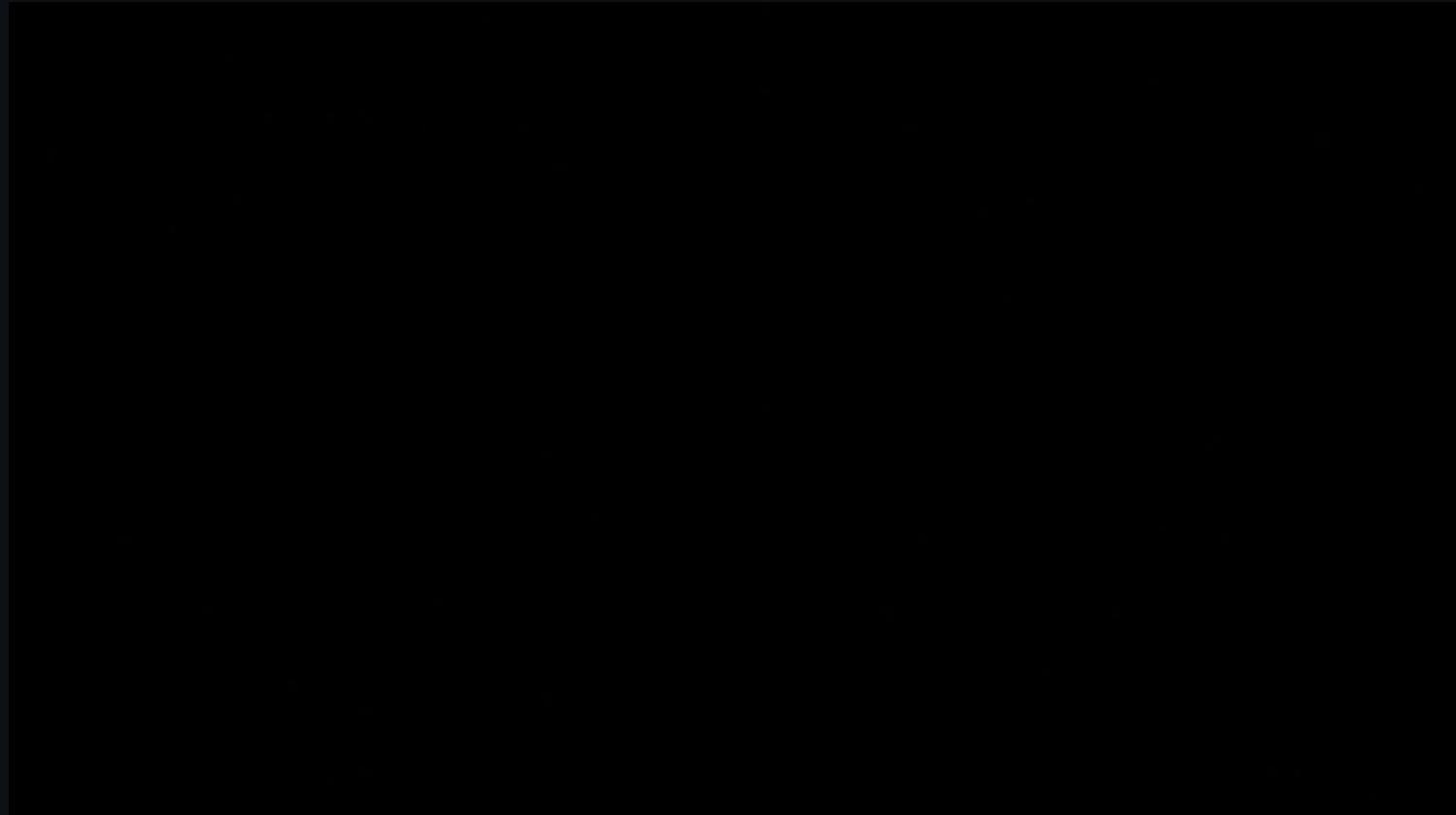
Java Upgrade VS Code Extension

Modernize your Java applications seamlessly with AI assistance.

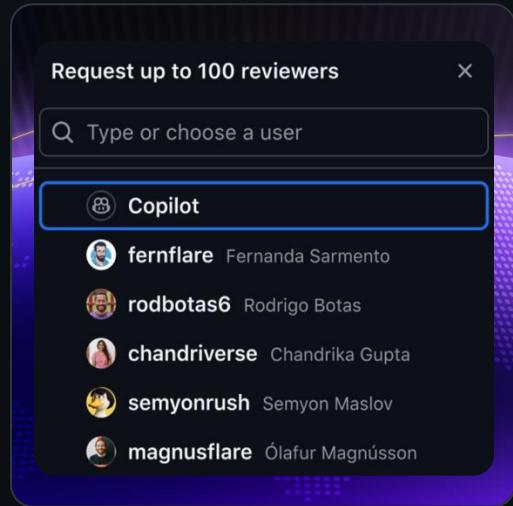
Accelerate legacy code migration and reduce costs by automating Java version upgrades directly within your IDE.



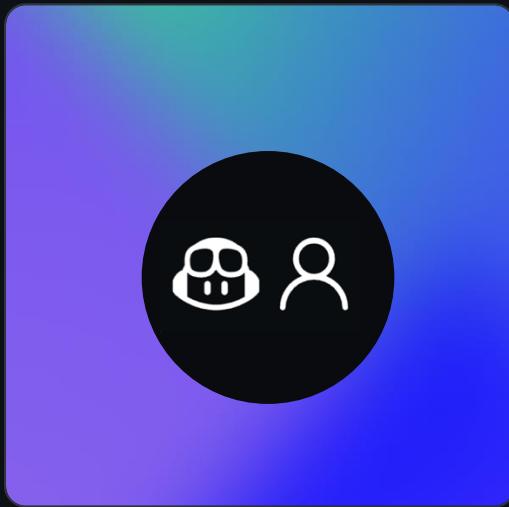
Java Upgrade



Meet Enterprise Requirement



Code Review



Development Standard



Custom Model

Custom Instruction

The screenshot shows a dark-themed instance of Visual Studio Code (VS Code) with the following details:

- File Explorer:** Shows a folder named "COPilot-INSTRUCTIONS" containing files like ".github", "copilot-codeGeneration.md", "copilot-review.md", "copilot-testGeneration.md", "cities.csv", "cities.md", "exclude.py", "index.html", and "utils.py".
- Editor:** The file "utils.py" is open, displaying Python code for generating a password. The code imports random and string modules, defines a function "generate_password" that generates a list of random characters from uppercase, lowercase, digits, and ASCII letters, and then joins them into a single string.
- Bottom Status Bar:** Shows "Ln 15, Col 1" and other standard status bar information.
- Right Sidebar:** A "Copilot" interface is visible, featuring a "Ask Copilot" button, a message stating "Copilot is powered by AI, so mistakes are possible. Review output carefully before use.", and a command input field with placeholder text: "/fix the problems in my code", "/tests add unit tests for my code", and "/explain how the selected code works".
- Bottom Right:** A "GPT 4o" status indicator.

Copilot Code Review

Receive real-time, AI-powered code feedback as you code

Enhance code quality and accelerate development directly within your editor

The screenshot shows a code editor interface with the following details:

- Explorer View:** Shows a project structure for "MY-TYPESCRIPT-APP" with folders like "assets/icons", "dist", and "src". "index.ts" is the active file.
- Code Editor:** Displays the content of "index.ts".

```
src > TS index.ts > TodoList > updateTodoElement
13 class TodoList {
14     addTodo(task: string) {
15         ...
16     }
17     updateTodoElement(id: number) {
18         const todo = this.todos.find(todo => todo.id === id);
19         if (!todo) {
20             throw new Error('Todo not found');
21         }
22         // Set the state of the todo item
23         todo.completed = !todo.completed;
24         // Update the UI
25         const todoItem = document.querySelector(`[data-todo-id="${id}"]`) as HTMLElement;
26         todo.completed ? todoItem.classList.add('completed') : todoItem.classList.remove('completed');
```
- Code Review Comment:** A comment from "GitHub Copilot" suggests changing the code to handle the case where `find` returns `undefined`. It provides a "Suggested change" with a diff:

```
- if (!todo) {
+ if (todo === undefined) {
```
- Buttons:** "Apply and Go to Next" and "Discard and Go to Next" buttons at the bottom of the review panel.
- Bottom Status Bar:** Shows "TypeScript" and other status indicators.

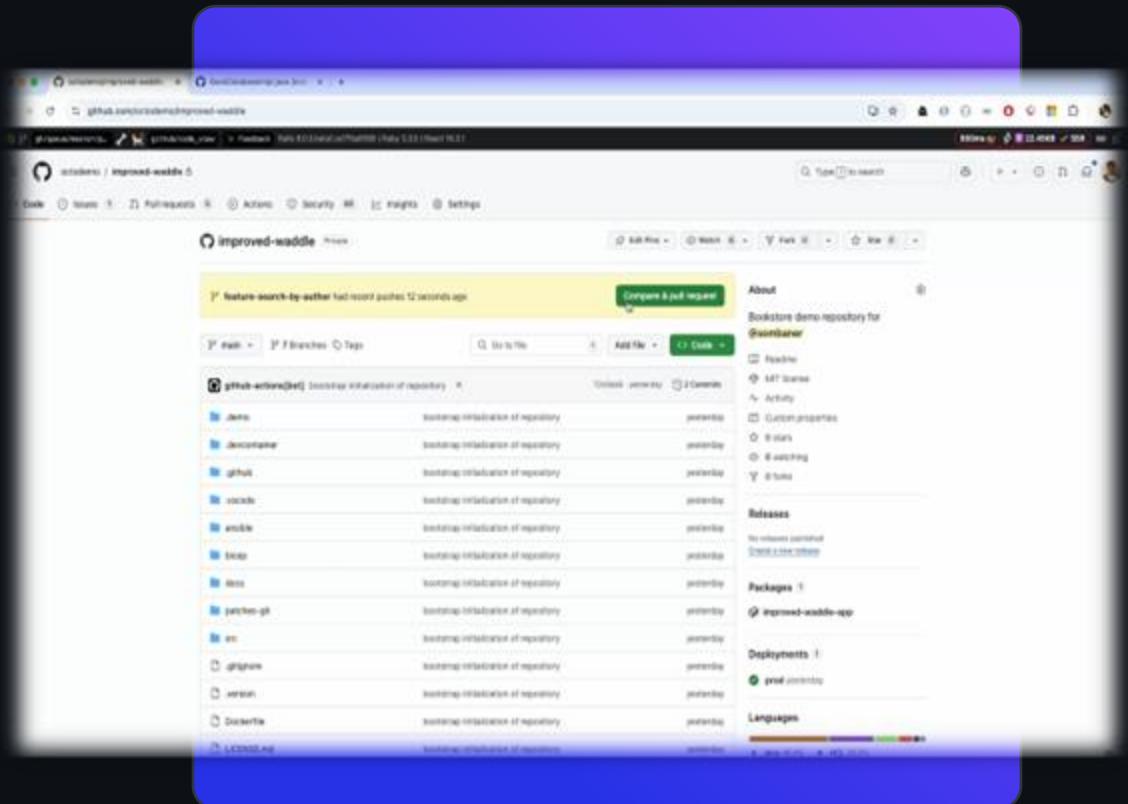
GitHub Copilot

Code Review

In Pull Requests

Receive AI-powered code feedback instantly when you open a pull request

Accelerate development cycles and enhance code quality without waiting for manual reviews



Compliance and Security



Code Referencing



Secret Scan



Code Scan

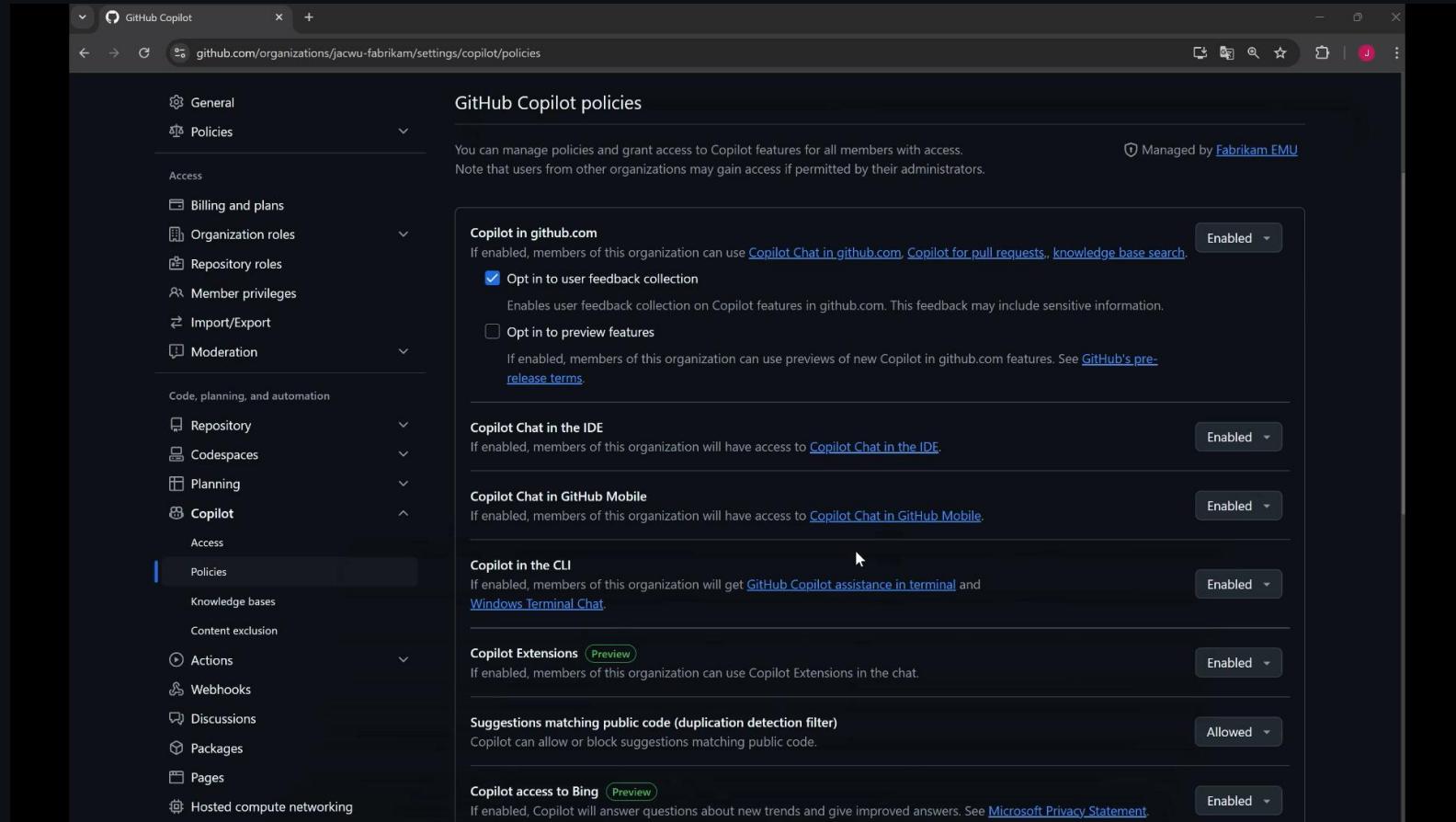
Code Referencing in GitHub Copilot

Now see when your AI suggestions match public code and access their sources

Make informed decisions with transparency on code origins, licensing, and attribution directly within your workflow

```
❸ # Code Citations Untitled-1 •
1  # Code Citations
2
3  ## License: GPL_3.0
4  https://github.com/MuslehUddin007/Cpp_program/tree/a4c0685d52084d1b1be2ae86c2f9213315712d75/MergeSort.cpp
5
6 ...
7  for (int i = 0; i < n1; i++) {
8      L[i] = arr[left + i];
9      for (int j = 0; j < n2; j++)
10         R[j] = arr[mid + 1 + j];
11 ...
12
13
14 ## License: unknown
15 https://github.com/kanijSheikh/algorithm/tree/de4b973ab69e0eb67748daba8427a290e4c98330/src/main/java/sorting/
16 MergeSort.java
17 ...
18 = 0, k = left;
19     while (i < n1 && j < n2) {
20         if (L[i] <= R[j]) {
21             arr[k] = L[i];
22             i++;
23         } else {
24             arr[k] =
25 ...
26
27
28 ## License: unknown
29 https://github.com/takasidk/cpp/tree/a6d967cf80d25bc978b0fd23e2e3ee89d8752e0/cpp_algorithms/searchAndSort/
30 mergeSort.cpp
31 ...
32 n1 && j < n2) {
33     if (L[i] <= R[j]) {
34         arr[k] = L[i];
35         i++;
36     } else {
37         arr[k] = R[j];
38         j++;
39     }
40 ...
41 k
42
43
44 ## License: unknown
45 https://github.com/emilykackley/Sorting-Algorithms/tree/26e4f67ff704b2c3fcc1ecff71cb08e93c0e9cb9/MergeSort/main.
46 cpp
```

Code Referencing



The screenshot shows the GitHub Copilot policies settings page for the organization 'jacwu-fabrikam'. The left sidebar lists various policy categories, and the main content area displays policy details for 'Copilot in github.com', 'Copilot Chat in the IDE', 'Copilot Chat in GitHub Mobile', 'Copilot in the CLI', 'Copilot Extensions', and 'Suggestions matching public code (duplication detection filter)'. Each policy has an 'Enabled' dropdown menu.

GitHub Copilot policies

You can manage policies and grant access to Copilot features for all members with access. Note that users from other organizations may gain access if permitted by their administrators. Managed by [Fabrikam EMU](#)

Copilot in github.com

If enabled, members of this organization can use [Copilot Chat in github.com](#), [Copilot for pull requests](#), [knowledge base search](#).

Opt in to user feedback collection

Enables user feedback collection on Copilot features in github.com. This feedback may include sensitive information.

Opt in to preview features

If enabled, members of this organization can use previews of new Copilot in github.com features. See [GitHub's pre-release terms](#).

Copilot Chat in the IDE

If enabled, members of this organization will have access to [Copilot Chat in the IDE](#).

Copilot Chat in GitHub Mobile

If enabled, members of this organization will have access to [Copilot Chat in GitHub Mobile](#).

Copilot in the CLI

If enabled, members of this organization will get [GitHub Copilot assistance in terminal](#) and [Windows Terminal Chat](#).

Copilot Extensions (Preview)

If enabled, members of this organization can use Copilot Extensions in the chat.

Suggestions matching public code (duplication detection filter)

Copilot can allow or block suggestions matching public code.

Copilot access to Bing (Preview)

If enabled, Copilot will answer questions about new trends and give improved answers. See [Microsoft Privacy Statement](#).

Advanced Security

Scan for vulnerable dependencies, security issues in first-party code, and exposed credentials

 Dependency Analysis

 Code Scanning

 Secret Scanning

Code scanning alerts / #1

Arbitrary file access during archive extraction ("Zip Slip")

 Open in main on Aug 4

code/src/Attendee/Attendee.cs:12

```
9     {
10         public void WriteToDirectory(ZipArchiveEntry entry, string destDirectory)
11         {
12             string destFileName = Path.Combine(destDirectory, entry.FullName);
13             entry.ExtractToFile(destFileName);
14         }
15     }
```

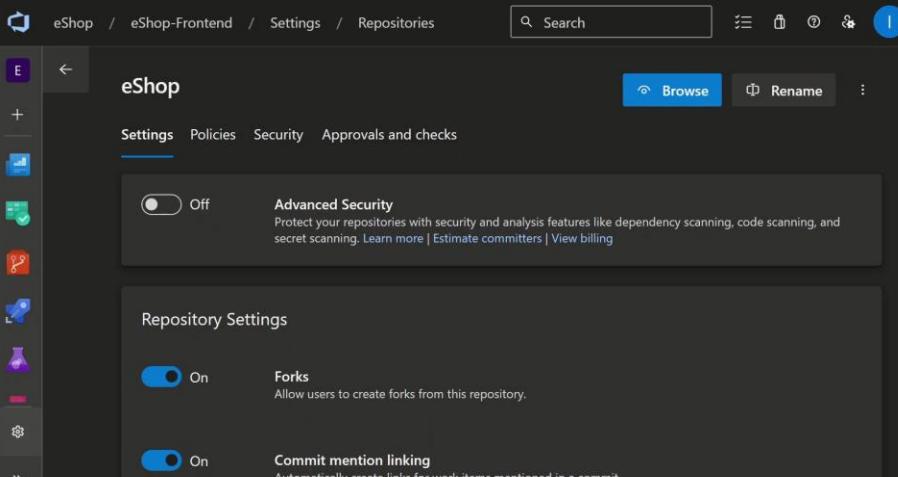
Unsanitized archive entry, which may contain '..', is used in a file system operation.

CodeQL Show paths

Tool Rule ID Query
CodeQL cs/zipslip View source

Extracting files from a malicious zip file, or similar type of archive, is at risk of directory traversal attacks if filenames from the archive are not properly validated.

Zip archives contain archive entries representing each file in the archive. These entries include a file path for the entry, but these file paths are



The screenshot shows the GitHub Advanced Security settings for the eShop repository. The 'eShop' repository is selected in the sidebar. The 'Settings' tab is active, showing the 'Advanced Security' section. The 'Advanced Security' toggle is turned off. A tooltip for this setting explains: 'Protect your repositories with security and analysis features like dependency scanning, code scanning, and secret scanning.' Below this, there are sections for 'Repository Settings' where 'Forks' is turned on, allowing users to create forks from this repository. There is also a section for 'Commit mention linking' which is turned on.

GitHub Models

Experiment with and compare AI models in a dedicated playground to find the best fit for your projects.

Accelerate innovation and development by easily accessing and evaluating different AI models directly within GitHub.

The screenshot shows the GitHub Models interface. At the top, there's a search bar with placeholder text "Type ⌘ to search". Below the search bar are two tabs: "Comparing with GPT-3.5 by OpenAI" and "GPT-4o by OpenAI". The "GPT-4o by OpenAI" tab is active, displaying a conversation about popular tourist attractions in Paris. The user asks, "What are some popular tourist attractions in Paris?" and the model responds with a list of landmarks: Eiffel Tower, Louvre Museum, Notre Dame Cathedral, Champs-Élysées, and Arc de Triomphe. The user then asks, "How tall is the Eiffel tower as measured in baguettes?", and the model estimates it to be approximately 498 baguettes tall, based on the assumption that a standard baguette is about 65 centimeters long. The "Comparing with GPT-3.5 by OpenAI" tab shows a similar conversation with the same questions and responses, indicating that both models provide nearly identical results.

Azure hosted. AI powered, can make mistakes. Share feedback. Subject to Product Terms and Privacy Statement. Not intended for production/sensitive data.

GitHub Models

The screenshot shows a web browser window with the GitHub Models marketplace page. The URL in the address bar is github.com/marketplace/models. The page has a dark theme with a header containing a sidebar icon, a GitHub icon, the word "Models", a search bar with placeholder text "Type ⌂ to search", and various navigation icons. A dropdown menu labeled "Model: Select a Model" is open. The main content area features the GitHub logo and the heading "Welcome to GitHub Models". Below it, a paragraph reads: "A catalog and playground of AI models to help you build AI features and products." followed by three green checkmark bullet points: "✓ Model switching: A single API key for all models & billing.", "✓ Quick personal setup: GitHub PAT to install models in your projects.", and "✓ Free to start: No charges until you hit our rate limits.". At the bottom, there's a call-to-action "Select a model to get started, or [explore the full model catalog](#)". Three model cards are displayed: "OpenAI GPT-4o" (with a blue square icon), "Llama-3.3-70B-Instruct" (with a white infinity symbol icon), and "Mistral Large 24.11" (with an orange square icon).

Model: Select a Model

Welcome to GitHub Models

A catalog and playground of AI models to help you build AI features and products.

- ✓ Model switching: A single API key for all models & billing.
- ✓ Quick personal setup: GitHub PAT to install models in your projects.
- ✓ Free to start: No charges until you hit our rate limits.

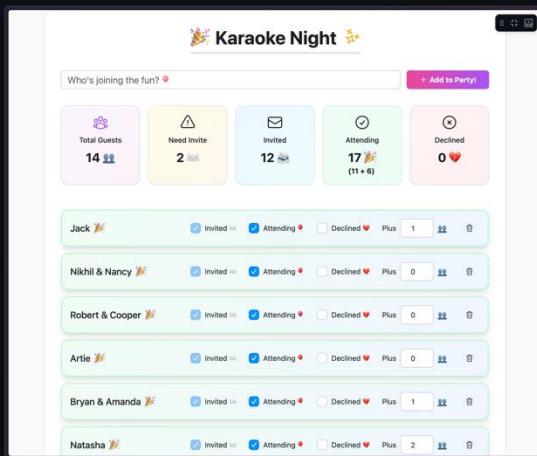
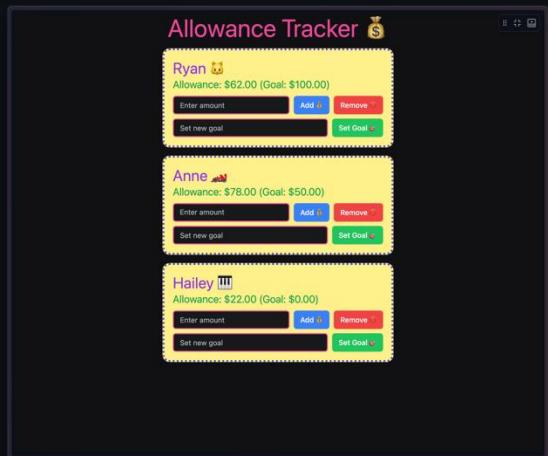
Select a model to get started, or [explore the full model catalog](#).

OpenAI GPT-4o Model
OpenAI's most advanced multimodal model in the gpt-4o family. Can handle both text and...

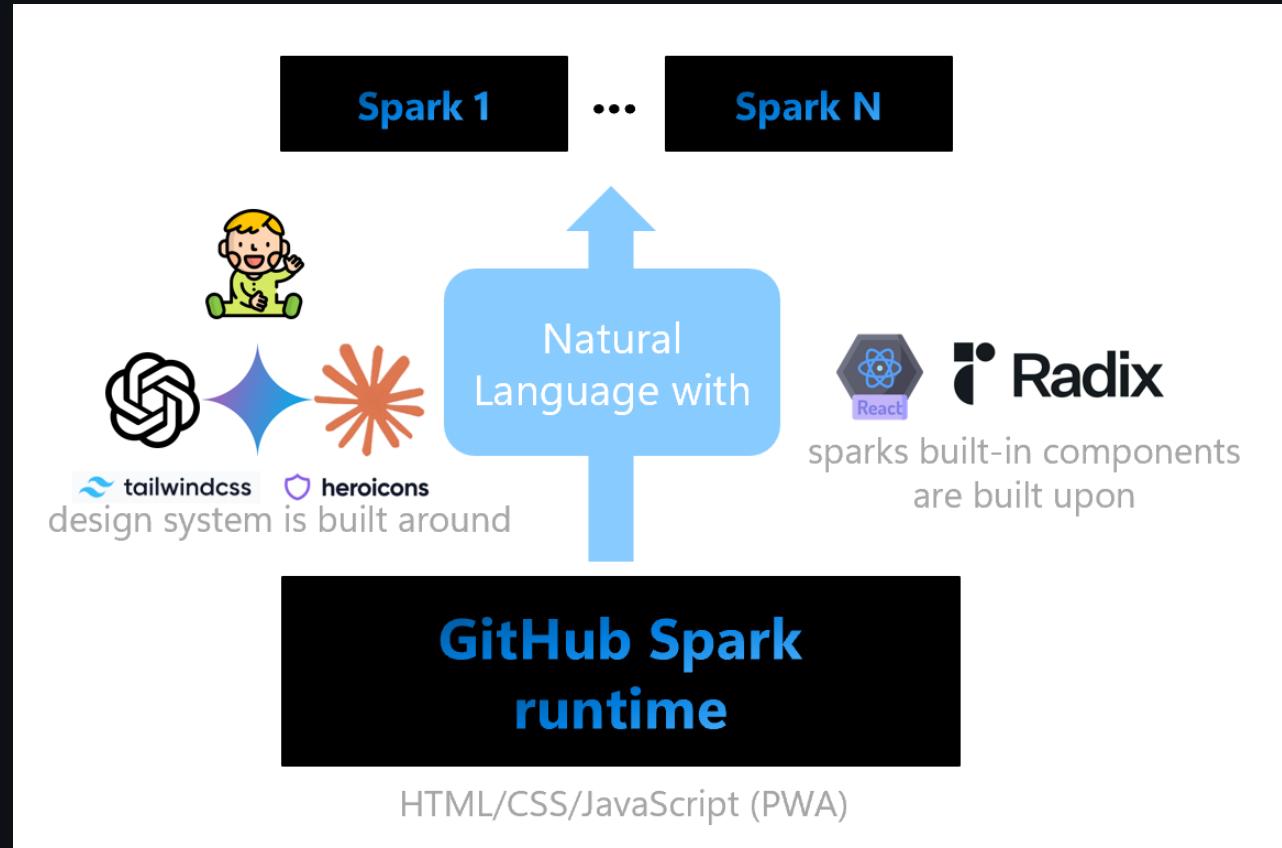
Llama-3.3-70B-Instruct Model
Llama 3.3 70B Instruct offers enhanced reasoning, math, and instruction following wi...

Mistral Large 24.11 Model
Mistral Large 24.11 offers enhanced system prompts, advanced reasoning and function...

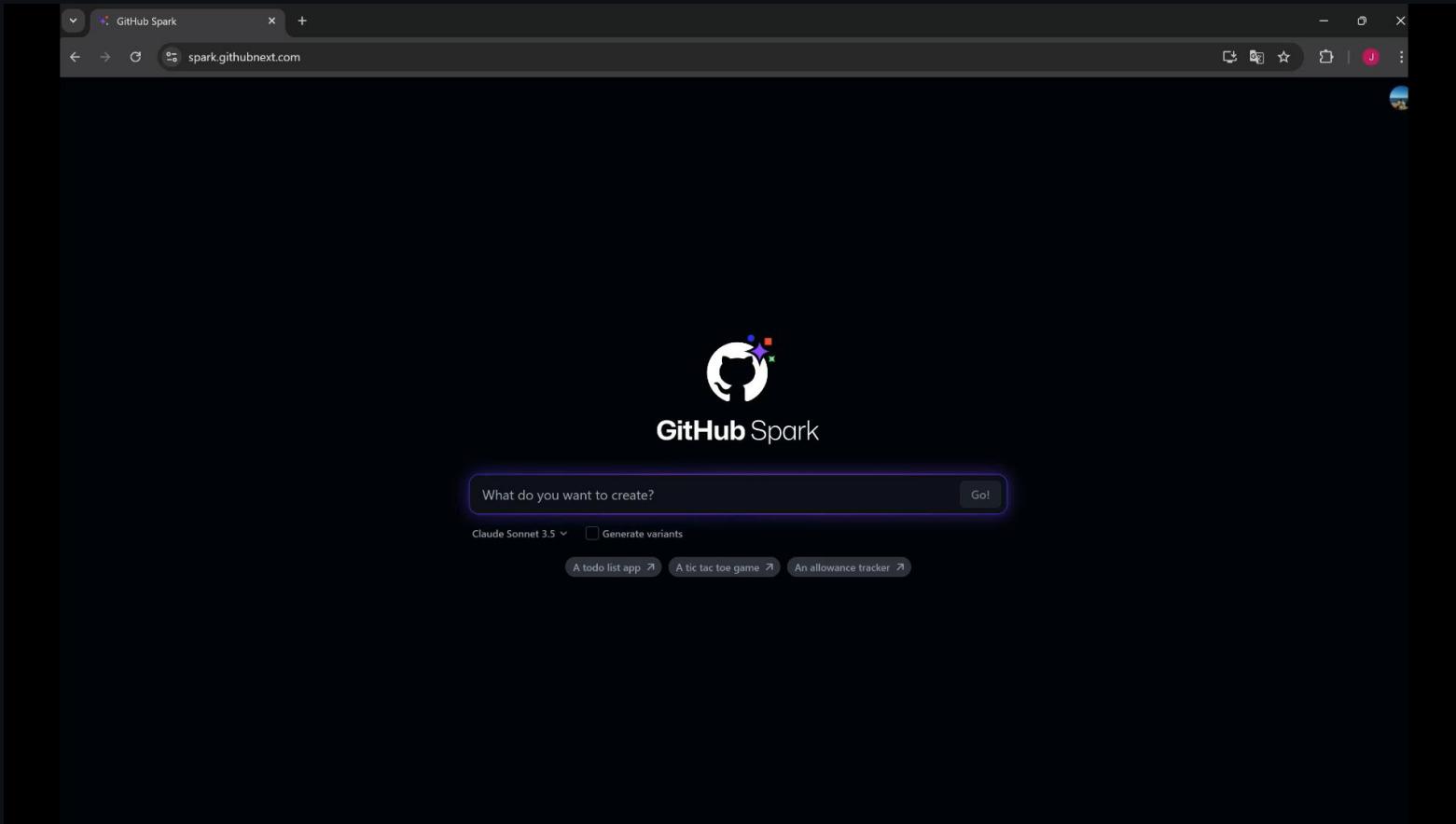
GitHub Sparks, create “micro apps” by AI



GitHub Spark



GitHub Spark



Thank You