

# Agenda for today



## GitHub Advanced Security

Application Security from the beginning



## GitHub CodeSpaces

Start a Container developer environment in seconds



## Azure DevBox

Start any secure developer environment in seconds



## GitHub CoPilot

Your AI pair programmer

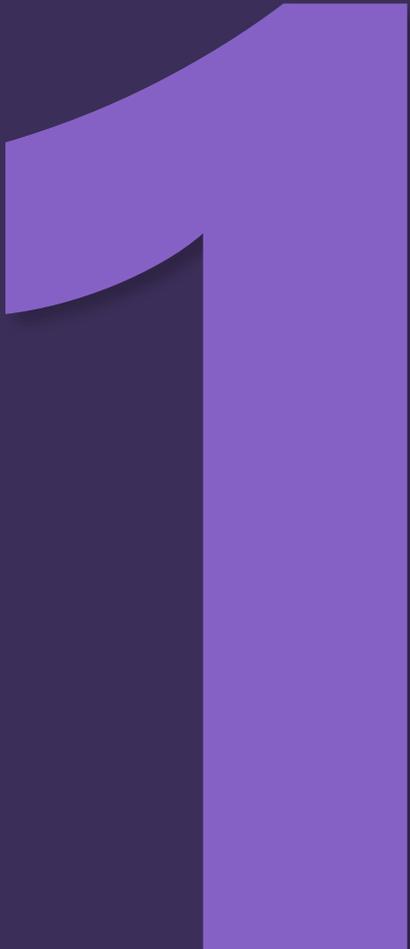


## Team Collaboration

Bring open-source culture and best practices into your organization

# GitHub

Application Collaboration and security from the beginning



# GitHub Enterprise

Fully integrated DevSecOps Platform

## Collaboration & innersourcing



Granular permissions & custom roles



Open Source Access



Project planning



Private packaging & container registry

## Automation & development tools



Actions



Codespaces



Config-as-code



GitHub copilot

## Secure by design



SAML SSO & LDAP



Code scanning & variant analysis



Secret scanning



Security overview



# GitHub Repos

Enabling open-source culture and best practices in your organization



## Increased collaboration

Create an innersource work culture by encouraging teams to collaborate within your organization using the same processes and practices as open-source communities.



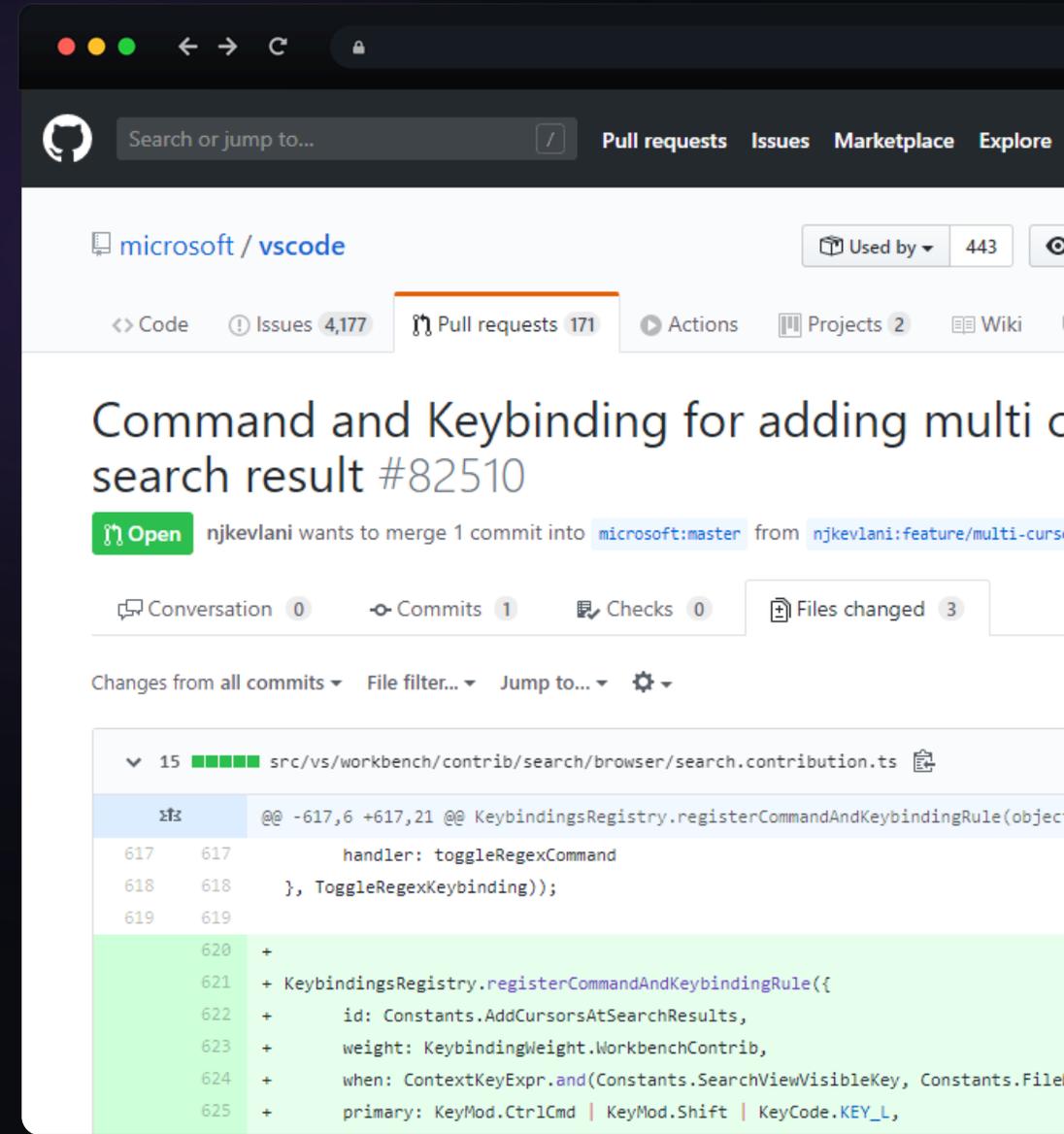
## Breaking silos

Simplify collaboration across teams to allow for easier sharing of knowledge, improved code reuse, and secured workflows.



## Higher developer satisfaction

Leverage innersource and open-source practices to increase developers' satisfaction and allow them to work on interesting projects and improve their skills.



# GitHub Issues & Projects

Project management made simple



## Start with an issue

Create an issue to suggest a new idea or track a bug. Then organize and assign tasks to your team.



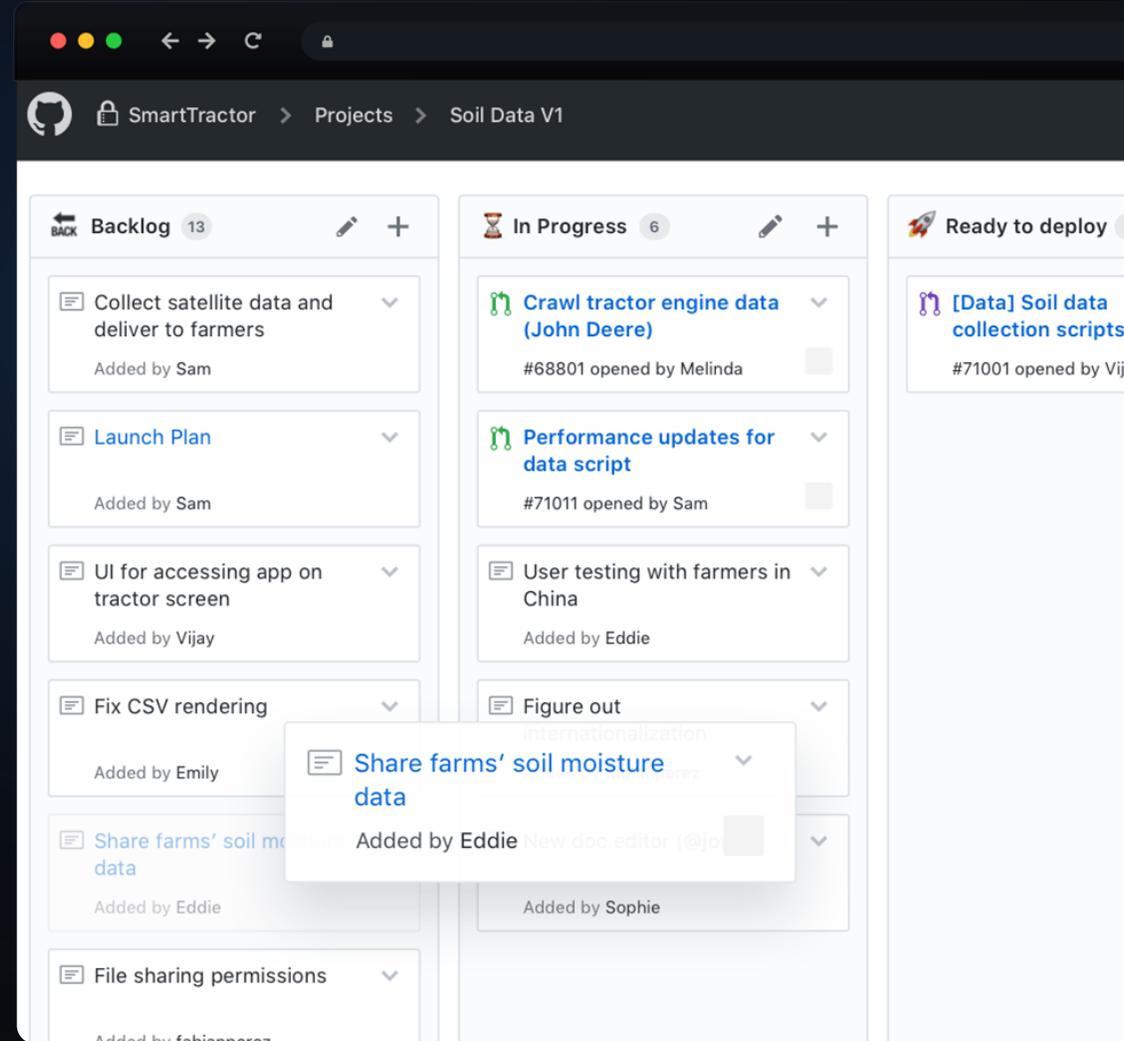
## Link issues and pull requests

Track updates to your project without complicating your workflow by crosslinking between issues and pull requests anywhere in your GitHub organization.



## See your work take shape with Projects

Visualize all of your work and prioritize it right alongside your code with projects boards. See what tasks are planned or in-progress, either in a repository or across your organization.





# Actions

Enterprise-grade CI/CD that supports Windows, Linux, Mac



Marketplace of 8,000+ Actions by our community



Any operating system, cloud and on-prem



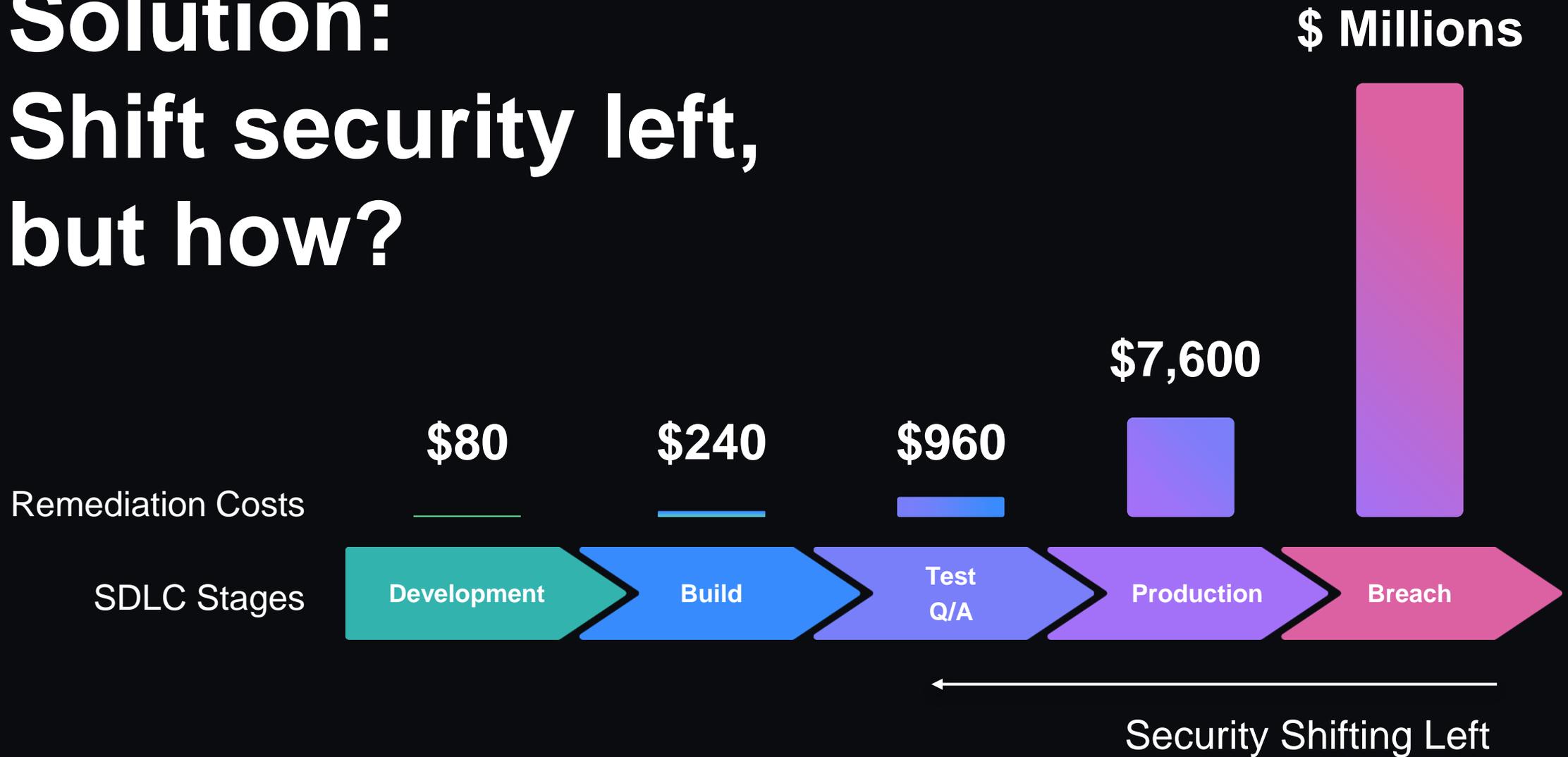
Friction-free service or self-hosted runners



Natively integrated into GitHub workflows



# Solution: Shift security left, but how?



Sources: NIST, Polemon Institute



# Code scanning

Find and fix vulnerabilities as you code



## Find and fix vulnerabilities fast

Find and fix vulnerabilities before they are merged into the code base with automated CodeQL scans.



## Community of top security experts

Your projects are powered by world-class security teams. Use queries created by the security community in your projects.



## Integrated with developer workflow

Integrate security results directly into the developer workflow for a frictionless experience and faster development

The screenshot shows a GitHub repository page for 'dsp-testing / code-scanning-demo'. The 'Security' tab is active, displaying a CodeQL scan result for a 'Server-side URL redirect' vulnerability. The vulnerability is classified as a 'Warning' and is associated with the CWE-601 rule. The scan detected an 'Untrusted URL redirection due to user-provided value' in the 'test.ts' file. The CodeQL query used for the scan is 'js/server-side-unvalidated-url-redirection'. The vulnerability description states: 'Directly incorporating user input into a URL redirect request without validating the input can facilitate phishing attacks, unsuspecting users can be redirected to a malicious site that looks very similar to the real site they intended to visit, which is controlled by the attacker.' The vulnerability was first detected in commit 1a36781 on April 9.

```
8 */
9 const sendRedirect = async (res: ServerResponse, url: string, statusCode = 307) => {
10   res.statusCode = statusCode;
11   res.setHeader('Location', url);
12   await new Promise(resolve => res.end(resolve));
13 };
14
```

Tool	Rule ID	Query
CodeQL	js/server-side-unvalidated-url-redirection	<a href="#">View source</a>

First appeared in commit 1a36781 on Apr 9

Mistakes were made



# Secret scanning

Find and manage hard-coded secrets



## Identifies secrets as early as possible

Finds secrets (including Azure secrets) the moment they are pushed to GitHub and immediately notifies developers when they are found.



## Community of secret scanning partners

For every commit made to your repository and its full git history, we'll look for secret formats from secret scanning partners.



## Define custom patterns

Scan for patterns that are internal to your organization across your repositories.



## Supports both public and private repos

Secret scanning watches both public and private repos for potential secret vulnerabilities.

The screenshot shows the GitHub code scanning interface for a repository named 'dsp-testing / code-scanning-demo'. The 'Security' tab is active, showing a warning for 'Server-side URL redirect'. The warning is associated with the rule ID 'js/server-side-unvalidated-url-redirection' and is categorized as 'CWE-601'. The code snippet shows a function 'sendRedirect' that sets a 'Location' header based on user input without validation. The interface also shows a table of detected secrets and a commit history section.

Tool	Rule ID	Query
CodeQL	js/server-side-unvalidated-url-redirection	View source

Directly incorporating user input into a URL redirect request without validating the input... attacks, unsuspecting users can be redirected to a malicious site that looks very similar... which is controlled by the attacker.

First appeared in commit 1a36781 on Apr 9

Mistakes were made



# Dependapot

Automatically update vulnerable and out-of-date dependencies



## Automated pull requests for security & version updates

Keep your projects secure and up to date by monitoring them for vulnerable and out-of-date components. If a suggested update is found, we'll automatically open a pull request with suggested fixes.



## Integrated with developer workflow

Dependabot is integrated directly into the developer workflow for a frictionless experience and faster fixes.



## Rich vulnerability data

GitHub tracks vulnerabilities in packages from supported package managers using data from security researchers, maintainers, and the National Vulnerability Database—all discoverable in the GitHub Advisory Database.

Search or jump to... Pull requests Issues Codespaces Marketplace Explore

Anthophilia / my-new-private-repo Private Watch 6 Star 0

Code Issues Pull requests 8 Actions Projects Wiki Security 25 Insights

### Bump proton-j from 0.12.0 to 0.30.0 in /maven #8

Open dependabot wants to merge 1 commit into master from dependabot/maven/maven/org.apache.qpid-proton-j-0.30.0

This automated pull request fixes a security vulnerability. Only users with access to security alerts can see this message. Learn more about automated security updates, opt out, or give us feedback.

Conversation 0 Commits 1 Checks 0 Files changed 1

dependabot bot commented on behalf of github 24 seconds ago

Bumps proton-j from 0.12.0 to 0.30.0.

compatibility unknown

Dependabot will resolve any conflicts with this PR as long as you don't alter it yourself. You can also trigger a rebase manually by commenting @dependabot rebase .

Dependabot commands and options

Bump proton-j from 0.12.0 to 0.30.0 in /maven Verified d43266b

dependabot bot added the dependencies label 23 seconds ago

Reviewers: mayakacz

Assignees: No one—assign yourself

Labels: dependencies

Projects: None yet



# GitHub CodeSpaces

Start a Container developer environment in seconds



# Codespaces

A cloud dev environment that lets you code from anywhere



## Code without compromise

Code, build, test, debug, and deploy with a complete development environment in your browser, running on Azure.



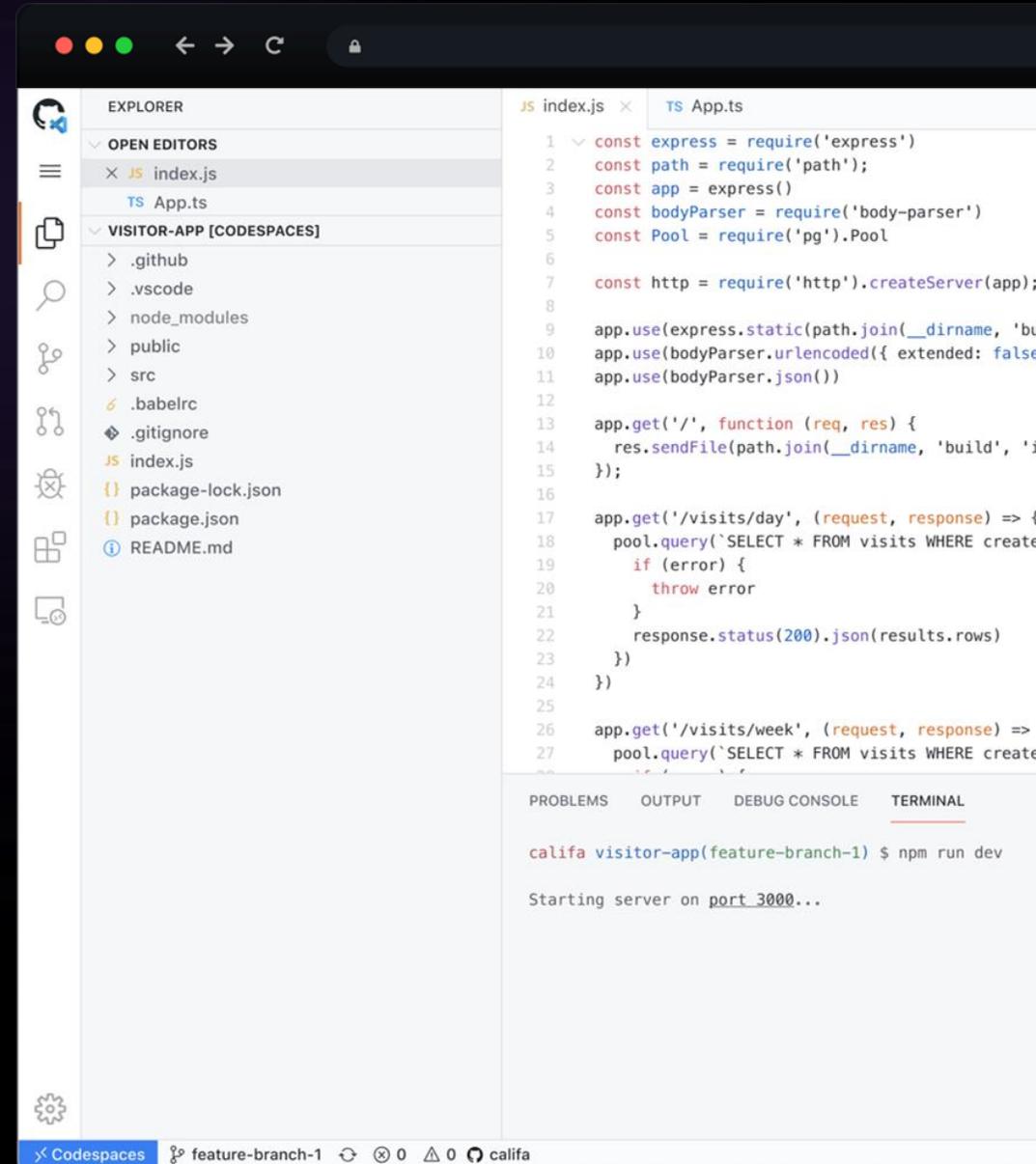
## Simplify your workflow

Automatically set up dependencies and SSH keys. Go from code to commit faster on any project.



## Extend and customize

Configure your editor with dotfiles and VS Code extensions to create a consistent environment in every Codespace.



# DEMO

GitHub Advanced Security and Codespaces

# Azure DevBox

Start any secure developer environment in seconds



# Ready to code

## Support developers with self-service, on-demand dev boxes



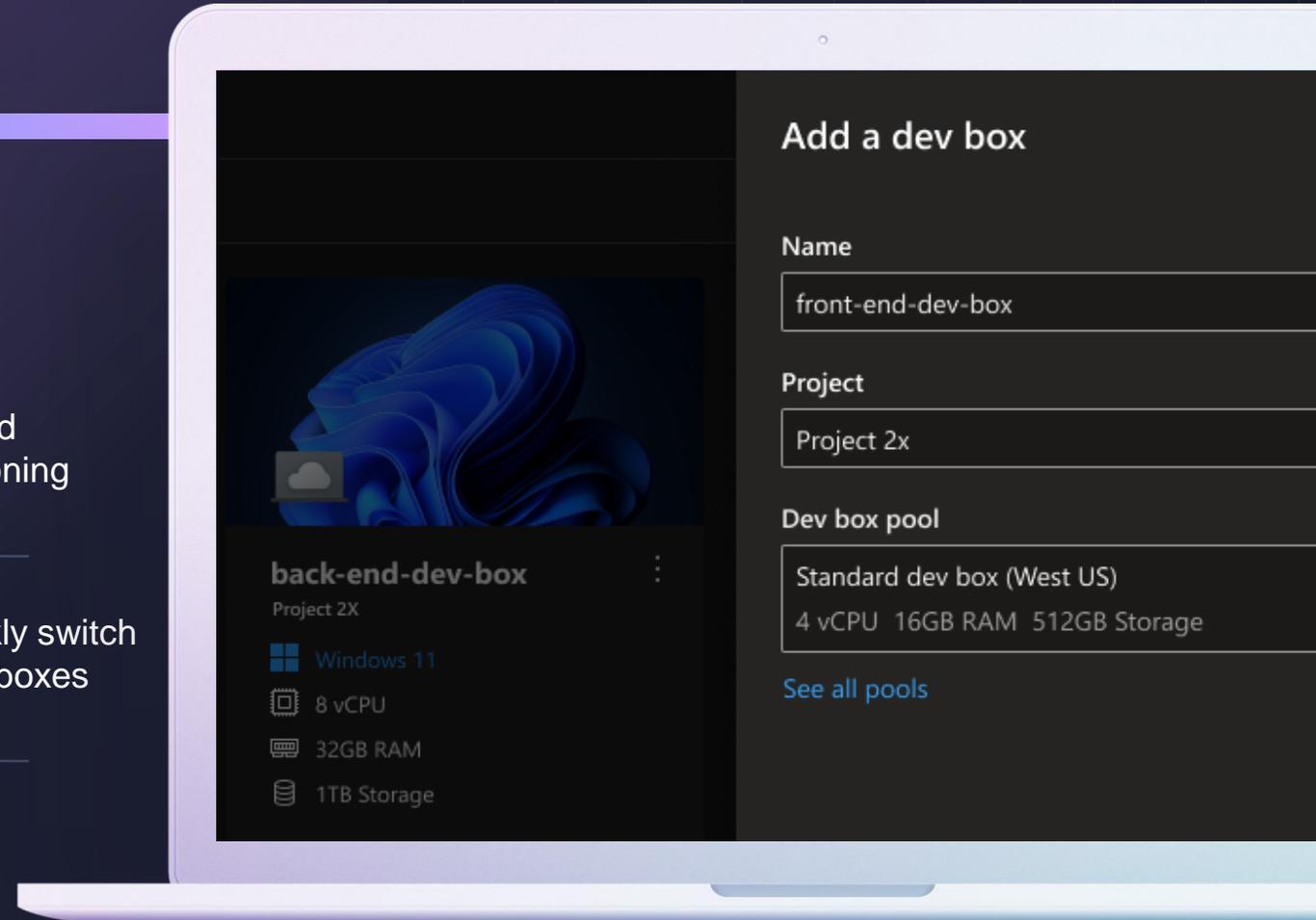
Streamline developer onboarding with preconfigured Dev Boxes that accelerate deployment and provisioning



Empower developers to code on demand and quickly switch between projects with task-based, self-service dev boxes



Provide developers with a custom library of ready-to-code, project-specific dev box pools



# Flexible workloads

## Quickly set up developers for virtually any development workload



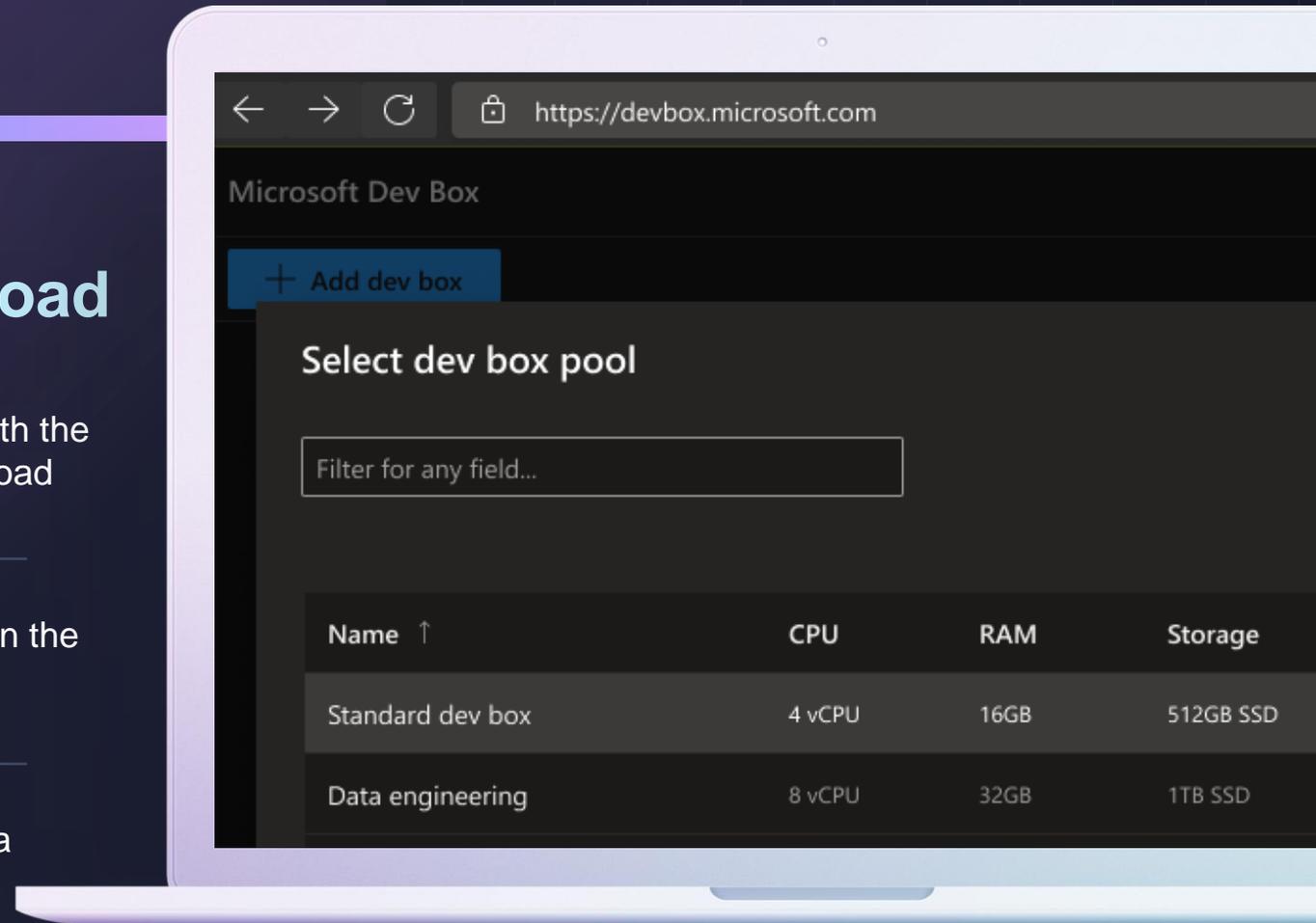
Configure project-specific, task-based dev boxes with the right dev tools and code repos to support any workload



Create role-based dev boxes to support everyone on the team—from site reliability engineers to contractors



Keep costs under control with stop scheduling and a consumption-based pricing model



# Managed and secure

## Maintain greater control over security, compliance, and cost



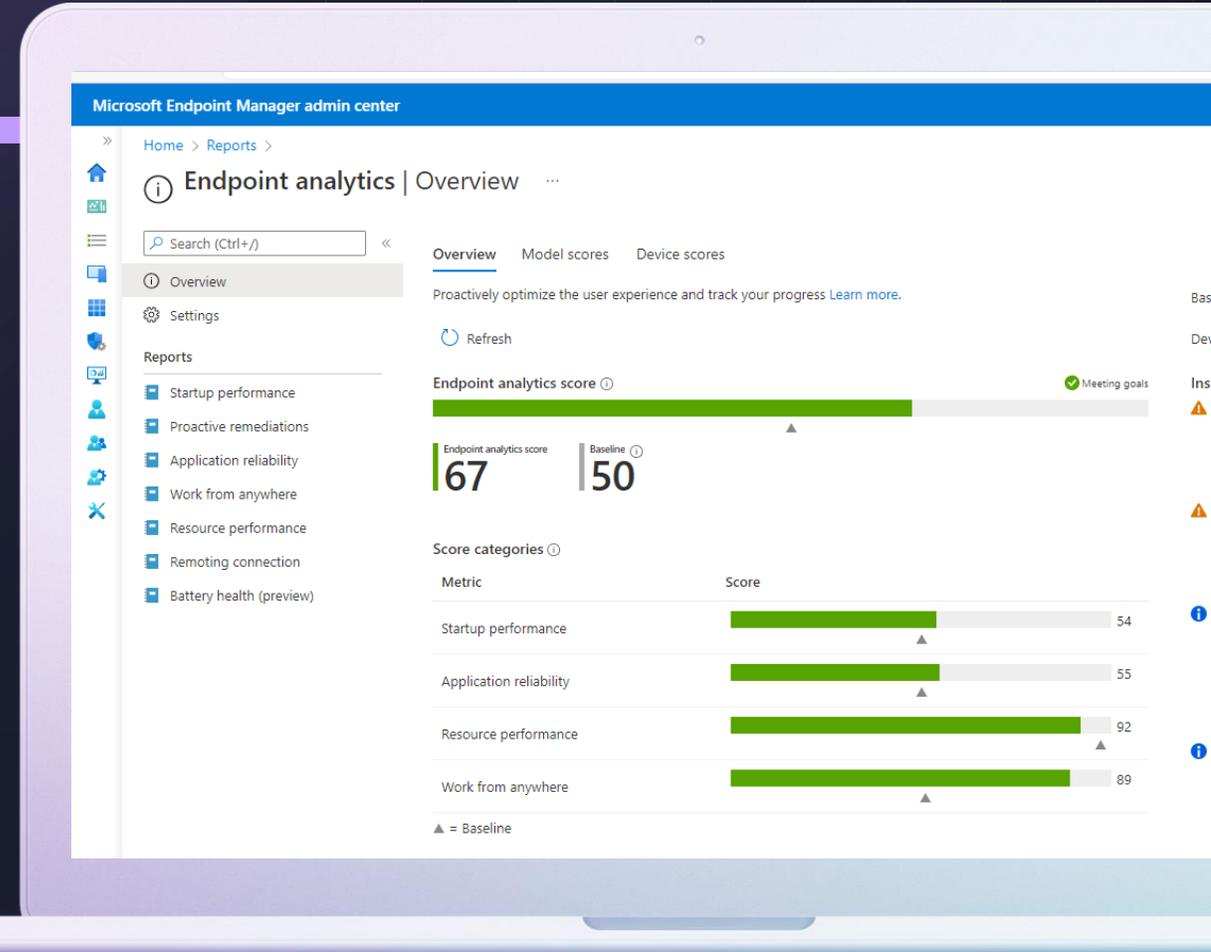
Integrate with existing enterprise infrastructure management systems to extend policies across remote devices



Control cloud resource configurations on a project-by-project basis by enforcing Azure policies for each dev box



Keep dev boxes up to date by applying zero-day patches to devices running across the organization



# GitHub Codespaces and Microsoft Dev Box

## Microsoft Dev Box

## GitHub Codespaces

**What platform do your developers use?**

Windows-based dev machine

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Linux-based dev environment

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**What tools do you need support for?**

Any IDE, SDK, version control system, or tool that runs on Windows—including internal tools

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Visual Studio Code and GitHub repos

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**What are you building?**

- Any apps, including:
  - Desktop and mobile apps
  - Embedded apps
  - Gaming
  - IoT

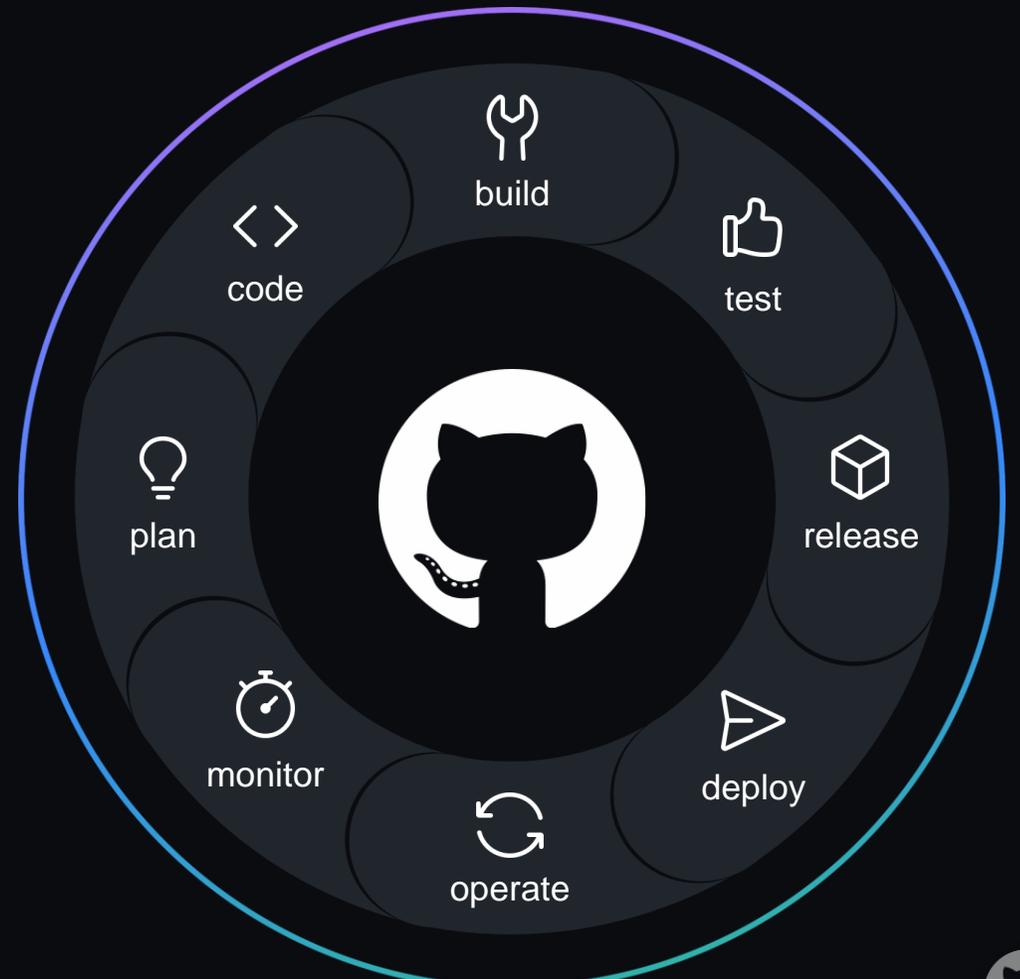
- Web and cloud-based apps
- Backend development
- APIs

# GitHub CoPilot

Your AI pair programmer

4

# Increase Developer Productivity With GitHub Copilot



Tech. Preview



# GitHub Copilot

Your AI pair programmer

**Uses the context you've provided  
and synthesizes code to match**

Convert comments to code

Autofill for repetitive code

Autosuggest tests

Show alternatives

```
sentiment.ts  write_sql.go  parse_expense

1 #!/usr/bin/env ts-node
2
3 import { fetch } from "fetch-h2";
4
5 // Determine whether the sentiment of
6 // Use a web service
7 async function isPositive(text: string) {
8   const response = await fetch(`http://
9     method: "POST",
10    body: `text=${text}`,
11    headers: {
12      "Content-Type": "application/x-w
13    },
14  });
15   const json = await response.json();
16   return json.label === "pos";
17 }
```

Copilot



96%

say they are faster  
with repetitive tasks

88%

say they are more  
productive

74%

focus on more  
satisfying work

Research: quantifying GitHub Copilot's impact on developer productivity and happiness

```
TS sentiment.ts  -GO write_sql.go  parse_expenses

1 #!/usr/bin/env ts-node
2
3 import { fetch } from "fetch-h2";
4
5 // Determine whether the sentiment of
6 // Use a web service
7 async function isPositive(text: string)
8   const response = await fetch(`http://
9     method: "POST",
10    body: `text=${text}`,
11    headers: {
12      "Content-Type": "application/x-www
13    },
14  });
15  const json = await response.json();
16  return json.label === "pos";
17 }
```

Copilot

# Microsoft Cloud Runs on trust

Your data is your data

Your data from any fine-tuning is not used to train the foundation AI models

Your data is protected by the most comprehensive enterprise compliance and security controls



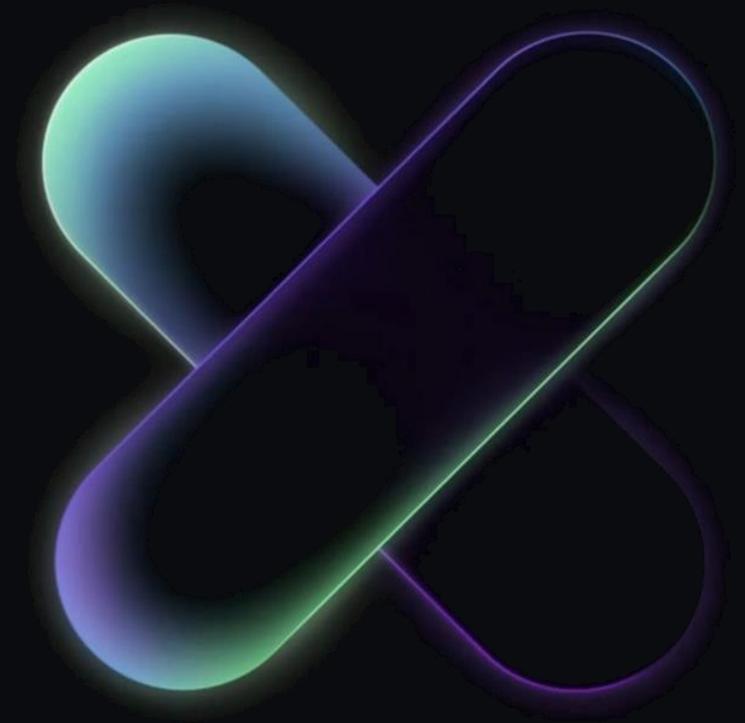
# DEMO

GitHub CoPilot

# GitHub Copilot X

the future of AI-powered software development

“With chat and terminal interfaces, support for pull requests, and early adoption of OpenAI’s GPT-4, GitHub Copilot X is our vision for the future of AI-powered software development. Integrated into every part of your workflow.”



Join the wait-list: <https://gh.io/copilotx>

# GitHub Copilot Chat

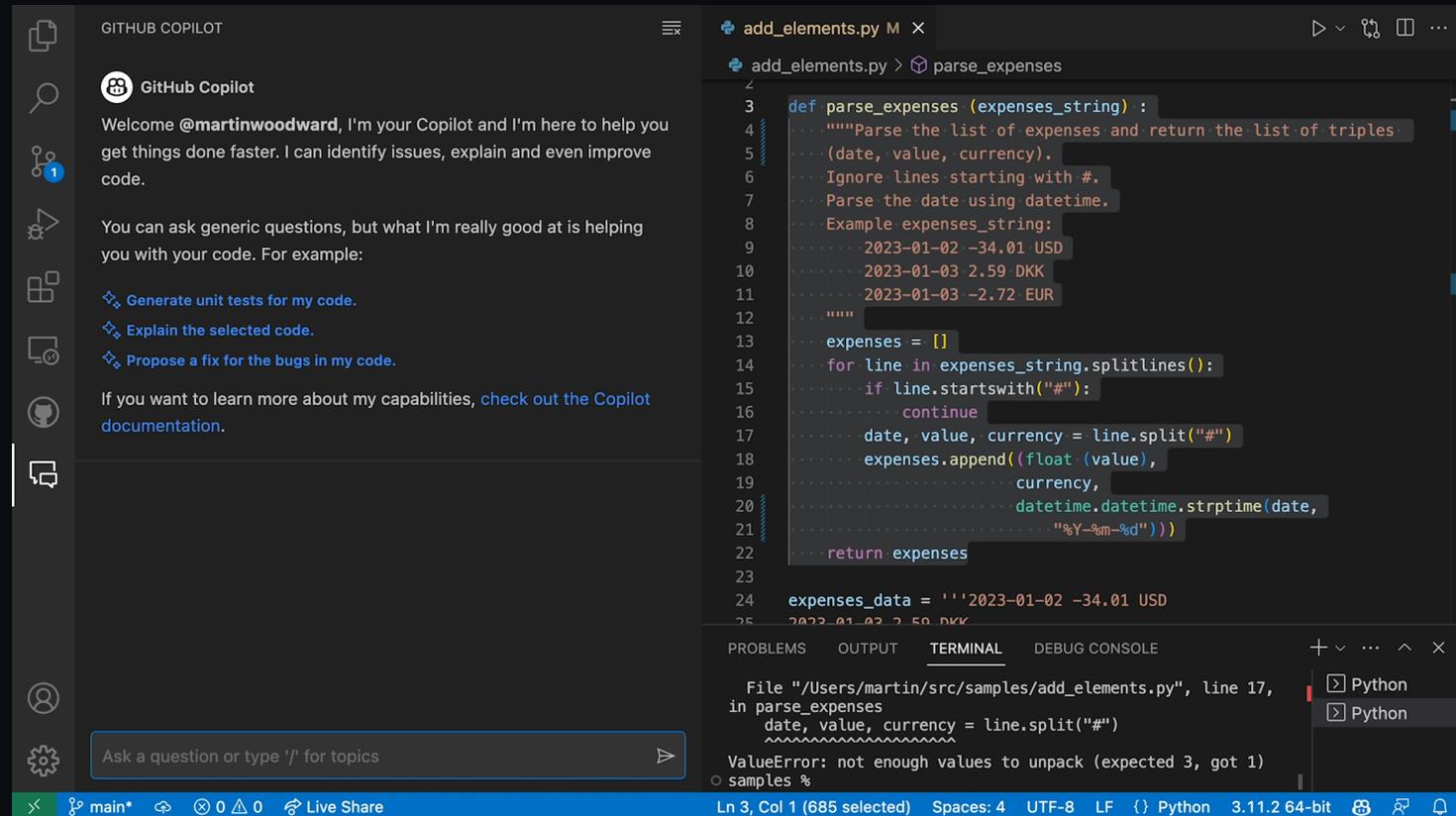
Chat experience in the IDE

ChatGPT-like experience in editor

- Generic questions
- Generate unit tests
- Explain the code
- Propose a fix for bug
- Make code robust / secure

Support VS Code and Visual Studio

Voice-to-code with GitHub Copilot Voice



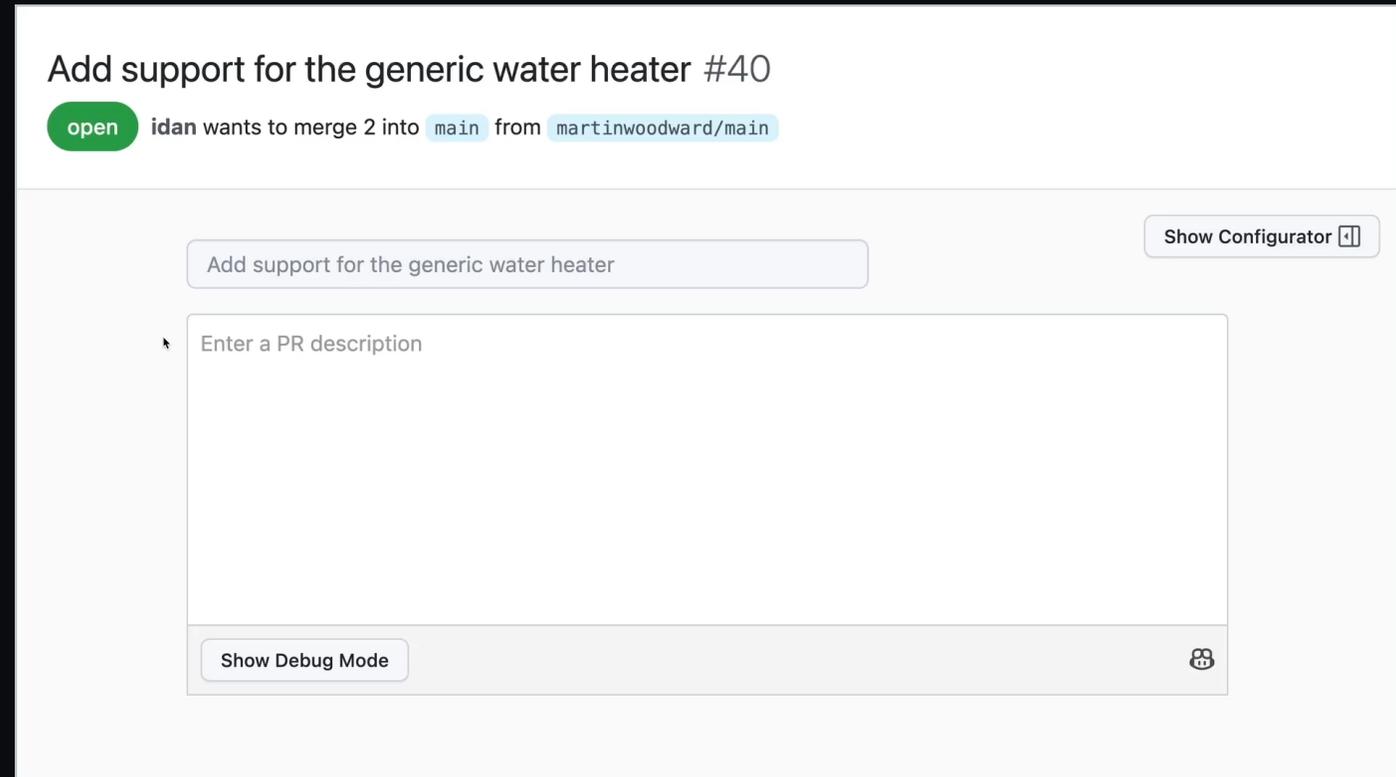
# Copilot for Pull Requests

the future of AI-powered software development

AI powered tags in Pull Requests

Automatically suggest sentences and paragraphs as developers type based on PR code changes

Automatically warn and suggest tests where needed



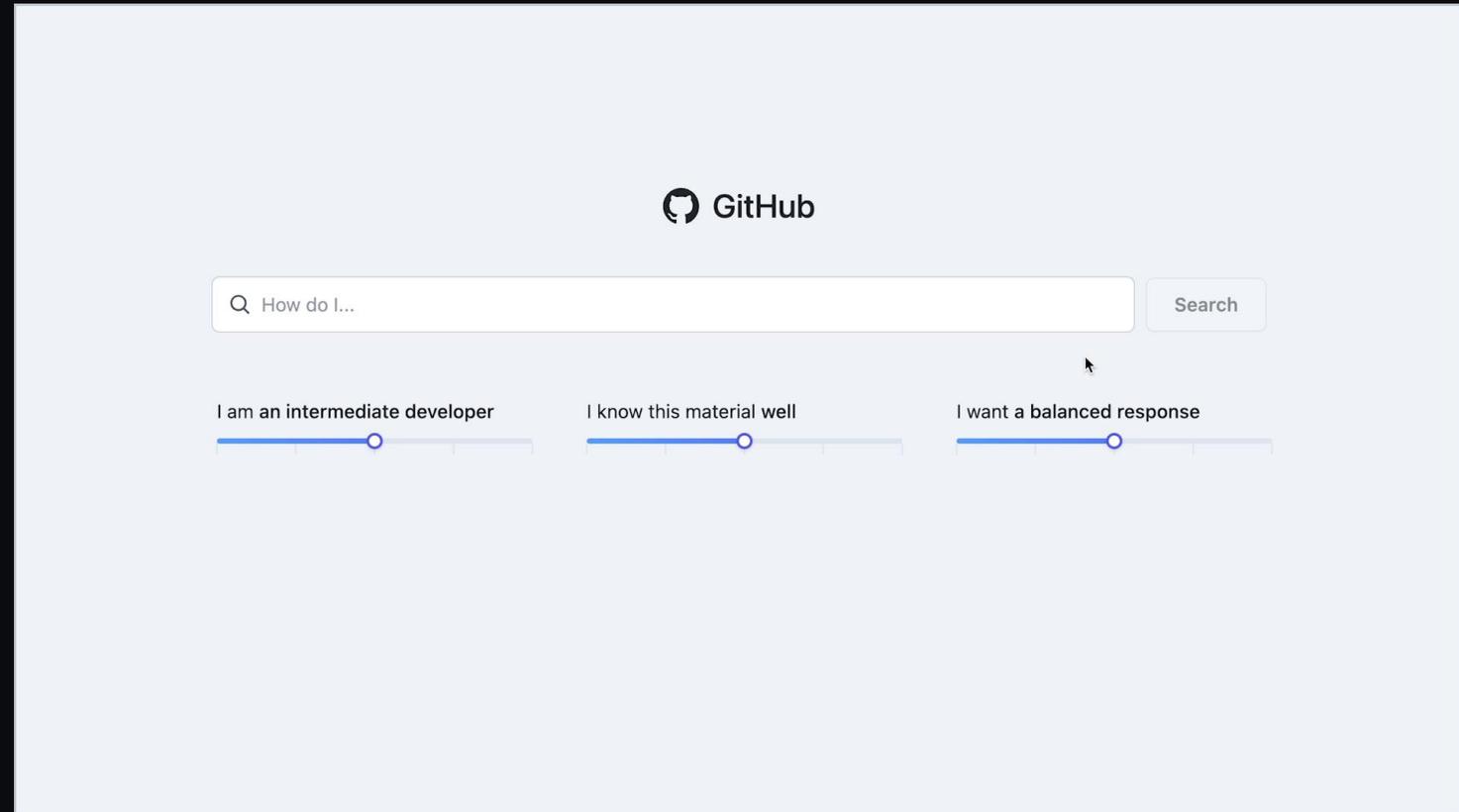
# Copilot for Docs

the future of AI-powered software development

AI-generated responses to questions based on documentation

Starting with docs for:

- GitHub
- React
- Azure
- MDN
- In future your in-house docs



# Copilot for the CLI

the power of Copilot in the terminal

Suggest CLI commands in the terminal window

Three shell commands:

- ?? – General CLI
- git? – git specific CLI
- gh? – GitHub specific CLI

Revise & Execute

```
→ flat git:(main) ?
```



## Free

- The basics for individuals and organizations

## Team

- Advanced collaboration for individuals and organizations

## Enterprise

- Security, compliance, and flexible deployment

Read all the details:

[Pricing · Plans for every developer \(github.com\)](#)



## For Individuals

- Plugs right into your editor
- Turns natural language prompts into code
- Offers multi-line function suggestions
- Speeds up test generation
- Blocks suggestions matching public code

## For Business

*Everything included in Copilot for Individuals, plus*

- Simple license management
- Organization-wide policy management
- Industry-leading privacy





Thank you