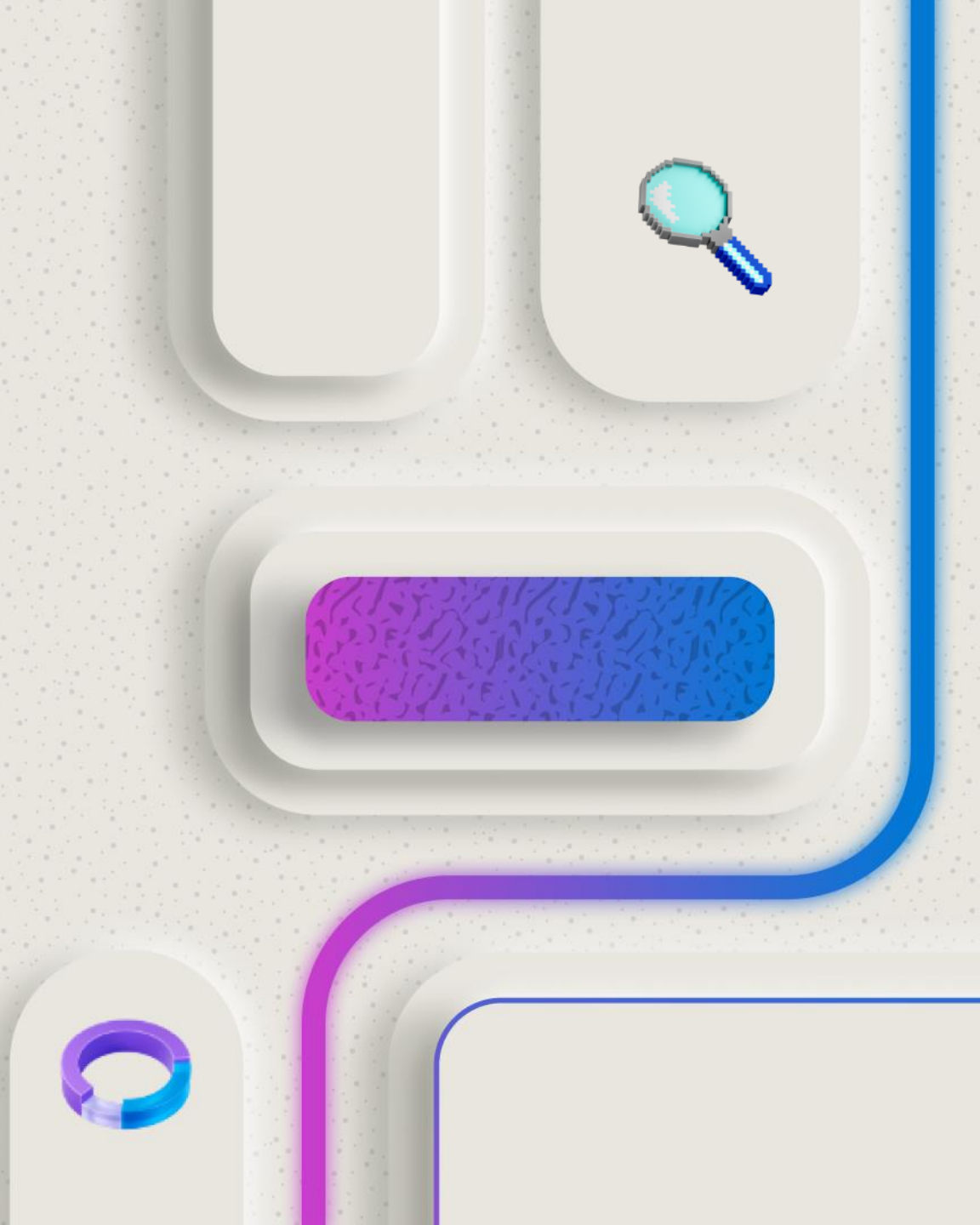
Microsoft

Microsoft AI Skills Fest

Unlock the future with 50 days of AI discovery and learning

#AISkillsFest • aka.ms/AISkillsFest



Thank, you for joining me today

Alexander Kastil

- Azure Cloud Native Apps with .NET Aspire & Dapr
- Agents with Azure AI Foundry, Azure AI Agent Service & Semantic Kernel
- Low & Pro Code Copilot for Microsoft 365: Agents, Plugins & Connectors
- Microsoft 365-, Teams-, SharePoint- & Microsoft Graph
- Vibe Coding with GitHub Copilot & GitHub Workspaces
- Azure DevOps & Infrastructure as Code
- Angular & Micro Frontends
- Microsoft Certified Trainer since 2000

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WELCOME TO THE MICROSOFT AI SKILLS FEST

Before we get started make sure you register and follow the steps to earn your badge.

1

Join our fun GUINNESS WORLD RECORDS™ title attempt

Earn your badge:

Step 1: If you haven't yet, take a moment to register: https://aka.ms/AISkillsFest

Step 2: Attend this session

Step 3: Complete a final step (shared at the end)

2

Ask questions and share your thoughts

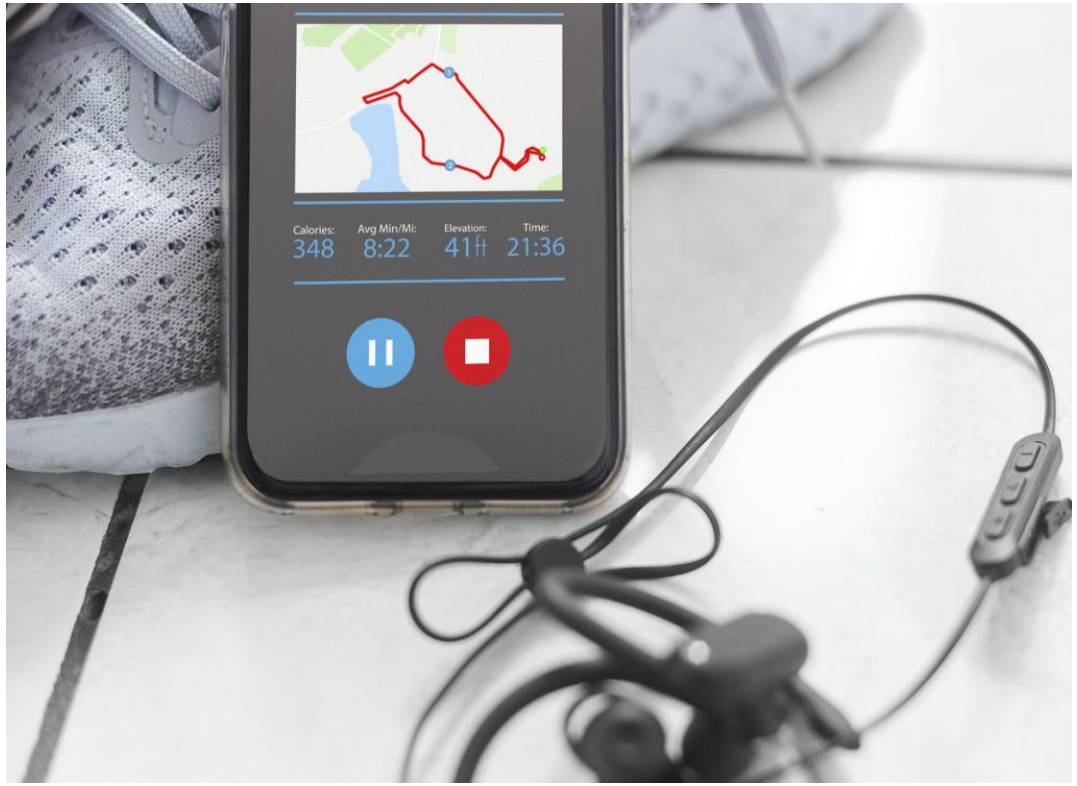
With your peers and our **Microsoft AI Experts** ("Live Moderators") in the chat

AGENDA

- Introduction / Overview
- Utilize GitHub Copilot to accelerate app development
- Set up a development environment & tooling using GitHub Codespaces
- Implement OctoFit Tracker with Copilot Agent Mode
- Apply best practices for refining AI-generated code

IMPLEMENT OCTOFIT TRACKER WITH COPILOT AGENT MODE

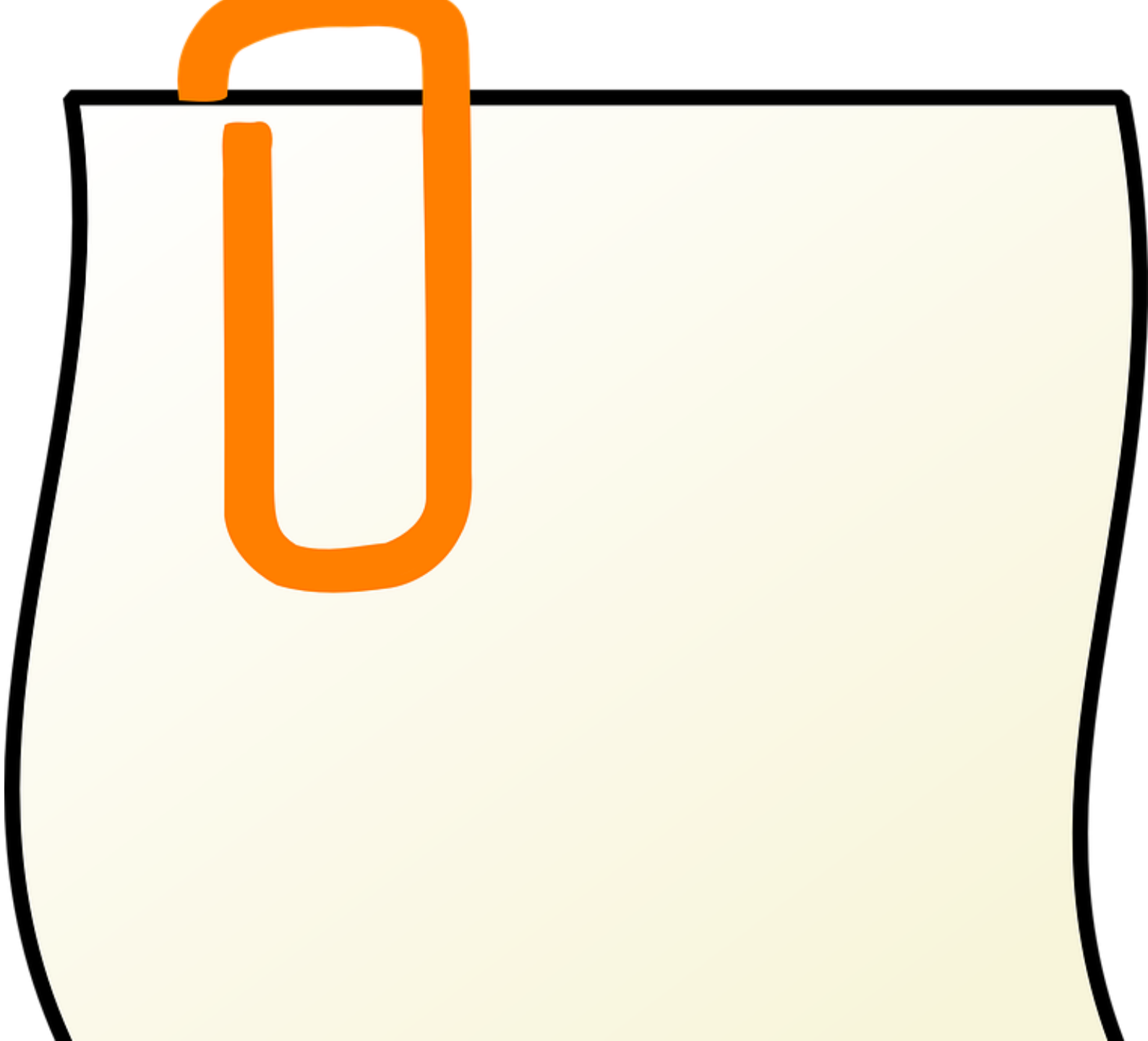
KEY FEATURES OF OCTOFIT TRACKER



- Enables user profiles for students and teachers.
- Tracks activities to monitor fitness progress effectively.
- Facilitates team creation for collaborative fitness goals.
- Includes leaderboards for ranking student performances.
- Offers personalized workout suggestions for improvement.

RESOURCES

- https://tinyurl.com/github-copilot-skills-fest
- Project Related Docs
  - octofit_story.md
  - mona-high-school-fitness-tracker.md
- Tooling
  - GitHub Copilot Settings
  - Coding Guidelines
  - Re-Usable Prompts
  - MCP Configuration



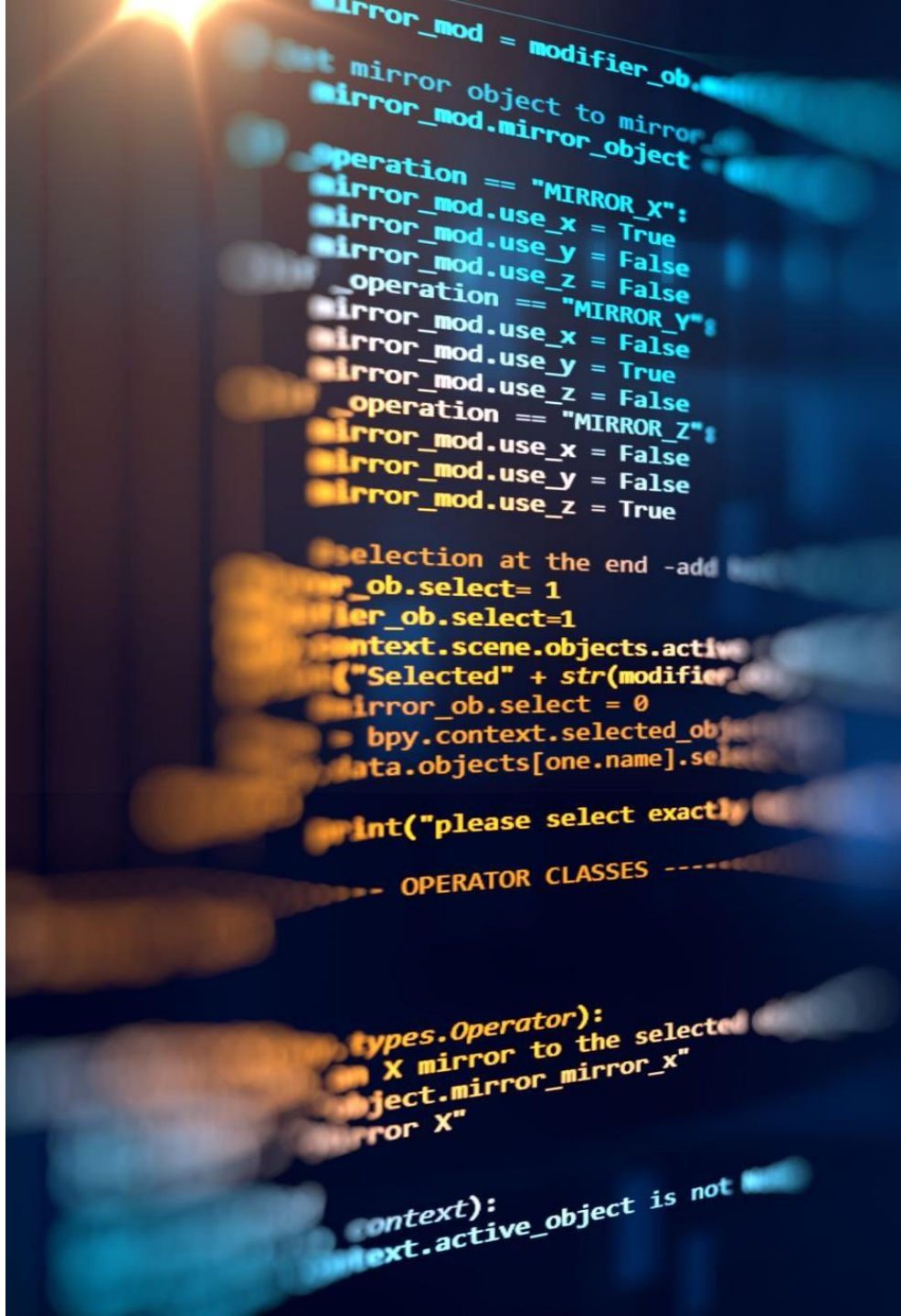
UTILIZE GITHUB COPILOT TO ACCELERATE APP DEVELOPMENT

GITHUB COPILOT: ENHANCING YOUR DEVELOPMENT EXPERIENCE

- GitHub Copilot leverages AI to assist with coding tasks.
- It provides real-time code suggestions and completions.
- Supports various programming languages and frameworks.
- Integrates seamlessly with GitHub repositories.
  - Commit Messages
  - Code Review
  - Pull Requests

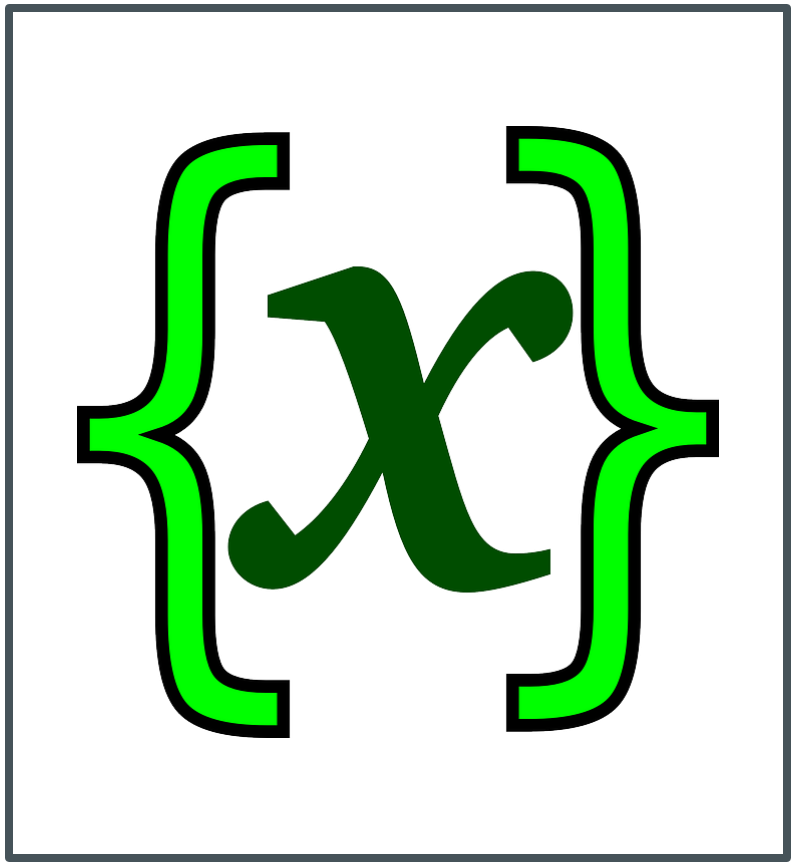
ENHANCING DEVELOPMENT WITH CODE COMPLETIONS / INLINE SUGGESTIONS

- GitHub Copilot offers inline code editing features.
- Edit code directly in your IDE with real-time suggestions.
- Leverage AI to make changes across multiple lines efficiently.
- Helps maintain code consistency during collaborative projects.
- Streamlines the development process by reducing context switching.



CONTEXT VARIABLES

- #editor: Refers to the entire code editor environment where you're writing your code.
- #file: Used to specify a particular file in your project, allowing Copilot to access its content for suggestions.
- #terminalLastCommand: Indicates the last command that was executed in the terminal, useful for obtaining follow-up help or explanations.
- #codebase: Code Suggestions based on the current codebase



COPILOT CHAT SLASH COMMANDS

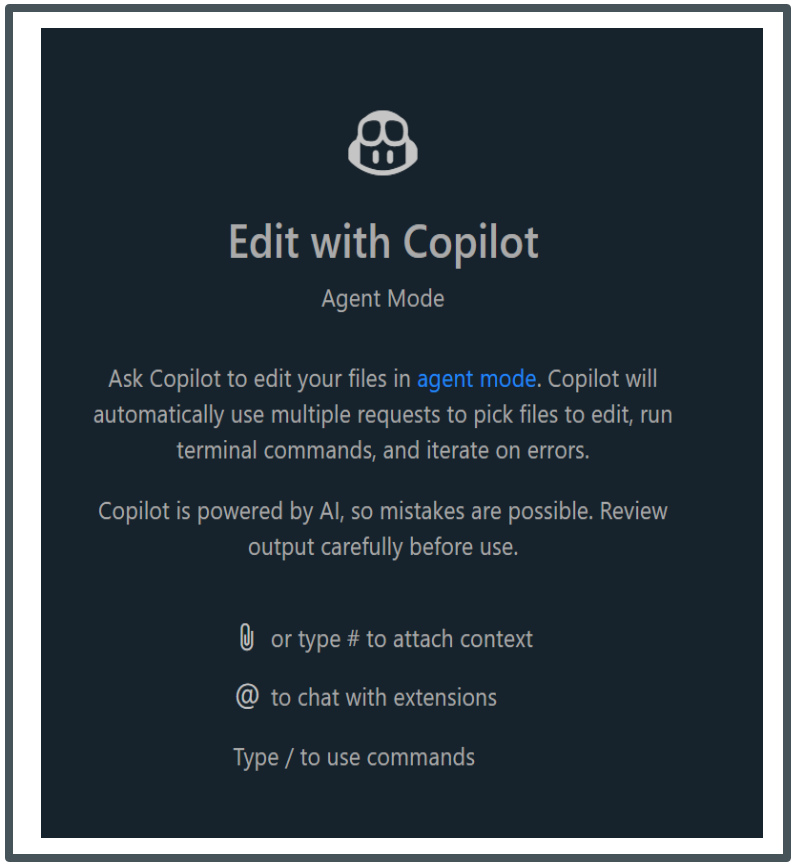
- /explain - Get explanations for a piece of code.
- /generate - Generate code to answer a specified question.
- /optimize - Analyze and improve the running time of the selected code.
- /fix - Propose a fix for problems in the selected code.
- /test - Generate unit tests for the selected code

COPILOT CHAT PARTICIPANTS

- @workspace:
  - This agent has knowledge about the code in your workspace and can help you navigate it by finding relevant files or classes.
- @vscode:
  - About commands and features in the VS Code editor itself
- @third-pary
  - Lots of third-party chat participants available

EXPLORING GITHUB COPILOT CHAT

Ask	Users can ask questions for quick assistance on coding tasks.
Edit	Work on selected files attached to the context
Agent:	Agent mode automates repetitive coding tasks for efficiency.



CAPABILITIES OF GITHUB COPILOT AGENT MODE

- Creates applications from scratch.
- Refactors code across multiple files efficiently.
- Writes and runs tests to ensure quality.
- Migrates legacy code to modern frameworks.
- Answers complex codebase questions.

HOW GITHUB COPILOT AGENT MODE WORKS

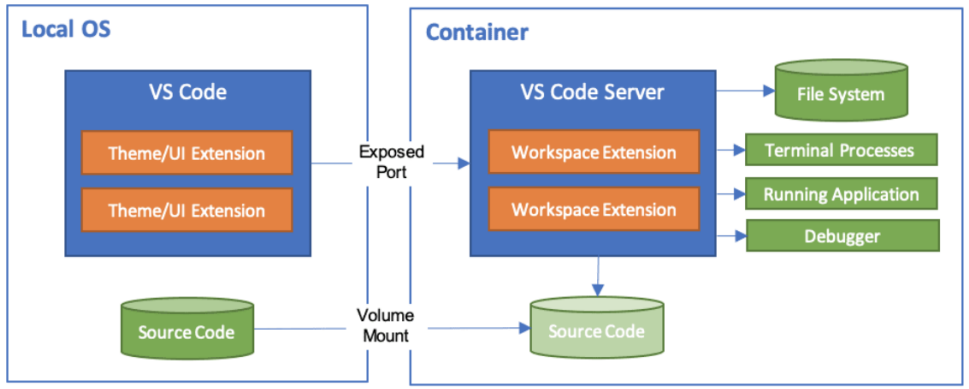
- Analyzes entire codebase for relevant files and dependencies.
- Evaluates project structure for consistent modifications.
- Assists with project-wide tasks like refactoring.
- Processes requests in iterative cycles for dynamic responses.
- Suggests changes aligned with overall project structure.
- Continuously improves suggestions for developer control.

EXPLORING THE POWER OF GITHUB COPILOT AGENT MODE

- Autonomous operation
- Multi-step tasks
- Tools for task completion
- Code changes and terminal commands
- Iteration and self-healing
- User control and review
- Context management
- Undo and Redo
- Interrupting requests
- Limitations

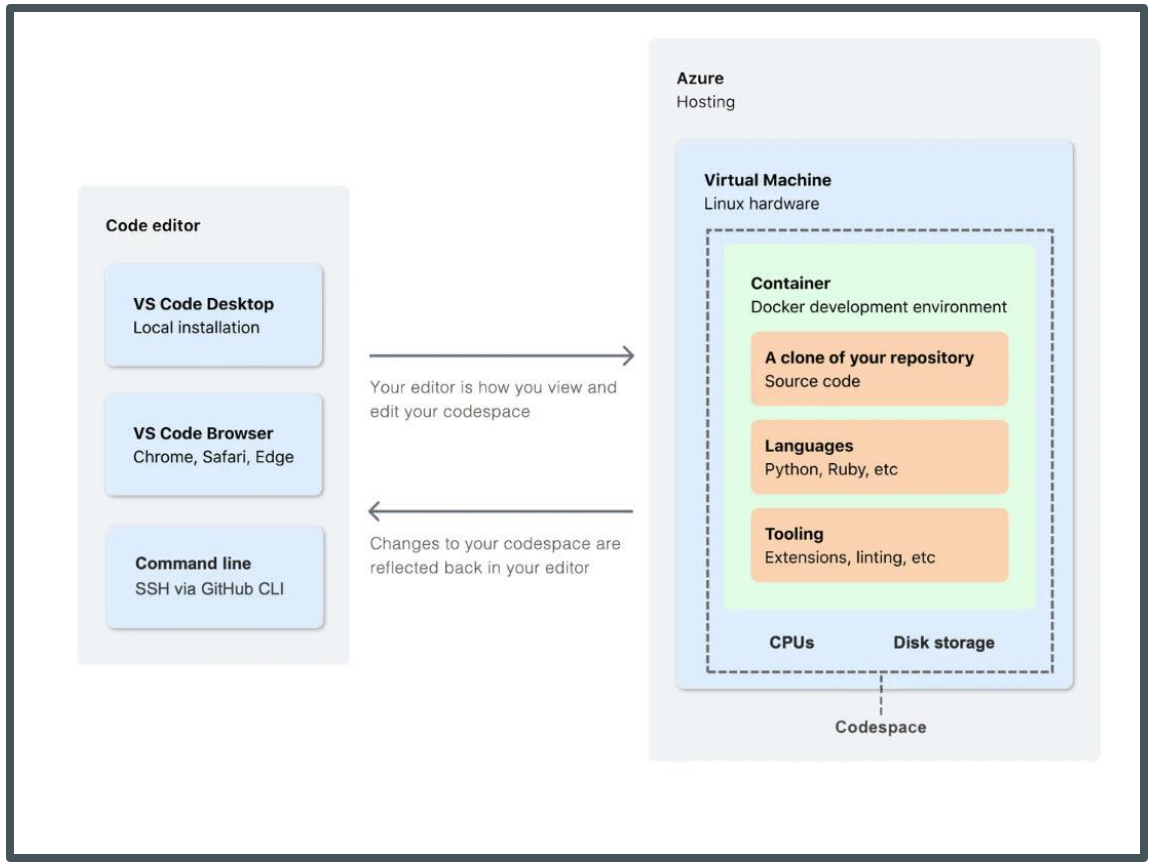
SET UP A DEVELOPMENT ENVIRONMENT & TOOLING USING GITHUB CODESPACES

UNLOCKING THE POWER OF DEVCONTAINERS



- Provide a consistent development environments for teams.
  - Easy onboarding of new team members
- Enable easy setup of dependencies and tools for projects.
- Reduce 'works on my machine' issues significantly.
- Can be create using a prompt

LEVERAGING GITHUB CODESPACES FOR DEVELOPMENT



- Instantly set up a cloud development environment by leveraging DevContainers
- Access your projects from any device with internet connectivity.
- Customize your environment with extensions and tools as needed.
- Benefit from preconfigured settings to speed up onboarding.
- Can be used together with your local VS Code instance

PROMPT ENGINEERING

The process of crafting clear instructions to guide AI systems, like GitHub Copilot, to generate context-appropriate code tailored to your project's specific needs

Using examples can clarify your requirements and expectations, illustrating abstract concepts and making the prompts more tangible for Copilot

Zero-shot learning: generating code without any prior examples or specific instructions in the current context	**One-shot learning**: generate code based on a single example or instruction	**Few-shot learning:** generate code based on more than one example or instruction

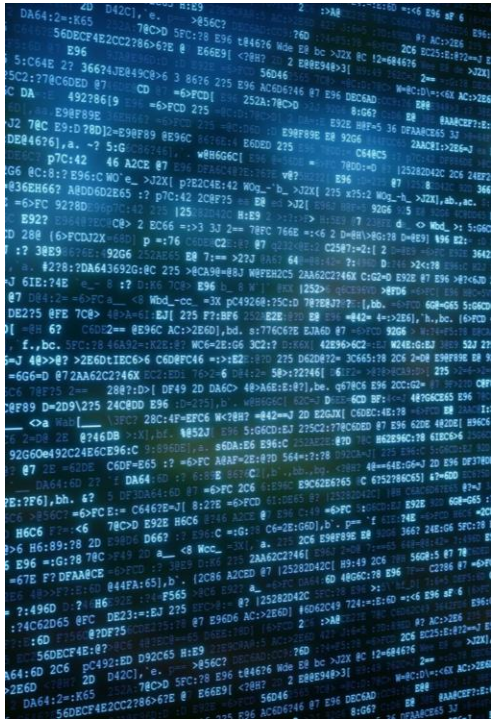
LEVERAGING REUSABLE PROMPTS IN GITHUB COPILOT

Reusable prompts enhance coding efficiency and consistency.

They streamline the development process by providing structure.

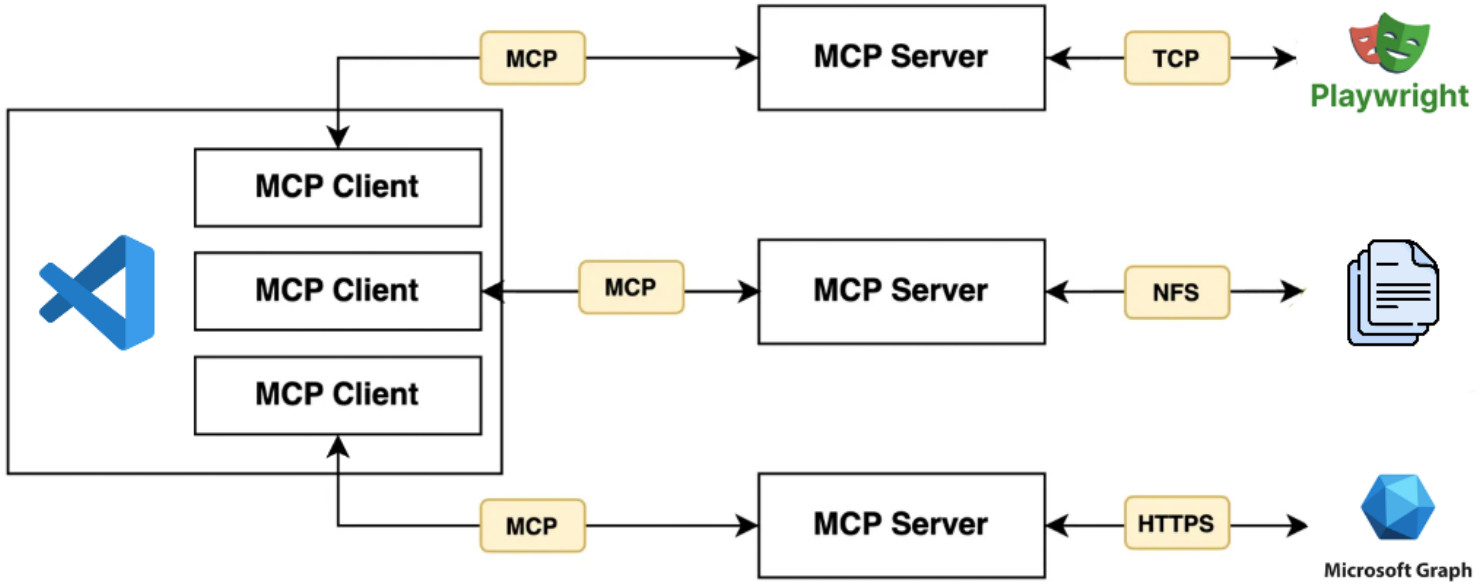
Prompts can be customized for specific project needs or be re-used in multiple projects and support automation

Encourages best practices for AI interaction.



EXTEND AGENT TOOLS USING THE MODEL CONTEXT PROTOCOL

- Model context protocol enhances AI interaction and understanding.
- Extends the LLM by adding Tools in a standardized format
- Tools can be:
  - AI Skills
  - Data Access
  - Application Integration



IMPLEMENT OCTOFIT TRACKER WITH COPILOT AGENT MODE

LIVE DEMO STEPS

Task 1: Work with GitHub

Task 2: Setup Coding Instructions & Tooling

Task 3: Scaffold project structure

Task 4: Implement the .NET Web API

Task 5: Implement the Angular Frontend

Task 6: Add project documentation

APPLY BEST PRACTICES FOR REFINING AI-GENERATED CODE

VIBE CODING BEST PRACTICES

Start

Start with Detailed Specifications

- Set clear coding guidelines

Prioritize

Prioritize Testing and Debugging

- Catch Bugs introduced by Copilot

Manage

Manage Code with Version Control

- Make SMALL commits to be able to undo

Stop

Stop the Agent when noticing technical dept

- Undo
- Re-write the prompt

Let's dive into working on the skill:
Build applications with GitHub Copilot agent mode
OctoFit Tracker application

https://gh.io/build-app-agent-mode

Congratulations

You've achieved a new AI learning milestone

OFFICIAL ATTEMPT

1

Confirm your participation

Verify your involvement on the attestatio page for the GUINNESS WORLD RECORDS™ title attempt

https://aka.ms/TrainingAffirmation

2

Share your success

Show off your achievement—post your milestone with #AISkillsFest

THANKS FOR YOUR TIME

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