AI Assisted Coding

Environment Setup: GitHub Copilot and VS Code

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Overview

1. Introduction to AI-Assisted Coding
2. Introducing GitHub Copilot
3. Installing GitHub Copilot
4. Using GitHub Copilot
5. Summary

What is AI-Assisted Coding?

- Uses artificial intelligence to assist developers during coding
- Offers suggestions, auto completions, and even full code snippets
- Saves time and reduces repetitive tasks
- Examples: GitHub Copilot, TabNine, Cody

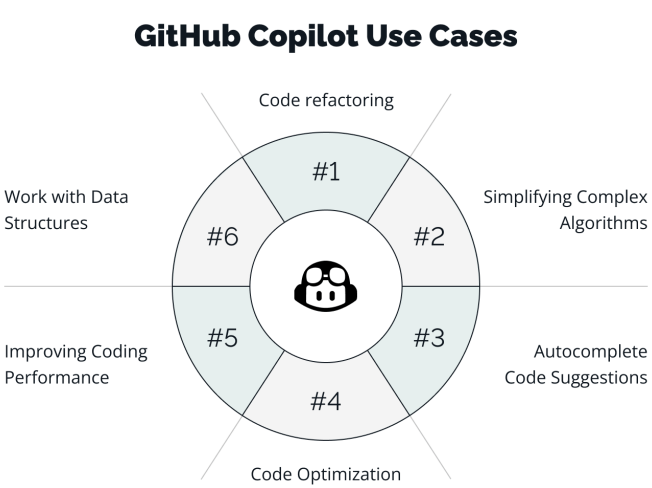
What is GitHub Copilot?

- AI-powered coding assistant developed by GitHub and OpenAI
- Integrated with Visual Studio Code and other editors
- Trained on vast public codebases and documentation
- Supports multiple programming languages

Prerequisites

- Visual Studio Code installed (https://code.visualstudio.com/)
- GitHub account (https://github.com/)
- Active internet connection
- Optional: GitHub Copilot subscription (Pro or Free Trial)

Step 4: Enable GitHub Copilot



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[1] https://www.techmagic.co/blog/github-copilot-vs-chatgpt

Step 1: Open Extensions Tab

- Launch VS Code
- Click on the Extensions icon (left sidebar) or press `Ctrl + Shift + X`
- Type **GitHub Copilot**

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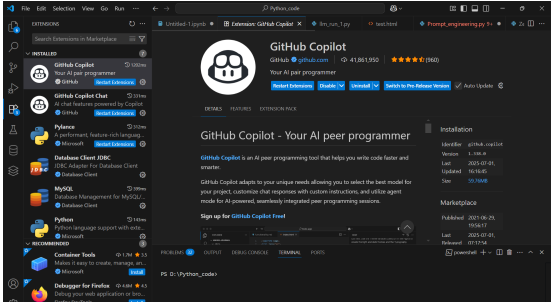
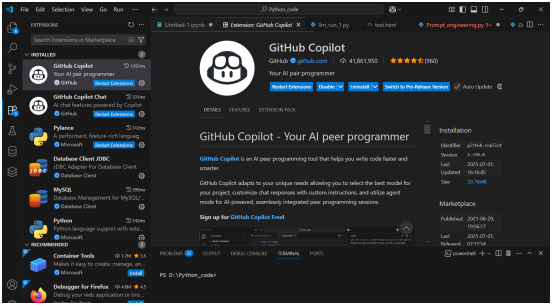
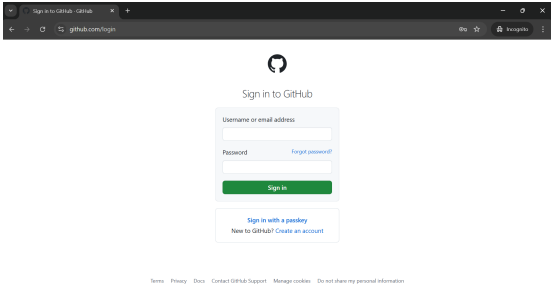


Step 2: Install Copilot Extension



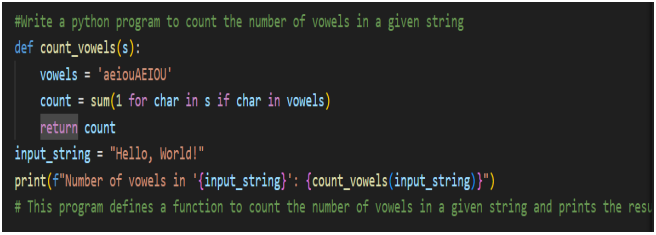
- Click on the official GitHub Copilot extension
- Click the **Install** button

Step 3: Sign In to GitHub



- A browser tab opens
- Sign in to your GitHub account
- Authorize Visual Studio Code

Step 4: Enable GitHub Copilot



```python
#Write a python program to count the number of vowels in a given string
def count_vowels(s):
    vowels = 'aeiouAEIOU'
    count = sum(1 for char in s if char in vowels)
    return count
input_string = "Hello, World!"
print(f"Number of vowels in '{input_string}': {count_vowels(input_string)}")
# This program defines a function to count the number of vowels in a given string and prints the resu
```

- Once signed in, Copilot activates automatically
- Start typing code in a new file (e.g., Python)
- Suggestions will appear in gray as ghost text
- Press `Tab` to accept a suggestion

Basic Usage

- Start writing a comment or function — Copilot auto-suggests code
- Press `Tab` to accept a suggestion
- Use comments to guide Copilot to generate specific solutions

More examples

```python
#write a python function that converts fahrenheit to celsius
def fahrenheit_to_celsius(fahrenheit):
    """Convert Fahrenheit to Celsius."""
    if fahrenheit < -459.67:
        raise ValueError("Temperature cannot be below absolute zero (-459.67°F).")
    celsius = (fahrenheit - 32) * 5/9
    return celsius
```

Best Practices

- Always review Copilot's suggestions — verify correctness
- Use it to speed up boilerplate or standard tasks
- Combine with good software design principles
- Great for learning syntax, exploring libraries

Key Takeaways

- GitHub Copilot is a powerful AI coding assistant
- Easy to integrate with Visual Studio Code
- Helps write code faster, with fewer errors
- Use responsibly and critically — it's a helper, not a substitute

The End