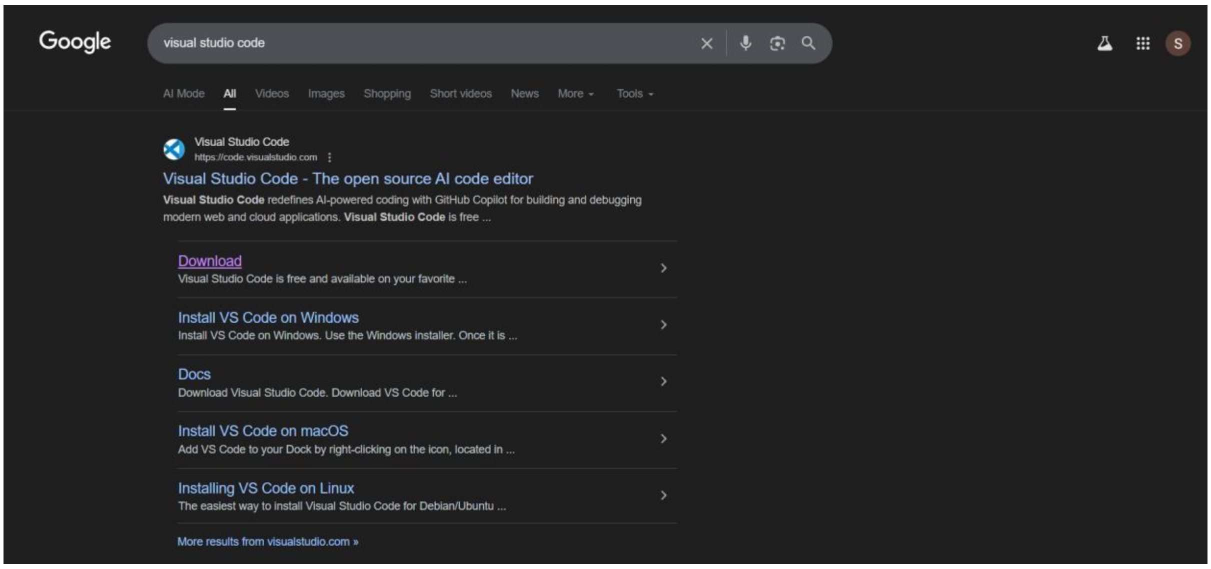
SR UNIVERSITY

School of Computer Science and Artificial Intelligence

Lab Assignment 1.2

Program	**: B. Tech (CSE)**
Course Title	**: AI Assisted Coding**
Course Code	**: 23CS002PC304**
Semester	**: III**
Academic Session	**: 2025-2026**
Name of Student	**: Akhila**
Enrollment No.	**: 2403A51L40**
Batch No.	**: 52**
Date	**: 06-10-2026**

Search the Visual Studio Code in the browser. Then click on the Download.



Visual Studio Code
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Visual Studio Code - The open source AI code editor

Visual Studio Code redefines AI-powered coding with GitHub Copilot for building and debugging modern web and cloud applications. **Visual Studio Code** is free ...

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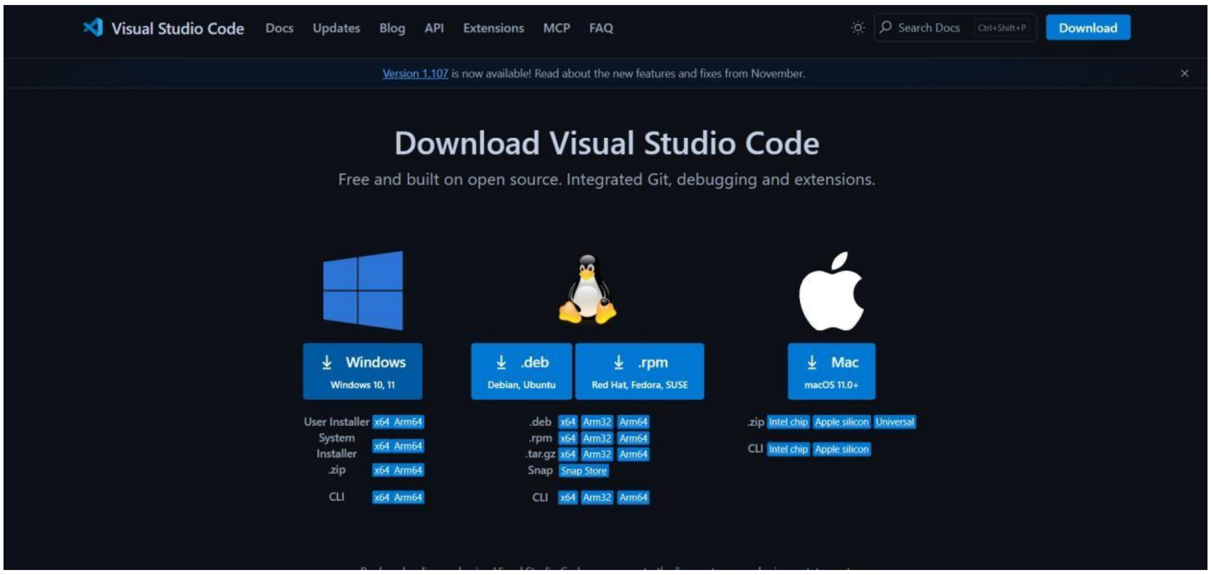

Version 1.107 is now available! Read about the new features and fixes from November.

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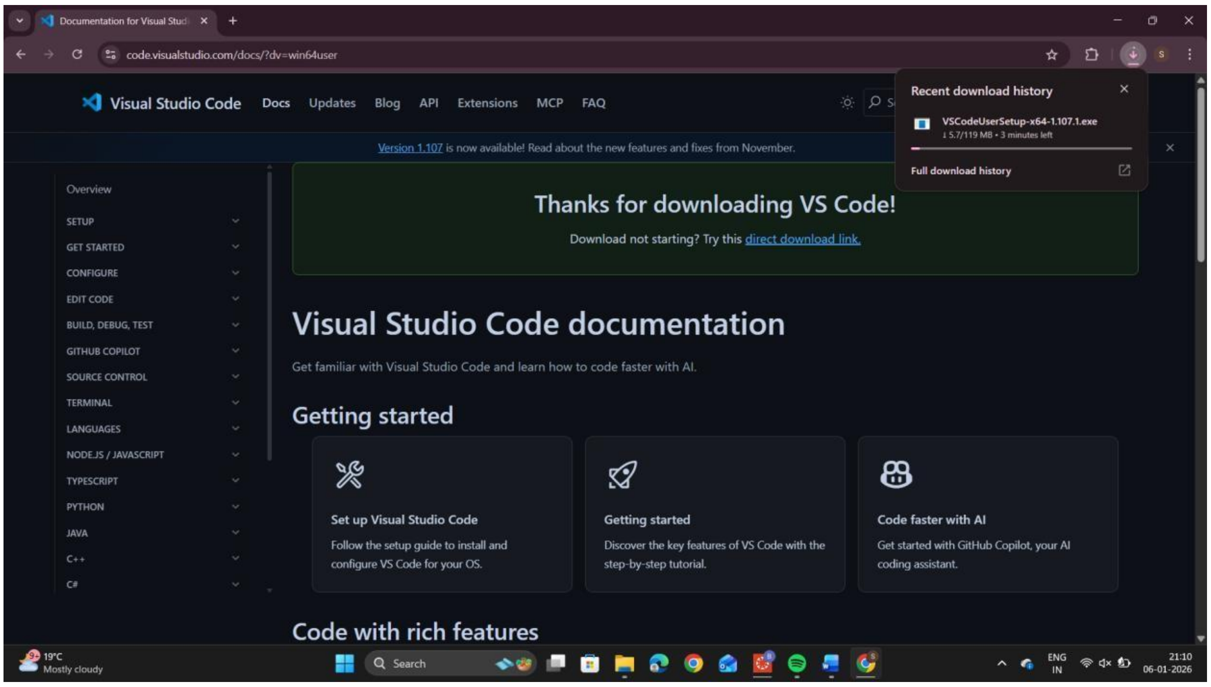
Free and built on open source. Integrated Git, debugging and extensions.

A download .exe file you can see.



Version 1.107 is now available! Read about the new features and fixes from November.

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Visual Studio Code documentation

Get familiar with Visual Studio Code and learn how to code faster with AI.

Getting started

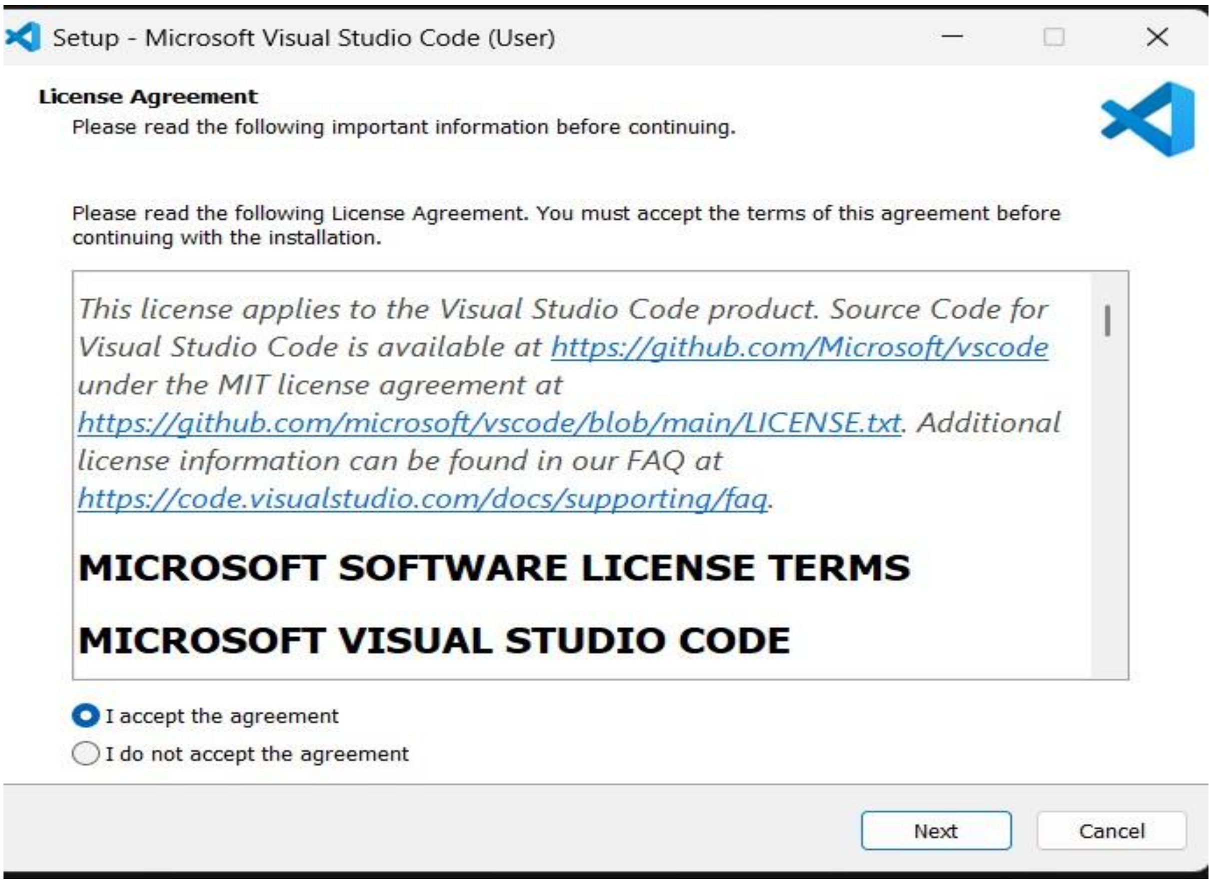
Set up Visual Studio Code
Follow the setup guide to install and configure VS Code for your OS.

Getting started
Discover the key features of VS Code with the step-by-step tutorial.

Code faster with AI
Get started with GitHub Copilot, your AI coding assistant.

Code with rich features

After the downloading the .exe file completed. Click on the .exe file then you will see the below window . Then click on the accept the agreement click next.



Setup - Microsoft Visual Studio Code (User)

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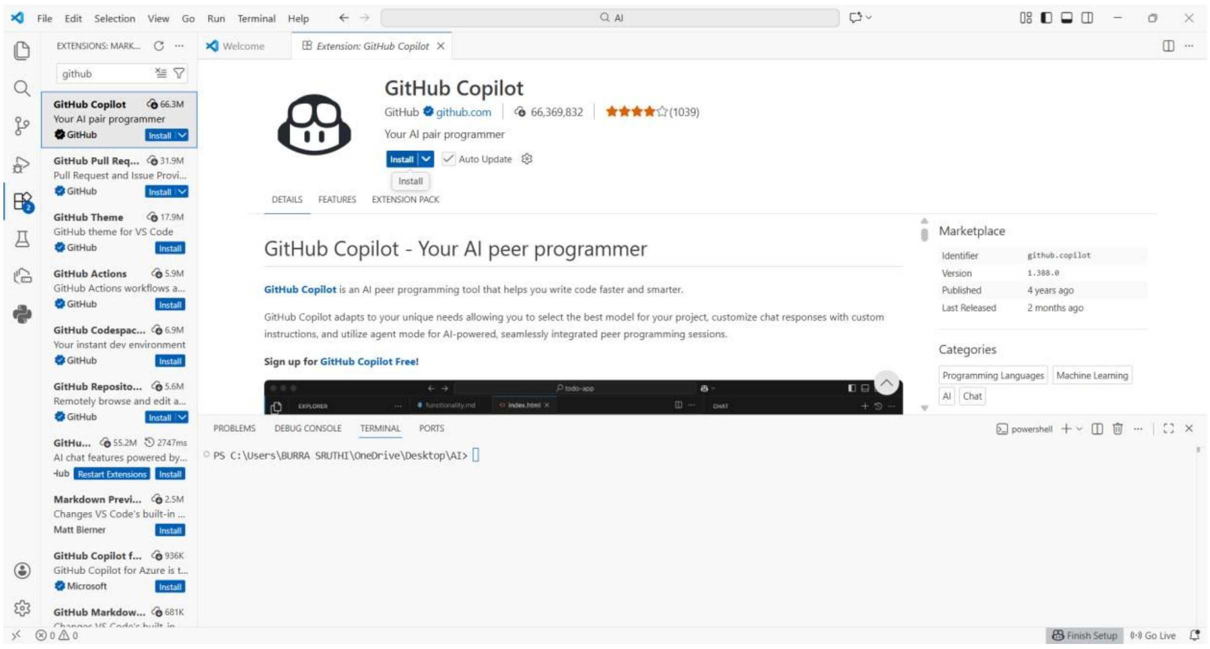
After that click next and then click on install. After the completion of download. Open the vs code

Click on the extension then search for GitHub Copilot. Click on the install



File Edit Selection View Go Run Terminal Help
AI
EXTENSIONS: MARK...
github
Welcome
Extension: GitHub Copilot
Install
Auto Update
DETAILS FEATURES EXTENSION PACK
PROBLEMS DEBUG CONSOLE TERMINAL PORTS
powershell
Finish Setup
Go Live

GitHub Copilot 66.3M — Your AI pair programmer — GitHub — Install
GitHub Pull Req... 31.9M — Pull Request and Issue Provi... — GitHub — Install
GitHub Theme 17.9M — GitHub theme for VS Code — GitHub — Install
GitHub Actions 5.9M — GitHub Actions workflows a... — GitHub — Install
GitHub Codespac... 6.9M — Your instant dev environment — GitHub — Install
GitHub Reposito... 5.6M — Remotely browse and edit a... — GitHub — Install
GitHu... 55.2M 2747ms — AI chat features powered by... — Restart Extensions Install
Markdown Previ... 2.5M — Changes VS Code's built-in ... — Matt Bierner — Install
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GitHub Copilot
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Your AI pair programmer

GitHub Copilot - Your AI peer programmer

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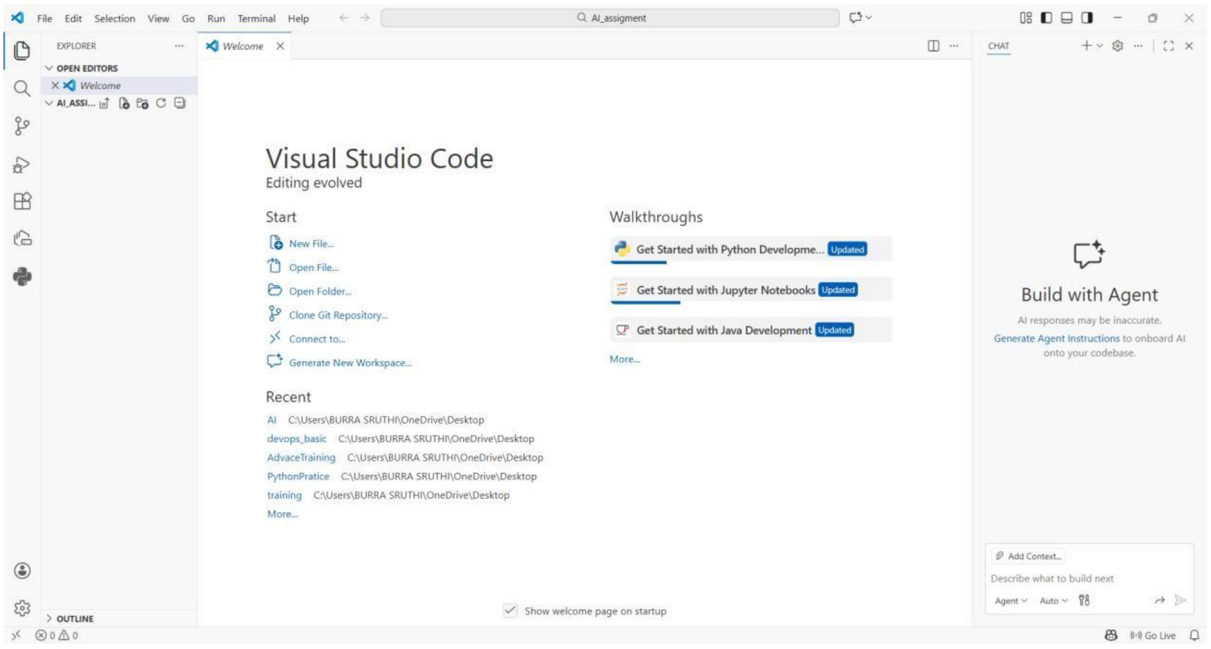
Identifier	github.copilot
Version	1.388.0
Published	4 years ago
Last Released	2 months ago

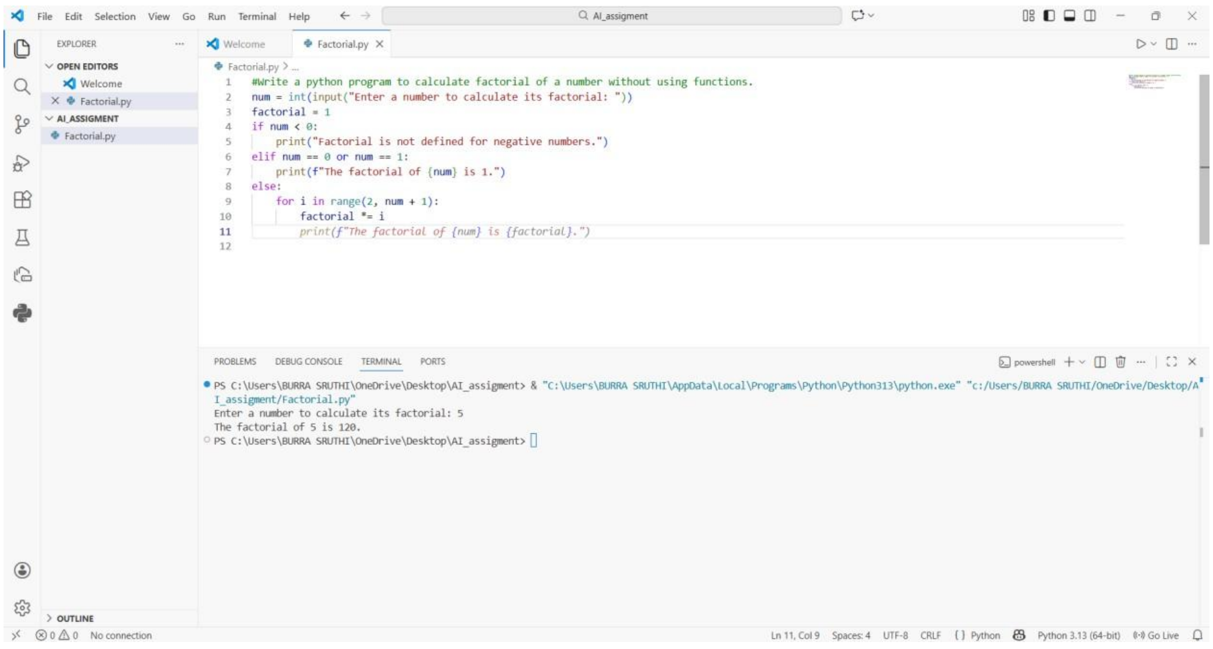
Categories: Programming Languages, Machine Learning, AI, Chat

```
PS C:\Users\BURRA SRUTHI\OneDrive\Desktop\AI>
```

After the installation completed . sign in into the github copilot using the account of github. Create a new folder on desktop open it in the visual studio.


File Edit Selection View Go Run Terminal Help
AI_assigment
EXPLORER
OPEN EDITORS
Welcome
AI_ASSI...
Visual Studio Code
Editing evolved
Start
New File...
Open File...
Open Folder...
Clone Git Repository...
Connect to...
Generate New Workspace...
Recent
AI C:\Users\BURRA SRUTHI\OneDrive\Desktop
devops_basic C:\Users\BURRA SRUTHI\OneDrive\Desktop
AdvaceTraining C:\Users\BURRA SRUTHI\OneDrive\Desktop
PythonPratice C:\Users\BURRA SRUTHI\OneDrive\Desktop
training C:\Users\BURRA SRUTHI\OneDrive\Desktop
More...
Walkthroughs
Get Started with Python Developme... Updated
Get Started with Jupyter Notebooks Updated
Get Started with Java Development Updated
More...
Show welcome page on startup
CHAT
Build with Agent
AI responses may be inaccurate.
Generate Agent Instructions to onboard AI onto your codebase.
Add Context...
Describe what to build next
Agent Auto
OUTLINE
Go Live

Create a new python file
And give prompt as **#Write a python program to calculate factorial of a number without using functions.**
The AI gives Inline suggestion like which is in the below window.


File Edit Selection View Go Run Terminal Help
AI_assigment
EXPLORER
OPEN EDITORS
Welcome
Factorial.py
AI_ASSIGMENT
Factorial.py
OUTLINE
PROBLEMS DEBUG CONSOLE TERMINAL PORTS
powershell
No connection
Ln 11, Col 9 Spaces: 4 UTF-8 CRLF {} Python Python 3.13 (64-bit) Go Live

```python
#Write a python program to calculate factorial of a number without using functions.
num = int(input("Enter a number to calculate its factorial: "))
factorial = 1
if num < 0:
    print("Factorial is not defined for negative numbers.")
elif num == 0 or num == 1:
    print(f"The factorial of {num} is 1.")
else:
    for i in range(2, num + 1):
        factorial *= i
        print(f"The factorial of {num} is {factorial}.")
```

```
PS C:\Users\BURRA SRUTHI\OneDrive\Desktop\AI_assigment> & "C:\Users\BURRA SRUTHI\AppData\Local\Programs\Python\Python313\python.exe" "c:/Users/BURRA SRUTHI/OneDrive/Desktop/AI_assigment/Factorial.py"
Enter a number to calculate its factorial: 5
The factorial of 5 is 120.
PS C:\Users\BURRA SRUTHI\OneDrive\Desktop\AI_assigment>
```

Below window shows the total code and the output of the code

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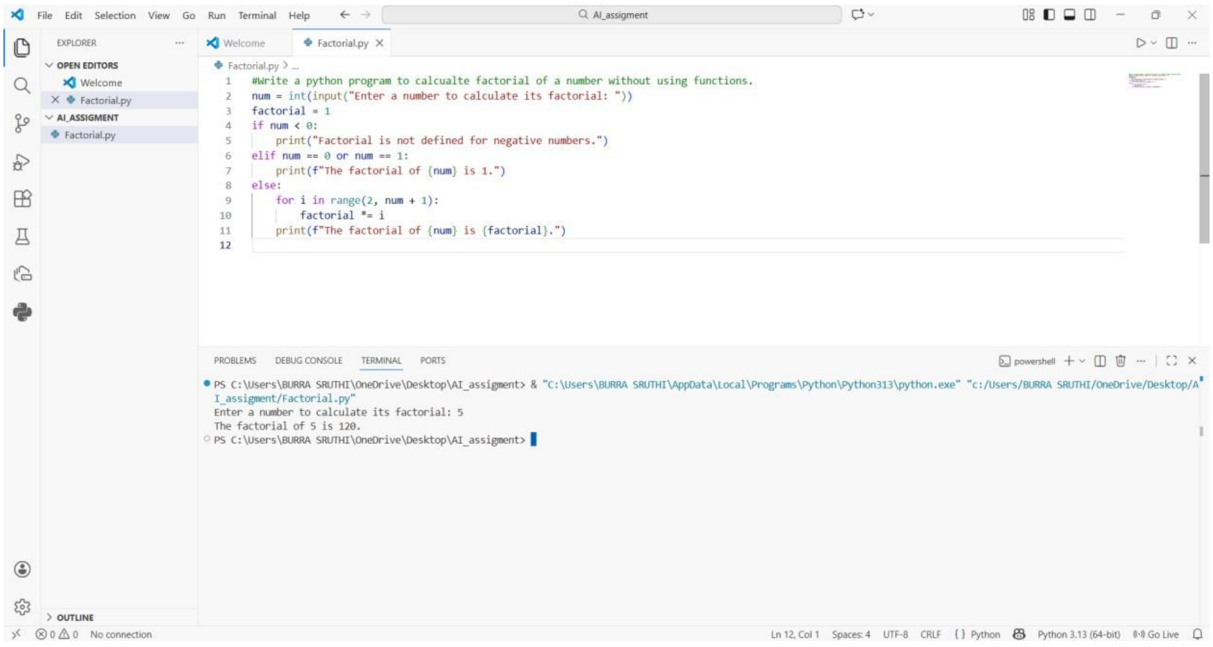

```python
#Write a python program to calcualte factorial of a number without using functions.
num = int(input("Enter a number to calculate its factorial: "))
factorial = 1
if num < 0:
    print("Factorial is not defined for negative numbers.")
elif num == 0 or num == 1:
    print(f"The factorial of {num} is 1.")
else:
    for i in range(2, num + 1):
        factorial *= i
    print(f"The factorial of {num} is {factorial}.")
```

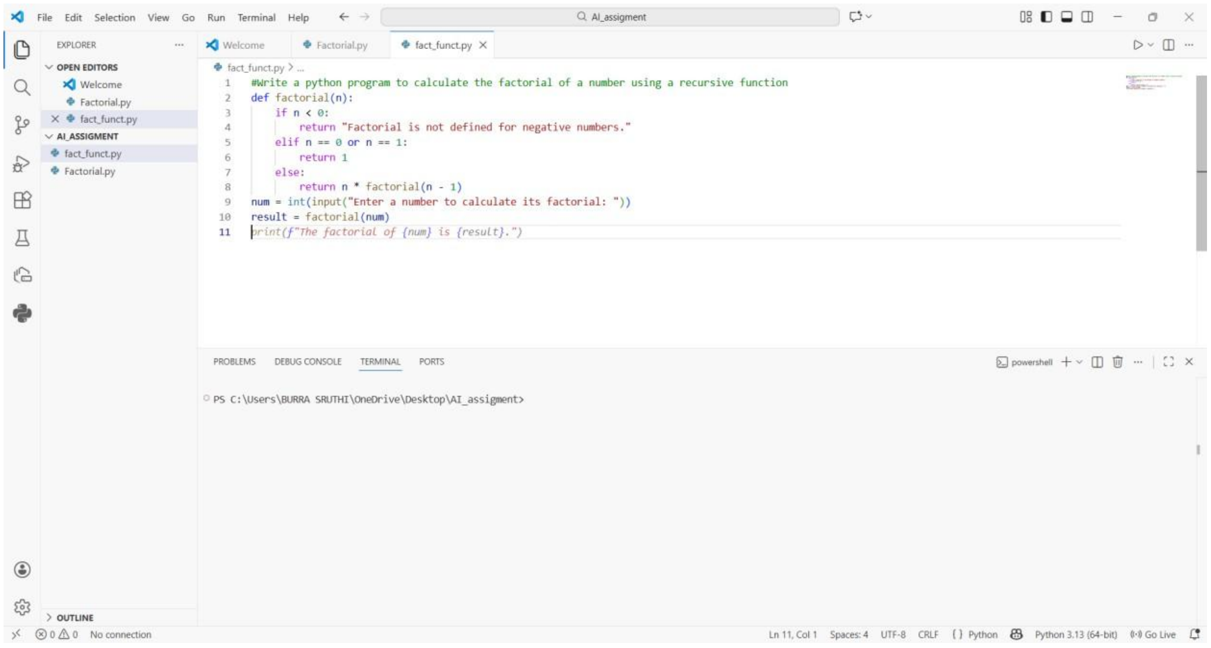
```
PS C:\Users\BURRA SRUTHI\OneDrive\Desktop\AI_assigment> & "C:\Users\BURRA SRUTHI\AppData\Local\Programs\Python\Python313\python.exe" "c:/Users/BURRA SRUTHI/OneDrive/Desktop/AI_assigment/Factorial.py"
Enter a number to calculate its factorial: 5
The factorial of 5 is 120.
PS C:\Users\BURRA SRUTHI\OneDrive\Desktop\AI_assigment>
```

Create a new python file

Give the prompt as **#Write a python program to calculate the factorial of a number using a recursive function**

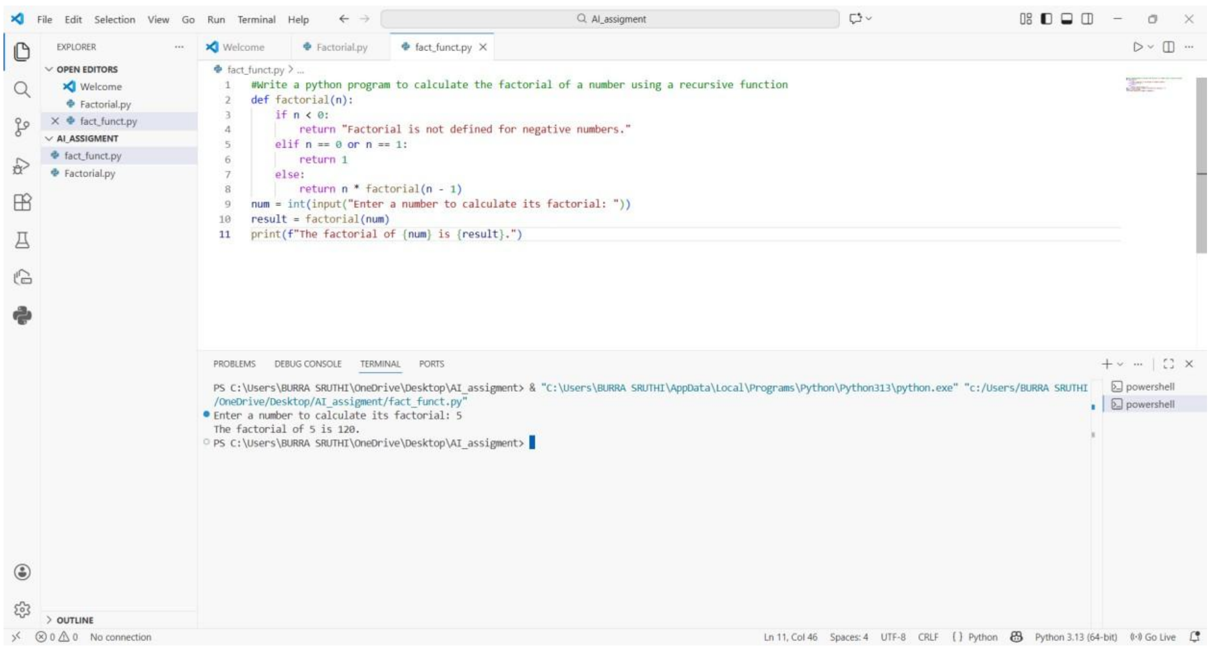
The github copilot give inline suggestions after you enter the prompt.

The copilot gives the suggestions like in the below window


```python
#Write a python program to calculate the factorial of a number using a recursive function
def factorial(n):
    if n < 0:
        return "Factorial is not defined for negative numbers."
    elif n == 0 or n == 1:
        return 1
    else:
        return n * factorial(n - 1)
num = int(input("Enter a number to calculate its factorial: "))
result = factorial(num)
print(f"The factorial of {num} is {result}.")
```

```
PS C:\Users\BURRA SRUTHI\OneDrive\Desktop\AI_assigment>
```

The input and output of the factorial of a number.



```python
#Write a python program to calculate the factorial of a number using a recursive function
def factorial(n):
    if n < 0:
        return "Factorial is not defined for negative numbers."
    elif n == 0 or n == 1:
        return 1
    else:
        return n * factorial(n - 1)
num = int(input("Enter a number to calculate its factorial: "))
result = factorial(num)
print(f"The factorial of {num} is {result}.")
```

```
PS C:\Users\BURRA SRUTHI\OneDrive\Desktop\AI_assigment> & "C:\Users\BURRA SRUTHI\AppData\Local\Programs\Python\Python313\python.exe" "c:/Users/BURRA SRUTHI
/OneDrive/Desktop/AI_assigment/fact_funct.py"
Enter a number to calculate its factorial: 5
The factorial of 5 is 120.
PS C:\Users\BURRA SRUTHI\OneDrive\Desktop\AI_assigment>
```

Comparative Analysis Table

Criteria	**Without Functions**	**With Recursive Functions**
Logic Clarity	Logic mixed with input/output	Logic separated and input separated
Reusability	Cannot reuse logic easily	Function can be reused anywhere
Debugging Ease	Harder to isolate errors	Easy to test function independently
Suitability for Large Projects	Not suitable	Highly suitable
AI Dependency Risk	High (copy-paste dependent)	Lower (structured and controlled)

Execution Flow Explanation:

Without function:

1. The program prompts the user to enter a number.
2. It checks if the number is negative, zero, or one, and handles those cases accordingly.
3. For numbers greater than one, it initializes a variable 'factorial' to 1. 4. It then uses a for loop to iterate from 2 to the entered number and multiplies 'factorial' by each integer in that range.
5. Finally, it prints the calculated factorial.

With Recursive Functions:

1. The program defines a recursive function 'factorial' that takes an integer 'n' as input.
2. Inside the function, it checks if 'n' is negative, zero, or one, and returns appropriate values for those cases.

3. For numbers greater than one, the function calls itself with 'n-1 and multiplies the result by 'n', effectively calculating the factorial recursively.
4. The program then prompts the user to enter a number and calls the 'factorial' function with that number.
5. Finally, it prints the calculated factorial.

Comparison Analysis

Aspect	**Without function**	**With Recursive function**
Readability	Very clear and straightforward	Very elegant and mathematically expressive
Stack Usage	Uses constant memory	Uses call stack for each function call
Performance	Faster due to no function call overhead	Slightly slower due to recursion overhead
Memory Usage	Low	Higher
Ease of Debugging	Easier	Harder due to nested calls

When Recursion is Not Recommended

Recursion should be avoided when:

1. **Input size is very large**

   Can cause stack overflow

2. **Problem has a simple loop-based solution**

   Iteration is more efficient

3. **Performance is critical**

   Recursive calls add overhead

4. **Language has limited recursion depth**

   Python has a recursion limit (~1000)