AI Assisted Problem Solving Using Python

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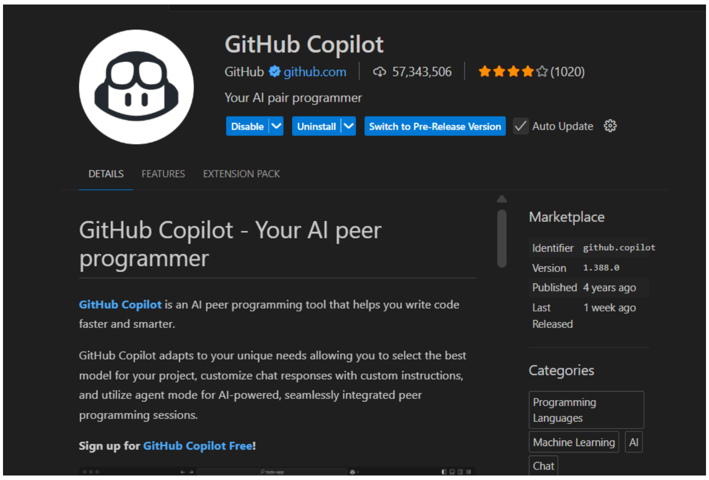
Task Description:01

Install and Configuration GitHub copilot in vs code .Take screenshots of each steps



GitHub Copilot

GitHub github.com | 57,343,506 | ★★★★☆ (1020)

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Marketplace

Identifier	github.copilot
Version	1.388.0
Published	4 years ago
Last Released	1 week ago

Categories

Programming Languages

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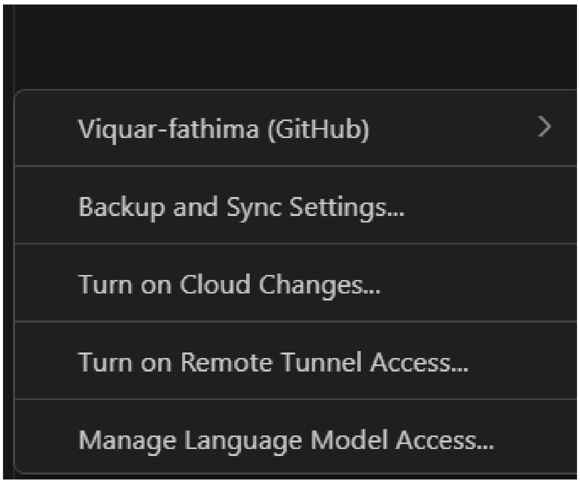


Viquar-fathima (GitHub)
Backup and Sync Settings...
Turn on Cloud Changes...
Turn on Remote Tunnel Access...
Manage Language Model Access...

Task Description:02

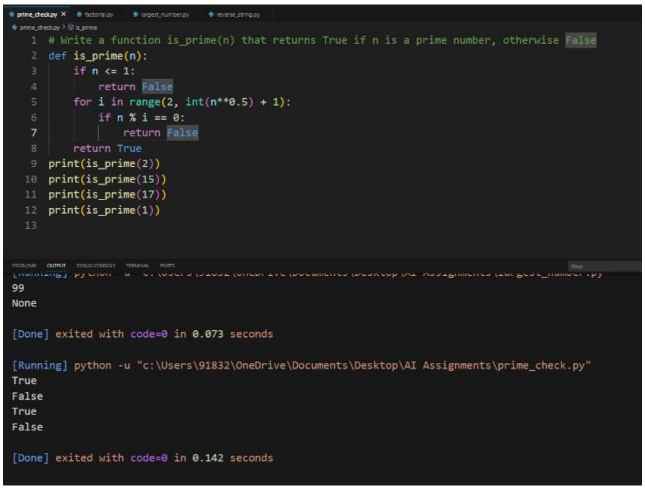
Use Copilot to generate a is_prime() Python function.

# Write a function is_prime(n) that returns True if n is a prime number, otherwise False

```
def is_prime(n):
    if n <= 1:
        return False
    for i in range(2, int(n**0.5) + 1):
        if n % i == 0:
            return False
    return True
print(is_prime(2))
print(is_prime(15))
```

print(is_prime(17))

print(is_prime(1))



```
# Write a function is_prime(n) that returns True if n is a prime number, otherwise False
def is_prime(n):
    if n <= 1:
        return False
    for i in range(2, int(n**0.5) + 1):
        if n % i == 0:
            return False
    return True
print(is_prime(2))
print(is_prime(15))
print(is_prime(17))
print(is_prime(1))
```

```
[Running] python -u "c:\Users\91832\OneDrive\Documents\Desktop\AI Assignments\largest_number.py"
99
None

[Done] exited with code=0 in 0.073 seconds

[Running] python -u "c:\Users\91832\OneDrive\Documents\Desktop\AI Assignments\prime_check.py"
True
False
True
False

[Done] exited with code=0 in 0.142 seconds
```

Task Description:03

Write a comment like # Function to reverse a string and use Copilot to generate the function.

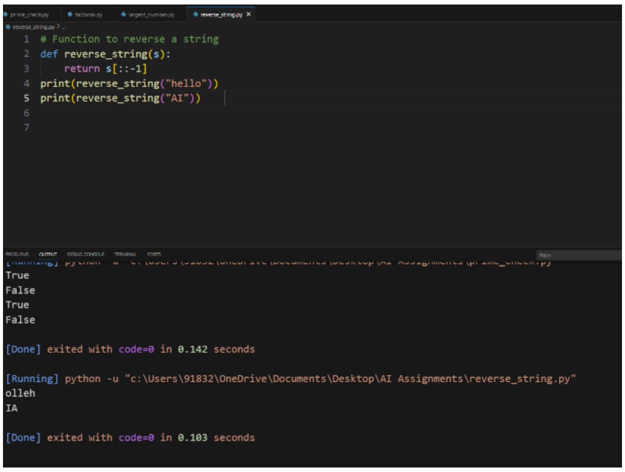
Function to reverse a string

def reverse_string(s):

    return s[::-1]

print(reverse_string("hello"))

print(reverse_string("AI"))



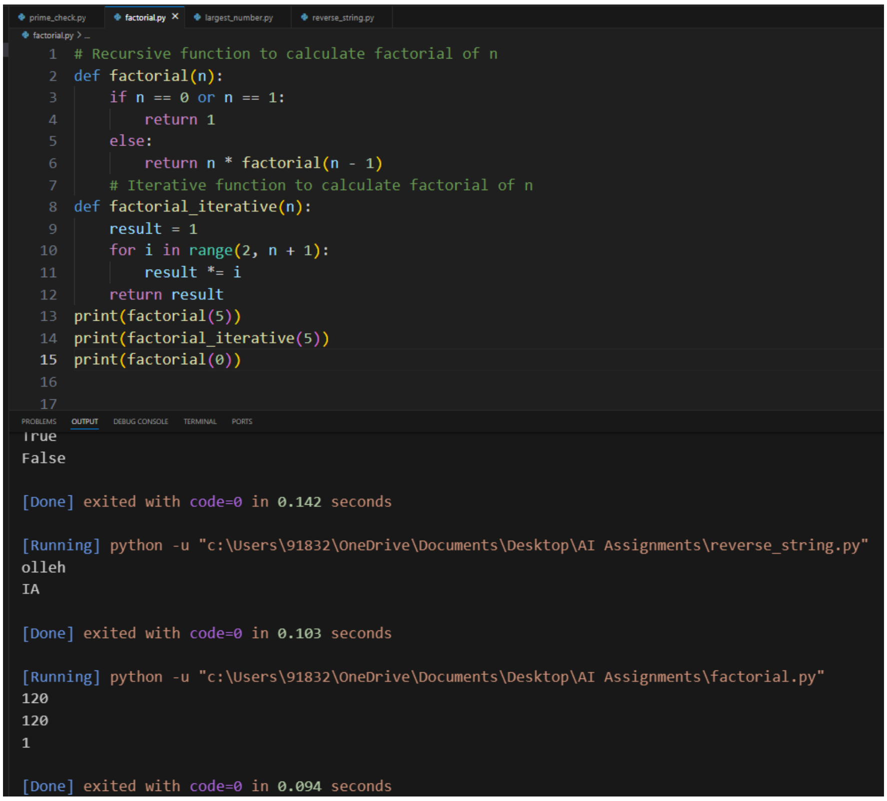
```
# Function to reverse a string
def reverse_string(s):
    return s[::-1]
print(reverse_string("hello"))
print(reverse_string("AI"))
```

```
[Running] python -u "c:\Users\91832\OneDrive\Documents\Desktop\AI Assignments\prime_check.py"
True
False
True
False

[Done] exited with code=0 in 0.142 seconds

[Running] python -u "c:\Users\91832\OneDrive\Documents\Desktop\AI Assignments\reverse_string.py"
olleh
IA

[Done] exited with code=0 in 0.103 seconds
```

Task Description:04

Generate both recursive and iterative versions of a factorial function using comments.

```
# Recursive function to calculate factorial of n
def factorial(n):
    if n == 0 or n == 1:
        return 1
    else:
        return n * factorial(n - 1)
    # Iterative function to calculate factorial of n
def factorial_iterative(n):
    result = 1
    for i in range(2, n + 1):
        result *= i
    return result
print(factorial(5))
print(factorial_iterative(5))
print(factorial(0))
```



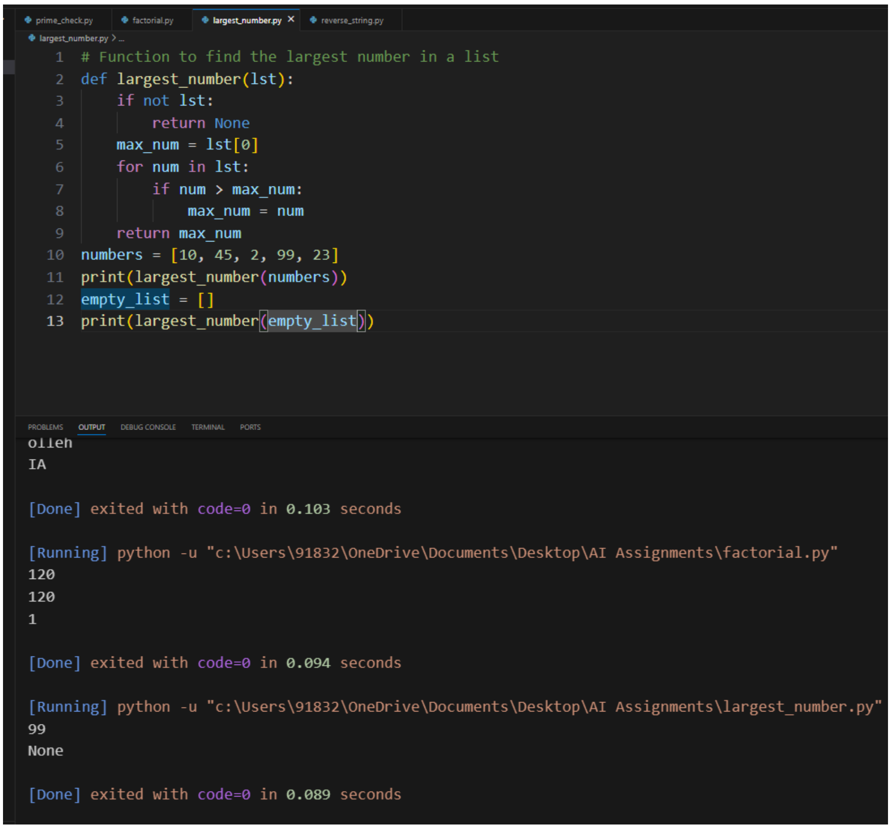
```
# Recursive function to calculate factorial of n
def factorial(n):
    if n == 0 or n == 1:
        return 1
    else:
        return n * factorial(n - 1)
    # Iterative function to calculate factorial of n
def factorial_iterative(n):
    result = 1
    for i in range(2, n + 1):
        result *= i
    return result
print(factorial(5))
print(factorial_iterative(5))
print(factorial(0))
```

```
True
False

[Done] exited with code=0 in 0.142 seconds

[Running] python -u "c:\Users\91832\OneDrive\Documents\Desktop\AI Assignments\reverse_string.py"
olleh
IA

[Done] exited with code=0 in 0.103 seconds

[Running] python -u "c:\Users\91832\OneDrive\Documents\Desktop\AI Assignments\factorial.py"
120
120
1

[Done] exited with code=0 in 0.094 seconds
```

Task Description:05

Use Copilot to find the largest number in a list. Assess code quality and efficiency

```
# Function to find the largest number in a list
def largest_number(lst):
    if not lst:
        return None
    max_num = lst[0]
    for num in lst:
        if num > max_num:
            max_num = num
    return max_num
numbers = [10, 45, 2, 99, 23]
print(largest_number(numbers))
empty_list = []
print(largest_number(empty_list))
```



```
# Function to find the largest number in a list
def largest_number(lst):
    if not lst:
        return None
    max_num = lst[0]
    for num in lst:
        if num > max_num:
            max_num = num
    return max_num
numbers = [10, 45, 2, 99, 23]
print(largest_number(numbers))
empty_list = []
print(largest_number(empty_list))
```

```
olleh
IA

[Done] exited with code=0 in 0.103 seconds

[Running] python -u "c:\Users\91832\OneDrive\Documents\Desktop\AI Assignments\factorial.py"
120
120
1

[Done] exited with code=0 in 0.094 seconds

[Running] python -u "c:\Users\91832\OneDrive\Documents\Desktop\AI Assignments\largest_number.py"
99
None

[Done] exited with code=0 in 0.089 seconds
```