

AI ASSISTED CODING-LAB ASSIGNMENT

ASSIGNMENT – 3.4

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Batch:13

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Task 1: Zero-shot Prompt – Fibonacci Series Generator ask

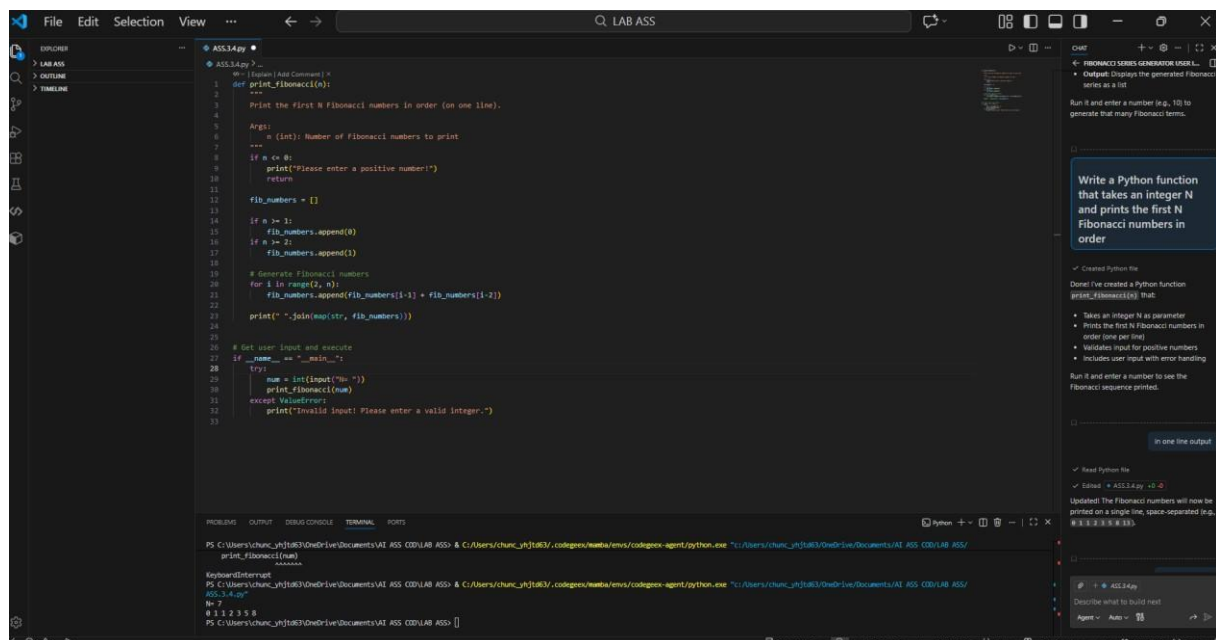
Description #1

- Without giving an example, write a single comment prompt asking

GitHub Copilot to generate a Python function to print the first N

Fibonacci numbers.

Prompt : “# Write a Python function that takes an integer N and prints the first N Fibonacci numbers in order” Code and output :



The screenshot displays a Visual Studio Code editor window with a file named 'ASS3.4.py'. The code defines a function `print_fibonacci(n)` that prints the first `n` Fibonacci numbers. It includes input validation and a `__main__` block to run the function. The terminal at the bottom shows the command `python ASS3.4.py` being executed, resulting in the output: `0 1 1 2 3 5 8`. A right-hand sidebar shows a Copilot-generated prompt and a list of generated Fibonacci numbers.

```
1 # Write a Python function that takes an integer N and prints the first N
2 # Fibonacci numbers in order
3
4 def print_fibonacci(n):
5     """Print the first N Fibonacci numbers in order (on one line)."""
6     # (int): Number of Fibonacci numbers to print
7     if n <= 0:
8         print("Please enter a positive number!")
9         return
10    fib_numbers = []
11    if n >= 1:
12        fib_numbers.append(0)
13    if n >= 2:
14        fib_numbers.append(1)
15    # Generate Fibonacci numbers
16    for i in range(2, n):
17        fib_numbers.append(fib_numbers[i-1] + fib_numbers[i-2])
18    print(" ".join(map(str, fib_numbers)))
19
20 # Set user input and execute
21 if __name__ == "__main__":
22     try:
23         n = int(input("N: "))
24         print_fibonacci(n)
25     except ValueError:
26         print("Invalid input! Please enter a valid integer.")
```

Output:

```
PS C:\Users\chun_hj1083\OneDrive\Documents\AI ASS COD\LAB ASS\ > python ASS3.4.py
N: 7
0 1 1 2 3 5 8
```

Task 2: One-shot Prompt – List Reversal Function

Task Description #2

- Write a comment prompt to reverse a list and provide one example below the comment to guide Copilot.

Prompt: # Write a Python function that takes a list as input and returns the list in reverse order

Code and output :

```

1  def reverse_list(lst):
2      """Reverse a list using the reverse() method."""
3      lst.reverse()
4      return lst
5
6  # Take user input
7  try:
8      user_input = input("Enter list elements separated by spaces: ")
9      lst = list(map(int, user_input.split()))
10
11     # Reverse and print
12     reversed_list = reverse_list(lst)
13     print(reversed_list)
14 except ValueError:
15     print("Error: Please enter valid numbers separated by spaces")
16

```

```

msDrive/Documents/AI ASS COD/LAB ASS/ASS-3.4.py"
Enter list elements separated by spaces: 1 2 3
Original list: ['1', '2', '3']
Reversed list: [3, 2, 1]
PS C:\Users\chunc_yhjd63\OneDrive\Documents\AI ASS COD\LAB ASS> & C:\Users\chunc_yhjd63\codegeex\numba\envs\codegeex-agent\python.exe "c:\Users\chunc_yhjd63\OneDrive\Documents\AI ASS COD\LAB ASS\ASS-3.4.py"
Enter list elements separated by spaces: 1 2 3
[3, 2, 1]
PS C:\Users\chunc_yhjd63\OneDrive\Documents\AI ASS COD\LAB ASS>

```

Task 3: Few-shot Prompt – String Pattern Matching

Task Description #3

- Write a comment with 2–3 examples to help Copilot understand how to check if a string starts with a capital letter and ends with a period.

Prompt: # Write a Python function is_valid() that checks whether a string starts with a capital letter
and ends with a period (.)

Code and output :

```
File Edit Selection View ... LAB ASS
ASS3Lab3.py
1 def is_valid(s):
2     """
3     Check whether a string starts with a capital letter and ends with a period.
4     """
5     Args:
6         s (str): The string to validate
7     Returns:
8         bool: True if starts with capital letter and ends with period, False otherwise
9     """
10    if len(s) < 2:
11        return False
12    return s[0].isupper() and s[-1] == "."
13
14 # Test cases
15 if __name__ == "__main__":
16     test_cases = [
17         "Hello.",
18         "hello.",
19         "WORLD.",
20         "Python.",
21         "python.",
22         "A.",
23         "a."
24     ]
25     print("Testing is_valid() function:")
26     for test in test_cases:
27         result = is_valid(test)
28         print(f"Input: '{test}' - Output: {result}")
29
30 PS C:\Users\chunc_hj\OneDrive\Documents\LAB ASS CODE\LAB ASS> & C:\Users\chunc_hj\OneDrive\Documents\LAB ASS CODE\LAB ASS\ASS3Lab3-4.py
Input: "Hello." - Output: False
Input: "hello." - Output: False
Input: "WORLD." - Output: True
Input: "Python." - Output: True
Input: "python." - Output: False
Input: "A." - Output: True
Input: "a." - Output: False
PS C:\Users\chunc_hj\OneDrive\Documents\LAB ASS CODE\LAB ASS>
```

Write a Python function `is_valid()` that checks whether a string starts with a capital letter and ends with a period (.).

Read Python file

The function is already implemented! It checks whether a string:

- Starts with a capital letter using `s[0].isupper()`
- Ends with a period using `s[-1] == "."`

The code includes test cases showing:

- `is_valid("Hello.")` - False ✓
- `is_valid("hello.")` - False ✓
- `is_valid("WORLD.")` - True ✓

Run the script to see all results.

Task 4: Zero-shot vs Few-shot – Email Validator

Task Description #4

- First, prompt Copilot to write an email validation function using zero-shot (just the task in comment).
- Then, rewrite the prompt using few-shot examples.

Prompt: # Write a Python function that validates whether a given string is a valid email address

Write a Python function that validates whether a given string is a valid email address

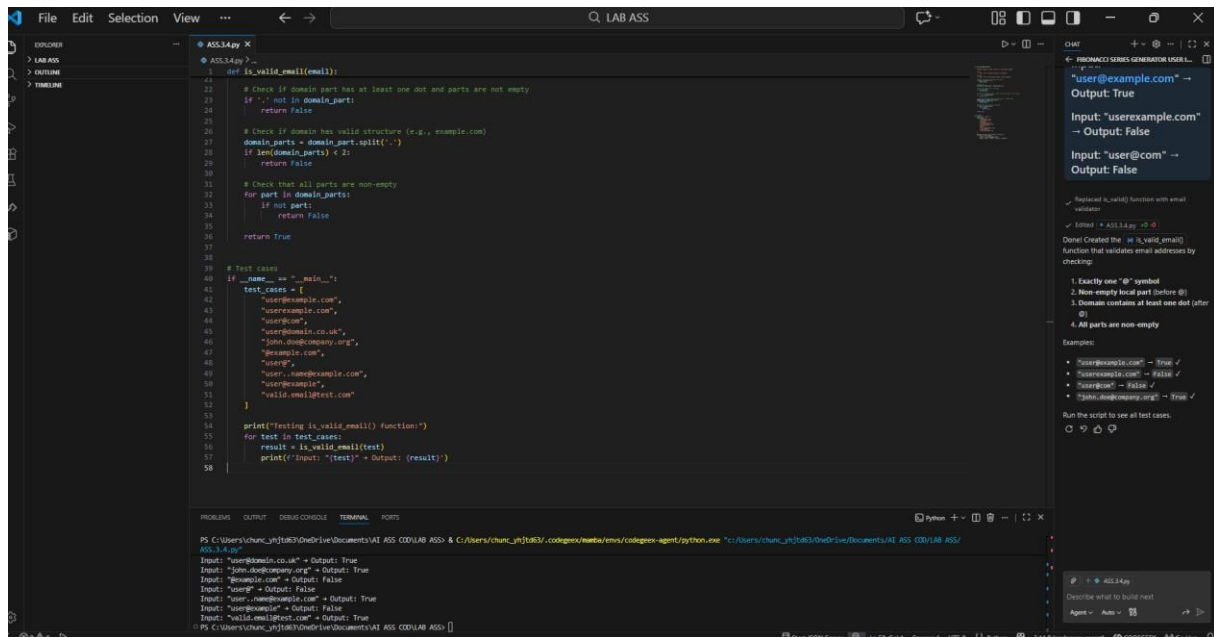
Examples:

Input: "user@example.com" → Output: True

Input: "userexample.com" → Output: False

Input: "user@com" → Output: False

Code and output :



Task 5: Prompt Tuning – Summing Digits of a Number

Task Description #5

- Experiment with 2 different prompt styles to generate a function that returns the sum of digits of a number.

Style 1: Generic task prompt

Style 2: Task + Input/Output example

Prompt:

1) # Write a Python function that returns the sum of digits of a given number

2)# Write a Python function that returns the sum of digits of a number #

Example:

Input: 123 → Output: 6

Code and output :

