

## ASSIGNMENT-3.4

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Batch-10

### TASK-1:

#### Prompt:

Write a Python function that prints the first N Fibonacci numbers.

#### CODE:

```
def fibonacci(n):
```

```
    a, b = 0, 1
```

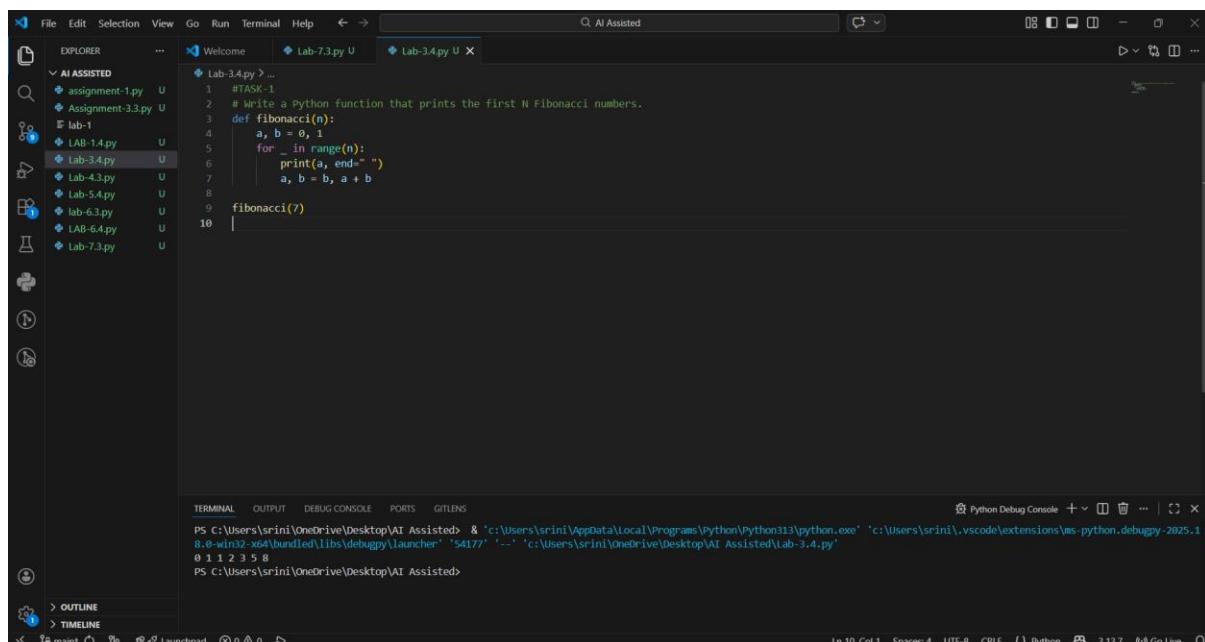
```
    for _ in range(n):
```

```
        print(a, end=" ")
```

```
        a, b = b, a + b
```

```
fibonacci(7)
```

#### Output:



The screenshot shows the Visual Studio Code interface. The Explorer sidebar on the left lists files: assignment-1.py, Assignment-3.3.py, lab-1, LAB-1.4.py, Lab-3.4.py (which is currently selected), Lab-4.3.py, Lab-5.4.py, lab-6.3.py, LAB-6.4.py, and Lab-7.3.py. The main editor area contains the following Python code:

```
1 #TASK-1
2 # Write a Python function that prints the first N Fibonacci numbers.
3 def fibonacci(n):
4     a, b = 0, 1
5     for _ in range(n):
6         print(a, end=" ")
7         a, b = b, a + b
8
9 fibonacci(7)
10 |
```

The terminal at the bottom shows the output of running the code:

```
PS C:\Users\srini\OneDrive\Desktop\AI Assisted> & "c:\Users\srini\AppData\Local\Programs\Python\Python311\python.exe" 'c:\Users\srini\.vscode\extensions\ms-python.debugpy-2025.1.8.0-win32-x64\bundled\libs\debugpy\launcher' '54177' '--' 'c:\Users\srini\OneDrive\Desktop\AI Assisted\Lab-3.4.py'
0 1 1 2 3 5 8
PS C:\Users\srini\OneDrive\Desktop\AI Assisted>
```

#### Analysis:

The function `fibonacci(n)` prints the first N Fibonacci numbers using a loop. It starts with 0 and 1, then keeps updating values using tuple swapping.

## TASK-2:

### Prompt:

Write a Python function to reverse a list.

Example: Input: [1, 2, 3] → Output: [3, 2, 1]

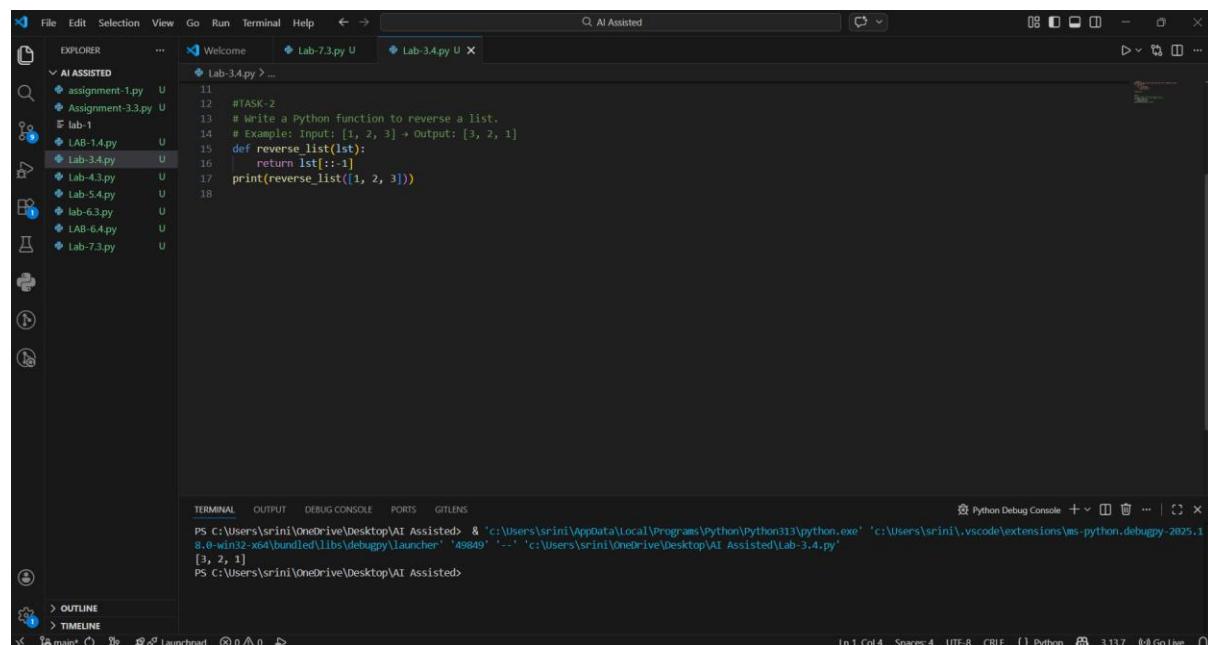
### CODE:

```
def reverse_list(lst):
```

```
    return lst[::-1]
```

```
print(reverse_list([1, 2, 3]))
```

### Output:



The screenshot shows the VS Code interface with the following details:

- Explorer View:** Shows files in the workspace, including `assignment-1.py`, `Assignment-3.3.py`, `lab-1`, `LAB-1.4.py`, `Lab-3.4.py` (which is selected), `Lab-4.3.py`, `Lab-5.4.py`, `lab-6.3.py`, `LAB-6.4.py`, and `Lab-7.3.py`.
- Terminal View:** Displays the command-line output of running the script:

```
PS C:\Users\srini\OneDrive\Desktop\AI Assisted> & "c:\Users\srini\AppData\Local\Programs\Python\Python311\python.exe" "c:\Users\srini\.vscode\extensions\ms-python.python-2025.1.0-win32-x64\bundled\libs\debug\launcher" "49849" '--' 'c:\Users\srini\OneDrive\Desktop\AI Assisted\Lab-3.4.py'
[3, 2, 1]
PS C:\Users\srini\OneDrive\Desktop\AI Assisted>
```
- Status Bar:** Shows the current file is `Lab-3.4.py`, and other details like line 1, column 4, and Python 3.13.7.

### Analysis:

The function `reverse_list(lst)` reverses a list using Python slicing.

## TASK-3:

### Prompt:

Write a function `is_valid(s)` that returns True if a string starts with a capital letter and ends with a period.

Examples:

"Hello." → True

"hello." → False

"Hello" → False

## **CODE:**

```
def is_valid(s):
```

```
return s[0].isupper() and s.endswith('!')  
  
print(is_valid("Hello."))  
  
print(is_valid("hello."))  
  
print(is_valid("Hello"))
```

## Output:

The screenshot shows the Visual Studio Code interface with the following details:

- File Explorer (AI ASSISTED folder):** Contains files: assignment-1.py, Assignment-3.3.py, lab-1, LAB-1.4.py, Lab-3.4.py (selected), Lab-4.3.py, Lab-5.4.py, lab-6.3.py, LAB-6.4.py, and Lab-7.3.py.
- Editor:** The Lab-3.4.py file is open and displayed. It contains Python code for reversing a list and validating strings.
- Terminal:** Shows command-line output for running the script.
- Python Debug Console:** Shows the execution path of the script.

```
PS C:\Users\srini\OneDrive\Desktop\AI Assisted & 'c:\users\srini\appdata\local\programs\python\python313\python.exe' 'c:\users\srini\.vscode\extensions\ms-python.python.debugpy-2025.8.0-win32-x64\bundled\libs\debugpy\launcher' '57650' '--' 'c:\users\srini\onedrive\desktop\ai assisted\lab-3.4.py'
True
False
False
PS C:\Users\srini\OneDrive\Desktop\AI Assisted>
```

## **Analysis:**

The function checks two conditions:

First letter is uppercase → s[0].isupper()

String ends with a period → s.endswith('.')

## **TASK-4:**

## Prompt:

Write a python function to validate an email address

## **CODE:**

```
import re
```

```
def is_valid_email(email):
```

```

pattern = r'^[a-zA-Z0-9._%+-]+@[a-zA-Z0-9.-]+.[a-zA-Z]{2,}$'

return re.match(pattern, email) is not None

if __name__ == "__main__":
    email = input("Enter an email address: ")

    if is_valid_email(email):
        print("Valid email address.")

    else:
        print("Invalid email address.")

```

### Output:

The screenshot shows the VS Code interface with the AI Assisted extension open. The Explorer sidebar shows several Python files. The main editor window displays the code for validating an email address. The terminal at the bottom shows the execution of the script and the validation of an email address.

```

File Edit Selection View Go Run Terminal Help ⏮ → Q AI Assisted
EXPLORER ... Lab-3.4.py > is_valid_email
AI ASSISTED assignment-1.py U
assignment-3.3.py U
lab-1
LAB-1.4.py U
Lab-3.4.py U
Lab-4.3.py U
Lab-5.4.py U
Lab-6.3.py U
Lab-6.4.py U
Lab-7.3.py U
TERMINAL OUTPUT DEBUG CONSOLE PORTS GITLENS
Python Debug Console + ×
PS C:\Users\srini\OneDrive\Desktop\AI Assisted> & 'c:\Users\srini\AppData\Local\Programs\Python\Python311\python.exe' 'c:\Users\srini\.vscode\extensions\ms-python.python-2025.1.0-win32-x64\bundled\libs\debugpy\launcher' '29751' '--' 'c:\Users\srini\OneDrive\Desktop\AI Assisted\Lab-3.4.py'
Enter an email address: srinithy@o
Invalid email address.
PS C:\Users\srini\OneDrive\Desktop\AI Assisted>

```

### Analysis:

The function uses regular expressions (regex) to validate email format.

### TASK-5:

#### Prompt:

Write a function to return sum of digits of a number

#### CODE:

```
def sum_of_digits(n):
```

```
    total = 0
```

```
    while n > 0:
```

```

total += n % 10

n = n // 10

return total

print(sum_of_digits(123))

```

### Output:

The screenshot shows the Visual Studio Code interface. In the Explorer sidebar, there are several Python files listed under 'AI ASSISTED'. The file 'Lab-3.4.py' is currently selected and highlighted. The code editor window displays the following Python code:

```

44
45
46 #TASK-5
47 # write a function to return sum of digits of a number
48 def sum_of_digits(n):
49     total = 0
50     while n > 0:
51         total += n % 10
52         n = n // 10
53     return total
54
55 print(sum_of_digits(123))
56

```

In the terminal tab at the bottom, the command is being run:

```

PS C:\Users\sriini\OneDrive\Desktop\AI Assisted> & "c:\Users\sriini\AppData\Local\Programs\Python\Python313\python.exe" 'c:\Users\sriini\.vscode\extensions\ms-python.python-2025.1.1000\8.0-win32-x64\bundled\libs\debugpy\launcher' '61905' '-- 'c:\Users\sriini\OneDrive\Desktop\AI Assisted\Lab-3.4.py'
c:\Users\sriini\OneDrive\Desktop\AI Assisted\Lab-3.4.py:36: SyntaxWarning: invalid escape sequence '\.'
    pattern = r'\[a-zA-Z0-9_]+\@[a-zA-Z0-9_.]+\.[a-zA-Z]{2,}\$'
6
PS C:\Users\sriini\OneDrive\Desktop\AI Assisted>

```

The terminal output shows the result '6'.

### Analysis:

The function extracts digits using modulus (% 10) and division (// 10) until the number becomes 0.