

LAB ASSIGNMENT-3.4

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BATCH-10

➤ TASK-1:

PROMPT:

Generate a python function to print first N Fibonacci numbers.

CODE:

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

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

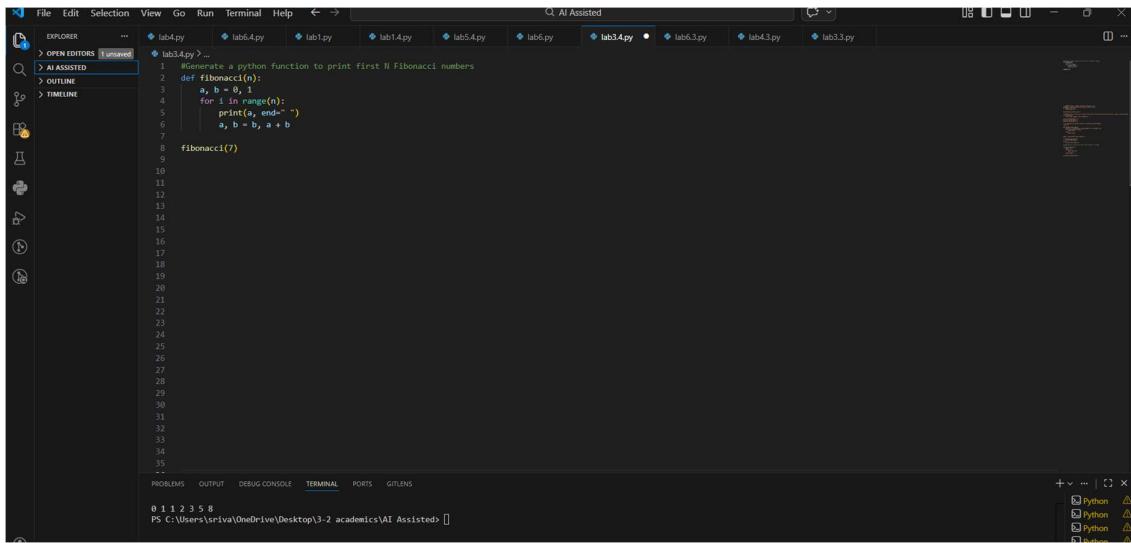
```
    for i in range(n):
```

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

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

```
fibonacci(7)
```

OUTPUT:



The screenshot shows a code editor interface with the following details:

- File Menu:** File, Edit, Selection, View, Go, Run, Terminal, Help.
- Toolbar:** Includes icons for Open Editors, AI Assisted, Outline, Timeline, and others.
- Explorer:** Shows a list of files including lab4.py, lab6.4.py, lab7.py, lab14.py, lab54.py, lab6.py, lab3.4.py, lab3.3.py, lab4.3.py, and lab53.py.
- Code Editor:** Displays the Python code for generating Fibonacci numbers. The code defines a function `fibonacci(n)` that prints the first `n` Fibonacci numbers. It uses a for loop to iterate from 0 to `n-1`, printing each number followed by a space. The variable `a` is updated to `b` and `b` is updated to `a + b` in each iteration.
- Terminal:** Shows the command `fibonacci(7)` being run and the output `0 1 1 2 3 5 8`.
- Output:** Shows the output of the program: `0 1 1 2 3 5 8`.
- Status Bar:** Shows the path `C:\Users\sriva\Desktop\3-2 academics\AI Assisted>` and the Python interpreter version `PS C:\Users\sriva\Desktop\3-2 academics\AI Assisted> [Python 3.8]`.

EXPLANATION:

The function generates Fibonacci numbers using two variables.

A loop runs N times and prints numbers one by one.

❖ TASK-2

PROMPT:

Write a python function to reverse a list.

CODE:

```
def reverse_list(lst):
    return lst[::-1]
print(reverse_list([1,2,3]))
```

OUTPUT:

The screenshot shows the Visual Studio Code interface. The Explorer sidebar lists several Python files. The AI Assisted panel shows the code for Task-2. The terminal at the bottom shows the output of running the code. The status bar indicates the file is unsaved.

```
File Edit Selection View Go Run Terminal Help <- -> Q AI Assisted
OPEN EDITORS Unsaved
> AI ASSISTED
> OUTLINE
> TIMELINE
lab4.py lab6.4.py lab1.py lab1.4.py lab5.4.py lab6.py lab3.4.py lab3.3.py lab4.3.py lab3.3.py
lab3.4.py >_ 1 #Generate a python function to print first N Fibonacci numbers
2 ...def fibonacci(n):
3     a, b = 0, 1
4     for i in range(n):
5         print(a, end=" ")
6         a, b = b, a + b
7
8 fibonacci(7)```
9
10 #TASK-2: Write a python function to reverse a list
11 # Example: reverse_list([1,2,3]) should return [3,2,1]
12 def reverse_list(lst):
13     return lst[::-1]
14
15 print(reverse_list([1,2,3]))
16
17
18
19
20
21
22
23
24
25
26
27
28
29
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS GITLESS

```
[3, 2, 1]
PS C:\Users\sriva\OneDrive\Desktop\3-2_academics\AI Assisted> ]
```

+ - | x

Python Python Python Python Python Python Python

EXPLANATION:

The function reverses the given list.

It uses slicing method to change order of elements.

The output list is returned in reverse format.

❖ TASK-3:

PROMPT:

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

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. The code editor displays the following Python script:

```
#TASK-2:# Write a python function to reverse a list
# Example: reverse_list([1,2,3]) should return [3,2,1]
def reverse_list(lst):
    return lst[::-1]

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

Below the code, a comment specifies the task: "#TASK-3: Write a function `is_valid()` that returns True and The string starts with a capital letter and ends with a period." The script then defines the `is_valid` function and prints three test cases:

```
def is_valid(s):
    return s[0].isupper() and s.endswith('.')

print(is_valid("Hello."))
print(is_valid("hello."))
print(is_valid("Hello"))
```

The terminal tab at the bottom shows the execution results:

```
True
False
False
```

EXPLANATION:

- The function checks whether the first letter is capital.
- It also checks whether the string ends with a period.
- Both conditions must be true to return True.

TASK-4:

PROMPT:

Write a python function to validate an email address.

CODE:

```
import re

def validate_email(email):

    pattern = r"^[a-zA-Z0-9_.+-]+@[a-zA-Z0-9-]+\.[a-zA-Z0-9-.]+$"

    if re.match(pattern, email):

        return True

    else:

        return False

email = input("Enter email address: ")

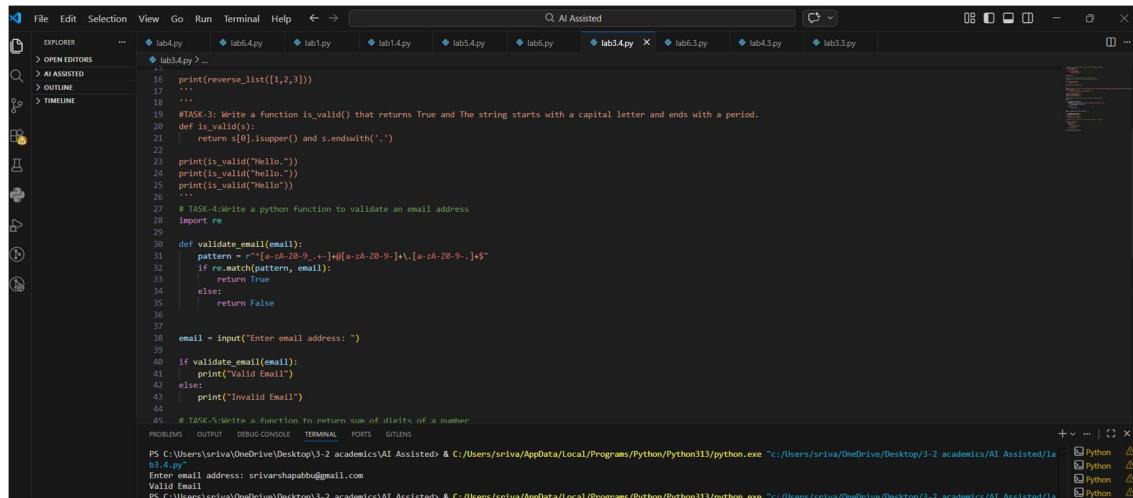
if validate_email(email):

    print("Valid Email")

else:

    print("Invalid Email")
```

OUTPUT:



The screenshot shows a code editor interface with multiple tabs open. The active tab contains the following Python code:

```
File Edit Selection View Go Run Terminal Help ← → AI Assisted
EXPLORER OPEN EDITORS AI ASSISTED OUTLINE TIMELINE
lab4.py lab6.4.py lab1.py lab1.4.py lab5.4.py lab6.py lab34.py lab6.3.py lab4.3.py lab33.py
15 print(reverse_list([1,2,3]))
16 ...
17 ...
18 ...
19 #TASK-3: Write a function is_valid() that returns True and the string starts with a capital letter and ends with a period.
20 def is_valid(s):
21     return s[0].isupper() and s.endswith('.')
22 ...
23 print(is_valid('Hello.'))
24 print(is_valid('hello.'))
25 print(is_valid('Hello'))
26 ...
27 # TASK-4: Write a python function to validate an email address
28 import re
29 ...
30 def validate_email(email):
31     pattern = r"^[a-zA-Z0-9_.+-]+@[a-zA-Z0-9-]+\.[a-zA-Z0-9-.]+$"
32     if re.match(pattern, email):
33         return True
34     else:
35         return False
36 ...
37 ...
38 email = input("Enter email address: ")
39 ...
40 if validate_email(email):
41     print("Valid Email")
42 else:
43     print("Invalid Email")
44 ...
# TASK-5: Write a function to return sum of digits of a number
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS GIT LENS
PS C:\Users\sriava\OneDrive\Desktop\3-2 academics\AI Assisted> & C:/Users/sriava/AppData/Local/Programs/Python/Python313/python.exe "c:/Users/sriava/OneDrive/Desktop/3-2 academics/AI Assisted/lab4.py"
Enter email address: srivarshapabb@gmail.com
Valid Email
PS C:\Users\sriava\OneDrive\Desktop\3-2 academics\AI Assisted> & C:/Users/sriava/AppData/Local/Programs/Python/Python313/python.exe "c:/Users/sriava/OneDrive/Desktop/3-2 academics/AI Assisted/lab4.py"
```

The terminal window at the bottom shows the execution of the script and the output "Valid Email".

EXPLANATION:

- The function checks whether the first letter is capital.

- It also checks whether the string ends with a period.
- Both conditions must be true to return True.

❖ 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. The Explorer sidebar lists several Python files. The main editor window contains the provided code for Task-5. The terminal at the bottom shows the command `PS C:\Users\sriya\OneDrive\Desktop\3-2 academics\AI Assisted>` followed by the output `6`, indicating the program correctly prints the sum of digits of the number 123.

```
def sum_of_digits(n):
    total = 0
    while n > 0:
        total += n % 10
        n = n // 10
    return total
print(sum_of_digits(123))
```

EXPLANATION:

- The function extracts digits using loop.
- Each digit is added to total sum.
- Finally the sum of digits is returned.