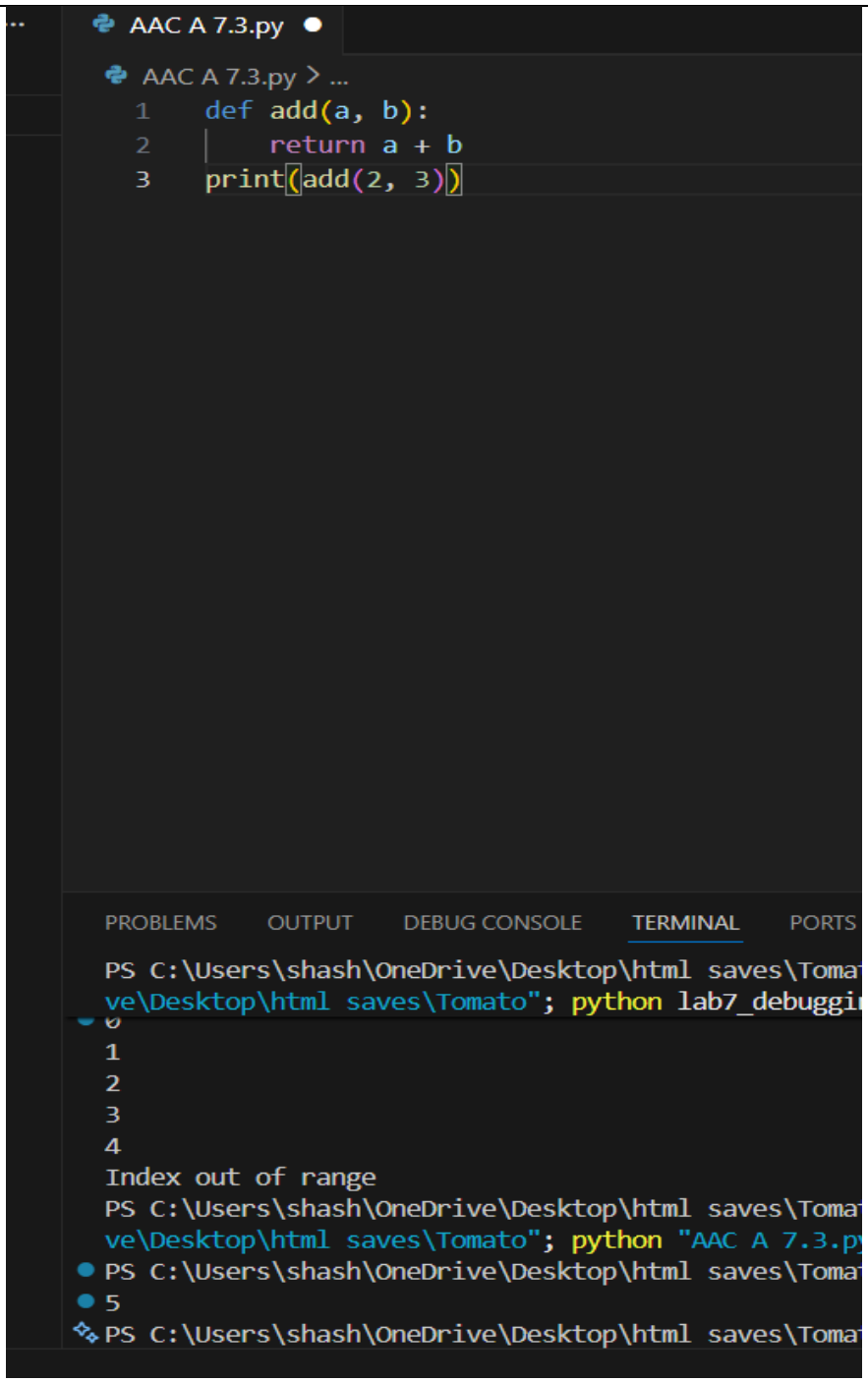
Name:A.Shashidhar H.No:2303A51798 Batch:26

SCHOOL OF COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE		DEPARTMENT OF COMPUTER SCIENCE ENGINEERING	
Program Name: B. Tech		**Assignment Type: Lab**	**Academic Year:**2025-2026
Course Coordinator Name	Dr. Rishabh Mittal		
Instructor(s) Name	Mr. S Naresh Kumar Ms. B. Swathi Dr. Sasanko Shekhar Gantayat Mr. Md Sallauddin Dr. Mathivanan Mr. Y Srikanth Ms. N Shilpa Dr. Rishabh Mittal (Coordinator) Dr. R. Prashant Kumar Mr. Ankushavali MD Mr. B Viswanath Ms. Sujitha Reddy Ms. A. Anitha Ms. M.Madhuri Ms. Katherashala Swetha Ms. Velpula sumalatha Mr. Bingi Raju		
Course Code	23CS002PC304	**Course Title**	AI Assisted Coding
Year/Sem	III/II	**Regulation**	R23
Date and Day of Assignment	**Week4 – Wednesday**	**Time(s)**	23CSBTB01 To 23CSBTB52
Duration	2 Hours	**Applicable to Batches**	All batches
AssignmentNumber:7.3(Present assignment number)/**24**(Total number of assignments)			

Q.No.	Question	*Expected Time to complete*
1	**Lab 7: Error Debugging with AI: Systematic approaches to finding and fixing bugs** **Lab Objectives** • To identify and correct syntax, logic, and runtime errors in Python programs using AI tools	Week4 - Wednesday

	• To understand common programming bugs and AI-assisted debugging suggestions • To evaluate how AI explains, detects, and fixes different types of coding errors • To build confidence in using AI for structured debugging practices **Lab Outcomes (LOs)** After completing this lab, students will be able to: • Use AI tools to detect and correct syntax, logic, and runtime errors • Interpret AI-suggested bug fixes and explanations • Apply systematic debugging strategies using AI-generated insights • Refactor buggy code using reliable programming patterns **Task 1: Fixing Syntax Errors** **Scenario** You are reviewing a Python program where a basic function definition contains a syntax error. python ``` def add(a, b) return a + b ``` **Requirements** • Provide a Python function add(a, b) with a **missing colon** • Use an AI tool to detect the syntax error • Allow AI to correct the function definition • Observe how AI explains the syntax issue **Expected Output** • Corrected function with proper syntax • Syntax error resolved successfully • AI-generated explanation of the fix	

Name:A.Shashidhar H.No:2303A51798 Batch:26

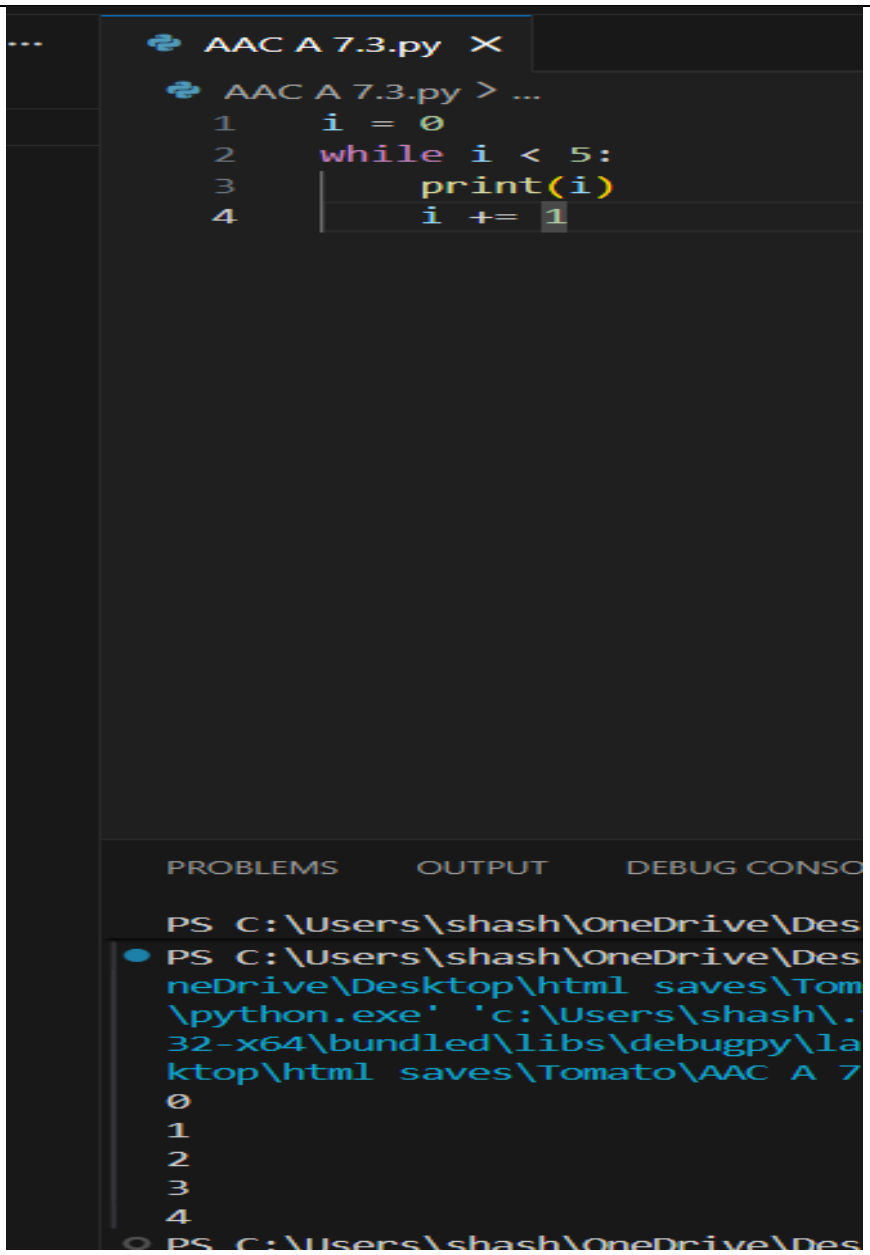


Task 2: Debugging Logic Errors in Loops

Scenario
You are debugging a loop that runs infinitely due to a logical mistake.

Name:A.Shashidhar H.No:2303A51798 Batch:26

	python ``` def count_down(n): while n >= 0: print(n) n += 1 # Should be n -= 1 ``` **Requirements** • Provide a loop with an **increment or decrement error** • Use AI to identify the cause of infinite iteration • Let AI fix the loop logic • Analyze the corrected loop behavior **Expected Output** • Infinite loop issue resolved • Correct increment/decrement logic applied • AI explanation of the logic error	



Task 3: Handling Runtime Errors (Division by Zero)

Scenario
A Python function crashes during execution due to a division by zero error.

```
# Debug the following code
def divide(a, b):
    return a / b

print(divide(10, 0))
```

Requirements
• Provide a function that performs division without validation
• Use AI to identify the runtime error
• Let AI add try-except blocks for safe execution

• Review AI's error-handling approach

Expected Output
• Function executes safely without crashing
• Division by zero handled using try-except
• Clear AI-generated explanation of runtime error handling

AAC A 7.3.py

```python
def divide(a, b):
    try:
        return a / b
    except ZeroDivisionError:
        return "Cannot divide by zero"

print(divide(10, 0))
```

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS

PS C:\Users\shash\OneDrive\Desktop\html saves\Tomat
ve\Desktop\html saves\Tomato"; python lab7_debuggin
3
4
Index out of range
PS C:\Users\shash\OneDrive\Desktop\html saves\Tomat
ve\Desktop\html saves\Tomato"; python "AAC A 7.3.py
PS C:\Users\shash\OneDrive\Desktop\html saves\Tomat
5
PS C:\Users\shash\OneDrive\Desktop\html saves\Tomat
Cannot divide by zero
PS C:\Users\shash\OneDrive\Desktop\html saves\Tomat
```

Task 4: Debugging Class Definition Errors

Scenario
You are given a faulty Python class where the constructor is incorrectly defined.

	python class Rectangle: def __init__(length, width): self.length = length self.width = width **Requirements** • Provide a class definition with **missing self-parameter** • Use AI to identify the issue in the __init__() method • Allow AI to correct the class definition • Understand why self is required **Expected Output** • Corrected __init__() method • Proper use of self in class definition • AI explanation of object-oriented error	

AAC A 7.3.py

```python
class MyClass:
    def __init__(self, value):
        self.value = value

value = int(input("Enter value: "))
obj = MyClass(value)
print(obj.value)
```

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  POR

neDrive\Desktop\html saves\Tomato'; & 'c:\Users\
\python.exe' 'c:\Users\shash\.vscode\extensions\
32-x64\bundled\libs\debugpy\launcher' '53954' '-
 …
PS C:\Users\shash\OneDrive\Desktop\html saves\To
neDrive\Desktop\html saves\Tomato'; & 'c:\Users\
\python.exe' 'c:\Users\shash\.vscode\extensions\
32-x64\bundled\libs\debugpy\launcher' '64332' '-
ktop\html saves\Tomato\AAC A 7.3.py'
Enter value: 5
5
```

Task 5: Resolving Index Errors in Lists

Scenario
A program crashes when accessing an invalid index in a list.

```python
numbers = [1, 2, 3]
print(numbers[5])
```

Requirements

	• Provide code that accesses an **out-of-range list index** • Use AI to identify the Index Error • Let AI suggest safe access methods • Apply bounds checking or exception handling **Expected Output** • Index error resolved • Safe list access logic implemented • AI suggestion using length checks or exception handling	

```
AAC A 7.3.py > ...
1   my_list = [1, 2, 3]
2   try:
3       print(my_list[5])
4   except IndexError:
5       print("Index out of range")
```

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL

neDrive\Desktop\html saves\Tomato'; & 'c:\Use
\python.exe' 'c:\Users\shash\.vscode\extensio
32-x64\bundled\libs\debugpy\launcher' '64332'
 …
5
PS C:\Users\shash\OneDrive\Desktop\html saves
neDrive\Desktop\html saves\Tomato'; & 'c:\Use
\python.exe' 'c:\Users\shash\.vscode\extensio
32-x64\bundled\libs\debugpy\launcher' '64395'
ktop\html saves\Tomato\AAC A 7.3.py'
Index out of range
```

Note: Report should be submitted a word document for all tasks in a single document with prompts, comments & code explanation, and output and if required, screenshots