

SCHOOL OF COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE		DEPARTMENT OF COMPUTER SCIENCE ENGINEERING	
ProgramName: B. Tech		Assignment Type: Lab	AcademicYear:2025-2026
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CourseCode	24CS002PC215	CourseTitle	AI Assisted Coding
Year/Sem	II/I	Regulation	R24
Date and Day of Assignment	Week4 - Wednesday	Time(s)	
Duration	2 Hours	Applicable to Batches	
AssignmentNumber: 7.3(Present assignment number)/24(Total number of assignments)			
Q.No.	Question	Expected Time to complete	
1	Lab 6: AI-Based Code Completion – Classes, Loops, and Conditionals Lab Objectives: <ul style="list-style-type: none"> To identify and correct syntax, logic, and runtime errors in Python programs using AI tools. To understand common programming bugs and AI-assisted debugging suggestions. 	Week4 - Wednesday	

- To evaluate how AI explains, detects, and fixes different types of coding errors.
- To build confidence in using AI to perform 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 supported by AI-generated insights.
- Refactor buggy code using responsible and reliable programming patterns.

Task Description#1

- Paste a function with a missing colon (add(a, b)), and let AI fix the syntax error.

```
python

def add(a, b)
    return a + b
```

CODE:

```
def add(a, b):
    return a + b

print(add(3, 5))
```

FIX OF ERROR:

It must end with a colon (:).

Expected Output#1

- Corrected function with syntax fix

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**Task Description#2 (Loops)**

- Identify and fix a logic error in a loop that causes infinite iteration.

```
python

def count_down(n):
    while n >= 0:
        print(n)
        n += 1 # Should be n -= 1
```

**CODE:**

```
def count_down(n):  
    while n >= 0:  
        print(n)  
        n -= 1    #
```

**FIXERROR:**

The loop condition is while n >= 0.

Inside the loop, n += 1 makes n increase forever, so it never becomes less than 0 → infinite loop

Expected Output#2

- AI fixes increment/decrement error

```
5  
4  
3  
2  
1  
0
```

**Task Description#3**

- Debug a runtime error caused by division by zero. Let AI insert try-except.

```
# Debug the following code  
def divide(a, b):  
    return a / b  
  
print(divide(10, 0))
```

**CODE:**

```
def divide(a, b):  
    try:  
        return a / b  
    except ZeroDivisionError:  
        return "Error: Division by zero is not allowed"  
  
print(divide(10, 0))
```

**FIXERROR:**

This will raise a `ZeroDivisionError` at runtime because `b = 0`.  
In Python, division by zero is not allowed

**Expected Output#3**

- Corrected function with safe error handling

```
Error: Division by zero is not allowed
```

**Task Description#4**

- Provide a faulty class definition (missing `self` in parameters). Let AI fix it

```
python  
  
class Rectangle:  
    def __init__(length, width):  
        self.length = length  
        self.width = width
```

**CODE:**

```
class Rectangle:  
    def __init__(self, length, width):  
        self.length = length  
        self.width = width
```

**FIXERROR:**

In Python, instance methods (including `__init__`) must include `self` as the first parameter. Without `self`, Python doesn't know which object's attributes (`length` and `width`) to assign.

**Expected Output#4**

- Correct `__init__()` method and explanation

```
rect = Rectangle(10, 5)
print(rect.length)  # Output: 10
print(rect.width)   # Output: 5
```

#### Task Description#5

- Access an invalid list index and use AI to resolve the Index Error.

```
python

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

#### CODE:

##### Fix 1: Check index before accessing

```
numbers = [1, 2, 3]
index = 5

if index < len(numbers):
    print(numbers[index])
else:
    print("Index out of range")
```

##### Fix 2: Use try-except

```
numbers = [1, 2, 3]

try:
    print(numbers[5])
except IndexError:
    print("Error: Invalid index")
```

##### Fix 3: Safe access with default value

```
numbers = [1, 2, 3]
index = 5

value = numbers[index] if index < len(numbers) else None
print(value)    # Output: None
```

**FIXERROR:**

**IndexError: list index out of range**

**Expected Output#5**

- AI suggests checking length or using safe access logic

**Fix 1: Check index before accessing:**

Index out of range

Fix 2: Use try-except:

Error: Invalid index

Fix 3: Safe access with default value:

None

**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

**Evaluation Criteria:**

| Criteria                                | Max Marks        |
|-----------------------------------------|------------------|
| Identification of bugs                  | 0.5              |
| Application of AI-suggested fixes       | 0.5              |
| Explanation and understanding of errors | 0.5              |
| Corrected code functionality            | 0.5              |
| Report structure and reflection         | 0.5              |
| <b>Total</b>                            | <b>2.5 Marks</b> |