**School of Computer Science and Artificial Intelligence**

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## Lab Assignment # 7.5

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**Program** : B. Tech (CSE)

**Specialization** : AIML

**Course Title** : AI Assisted Coding Course Code:

**23CS002PC304**

**Semester** : VI

**Academic Session** : 2025-2026

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**Enrollment No.** : 2303A52092

**Batch No.** : 33

**Date** : 03/02/26

# Lab 7: Error Debugging with AI (Week 4 – Tuesday)

**Topic:** Systematic approaches to finding and fixing bugs using AI

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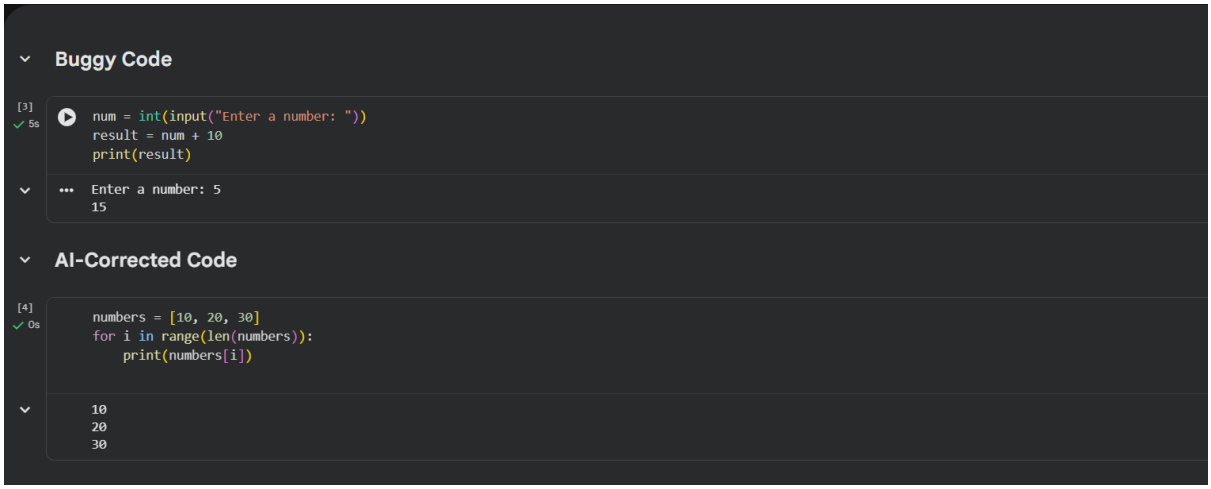
## Task 1 – Runtime Error Due to Invalid Input Type

### Bug Analysis (AI Explanation)

- input() always returns a **string**
- Adding a string and an integer causes a **TypeError**




## Expected Output – 1

- AI converts user input to an integer
- Runtime error is eliminated

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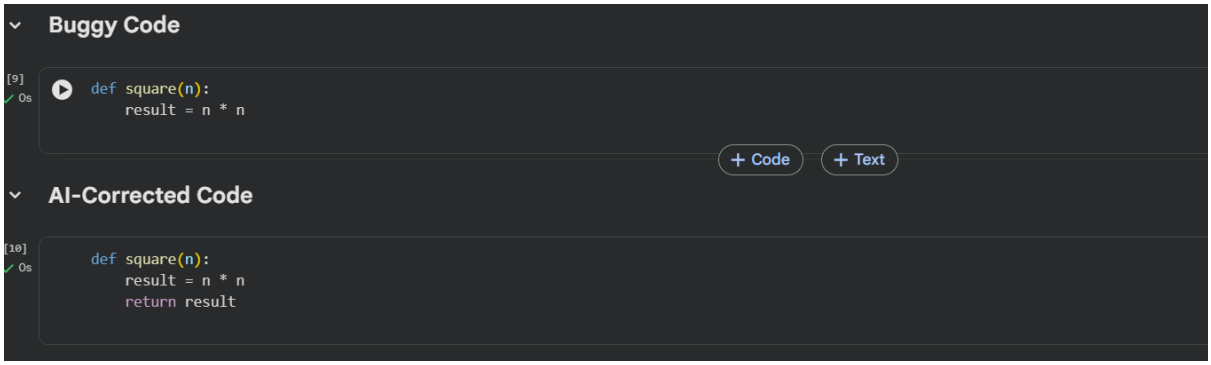
## Task 2 – Incorrect Function Return Value

### Bug Analysis (AI Explanation)

- Function calculates the square but **does not return it**
- Without return, Python returns None




# Expected Output – 2

- Function correctly returns the square of the number

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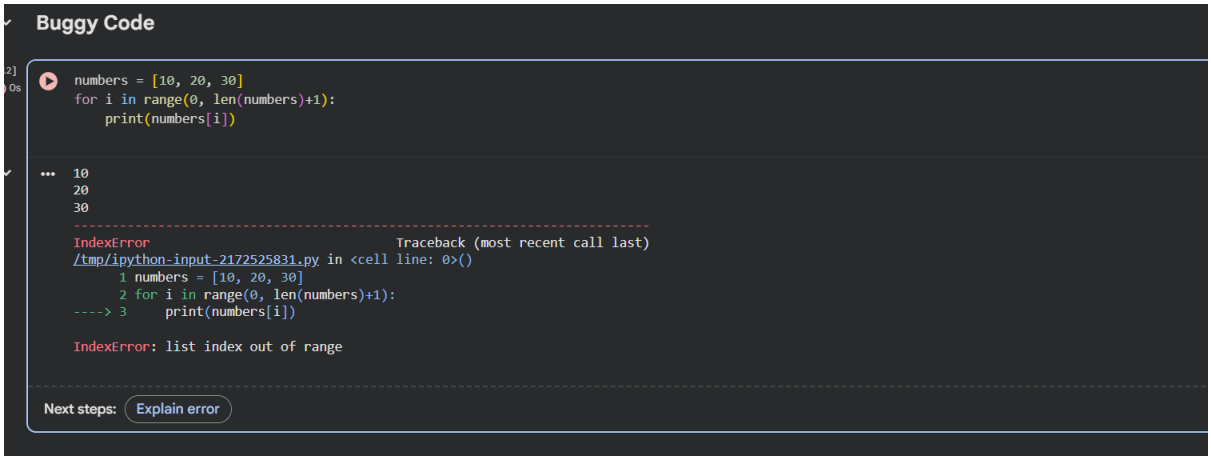
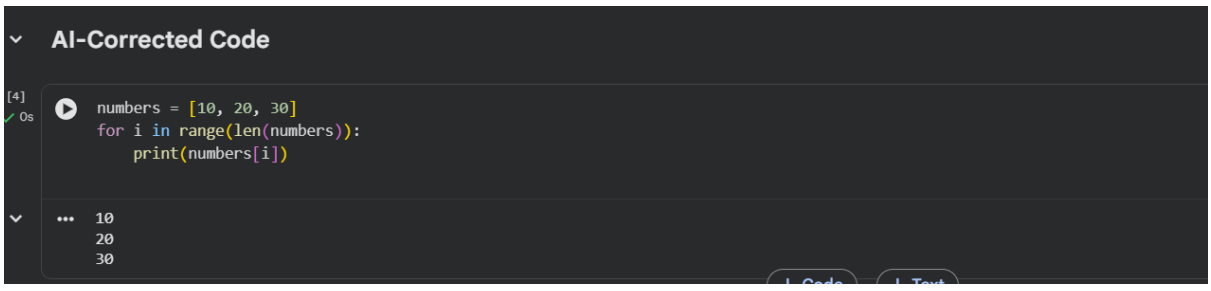
## Task 3 – IndexError in List Traversal
## Bug Analysis (AI Explanation)

- range(0, len(numbers)+1) goes **one step too far**
- Causes IndexError: list index out of range




# Expected Output – 3

- Loop boundary corrected
- Prevents out-of-range access

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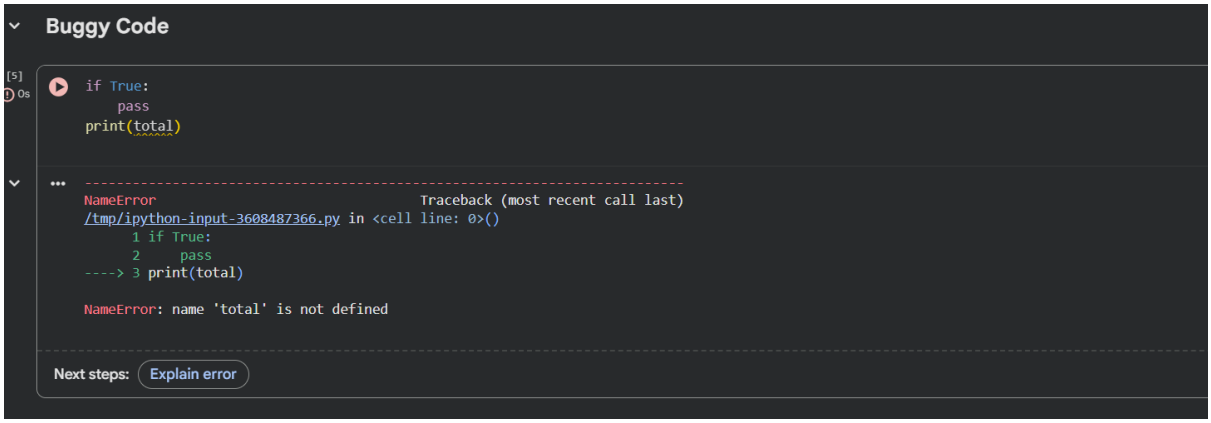
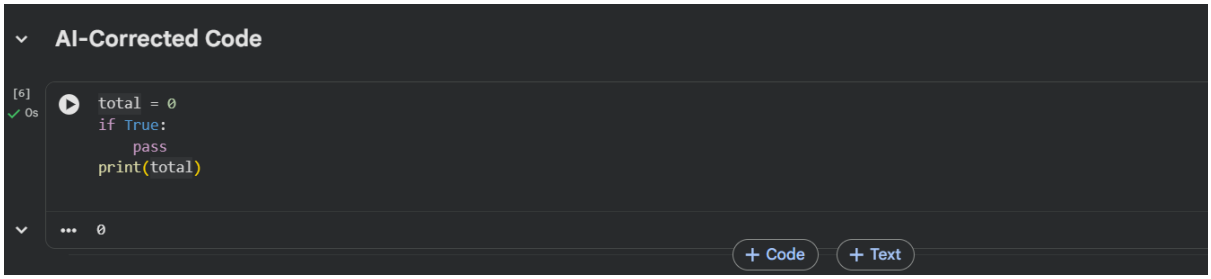
## Task 4 – Uninitialized Variable Usage

## Bug Analysis (AI Explanation)

- Variable total is **used before assignment**
- Causes NameError




## Expected Output – 4

- Variable initialized before use
- Program runs safely

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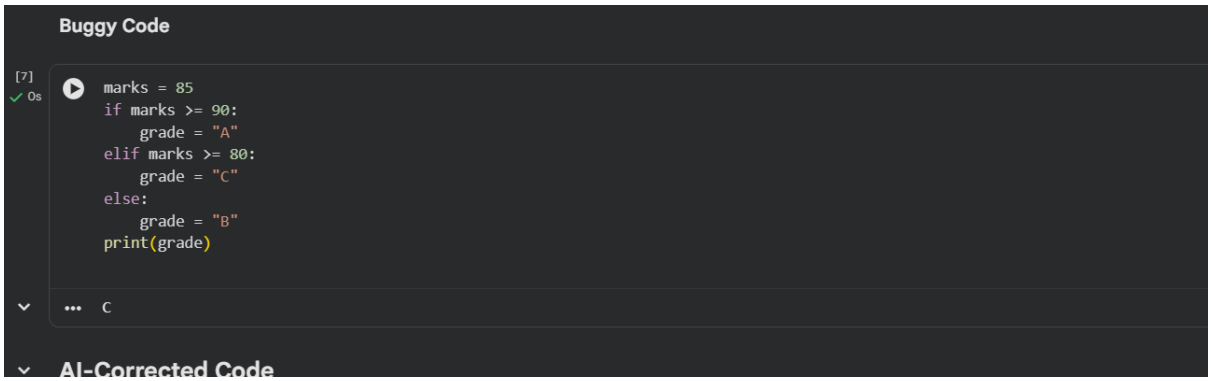
## Task 5 – Logical Error in Student Grading System
## Bug Analysis (AI Explanation)

- Logical order of grading conditions is incorrect
- marks >= 80 wrongly assigns grade **C**
- else block assigns **B** incorrectly



AI-Corrected Code

[8]
✓ 0s

```
marks = 85
if marks >= 90:
    grade = "A"
elif marks >= 80:
    grade = "B"
else:
    grade = "C"
print(grade)
```

```
B
```

**Expected Output – 5**

- Correct grade is assigned based on marks
- Logical flow fixed

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**Summary: AI-Assisted Debugging Strategies Used**

✓ Type conversion for runtime errors
✓ Return statement validation
✓ Loop boundary correction
✓ Variable initialization checks
✓ Logical condition reordering