SCHOOL OF COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE		DEPARTMENT OF COMPUTER SCIENCE ENGINEERING	
ProgramName:B. Tech		**Assignment Type: Lab**	**AcademicYear:**2025-2026
CourseCoordinatorName		Venkataramana Veeramsetty	
Instructor(s)Name		Dr. V. Venkataramana (Co-ordinator) Dr. T. Sampath Kumar Dr. Pramoda Patro Dr. Brij Kishor Tiwari Dr.J.Ravichander Dr. Mohammand Ali Shaik Dr. Anirodh Kumar Mr. S.Naresh Kumar Dr. RAJESH VELPULA Mr. Kundhan Kumar Ms. Ch.Rajitha Mr. M Prakash Mr. B.Raju Intern 1 (Dharma teja) Intern 2 (Sai Prasad) Intern 3 (Sowmya) NS_2 (Mounika)	
CourseCode	24CS002PC215	**CourseTitle**	AI Assisted Coding
Year/Sem	II/I	**Regulation**	R24
Date and Day of Assignment	Week4 - Thursday	**Time(s)**	
Duration	2 Hours	**Applicableto Batches**	
AssignmentNumber:7.4(Present assignment number)/**24**(Total number of assignments)			

Q.No.	Question	*ExpectedTime 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 - Thursday

- 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 to perform structured debugging practices.

Lab Outcomes (LOs):

After completing this lab, students will be able to:

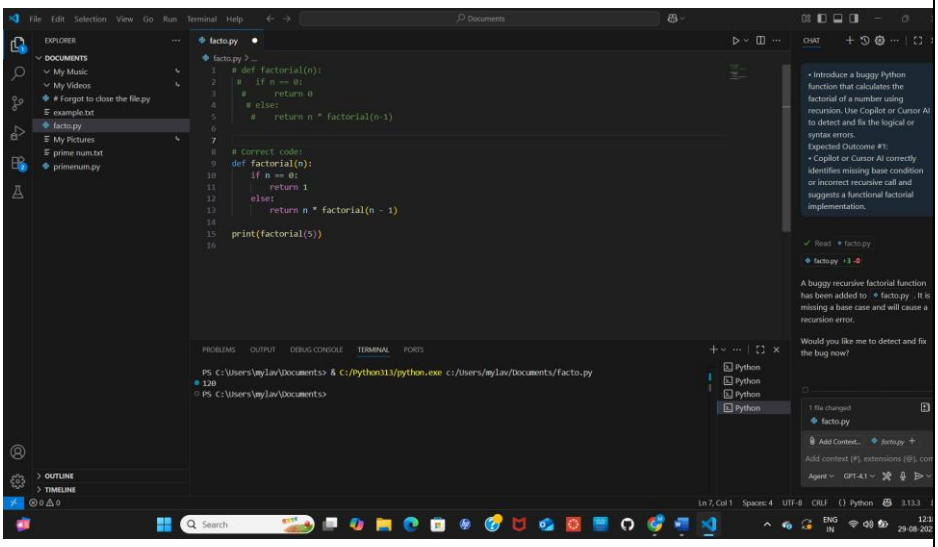
- Use AI tools to detect and correct syntax, logic, and runtime errors.
- Interpret AI-suggested bug fixes and explanations.
- Apply systematic debugging strategies supported by AI-generated insights.
- Refactor buggy code using responsible and reliable programming patterns.

Task Description #1:

• Introduce a buggy Python function that calculates the factorial of a number using recursion. Use Copilot or Cursor AI to detect and fix the logical or syntax errors.

Expected Outcome #1:

• Copilot or Cursor AI correctly identifies missing base condition or incorrect recursive call and suggests a functional factorial implementation.



OBSERVATION:

1.The buggy factorial function causes infinite recursion and crashes.

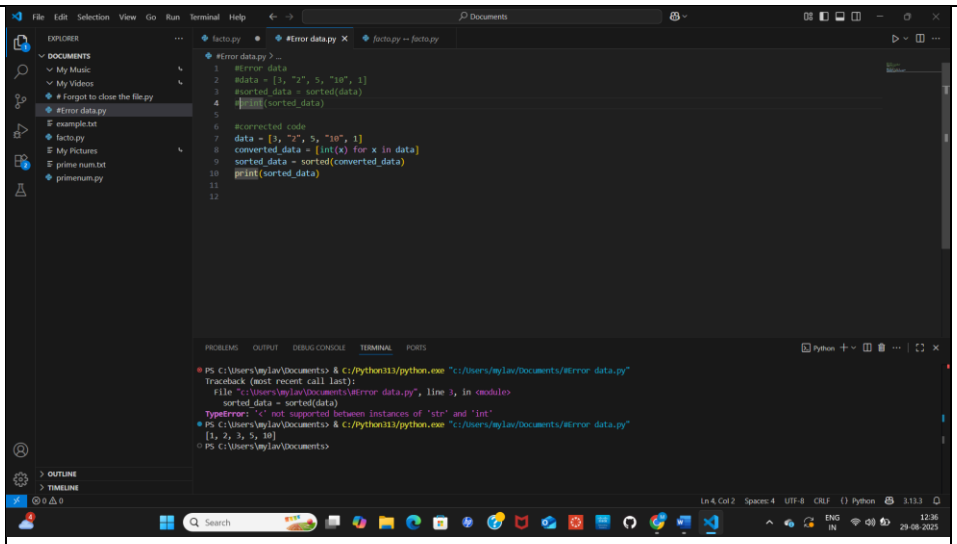
2.The fixed factorial function works correctly because it has a stopping condition.

Task Description #2:

• Provide a list sorting function that fails due to a type error (e.g., sorting list with mixed integers and strings). Prompt AI to detect the issue and fix the code for consistent sorting**.**

Expected Outcome #2:

• AI detects the type inconsistency and either filters or converts list elements, ensuring successful sorting without a crash.



OBSERVATION:

1.The buggy sorting function fails with a type error when the list contains both integers and strings.

2.Python cannot compare integers and strings directly during sorting.

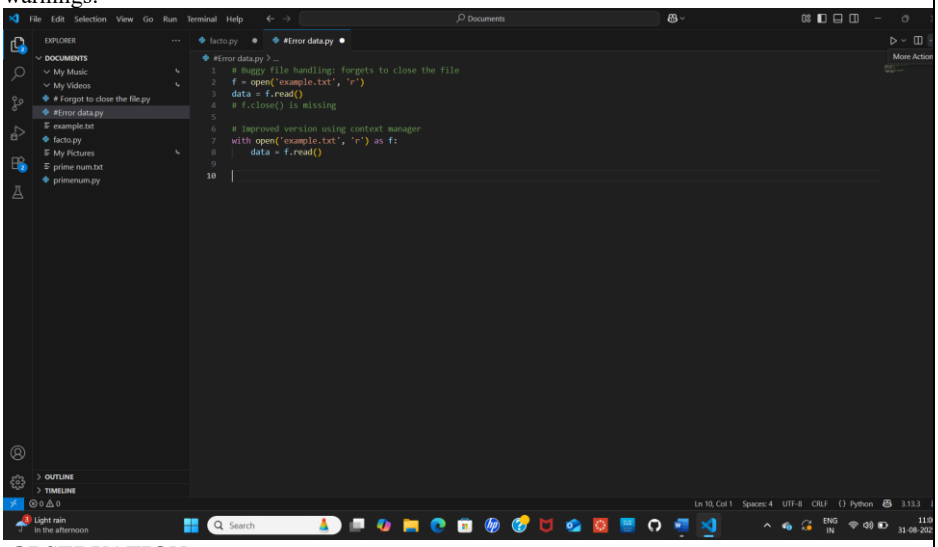
3.The fixed function converts all elements to integers, allowing the list to be sorted successfully.

Task Description #3:

• Write a Python snippet for file handling that opens a file but forgets to close it. Ask Copilot or Cursor AI to improve it using the best practice (e.g., with open() block).

Expected Outcome #3:

• AI refactors the code to use a context manager, preventing resource leakage and runtime warnings.



OBSERVATION:

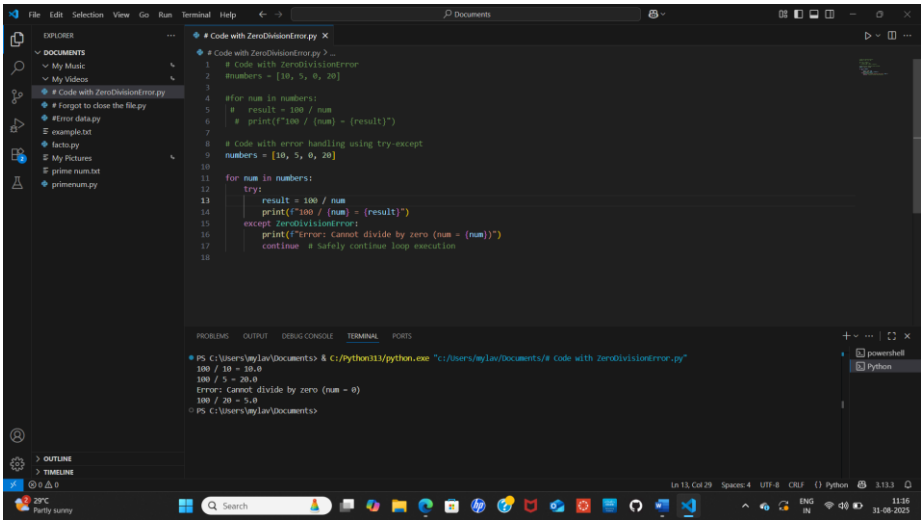
1. **The code reads the contents of example.txt and prints it, so the output matches the file's data.**
2. **Using a context manager (with open(...)) ensures the file is properly closed after reading, which is best practice for file handling.**

Task Description #4:

• Provide a piece of code with a ZeroDivisionError inside a loop. Ask AI to add error handling using try-except and continue execution safely.

Expected Outcome #4:

• Copilot adds a try-except block around the risky operation, preventing crashes and printing a meaningful error message.



OBSERVATION:

1. **Program does not crash:**

When num = 0, instead of stopping with a ZeroDivisionError, the program catches the exception, prints a meaningful error message, and continues executing the loop.

2. **Safe continuation of execution:**

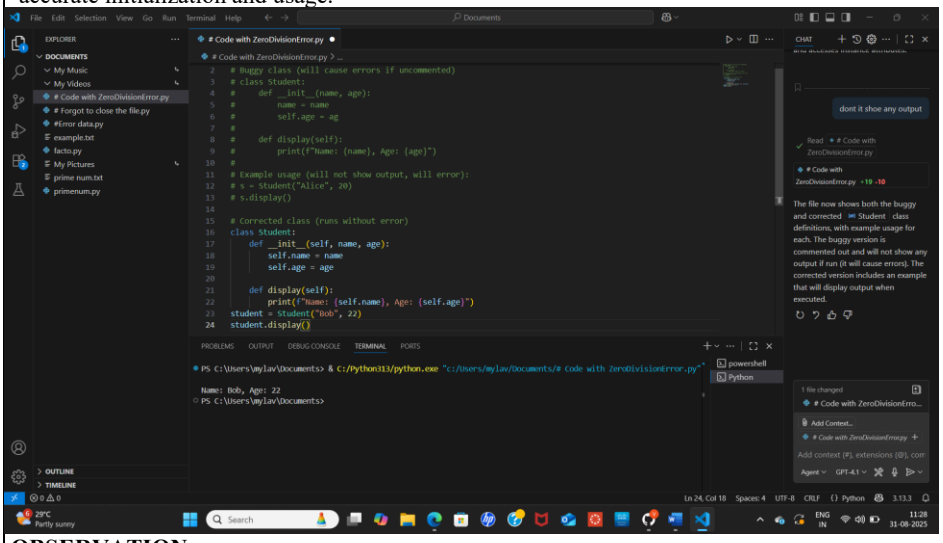
Other values in the list (10, 5, 20) are processed normally, ensuring that only the problematic case (0) is skipped without affecting the rest of the results

Task Description #5:

• Include a buggy class definition with incorrect __init__ parameters or attribute references. Ask AI to analyze and correct the constructor and attribute usage.

Expected Outcome #5:

• Copilot identifies mismatched parameters or missing self references and rewrites the class with accurate initialization and usage.



OBSERVATION:

1. **The buggy class does not use self for instance attributes and references, causing errors and preventing any output when executed.**
2. **The corrected class properly uses self for initialization and attribute access, allowing successful execution and displaying the expected output.**

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
Logic	0.5
Type mismatch in list elements during sorting	0.5
Resource	0.5
Runtime	0.5
Syntax	0.5
Total	**2.5 Marks**