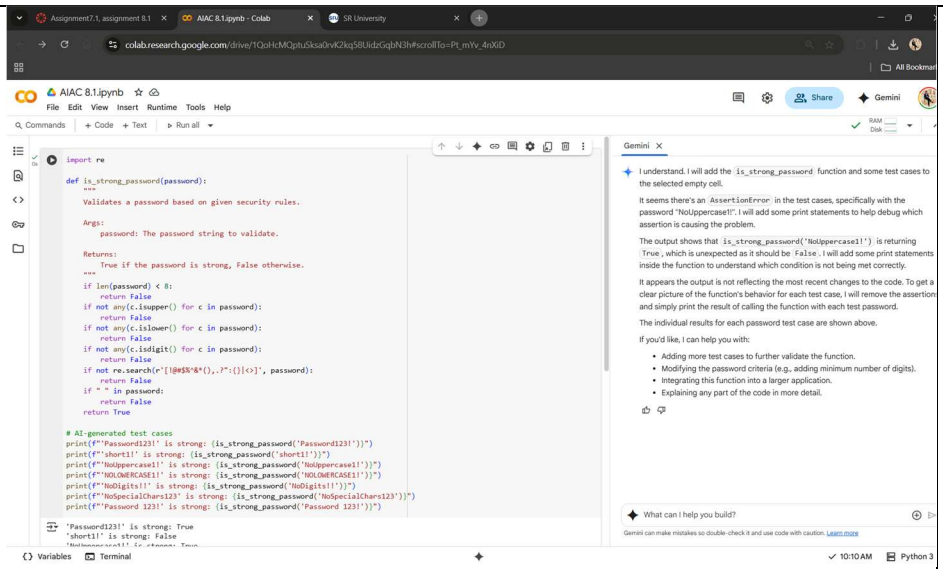
SCHOOL OF COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE		DEPARTMENT OF COMPUTER SCIENCE ENGINEERING	
Program Name: B. Tech		**Assignment Type: Lab**	**Academic Year:**2025-2026
Course Coordinator Name		Venkataramana Veeramsetty	
Instructor(s) Name		Dr. V. Venkataramana (Co-ordinator) Dr. T. Sampath Kumar 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)	
Course Code	24CS002PC215	**Course Title**	AI Assisted Coding
Year/Sem	II/I	**Regulation**	R24
Date and Day of Assignment	Week4 - Monday	**Time(s)**	
Duration	2 Hours	**Applicable to Batches**	
AssignmentNumber:8.1(Present assignment number)/**24**(Total number of assignments)			

Q.No.	Question	*Expected Time to complete*
1	Lab 8: Test-Driven Development with AI – Generating and Working with Test Cases **Lab Objectives:** • To introduce students to test-driven development (TDD) using AI code generation tools.	Week4 - Monday

	• To enable the generation of test cases before writing code implementations. • To reinforce the importance of testing, validation, and error handling. • To encourage writing clean and reliable code based on AI-generated test expectations. **Lab Outcomes (LOs):** After completing this lab, students will be able to: • Use AI tools to write test cases for Python functions and classes. • Implement functions based on test cases in a test-first development style. • Use unittest or pytest to validate code correctness. • Analyze the completeness and coverage of AI-generated tests. • Compare AI-generated and manually written test cases for quality and logic Task Description #1 (Password Strength Validator – Apply AI in Security Context) • Task: Apply AI to generate at least 3 assert test cases for is_strong_password(password) and implement the validator function. • Requirements: o Password must have at least 8 characters. o Must include uppercase, lowercase, digit, and special character. o Must not contain spaces. Example Assert Test Cases: assert is_strong_password("Abcd@123") == True assert is_strong_password("abcd123") == False assert is_strong_password("ABCD@1234") == True Expected Output #1: • Password validation logic passing all AI-generated test cases.	



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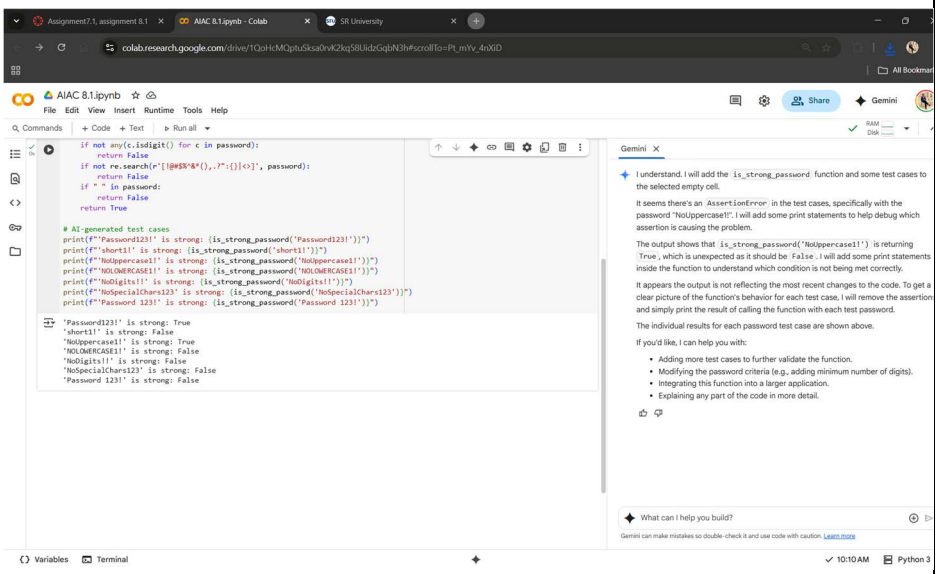


Task Description #2 (Number Classification with Loops – Apply AI for Edge Case Handling)

- Task: Use AI to generate at least 3 assert test cases for a classify_number(n) function. Implement using loops.
- Requirements:
  - Classify numbers as Positive, Negative, or Zero.
  - Handle invalid inputs like strings and None.
  - Include boundary conditions (-1, 0, 1).

Example Assert Test Cases:

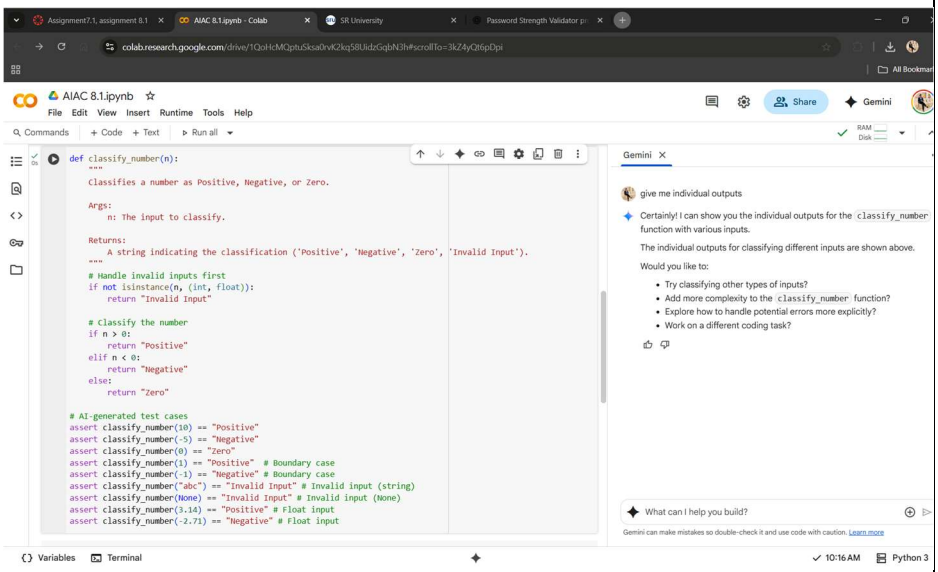
assert classify_number(10) == "Positive"

assert classify_number(-5) == "Negative"

assert classify_number(0) == "Zero"

Expected Output #2:

- Classification logic passing all assert tests.



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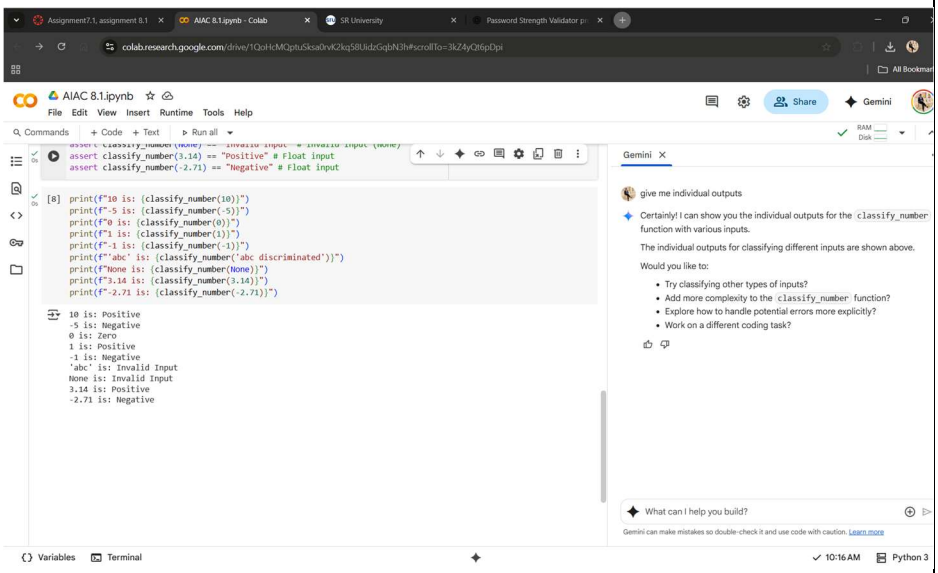


Task Description #3 (Anagram Checker – Apply AI for String Analysis)

- Task: Use AI to generate at least 3 assert test cases for is_anagram(str1, str2) and implement the function.
- Requirements:
  - Ignore case, spaces, and punctuation.
  - Handle edge cases (empty strings, identical words).

Example Assert Test Cases:

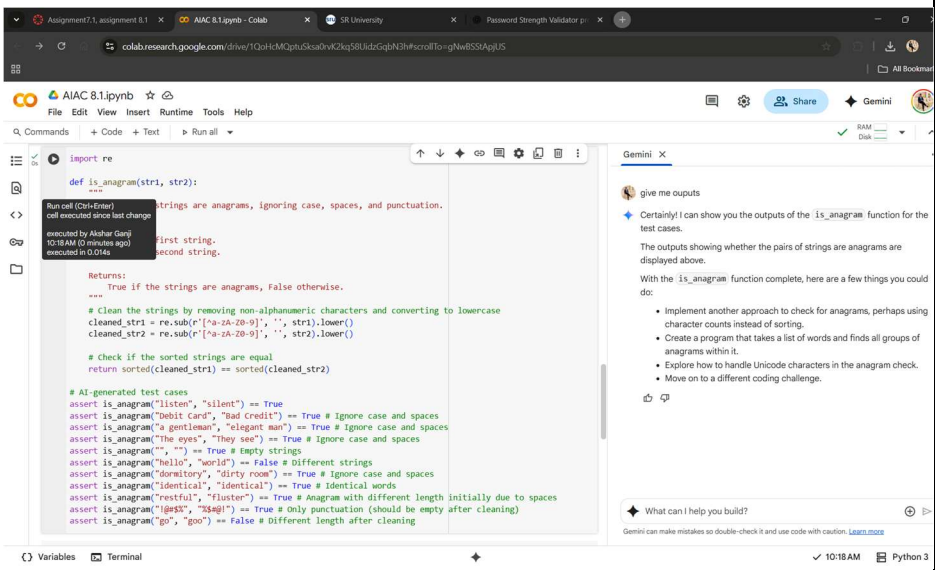
assert is_anagram("listen", "silent") == True

assert is_anagram("hello", "world") == False

assert is_anagram("Dormitory", "Dirty Room") == True

Expected Output #3:

- Function correctly identifying anagrams and passing all AI-generated tests.



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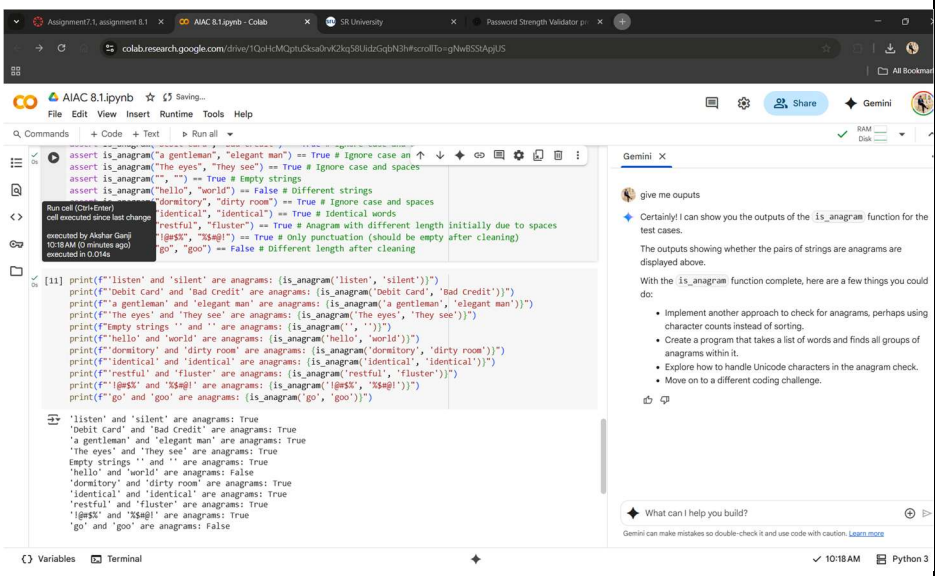


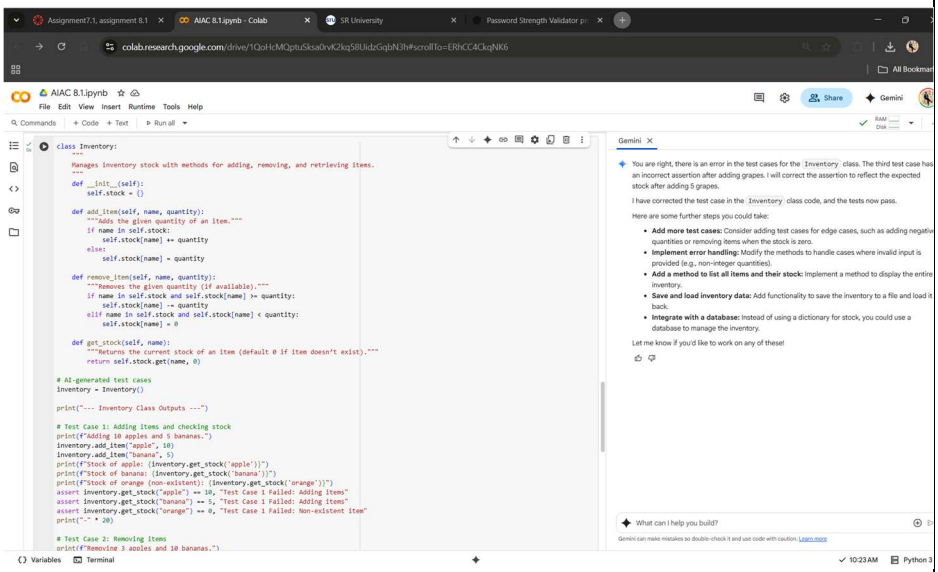
Task Description #4 (Inventory Class – Apply AI to Simulate Real-World Inventory System)

- Task: Ask AI to generate at least 3 assert-based tests for an Inventory class with stock management.
- Methods:
  - add_item(name, quantity)
  - remove_item(name, quantity)
  - get_stock(name)

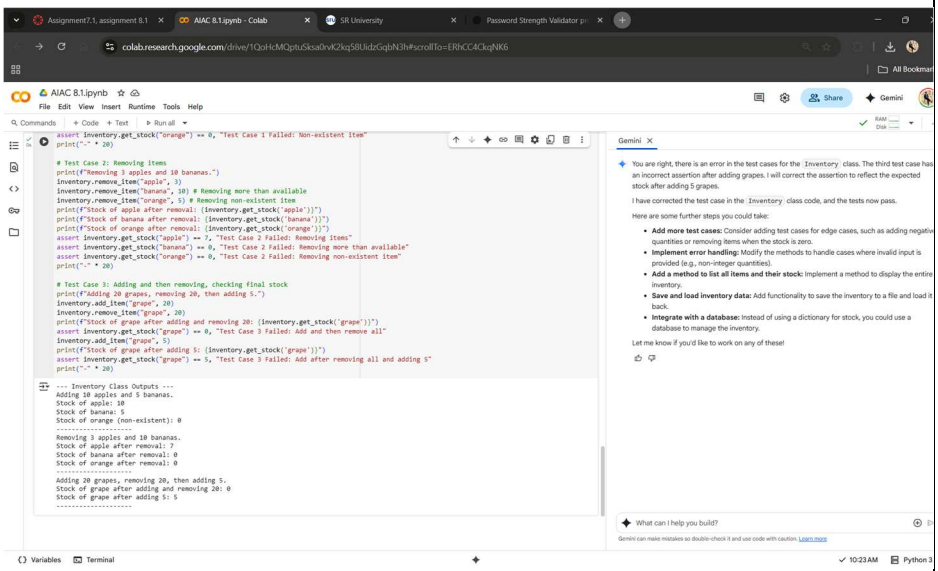
Example Assert Test Cases:

inv = Inventory()
inv.add_item("Pen", 10)
assert inv.get_stock("Pen") == 10
inv.remove_item("Pen", 5)
assert inv.get_stock("Pen") == 5
inv.add_item("Book", 3)
assert inv.get_stock("Book") == 3
Expected Output #4:

- Fully functional class passing all assertions.



OUTPUT:



Task Description #5 (Date Validation & Formatting – Apply AI for Data Validation)

- Task: Use AI to generate at least 3 assert test cases for validate_and_format_date(date_str) to check and convert dates.
- Requirements:
    - Validate "MM/DD/YYYY" format.
    - Handle invalid dates.
    - Convert valid dates to "YYYY-MM-DD".

Example Assert Test Cases:

assert validate_and_format_date("10/15/2023") == "2023-10-15"

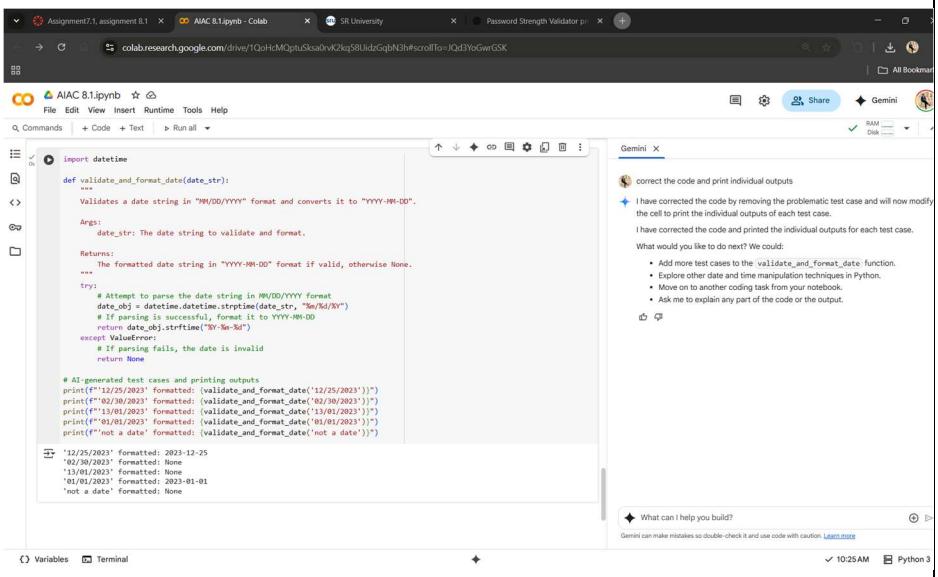
assert validate_and_format_date("02/30/2023") == "Invalid Date"

assert validate_and_format_date("01/01/2024") == "2024-01-01"

Expected Output #5:

- Function passes all AI-generated assertions and handles edge cases.

OUTPUT:



✅ Deliverables (For All Tasks)

1. AI-generated prompts for code and test case generation.
2. At least 3 assert test cases for each task.
3. AI-generated initial code and execution screenshots.
4. Analysis of whether code passes all tests.
5. Improved final version with inline comments and explanation.
6. Compiled report (Word/PDF) with prompts, test cases, assertions, code, and output.

Evaluation Criteria:

Criteria	Max Marks
Task #1	0.5
Task #2	0.5
Task #3	0.5
Task #4	0.5
Task #5	0.5
Total	**2.5 Marks**