ASSIGNMENT-06

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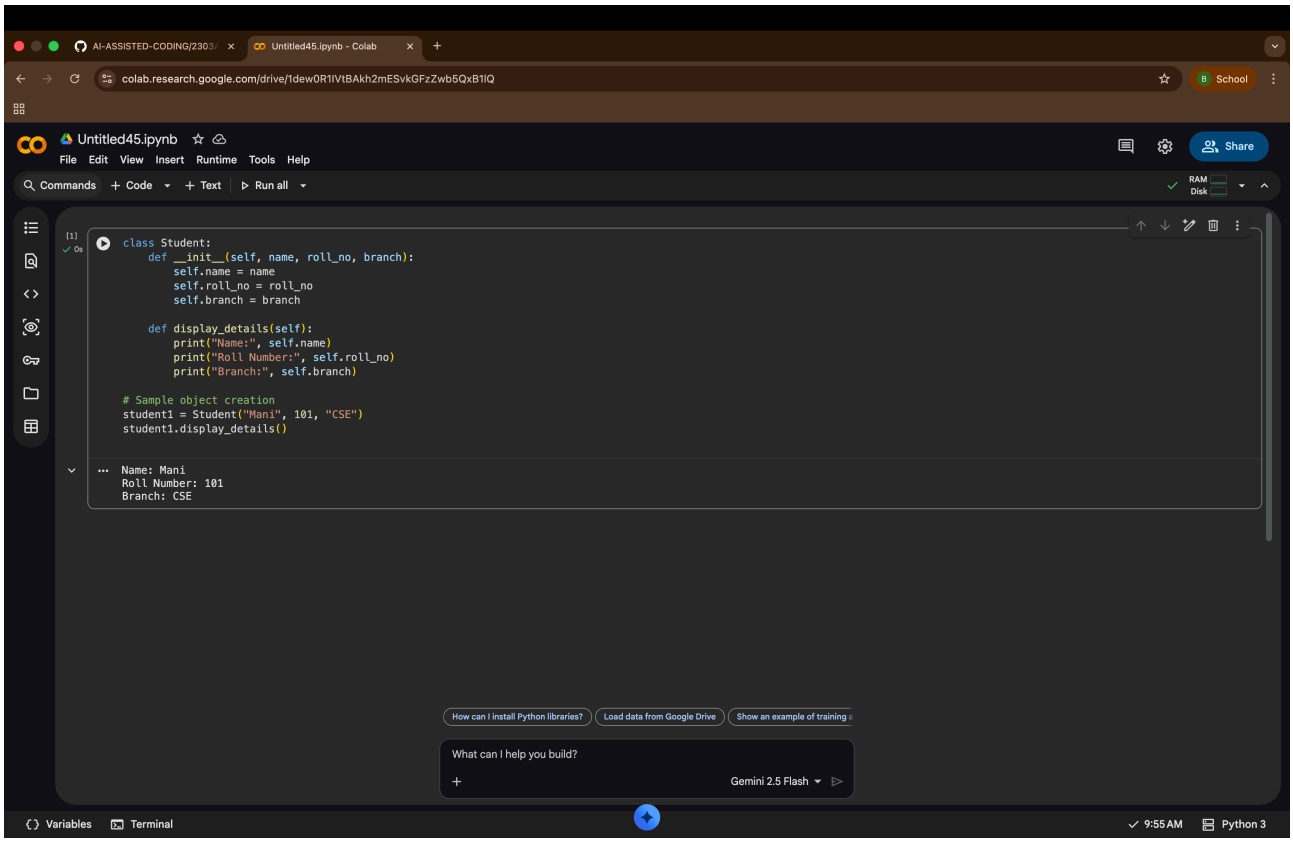
BATCH:05

Q) **Task Description #1: Classes (Student Class)**
Scenario
You are developing a simple student information management module.
Task
• Use an AI tool (GitHub Copilot / Cursor AI / Gemini) to complete a Student class.
• The class should include attributes such as name, roll number, and branch.
• Add a method display_details() to print student information.
• Execute the code and verify the output.
• Analyze the code generated by the AI tool for correctness and clarity.
Expected Output #1
• A Python class with a constructor (__init__) and a display_details() method.
• Sample object creation and output displayed on the console.
• Brief analysis of AI-generated code.

PROMPT:
Generate a Python Student class with attributes name, roll number, and branch. Add a method display_details() to print student information. Also create a sample student object and display the output.

CODE AND OUTPUT:



CODE EXPLANATION:

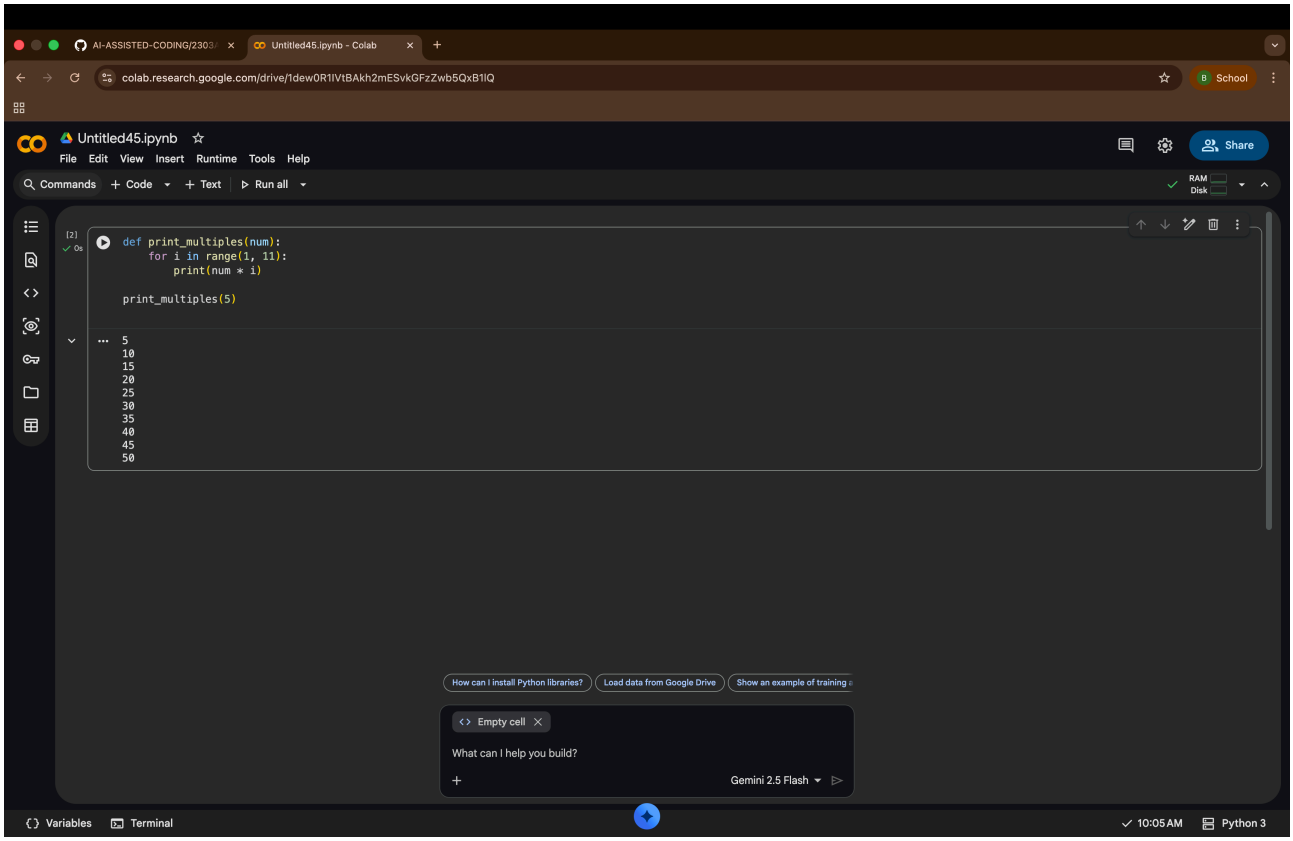
This code defines a Student class with a constructor to initialize name, roll number, and branch. The display_details() method prints the student information. A student object is created and the details are displayed on the console. The code is correct, clear, and easy to understand.

Q) Task Description #2: Loops (Multiples of a Number)
Scenario
You are writing a utility function to display multiples of a given number.
Task
• Prompt the AI tool to generate a function that prints the first 10 multiples of a given number
using a loop.
• Analyze the generated loop logic.
• Ask the AI to generate the same functionality using another controlled looping structure (e.g.,
while instead of for).
Expected Output #2
• Correct loop-based Python implementation.
• Output showing the first 10 multiples of a number.
• Comparison and analysis of different looping approaches.

PROMT:

Generate a Python function that prints the first 10 multiples of a given number using a for loop.

CODE AND OUTPUT:



CODE EXPLANATION:

The for loop is simpler and more readable for a fixed number of iterations. The while loop gives more control but needs manual counter management. Both implementations are correct and produce the same output.

Q)Task Description #3: Conditional Statements (Age Classification)

Scenario

You are building a basic classification system based on age.

Task

• Ask the AI tool to generate nested if-elif-else conditional statements to classify age groups

(e.g., child, teenager, adult, senior).

• Analyze the generated conditions and logic.

• Ask the AI to generate the same classification using alternative conditional structures (e.g.,

simplified conditions or dictionary-based logic).

Expected Output #3

• A Python function that classifies age into appropriate groups.

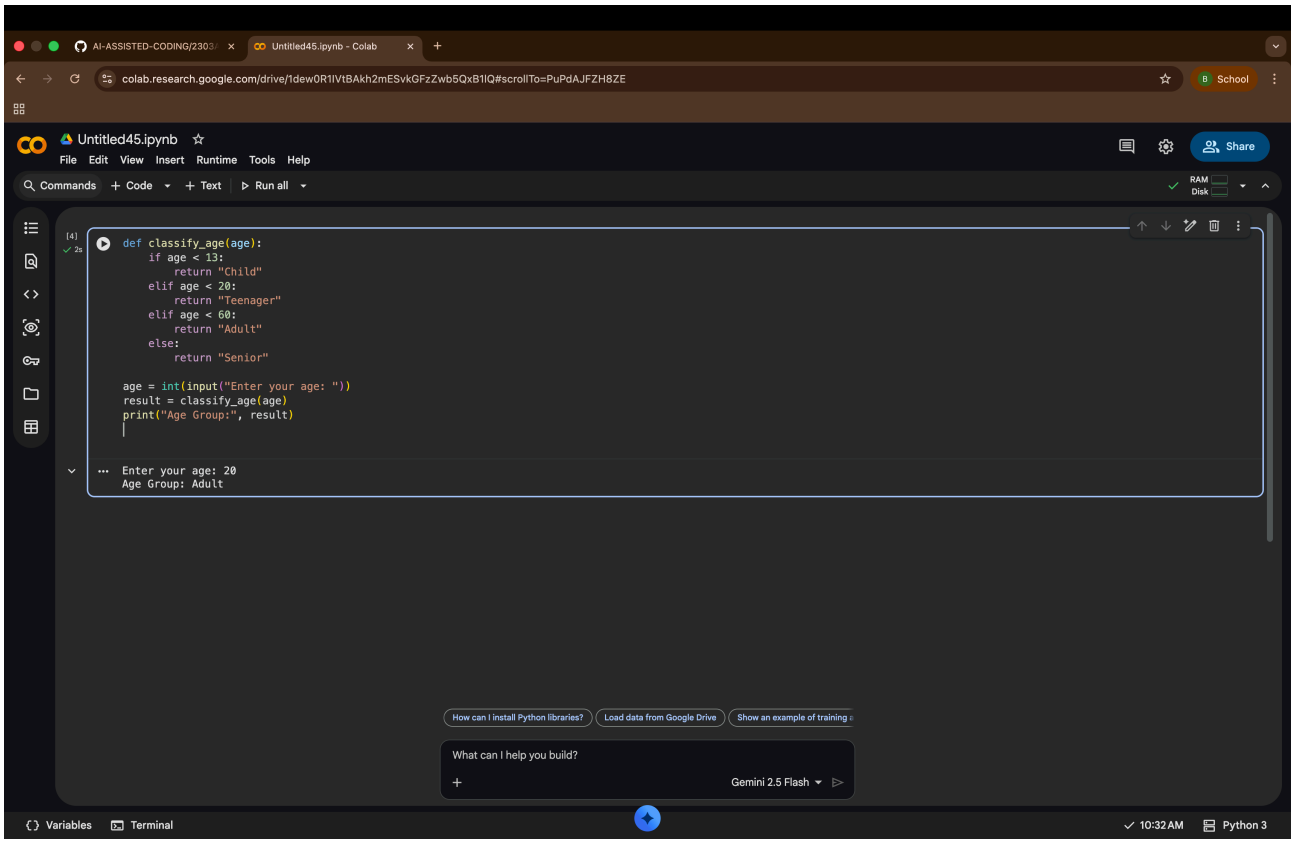
• Clear and correct conditional logic.

• Explanation of how the conditions work.

PROMPT:

Generate a Python function using nested if-elif-else statements to classify age into child, teenager, adult, and senior.

CODE AND OUTPUT:



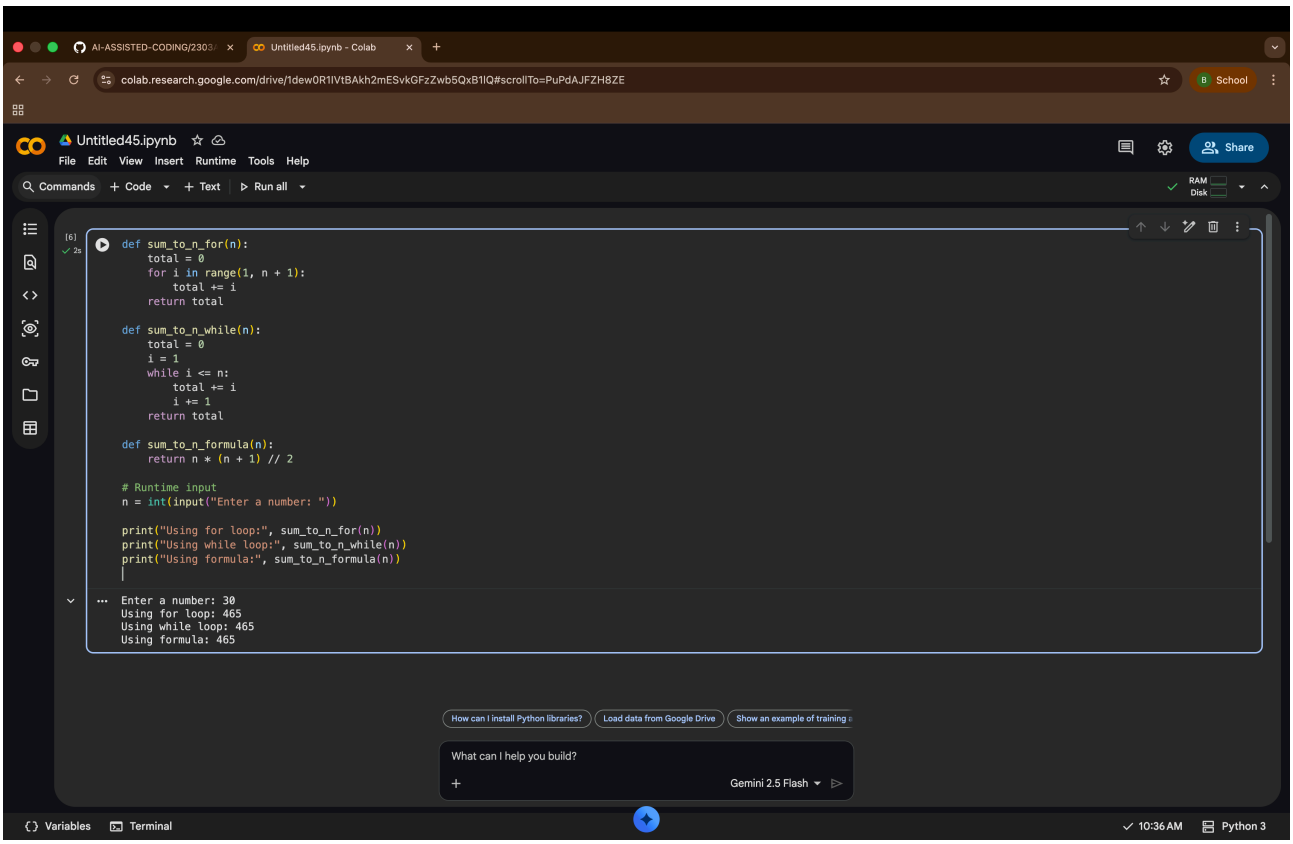
CODE AND EXPLANATION:

The program takes age as input at runtime using input(). It then uses if-elif-else conditions to classify the age into groups. The logic is clear and correctly categorizes the user based on entered age.

Q)Task Description #4: For and While Loops (Sum of First n Numbers)
Scenario
You need to calculate the sum of the first n natural numbers.
Task
• Use AI assistance to generate a sum_to_n() function using a for loop.
• Analyze the generated code.
• Ask the AI to suggest an alternative implementation using a while loop or a mathematical
formula.
Expected Output #4
• Python function to compute the sum of first n numbers.
• Correct output for sample inputs.
• Explanation and comparison of different approaches.
PROMPT:

Generate a Python function that calculates the sum of the first n natural numbers using a for loop and takes input at runtime.

CODE AND OUTPUT:



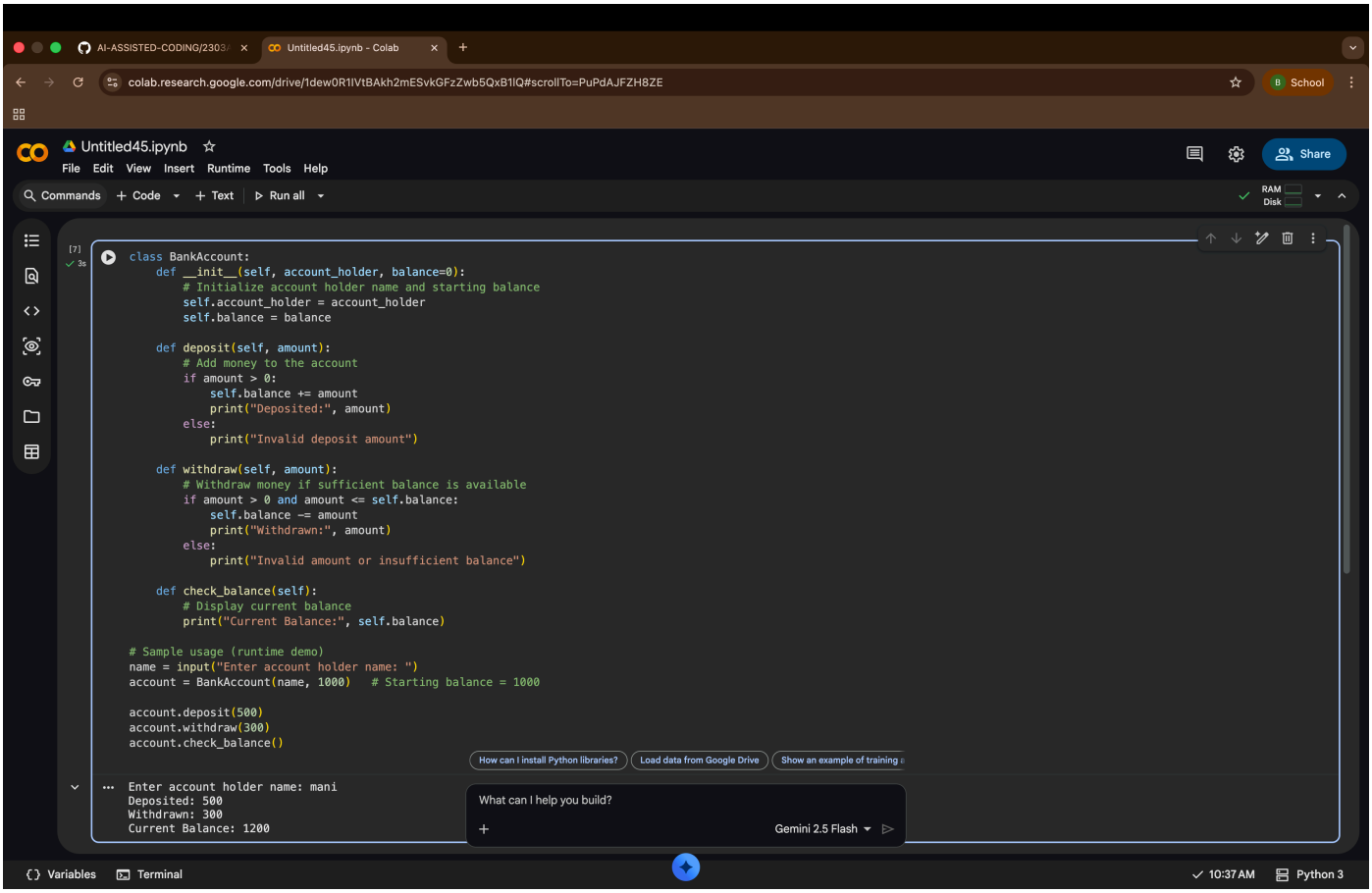
CODE EXPLANATION:

The for loop and while loop both add numbers one by one, which is easy to understand but slower for large n. The formula method is fastest and most efficient because it calculates the sum in one step. All methods are correct and give the same result.

Q)Task Description #5: Classes (Bank Account Class)
Scenario
You are designing a basic banking application.
Task
• Use AI tools to generate a Bank Account class with methods such as deposit(), withdraw(),
and check_balance().
• Analyze the AI-generated class structure and logic.
• Add meaningful comments and explain the working of the code.
Expected Output #5
• Complete Python Bank Account class.
• Demonstration of deposit and withdrawal operations with updated balance.
• Well-commented code with a clear explanation.
PROMPT:

Generate a Python BankAccount class with methods deposit(), withdraw(), and check_balance(). Include sample usage and add meaningful comments.

CODE AND OUTPUT:



CODE EXPLANATION:

This BankAccount class stores the account holder name and balance. The deposit() method adds money, withdraw() removes money only if sufficient balance exists, and check_balance() displays the current balance. The logic is correct, secure, and easy to understand. Comments improve clarity and make the code suitable for learning and maintenance.