LAB # 11

OPEN ENDED LAB

OBJECTIVE

This open-ended lab is designed to assess students' understanding of all topics covered during the course. Students must apply programming concepts creatively to solve the given tasks using Python.

Exercise:

Q1. Write a Python program to create a **Student Result Management System** using the concepts you have learned.

Your program must do the following:

1. **Ask the user to enter the following details:**
    - Student Name
    - Roll Number
    - Marks of 5 subjects
2. **Calculate:**
    - Total Marks
    - Percentage
3. Use an **if–elif ladder** to assign a grade based on percentage:
    - A (≥90)
    - B (≥80)
    - C (≥70)
    - D (≥60)
    - F (<60)
4. Allow results for **multiple students** using a loop.
5. If the user enters **"exit"** as the student name, stop the program using **break**.
6. Display the result in a clear formatted output.
7. Create a **function calculate_grade(percentage)** that returns the correct grade.

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Q2. Write a Python program to simulate a simple **ATM Machine** using loops, selection statements, and functions.

Your program must include:

1. Ask the user to enter a **4-digit PIN**.
   Use an **if statement** to validate the PIN.
2. Once the PIN is correct, display the following menu inside a **while loop**:
3. 1. Check Balance
4. 2. Deposit Money
5. 3. Withdraw Money
6. 4. Exit
7. Use **nested if-else statements** to perform each option correctly.
8. Follow these rules:
   - Balance must update correctly.
   - Cannot withdraw more than available balance.
   - Deposit amount must be positive.
9. Use the following functions:
   - check_balance()
   - deposit(amount)
   - withdraw(amount)
10. Use **continue** for invalid menu options and **break** to exit the program.

Q**3: Book Library Management System**

Create a simple **Library Management System** using Python.

Your program must perform the following operations:

1. **Add a new book** with the following details:
   - Title
   - Author
   - ISBN
   - Status (Available/Borrowed)
2. **Display all books** currently stored in the system.
3. **Search for a book**:
   - Search by **title** or **author**
   - Use **if–else** to show "Book Found" or "Book Not Found"
4. **Borrow a book**:

- Change its status to "Borrowed"
- If already borrowed, display a warning message

5. **Return a book**:
    - Change its status back to "Available"