DAY 2 SCENARIO BASED QUESTIONS

1. **Bank Account Management:**

   Scenario: Write a Java program to manage a bank account. The program should prompt the user to input their current balance and the amount they wish to withdraw. If the withdrawal amount is greater than the balance, display an error message. Otherwise, deduct the amount from the balance and display the new balance.

   ****Test Cases:****

   1. **Case with sufficient balance:**
   - Input:
     - Current balance: 1000
     - Withdrawal amount: 200
   - Output:
     - Withdrawal successful. New balance: 800.0

   2. **Case with exact balance:**
   - Input:
     - Current balance: 500
     - Withdrawal amount: 500
   - Output:
     - Withdrawal successful. New balance: 0.0

   3. **Case with insufficient balance:**
   - Input:
     - Current balance: 300
     - Withdrawal amount: 400
   - Output:
     - Error: Insufficient balance.

   4. **Case with zero balance:**
   - Input:
     - Current balance: 0
     - Withdrawal amount: 100
   - Output:
     - Error: Insufficient balance.

   5. **Case with no withdrawal (amount is zero):**
   - Input:
     - Current balance: 1000
     - Withdrawal amount: 0
   - Output:
     - Withdrawal successful. New balance: 1000.0

2. **Leap Year Checker:**

   Scenario: Develop a Java program to check whether a given year is a leap year or not. A year is a leap year if it is divisible by 4 but not by 100, except if it is divisible by 400.

****Test Cases:****

1. **Leap Year:**
- Input: 2020
- Output: "2020 is a leap year."

2. **Not a Leap Year (divisible by 100 but not by 400):**
- Input: 1900
- Output: "1900 is not a leap year."

3. **Leap Year (divisible by 400):**
- Input: 2000
- Output: "2000 is a leap year."

4. **Not a Leap Year (not divisible by 4):**
- Input: 2019
- Output: "2019 is not a leap year."

3. Grade Calculation:

Scenario: Create a Java program that calculates and prints the grade of a student based on their score. The grading system is as follows:
Score >= 90: A
Score >= 80 and < 90: B
Score >= 70 and < 80: C
Score >= 60 and < 70: D
Score < 60: F

****Test Cases:****

Case 1:
- Input: 95
  Output: Grade: A

Case 2:
- Input: 82
  Output: Grade: B

Case 3:
- Input: 70
  Output: Grade: C

Case 4:
- Input: 65
  Output: Grade: D

Case 5:
- Input: 55
  Output: Grade: F

4. BMI Calculator

Scenario: Write a Java program that calculates the Body Mass Index (BMI) based on the user's weight (in kilograms) and height (in meters). The program should categorize the BMI as follows:
BMI < 18.5: Underweight
18.5 <= BMI < 24.9: Normal weight
25 <= BMI < 29.9: Overweight
BMI >= 30: Obesity

****Test Cases:****

Case 1:
- Input: Weight: 60 kg, Height: 1.75 m
- Output: BMI: 19.59, Category: Normal weight

Case 2:
- Input: Weight: 80 kg, Height: 1.8 m
- Output: BMI: 24.69, Category: Normal weight

Case 3:
- Input: Weight: 70 kg, Height: 1.6 m
- Output: BMI: 27.34, Category: Overweight

Case 4:
- Input: Weight: 100 kg, Height: 1.75 m
- Output: BMI: 32.65, Category: Obesity

5. Day of the Week:

Scenario: Write a Java program that takes an integer input (1-7) representing a day of the week (1 for Monday, 2 for Tuesday, etc.) and prints the corresponding day name. Use a switch-case statement to handle this.
****Test Cases:****

Case 1:
- Input: 1
- Output: Day: Monday

Case 2:
- Input: 3
- Output: Day: Wednesday

Case 3:
- Input: 6
- Output: Day: Saturday

Case 4:
- Input: 8
- Output: Day: Invalid day number