Assignment Questions

1. **Basic Calculator:**
   Write a Python program that:
   - **Takes two numbers as input from the user.**
   - **Asks the user to choose an operation: addition, subtraction, multiplication, division, or modulus.**
   - **Performs the chosen operation and prints the result.**
   - **Use if-elif-else to handle the operation selection.**

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2. **Grading System:**
   Write a program to:
   - **Take a student's name and marks in 3 subjects as input.**
   - **Calculate the total and average marks.**
   - **Display the grade based on the following criteria:**
     - **A: Average >= 80**
     - **B: 60 <= Average < 80**
     - **C: 40 <= Average < 60**
     - **F: Average < 40**
   - **Print the name, total marks, average marks, and grade.**

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3. **Number Properties:**
   Write a program to:
   - **Take a number as input from the user.**
   - **Check and print whether the number is:**
     - **Positive or negative.**
     - **Even or odd.**
   - **Use relational operators and an if-else statement for the checks.**

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4. **Range Sum and Multiples:**
   Create a program that:
   - **Takes two numbers, start and end, as input from the user.**
   - **Calculates the sum of all numbers in the range [start, end] using a for loop and the range() function.**
   - **Counts how many of these numbers are divisible by 3 and prints the count.**

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5. **Logical Operators - Eligibility Check:**
   Write a program to:
   - **Take a user's age and income as input.**
   - **Check if the user is eligible for a loan based on the following criteria:**
     - **Age must be between 18 and 60 (inclusive).**
     - **Income must be greater than or equal to $30,000.**
   - **Use logical operators (and, or) and print the result as "Eligible" or "Not Eligible".**

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6. **Prime Number Finder:**
   Write a program to:
   - **Take a number as input from the user.**
   - **Use a for loop to check if the number is prime.**
   - **Print "Prime" if the number is prime; otherwise, print "Not Prime".**

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7. **Multiplication Table:**
   Create a program that:
   - **Takes a number as input from the user.**
   - **Prints the multiplication table for that number (from 1 to 10) using a for loop and the range() function.**

8. **Simple Interest Calculator:**
   Write a program to:
   - **Take the principal amount, rate of interest, and time (in years) as input from the user.**
   - **Calculate the simple interest using the formula:**
     Simple Interest= $\frac{P \times T \times R}{100}$
   - **Print the calculated interest and the total amount (Principal + Interest).**

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9. **Leap Year Checker**

   Write a program to:

   - **Take a year as input from the user.**
   - **Use an if-else statement and relational operators to check if the year is a leap year based on the following rule:**
     - **A year is a leap year if it is divisible by 4, except for years divisible by 100 unless they are also divisible by 400.**
   - **Print "Leap Year" if the year is a leap year, otherwise print "Not a Leap Year".**

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10. **Even or Odd Numbers in a Range**

    Write a program to:

    - **Take two numbers, start and end, as input from the user.**
    - **Print all even numbers between start and end (inclusive).**
    - **Use a for loop and an if statement to check if each number is even.**

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11. Age Category

Create a program that:

- **Takes a person's age as input.**
- **Classifies the person into one of the following categories using an if-elif-else block:**
  - **Child: age < 13**
  - **Teenager: 13 <= age <= 19**
  - **Adult: 20 <= age <= 59**
  - **Senior: age >= 60**
- **Print the age category.**

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12. Factorial Calculation

Write a program to:

- **Take a number n as input from the user.**
- **Use a for loop to calculate and print the factorial of the number (n! = n * (n-1) * ... * 1).**
- **Handle the case when the user enters 0 or 1 (Factorial of 0 and 1 is 1).**
