Python Exercises: Basics to Loops

Level 1: Basic Syntax and Variables

1. **Printing and Strings**
   - Write a program that prints `"Hello, World!"` to the screen.
   - Create a variable called `name` and assign your name to it. Print a personalized greeting in the format: `"Hello, <name>!"`.
2. **Simple Arithmetic**
   - Write a program to calculate and print the result of basic arithmetic operations: addition, subtraction, multiplication, and division, using numbers of your choice.
   - Write a program to take two numbers as input from the user and print their sum.

Level 2: Conditionals

1. **Odd or Even**
   - Write a program that takes a number from the user and prints whether it is odd or even.
2. **Basic Grading System**
   - Create a program that takes a score (0-100) as input and prints the grade based on the following criteria:
     - "A" for scores 90-100.
     - "B" for scores 80-89.
     - "C" for scores 70-79.
     - "F" for scores below 70.

Level 3: Data Types and Input

1. **Concatenate Strings**
   - Write a program that asks the user for their first and last names. Print a greeting in the format: `"Hello, <FirstName> <LastName>!"`.
2. **BMI Calculator**
   - Write a program to calculate Body Mass Index (BMI). Take the height (in meters) and weight (in kilograms) as inputs. Use the formula:

$$\text{BMI} = \frac{\text{weight}}{\text{height}^2}$$

Level 4: Loops

1. **Counting with a `for` Loop**
   - Write a program that prints the numbers from 1 to 10 using a `for` loop.
2. **Sum of Numbers**
   - Write a program that uses a loop to calculate and print the sum of numbers from 1 to 100.
3. **Multiplication Table**
   - Write a program that asks the user for a number and prints its multiplication table from 1 to 10 using a `for` loop.
4. **Guessing Game**
   - Create a simple guessing game using a `while` loop. Define a secret number in the program and let the user guess the number. Give hints ("Too high" or "Too low") until the user guesses correctly.

Level 5: Combining Loops and Conditionals

1. **FizzBuzz**
   - Write a program that prints numbers from 1 to 50. For multiples of 3, print "Fizz" instead of the number. For multiples of 5, print "Buzz". For numbers that are multiples of both 3 and 5, print "FizzBuzz".
2. **Factorial Calculation**
   - Write a program that takes a number as input and calculates its factorial using a loop.
3. **Find Maximum in a List**
   - Given a list of numbers (`[3, 7, 2, 9, 4]`), write a program that uses a loop to find and print the maximum value.

4. **Prime Numbers**
    - Write a program that asks for a number and prints whether it is a prime number or not.
5. **Reverse a String**
    - Write a program that takes a string as input and prints the string in reverse using a loop.