**Lab 1**

**Q1. Write a Python program to perform basic arithmetic operations (addition, subtraction, multiplication, division, and modulus) on two numbers.**

* + Prompt the user to enter two numbers.
  + Perform the arithmetic operations and print the results.
  + Use appropriate operators and print formatting for clear output.

**Q2. Create variables of different data types (integer, float, string, boolean) and perform basic operations on them.**

* + Assign values to variables of different data types.
  + Perform arithmetic operations on numeric data types.
  + Concatenate strings using the + operator.
  + Use logical operators to evaluate boolean expressions.

**Q3. Write a program to take user input, process it, and display the result.**

* + Prompt the user to enter their name.
  + Greet the user using their name.
  + Calculate and print the user's age based on their birth year.

**Q4. Write a program to check if a number is even or odd.**

* + Prompt the user to enter a number.
  + Use the modulus operator to determine if the number is even or odd.
  + Print the appropriate message.

**Q5. Write a program to print the numbers from 1 to 10 using both for and while loops.**

* + Use a for loop to iterate through a range of numbers.
  + Use a while loop with a counter variable.

**Q6. Create a list, access elements, modify elements, and perform list operations.**

* + Create a list of fruits.
  + Access elements using indexing.
  + Modify elements in the list.
  + Add and remove elements from the list.
  + Find the length of the list.
  + Sort the list in ascending and descending order.

**Q7. Manipulate strings using various built-in functions.**

* + Create a string variable and find the length of the string.
  + Convert the string to uppercase and lowercase.
  + Check if a substring exists in the string.
  + Split the string into a list of words.

**Q8. Write a program to find the largest and smallest number in a list.**

**Lab 2**

**Q1. Create and access tuples.**

* + Create a tuple of colors.
  + Access elements using indexing.
  + Try to modify an element in the tuple (to demonstrate immutability).
  + Find the number of occurrences of a specific element in the tuple.

**Q2. Create and manipulate dictionaries.**

* + Create a dictionary to store information about a person (name, age, city).
  + Access values using keys.
  + Add a new key-value pair to the dictionary.
  + Modify an existing value.
  + Check if a key exists in the dictionary.
  + Get a list of all keys and values.

**Q3. Demonstrate the difference between mutable and immutable data types.**

* + Create a list and a tuple.
  + Try to modify an element in both the list and the tuple.
  + Observe the results and explain the difference.

**Q4. Create a program to print the multiplication table of a number.**

* + Take a number as input from the user.
  + Use a for loop to iterate from 1 to 10.
  + Calculate the product of the input number and the current iteration.
  + Print the multiplication table.

**Q5. Create a program to find the factorial of a number using a loop and conditional statements.**

**Q6. Write a program to check if a given number is prime.**

**Q7. Create a program to find the sum of all even numbers between 1 and 100.**

**Q8. Implement a simple calculator using conditional statements and loops.**