

# **Advance Python Programming & Application**

**2-March-2024 (Saturday)**

## **Python task statements covering previous topics:**

### **1. List Manipulation:**

- Create a list of numbers and find the sum of all elements.
- Given a list of strings, concatenate them into a single string.
- Find the maximum and minimum element in a list of numbers.
- Check if a certain element exists in a list.

### **2. Tuple Operations:**

- Create a tuple of mixed data types and access individual elements.
- Concatenate two tuples and create a new tuple.
- Check if an element exists in a tuple.
- Convert a tuple into a list.

### **3. String Manipulation:**

- Reverse a given string.
- Count the occurrences of a particular character in a string.

- Convert a string to uppercase or lowercase.

#### **4. Number Operations:**

- Find the square root of a given number (use built-in function).
- Check if the number is prime.
- Generate a list of prime numbers within a given range of 99.
- Calculate the factorial of a number.

#### **5. Logical Statements:**

- Implement logical AND, OR, and NOT operations.
- Write a program to determine if a given year is a leap year.

#### **6. Arithmetic Operators (runtime input):**

- Implement basic arithmetic operations (+, -, \*, /) on two numbers input by user.
- Calculate the remainder of the division.
- Increment and decrement a number.

#### **7. Loops:**

- Use a for loop to iterate over elements in a list and perform some operation.
- Use a while loop to find the factorial of a number.
- Iterate through a string and print each character.

## **8. match Statement:**

- Implement a switch-like behavior using if-elif-else statements.

Make a mini calculator using match statement and arithmetic operators, take values and operator choices by user

## **9. Comparison Operators:**

- Compare two numbers and print whether they are equal, greater, or lesser.
- Check if two strings are equal.
- Compare elements of two lists.

## **10. Conditional Statements:**

- Write a program to determine the type of a given triangle based on its sides.
- Check if a given number is positive, negative, or zero.