

## Exercises I

### MCA171 Python Programming

Department of Computer Science, Christ University Central Campus

- (1) Declare a python datatype list and do the following:
  - (a) Write a Python program to sum all the items of the list.
  - (b) Write a Python program to multiply all the items.
  - (c) Write a Python program to get the largest number from a list.
  - (d) Write a Python program to get the smallest number from a list.
- (2) Let **A=['abc', 'xyz', 'aba', 1221]** be a given string, and write a Python program that prints the string or strings and their index from the given list, ensuring that the first and last characters of the strings to be printed are identical.
- (3) Write a python program to print patterns given below:

```
A
A B
A B C
A B C D
A B C D E
```

```
*
**
***
****
*****
```

- (4) Write a Python program to convert the given list to a list of dictionaries.  
ListColour= ["Black", "Red", "Maroon", "Yellow"], ["000000", "FF0000", "800000", "FFFF00"]

Expected Output: {'colorName': 'Black', 'colorCode': '000000'}, {'colorName': 'Red', 'colorCode': 'FF0000'}, {'colorName': 'Maroon', 'colorCode': '800000'}, {'colorName': 'Yellow', 'colorCode': 'FFFF00'}

- (5) Write a Python program to print all the even numbers and their squares within the given range.
  - (a) range(1,50)
  - (b) range(1,100)
- (6) Write a Python program to read a four-digit number and find its
  - (a) Sum of digits
  - (b) Reverse
- (7) Write a program to find the area of a triangle. Then find the area of two arbitrary triangles by entering the three sides both using the input function (input()). Print the total area enclosed by both triangles and each triangle's contribution (%) towards it.

Hint: area of a triangle:

$$A = \sqrt{s(s-a)(s-b)(s-c)} \quad s = \frac{a+b+c}{2}$$

- (8) Given a dictionary containing the following information about 10 different people:

```
people = [
    {"name": "John Doe", "age": 30, "blood_group": "A+"},
    {"name": "Jane Smith", "age": 25, "blood_group": "B-"},
    {"name": "Emily Davis", "age": 40, "blood_group": "O+"},
    {"name": "Michael Brown", "age": 35, "blood_group": "AB-"},
    {"name": "William Johnson", "age": 28, "blood_group": "A-"},
    {"name": "Emma Wilson", "age": 22, "blood_group": "B+"},
    {"name": "Oliver Martinez", "age": 33, "blood_group": "O-"},
    {"name": "Sophia Anderson", "age": 27, "blood_group": "AB+"},
    {"name": "James Thomas", "age": 45, "blood_group": "A+"},
    {"name": "Isabella Lee", "age": 38, "blood_group": "B-"}
]
```

Write a Python program that prints each person's name, age, and blood group in a formatted manner. Each person's information should be separated by a line of dashes (-).

(Dictionary given in this problem can be found from the attached notepad )

Expected output:

```
Name: John Doe
Age: 30
Blood Group: A+
-----
Name: Jane Smith
Age: 25
Blood Group: B-
-----
```

- (9) Write a Python program to extract the rear elements from a tuple string as depicted in the following figure:

```
Input:
("python", "learn", "includehelp")

Output:
["n", "n", "p"]
```

- (10) Declare a list/tuple containing all the twelve months. Write a Python program that converts a month name entered via the Python console to the number of days in that month (Consider leap year as well the code):

Expected Output:

```
Enter the month name: July
The number of days in July is: 31
```

```
Enter the month name: February
Enter the year: 2024
The number of days in February is: 29
```