## Machine Learning Laboratory

## (410302)

## BE Sem I Honors in AI/ML

### Academic Year: 2023-24

Lab Assignment No.1

**Problem Statement:**

Write a program to solve assignments on python basic

**Objective**

* You cannot learn a programming language by only reading the language construct. It also requires programming - writing your own code and studying those of others.
* Write python code for assignments

**Python Lab Assignments**

**Lab Exercise 1:**

**1.**Write a program that asks the user for his name and then welcomes him. The output should look like this:

Enter your name: Saksham

Hello Saksham

**2.**Write a program that prompts the user to enter two integers and display the total on the screen.

**3.**Write a program that prompts the user to input a Celsius temperature and outputs the equivalent temperature in Fahrenheit. The formula to convert the temperature is: F = 9/5 C + 32 where F is the Fahrenheit temperature and C is the Celsius temperature.

**4.**Write a program which accept principle, rate and time from user and print the simple interest. The formula to calculate simple interest is: simple interest = principle x rate x time / 100

**5.**Write a program that accepts seconds from keyboard as integer. Your program should converts seconds in hours, minutes and seconds. Your output should like this :

Enter seconds: 13400

Hours: 3

Minutes: 43

Seconds: 20

**6.**Write a program that prompts the user to enter number in two variables and swap the contents of the variables.

**7.**Write a program that prompts the user to enter number in two variables and swap the contents of the variables. (Do not declare extra variable.)

**8.**Write a program that prompts the user to input the radius of a circle and outputs the area and circumference of the circle. The formula is  
Area = pi x radius2  
Circumference = 2 x pi x radius

**9.**Write a program that prompts the user to input the length and the width of a rectangle and outputs the area and circumference of the rectangle. The formula is  
Area = Length x Width  
Circumference = 2 x (Length + Width)

**10.**Suppose a, b, and c denote the lengths of the sides of a triangle. Then the area of the triangle can be calculated using the formula:  
  
where   
Write a program that asks the user to input the length of sides of the triangle and print the area.

**11.**Write a program which prompts the user to input principle, rate and time and calculate compound interest. The formula is:  
CI = P(1+R/100) ^T - P

**Lab Exercise 2:**

**1.**Write a function find\_max that accepts three numbers as arguments and returns the largest number among three. Write another function main, in main () function accept three numbers from user and call find\_max.

**2.**Write a function, is\_vowel that returns the value true if a given character is a vowel, and otherwise returns false. Write another function main, in main () function accept a string from user and count number of vowels in that string.

**3.**Write a function named is\_prime, which takes an integer as an argument and returns true if the argument is a prime number, or false otherwise. Also, write the main function that displays prime numbers between 1 to 500.

**4.**Write a function in python to find the sum of the cube of elements in a list. The list is received as an argument to the function, in turn, the function must return the sum. Write the main function which invokes the above function.

**5.**Write the definition of a function zero\_ending(scores) to add all those values in the list of scores, which are ending with zero and display the sum.

For example: If the scores contain [200, 456, 300, 100, 234, 678] The sum should be displayed as 600.

**6.**Write a definition of a method count\_now(places) to find and display those place names, in which there are more than 5 characters.

For example:  
If the list places contain  
["DELHI","LONDON","PARIS","NEW YORK","DUBAI"]  
The following should get displayed:  
LONDON  
NEW YORK

**7.**Write a method in python to display the elements of list thrice if it is a number and display the element terminated with ‘#’ if it is not a number.

For example, if the content of list is as follows:  
ThisList= [‘41’, ‘DROND’, ‘GIRIRAJ’, ‘13’, ‘ZARA’]  
The output should be  
414141  
DROND#  
GIRIRAJ#  
131313  
ZARA#

**8.**For a given list of values in descending order, write a method in python to search for a value with the help of Binary Search method. The method should return position of the value and should return -1 if the value not present in the list.

**9.**Write a function half\_and\_half that takes in a list and change the list such that the elements of the second half are now in the first half.

For example, if the size of list is even and content of list is as follows :  
my\_liist = [10,20,30,40,50,60]  
The output should be  
[40,50,60,10,20,30]  
if the size of list is odd and content of list is as follows :  
my\_liist = [10,20,30,40,50,60,70]  
The output should be  
[50,60,70,40,10,20,30]

**10.**Write a function that accepts a dictionary as an argument. If the dictionary contains replicate values, return an empty dictionary, otherwise, return a new dictionary whose values are now the keys and whose keys are the values.