Lab Assignment 3

A Gentle Introduction to Python (CCC634)

1. Two students want to determine which datatype the provided input belongs to. Create a program that prints the class datatype that it belongs to.
2. Sanyam cannot seem to figure out how to print decimal integers with two decimal places. Please assist him in writing the software without utilizing the round function.
3. Sneha is trying to figure out how to make a single string out of three strings. Assist her in joining all the strings together.
4. A Teacher asks her students to perform various operations on complex numbers. She gives them the real and imaginary parts of 2 complex numbers and asks them to display the sum and difference between them.
5. Ishan and Hari are good friends, while Charu and William are good friends.Take the net income of all four of them and verify the following:

   1. "Is ishan +hari < Charu+william ?"

   2. "Is ishan +hari = Charu+william ?"

   3. "Is ishan +hari > Charu+william ?"

6. Kshitij wants to send his best pal a poem. He didn't know how to create a program that will display his message at the output terminal.
7. The grey kangaroo can jump 13.5 meters in one step. Take the input of the distance to be traveled from the user and find out the number of steps (integer value) required for the grey kangaroo.
8. If a five-digit even number is an input through the keyboard, write a program to calculate the sum of its digits.
9. Rajesh has a long wire of length L. Out of this wire, he wants to create an n-sided polygon with sides of equal length. Given n and L, find out the length of each side. Round off your answer to 2 decimal places.
10. Mohit is a software developer and his task is to convert a given amount of seconds into hours, minutes, and seconds. Can you help him do this?
11. Vijaya takes input of any two numbers and then she writes code to perform Bitwise operators and then prints output of 6 lines where (without using third variable):
    1. First print bitwise AND operation
    2. Second print bitwise OR operation
    3. Third print bitwise NOT operation
    4. Fourth print bitwise XOR operation
    5. Fifth print bitwise right shift operation
    6. Sixth print bitwise left shift operation

12. Nishant wants his younger sister, Ruhi to learn the python program for logical operators so he asks her to perform the program by taking the input value in terms of true and false, and print the results for and, or, and not operator. Write a python program to help Ruhi in writing the code.
13. A group of 7 teachers wants to go for some special python training session. The entire group is only eligible if their research score on average is greater than 80 and they have a letter of invitation from the organizers or permission letter from HOD. You are asked to get the percentage of 7 teachers. Now the task is to design a program that figures out the average

percentage of all 7 teachers and check whether they can participate in the special python training session or not .

Three conditions:

1. Only when their avg. % is greater than 80 and

2. They have permission from HOD or

3. Letter of invitation

14. Write a program to surface area of a maximum size cone that can be inscribed in a cylinder of height 'h' and radius 'r'. Compute the result up to two decimal points.

    Input Format:

    First line contains an integer r that represents the radius of the cylinder
    Second line contains an integer h that represents the height of the cylinder

    Output format:

    float value that represents the required calculated result up to two decimal points.

15. In a water tank, the tap leaks at a rate of one drop/second where 800 drops = 100 ml. Write a program to find the liter count of water wasted in N days? N will be input in the test cases.

16. You are given n number of balls and some number of boxes. Each box can contain maximum m balls. Your task is to find the minimum number of boxes required to carry the given number of balls.

17. Vikram is new to python, and he wants to work on complex numbers. The idea is to input real and imaginary parts of 2 complex numbers and then output their product. Also, print the type. The input contains 4 lines, the first 2 have A and B for the first number and the last 2 have A and B for the second number. The complex number is of the form A+Bj

18. Write a program to implement the following problem. Ayush is working as an assistant professor at the state university with X basic salary. Further, the university pays him house rent allowances (HRA) of 12% of his basic salary and 40% of dearness allowances on his basic salary per month. Furthermore, the university deducts 10% from his basic salary, and his dearness allowances towards his contribution to the provident fund (PF) and the university deposits an equal contribution to his PF account. Now, calculate his net salary per month and what is the total available amount in his PF account after a year.