Data Science Workshop-1 (CSE 2195)

ASSIGNMENT-1: VARIABLES, OPERATORS AND STRINGS

1. Write a Python script to show the output as
   a. "I'm a 'Student' of ITER."
   b. 'My Name is \n Khan.'

2. Find the outputs for the following scripts.
   a. 5 and 6
   b. 0 and 6
   c. 0 or 1
   d. 1 or 0
   e. -7*20+8/16*2+54
   f. 5%10+10-25*8//5
   e. 'hello'*(2-5)
   f. 'hi' > 'hello' or 'bye' < 'Bye'
   g. 10 !=9 and 29 >= 29 and 'hi' > 'hello' or 'bye' < 'Bye' and 7 <= 2.5

3. Differentiate between the following and give examples:
   a. = and ==
   b. / and
   c. / and //
   d. * and **
   e. x=x*10 and x*=x*10
   f. Interpreted language and compiled language
   g. Data scientist and Data Analyst
   h. \ and /

4. Construct logical expressions for representing the following conditions:
   a. marks scored should be greater than 300 and less than 400.
   b. Whether the value of grade is an uppercase letter.
   c. The post is engineer and experience is more than four years.

5. Create a program that reads the length and width of a farmer's field from the user in feet. Display the area of the field in acres. Hint: There are 43,560 square feet in an acre.

6. An online retailer sells two products: Soap and Shampoo. Each soap costs 75 rs. Each shampoo costs 111 rs. Write a program that reads the number of soaps and the number of shampoo from the user. Then your program should compute and display the total price for the order.

7. Write a program that determines how quickly an object is travelling when it hits the ground. The user will enter the height from which the object is dropped in meters (m). Because the object is dropped its initial speed is 0 m/s. Assume that the acceleration due to gravity is $9.8m/s^2$. You can use the formula $v_f = \sqrt{(v_i^2 + 2ad)}$ to compute the final speed, v_f, when the initial speed, v_i, acceleration, a, and distance, d, are known.

8. Write a program that reads a four-digit integer from the user and displays the sum of its digits. For example, if the user enters 3141 then your program should display $3 + 1 + 4 + 1 = 9$.

9. Write a program that reads three integers from the user and displays them in sorted order (from smallest to largest). Use the min and max functions to find the smallest and largest values. The middle value can be found by computing the sum of all three values, and then subtracting the minimum value and the maximum value.

10. Create a program that reads duration from the user as a number of days, hours, minutes, and seconds. Compute and display the total number of seconds represented by this duration.

11. Write a program that begins by reading a radius, r, from the user. The program will continue by computing and displaying the area of a circle with radius r and the volume of a sphere with radius r. Use the pi constant in the math module in your calculations.
Hint: The area of a circle is computed using the formula area = $\pi * r^2$. The volume of a sphere is computed using the formula volume = $\frac{4}{3} * \pi * r^3$.

12. Find the output and describe the mnethod that is used in the question.
Let the string str is given by

str= Hey! Hello!, Can you hear me, Mr. Hello?

a. len(str)
b. str.upper()
c. str.lower()
d. str.title()
e. str.capitalize()
f. str.swapcase()
g. str.split(',')
h. str.find('He')
i. str.rfind('He')
j. str.find('He',4,12)
k. str.isalpha()
l. str.islower()
i. str.count('He')
j. str.count('He',3,10)
k. str.startswith("Hey")
l. str.rstrip('H')
m. str.replace('Hello', 'Virat')
n. str.replace('Hello','Virat',1)
o. str.endswith('!')
p. str.partition('!')

13 For the string,

str= Hey! Hello!, Can you hear me, Mr. Hello?

write the outputs of the followings.
a. str[4:7]
b. str[:7]
c. str[4:]
d. str[-len(str): len(str)]
e. str[:-5] + address[-3:]
f. '$'.join(str)