Course Title : Problem Solving Using Python and R Lab
Course Code : P21DS1P1

Lab1. Python Basics and Conditions

Question1. Write a program in Python to input length and breadth of a rectangle and print the area and perimeter of it.

- Test you code with atleast 2 test cases

Question2. Write a program, which accepts annual basic salary of an employee and calculates and displays the Income tax as per the following rules.

- If Basic is less than Rs. 1,50,000/-, then Tax = 0.
- If Basic is from Rs.1,50,000/- to Rs. 3,00,000/-, then tax is 20%.
- If Basic is greater than Rs.3,00,000/-, then tax is 30%.
- Print name, annual income and tax.
- Write test cases to validate all conditions

Question3. Write a program to accept quantity and rate for three (3) items. Compute the total sales amount. Also compute and print the discount as follows:

- Amount > Rs. 2000/- : 20% discount
- Amount between Rs. 1500/- to Rs.1999/- :15% discount
- Amount between Rs. 1000/- to Rs.1499/- 8 % discount
- Compute final amount to be paid.
- Print name, rate and quantity of 3 items. Then print total sales amount, total discount and final amount to be paid to shop.
- Write 3 test cases to validate all conditions

Question4. Evaluate the expressions using Pen and Paper first and then print the value.

- X1=(11+31+23+8+7+5)/((1-(1/2)-(1/20)))
- X2=(((10*8)+8-((7//5)%(5**4)))&3)|(2<<1)

Question5. Write a program to accept name, marks for three subjects and find the total marks secured, average and also display the class obtained.

- Class I – above 80%
- Class II – 60% to 80%
- Pass class – 40% to 59% and
- Fail otherwise

Print a message as "Congratulations << your name>>, you secured a total of <<total marks>>, and Your class is <<class>>"Test you code with atleast 2 test cases

Question6. Read a number from keyboard. Print whether it is odd number, even number, positive number, negative number or zero. Also, print if its ASCII value represents a lower case or upper case letter or digit.

Write 8 test cases to validate odd, even, positive, negative, zero, lower case, upper case and digit input types

Question7. Version Control using Git and GitHub

Read and apply version control features in your code:

https://ocw.mit.edu/ans7870/6/6.005/s16/classes/05-version-control/