Silicon Institute of Technology
Computer Programming Lab
Lab Assignment - 2
(Python Programs using if...else)

August 14, 2025

1. Write a Python program to check whether a given no is positive or negative.
2. Write a Python program to check whether the entered is an odd number or an even number.
3. Write a Python program to find the largest among three given numbers.
4. Write a Python program to test whether a given no is divisible by 7 or not.
5. Write a Python program to test whether the given no is divisible by both 11 & 13.
6. Write a Python program to evaluate the following expression $X = \frac{(a-b)}{(c-d)}$ and give the error message when $c == d$.
7. If the cost price and selling price of an item is given as input through the keyboard, write a Python program to determine whether the seller has made a profit or incurred a loss. Also, determine how much profit he made or the loss he incurred.
8. A set of linear equations with two unknown x1 & x2 is given below.
   $ax_1 + bx_2 = m$
   $cx_1 + dx_2 = n$
   The set has unique solutions: $x_1 = \frac{(md-bn)}{(ad-cb)}$
   & $x_2 = \frac{(na-mc)}{(ad-cb)}$
   Provided the denominator $(ad - cb)$ is not equal to zero.
   Write a Python program that will read the values of a, b, c, d, m, n and compute the values of x_1 & x_2 . An appropriate message is printed if $(ad - cb) = 0$.
9. Write a Python program to check whether a given year is a leap year or not using nested if....else.
10. If the three sides of a triangle are entered through the keyboard, write a Python program to check whether the triangle is isosceles, or equilateral.
11. Write a Python program to perform arithmetic calculation(+, -, *, /) based on user's choice.

12. Write a Python program that asks the user to enter their marks in 3 subjects (each subject's full mark is 100). The program should determine the grade according to the following rules:
    A: Marks 90 and above
    B: Marks 80 to 89
    C: Marks 70 to 79
    D: Marks 60 to 69
    F: Marks below 60

13. Write a Python program that asks the user to input their age. Based on the age entered, classify the person into one of the following categories:
    Child: Age 0 to 12 years
    Teenager: Age 13 to 19 years
    Adult: Age 20 to 59 years
    Senior Citizen: Age 60 years and above

14. Write a Python program to get the total units consumed from the user and calculate the electricity bill for that customer based on the following slab rates:
    First 100 units $\rightarrow$ 5 per unit
    Next 100 units (101–200) $\rightarrow$ 7 per unit
    Above 200 units $\rightarrow$ 10 per unit

15. Write a Python program that asks the user to input their weight (in kilograms) and height (in meters). The program should:

    Calculate the BMI using the formula: $BMI = \frac{weight}{height^2}$ Classify the BMI result into categories:
    Underweight: BMI < 18.5
    Normal weight: BMI 18.5 to 24.9
    Overweight: BMI 25.0 to 29.9
    Obese: BMI 30.0 and above