**Note:** Create .ipynb file with notes in markdown cell for each group of Lab tasks.

**Lab-1:**

Write Python Code for the following tasks.

1. Write a program to display your name on console.
2. Write a program to add two numbers (5&7) and display its sum.
3. Write a program to multiply two numbers (10&8) and display its product.
4. Write a program to calculate area of a circle having its radius (r = 5).
5. Write a program to calculate area of an ellipse having its axes (minor=4cm, major=6cm).
6. Write a program to calculate simple interest for a given P=4000, T=2, R=5.5. (I = P\*T\*R/100).

# Lab 2: Data Types, Operators and Expressions

## Objectives

To be familiar with different data types, Operators and Expressions in Python

## Task Titles:

1. Write a program that takes the temperature in Fahrenheit and convert it to Celsius And Kelvin:

K = C + 273

C = (F – 32) / 1.8

1. Write the Python code that takes the integer a, b, c, d and e from the user and display the output according to the following equation.

a3 + b2 – d / b

a ( b + c ( e + a ) / b )- 10

1. Write a program to declare two integer and one float variables then initialize them to 10, 15, and 12.6. Also print the variable values on the screen.
2. Write a python program to prompt the user to input 3 integer values and print these values in forward and reversed order.
3. Write a program to swap two variables values with and without using third variables.
4. Write a program to print the size of char, float, double and long double data types in python.

# Lab 3: Introduction to Relational & Logical Operators and intro of IF Conditional statement

## Objectives:

To be familiar with Relational & Logical Operators

To understand the programming knowledge using Decision Statements (if, if-else, if-else ladder, Nested if-else)

## Task Titles:

1. Display the largest among three numbers using if else statement?
2. Check whether a number is even or odd using ternary operator?
3. Check the greater of two numbers using ternary operator?
4. Write a MarksSheet program, input 5 subject marks from user and show data on screen, with percentage, grade and average marks (Assume total marks = 100).
5. Write a python program that takes two operands and one operator from the user, the program should implement basic arithmetic operations – sum, average, product, difference, quotient, remainder, and, or and not of given numbers etc.
6. Write a program that asks a number and test the number whether it is multiple of 5 or not, divisible by 7 but not by eleven. (all three conditions should match)
7. Write a python program to input angles of a triangle and check whether triangle is valid or not.
8. Check whether the entered character is vowel or consonant?
9. Write a program to produce the output as shown below:

x y expressions results

6 | 3 | x=y+3 | x=6

6 | 3 | x=y-2 | x=1

6 | 3 | x=y\*5 | x=15

6 | 3 | x=x/y | x=2

6 | 3 | x=x%y | x=0

6 | 3 | x=x&y | x=2

6 | 3 | x=x|y | x=7

1. Write a program that takes the week day number as input from user and print the day name of week

E.g., Print Monday if week day number is equal to 1. Similarly, check condition for all 7 days and print the corresponding day name. Print an error message if an invalid number is entered.

1. Write a python program to enter month number between (1-12) and print number of days in month.
2. Write a program to calculate and print the Electricity bill of a given customer. The customer id and unit consumed by the user should be taken from the keyboard and display the total amount to pay to the customer. The charges are as follow :

|  |  |
| --- | --- |
| **Unit** | **Charge/unit** |
| upto 199 | @1.20 |
| 200 and above but less than 400 | @1.50 |
| 400 and above but less than 600 | @1.80 |
| 600 and above | @2.00 |

If bill exceeds Rs. 400 then a surcharge of 15% will be charged and the minimum bill should be of Rs. 100/-

**Test Data:**

1001

800

**Expected Output:**

Customer IDNO: 1001

Units Consumed: 800

Amount Charges @Rs. 2.00 per unit: 1600.00

Surchage Amount : 240.00

Net Amount Paid By the Customer : 1840.00

# Lab 4: Repetitive Structures ( loops)

## Objectives:

To understand the programming using for Loop

## Tasks:

1. Write a program to input two integer numbers and display the sum of even numbers between these two input numbers.
2. Write a program to print all natural numbers in reverse (from n to 1).

For example, if your program input is 7, it should print \*\*\*\*\*\*\*.

1. Write a program to find Factorial of a number.
2. Write a program to print multiplication table of any number.
3. Write a program to print all ASCII character with their values.
4. Write a program that takes the base and exponent as input and display the result of power.
5. Write a program to check if a number input by user is PRIME or not, range of input is 1 to 300.
6. Write a guessing game where the user has to guess a secret number. After every guess the program tells the user whether their number was too large or too small. At the end the number of tries needed should be printed.
7. Write a program to display Fibonacci series up to 200.

Fibonacci series: 0, 1, 1, 2, 3, 5, 8, 13, ….

1. Write a program to find GCD (greatest common divisor or HCF) and LCM (least common multiple) of two numbers.
2. Write a program that performs a survey tally on beverages. The program should prompt for the next person until a sentinel value of –1 is entered to terminate the program. Each person participating in the survey should choose their favorite beverage from the following list:

1. Coffee 2. Tea 3. Coke 4. Orange Juice

**Sample Run:**

Please input the favorite beverage of person #1: Choose 1, 2, 3, or 4 from the above menu or -1 to exit the program  
4  
Please input the favorite beverage of person #2: Choose 1, 2, 3, or 4 from the above menu or -1 to exit the program  
1  
Please input the favorite beverage of person #3: Choose 1, 2, 3, or 4 from the above menu or -1 to exit the program  
3  
Please input the favorite beverage of person #4: Choose 1, 2, 3, or 4 from the above menu or -1 to exit the program  
1  
Please input the favorite beverage of person #5: Choose 1, 2, 3, or 4 from the above menu or -1 to exit the program  
1  
Please input the favorite beverage of person #6: Choose 1, 2, 3, or 4 from the above menu or -1 to exit the program  
-1  
The total number of people surveyed is 5. The results are as follows:

Beverage Number of Votes  
\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  
Coffee 3  
Tea 0  
Coke 1  
Orange Juice 1