

# Programs/Assignments

## Lab 1

### Topic: Beginning with C++

#### Objectives:

- To learn writing, executing and debugging programs related to basic I/O functions.
- To learn writing, executing and debugging programs related to arithmetic operators.

#### Outcomes:

- After completing this, the students would be able to develop C++ programs applying arithmetic operators.

#### Lab Assignments

1. Write a C++ program to read the values of X, Y and Z and display the value of F, where,  

$$F = (X/Y) - Z.$$

Test the program using the following values:

- a) X = 250, Y = 85, Z = 25
- b) X = 300, Y = 70, Z = 70

2. Write a C++ program to print a table of values of the function  $y = e^{-x}$  for  $x$  varying from 0 to 1 in steps of 0.1. The table should appear as follows.

TABLE FOR Y=EXP(-X)

X	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
Y										

3. Write a C++ program to read an integer from the user. If it is positive integer, display the corresponding binary representation of that number. If the user enters a negative number, then ignore the input and print a message “Invalid Input!” in the output console.

#### Home Assignments

1. Write a C++ program to calculate parking charges of a vehicle. Enter the type of vehicle as a character (example, “F” for four-wheeler, “T” for two-wheeler) and the number of hours to calculate the charges given below:

Four-wheeler: Rs. 40 per hour, Two-wheeler: Rs. 20 per hour

2. An election is contested by five candidates. The candidates are numbered 1 to 5 and the voting is done by marking the candidate number on the ballot paper. Write a program to read the ballots and count the votes cast for each candidate using an array variable count. In case, a number read is outside the range 1 to 5, the ballot should be considered as a “Spoilt Ballot”, and the program should also count the number of spoilt ballots.
3. A cricket team has the following table of batting figures.

Player's Name	Runs	Innings	Times Not Out
AAA	8430	230	18
BBB	4200	130	9
CCC	3350	105	11

Write a C++ program to read the figures shown in the above table and display the batting average of each player.

4. Write a C++ program that will ask for a temperature in Fahrenheit and display it in Celsius.
5. Write a C++ program to read a floating-point number from the user. If the user-defined number is a positive, display the corresponding binary representation of that number. If the user enters a negative number, then ignore the input and print a message “Invalid Input!” in the output console.
6. An electricity board charges the following rates to domestic users for consumption of energy:  
For the first 100 units: 60 Paisa per unit  
For next 200 units: 80 Paisa per unit  
Beyond 300 units: 90 Paisa per unit  
All users are charged a minimum of Rs. 50. If the total amount is more than Rs. 300 then an additional surcharge of 15% is added.  
Write a C++ program to read the names of users and number of units consumed and print out the charges with names.