



CL-1002

Programming Fundamentals - Lab

Lab # 8

Objectives:

- Conditional statements.
- Ternary Operator
- Assert Function
- Switch case
- Loops - Basics
- Practice tasks

Note: Carefully read the following instructions (*Each instruction contains a weightage*)

1. Use proper **font family** and **font size** of **heading**, **sub heading** and **normal text**.
2. First think about statement problem then write/draw your logic on copy.
3. Attach the screen shots of your code in word file with execution (cpp project).
4. Write any of your favorite line/quote at the beginning of Word document to get 5 bonus marks.
5. File (Word) title should in proper format (**23F-1001-Lab2**)
6. You have to submit both (**word + Project zip**) files.
7. **Upload separate word file and archive of your project.**
8. **Do not copy from any source otherwise you will be penalized with negative marks.**
9. Complete your lab **within given Time Slot.**

Sample Codes:

```
#include <iostream>
using namespace std;

int main() {

    int a = 1;
    while (a <= 5)
    {
        cout<<"Welcome to iteration structure: "<<endl;
    }

    return 0;
}
```

```
#include <iostream>
using namespace std;
```



```
int main() {  
  
    int a = 1;  
    (a%2==0) ?  
    cout<<"Even Number:" :  
    cout<<"Odd Number:" ;  
  
    return 0;  
}
```

```
#include <iostream>  
using namespace std;
```

```
int main() {
```

```
  
    int a = 1;  
    while (a <= 5)  
    {  
        cout<<"*"<<endl;  
    }
```

```
    return 0;  
}
```



Problem: Write C++ code for the following statements

1. Write a C++ code that take an age from user and check whether candidate is eligible of voting or not. If age is greater than 18 then eligible otherwise not eligible. The programs should terminate its execution if age is equal to 18. (using ternary operator & assert function)

(Marks 03)

2. Suppose that sale and bonus are double variables. Write an if...else statement that assigns a value to bonus as follows: If sale is greater than 20000, the value assigned to bonus is 15%; if sale is greater than 10000 and less than equal to 20000, the value assigned to bonus is 10%; otherwise, the value assigned to bonus is 0. Add bonus into total sale and display updated bonus.

(Marks 02)

3. Write a C++ code that display the following patterns (using maximum 2 loop):

(Marks 01)

1-> * * * * *

2-> \$

\$

\$

\$

\$

4. Write a C++ code to add first ten integers and display their sum and average with proper output i.e. numbers = 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 Sum = 55, Average = 5.5 (using loop)

(Marks 02)

5. Write a C++ code that calculate the factorial of any given number.

(Marks 02)

Number = 3, factorial = 3*2*1->6



6. Write a C++ code that take base and power from user and display it's solution: (Marks 02)

Base = 3, power = 3 , solution = 27

7. Write a C++ program that displays the Fibonacci series upto 'n' number, where 'n' is entered by user. n = 6, output: 0,1,1,2,3,5 (Marks 03)

8. A box of cookies can hold 24 cookies, and a container can hold 75 boxes of cookies. Write a program that prompts the user to enter the total number of cookies, the number of cookies in a box, and the number of cookie boxes in a container. The program then outputs the number of boxes and the number of containers to ship the cookies. Note that each box must contain the specified number of cookies, and each container must contain the specified number of boxes. If the last box of cookies contains less than the number of specified cookies, you can discard it and output the number of leftover cookies. Similarly, if the last container contains less than the number of specified boxes, you can discard it and output the number of leftover boxes. (Marks 05)

9. Write a C++ program that calculates a customer's bill for a local cable company. There are two types of customers: residential and business. There are two rates for calculating a cable bill: one for residential customers and one for business customers. (Marks 05)

For residential customers, the following rates apply:

- Bill processing fee: \$4.50
- Basic service fee: \$20.50
- Premium channels: \$7.50 per channel

For business customers, the following rates apply:

- Bill processing fee: \$15.00
- Basic service fee: \$75.00 for first 10 connections, \$5.00 for each additional connection
- Premium channels: \$50.00 per channel for any number of connections

The program should ask the user for an account number (an integer) and a customer code.



Assume that R or r stands for a residential customer, and B or b stands for a business customer

Input The customer's account number, customer code, number of premium channels to which the user subscribes, and, in the case of business customers, number of basic service connections.

Output Customer's account number and the billing amount.

Best of Luck 😊

"The beautiful thing about learning is that no one can take it away from you" – B.B. King