

## Programming Fundamentals Lab



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**Course Code: CL1002**

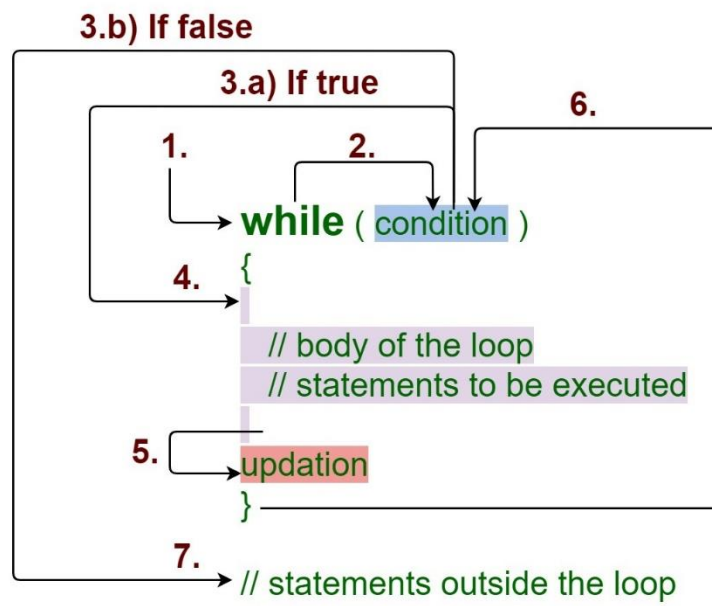
**Lab # 08 (Week 08)**

### **While & Do While Loops in C++:**

A loop is a control structure that allows you to repeat a block of code multiple times, as long as a certain condition is met. In C, we primarily use three types of loops:

- **While loop:** Used when the number of iterations is not known in advance, but depends on a condition.
- **Do-while loop:** Similar to the while loop, but guarantees that the block of code will be executed at least once.

## While Loop



### Simple Code:

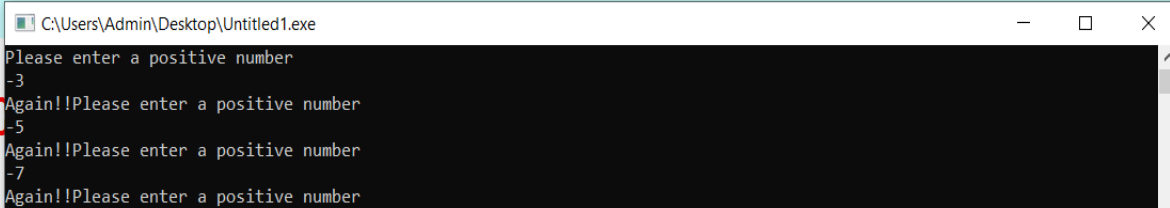
```

int main()
{

    int num = 0;
    cout<<"Please enter a positive number"<<endl;
    cin>>num;

    while(num<0)
    {
        cout<<"Again!!Please enter a positive number "<<endl;
        cin>>num;
    }
}

```



```

C:\Users\Admin\Desktop\Untitled1.exe
Please enter a positive number
-3
Again!!Please enter a positive number
-5
Again!!Please enter a positive number
-7
Again!!Please enter a positive number

```

## Solving Problem using While Loop:

### How to Reverse Number

```

int main()
{

    int n, reversed_number = 0, remainder;
    cout << "Enter an integer: ";
    cin >> n;
    while(n != 0)
    {
        remainder = n % 10;
        reversed_number = reversed_number * 10 + remainder;
        n = n/10;
    }
    cout << "Reversed Number = " << reversed_number;
}

```

n	n != 0	remainder	reversed_number
2345	true	5	$0 * 10 + 5 = 5$
234	true	4	$5 * 10 + 4 = 54$
23	true	3	$54 * 10 + 3 = 543$
2	true	2	$543 * 10 + 2 = 5432$
0	false	-	Loop terminates.

**Count the No of Even, find the sum in the range of 2-100:**

```

int main()
{
    int first_number = 2;
    int second_number = 100;
    int i=2;
    int count = 0;
    int sum = 0;
    while(i>=2 && i<=100)
    {
        if(i%2==0)
        {
            cout<<"This is even number"<<i<<endl;
            sum = sum+i;
            count++;
        }
        i++;
    }
    cout<<"Total sum is"<<sum;
}

```

- [Try it Yourself »](#)

## Do-While Loop:

This loop will execute the code block once, before checking if the condition is true, then it will repeat the loop as long as the condition is true.

### **Structure & Simple Code:**

```
#include<iostream>
using namespace std;
int main()
{
    int i = 0;
    do
    {
        cout << i << "\n";
        i++;
    }while (i < 5);
    return 0;
}
```

### **Display Alphabets using ASCII Do while Loop:**

```

1  #include<iostream>
2  using namespace std;
3  int main()
4  {
5      int ch = 65;
6      do
7      {
8          cout << char(ch) << " ";
9          ch++;
10         if(ch%16==0)
11         {
12             cout<<endl;
13         }
14     }while (ch<= 94);
15
16     return 0;
17 }

```

C:\Users\Admin\Desktop\Untitled1.exe

A B C D E F G H I J K L M N O  
P Q R S T U V W X Y Z [ \ ] ^

## Lab Task:

**Question 1:** Read or take a number from the user. If the number is negative, show the user error message. if the number is 0, then show error message. if the number is float, make it integer.

The program will reverse the number. And then count total digits in the number. Also show if the reverse number and original numbers are same or not. If reverse number and original numbers are same, then show message “Palindrome” otherwise print that “Not palindrome”.

## Question 2:

Make a Mobile Shop management system.

1. **Signup:** Users can create an account.

⇒ User will enter name of any one character and positive integer password of at least 5 digits.

2. **Sign in:**

⇒ User can log in to portal if he has entered his name and password otherwise, he will not be entered to his portal.

### Menu:

⇒ Show the following menu options to the user.

3. **Show Total Number of Mobiles:**

- N for Nokia,
- A for Android,
- a for Apple.

4. Displays the total number of available mobiles which has been added.  
Use while to show all the mobile.

5. **Show Each Mobile's Price:** user can enter “a” for apple, “A” for android, “N” for Nokia. Price will be set by Admin for each mobile.  
Displays the price of each type of mobile.

6. **Order a Mobile:** Users can order one mobile at most, which will reduce the stock by 1. Use Loop to show the remaining two mobiles which user cannot buy.



