



**LAB 10**

**Summary**

Items	Description
Course Title	Programming Fundamentals
Lab Title	Operators in C++
Duration	3 Hours
Operating System/Tool/Language	Ubuntu/ g++/ C++
Objective	To get familiar with use of nested while, do-while and nested for loop

**Repetitions-II**

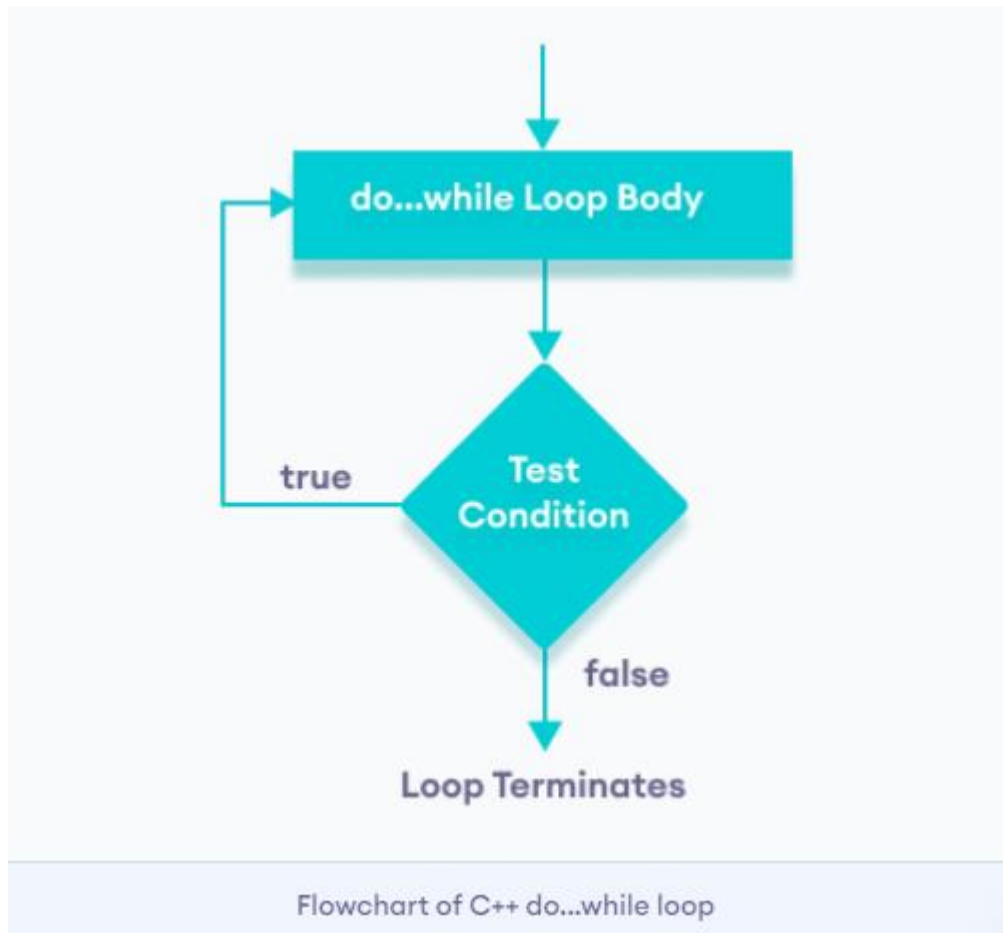
**(Do-while, Nested For loop, Nested while loop)**

**C++ do while Loop:-**

The do...while loop is a variant of the while loop with one important difference: the body of do...while loop is executed once before the condition is checked.

Its syntax is

```
do {  
    // body of loop;  
}  
while (condition);
```



Sample: Display Numbers from 1 to 5

// C++ Program to print numbers from 1 to 5

```
#include <iostream>
```

```
using namespace std;
```

```
int main() {
```

```
    int i = 1;
```

```
    // do...while loop from 1 to 5
```

```
    do {
```

```
        cout << i << " ";
```

```
        ++i;
```

```
    }
```



```
while (i <= 5);  
return 0;  
}
```

### **Nested while loop:-**

A while loop inside another while loop is called nested while loop.

Its syntax is:-

```
while (condition1)  
{  
    statement(s);  
    while (condition2)  
    {  
        statement(s);  
        ... ..  
    }  
    ... ..  
}
```

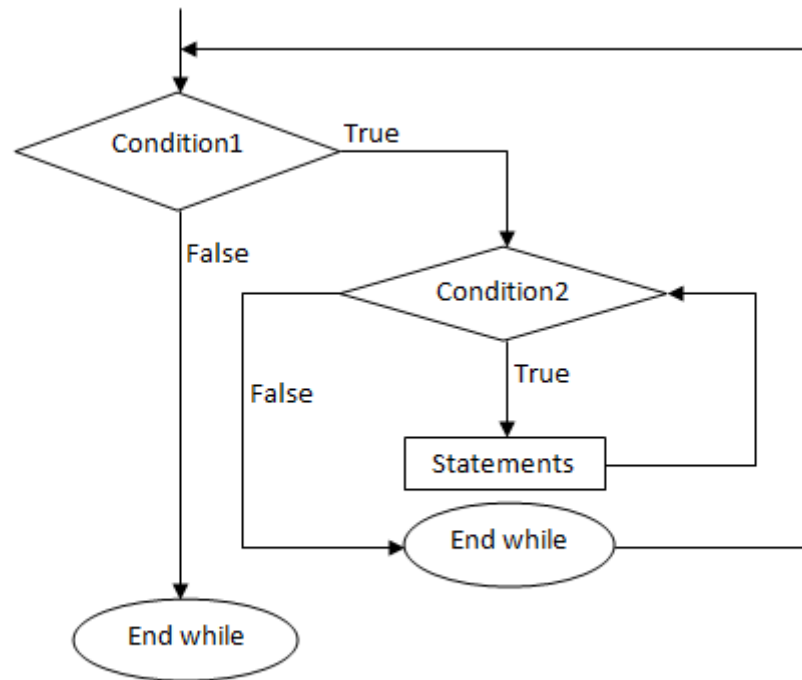


fig: Flowchart for nested while loop

### **Nested for loop:-**

A for loop inside another for loop is called nested for loop.

Syntax of Nested for loop:-

```
for (initialization; condition; increment/decrement)
{
    statement(s);
    for (initialization; condition; increment/decrement)
    {
        statement(s);
        ... ..
    }
    ... ..
}
```

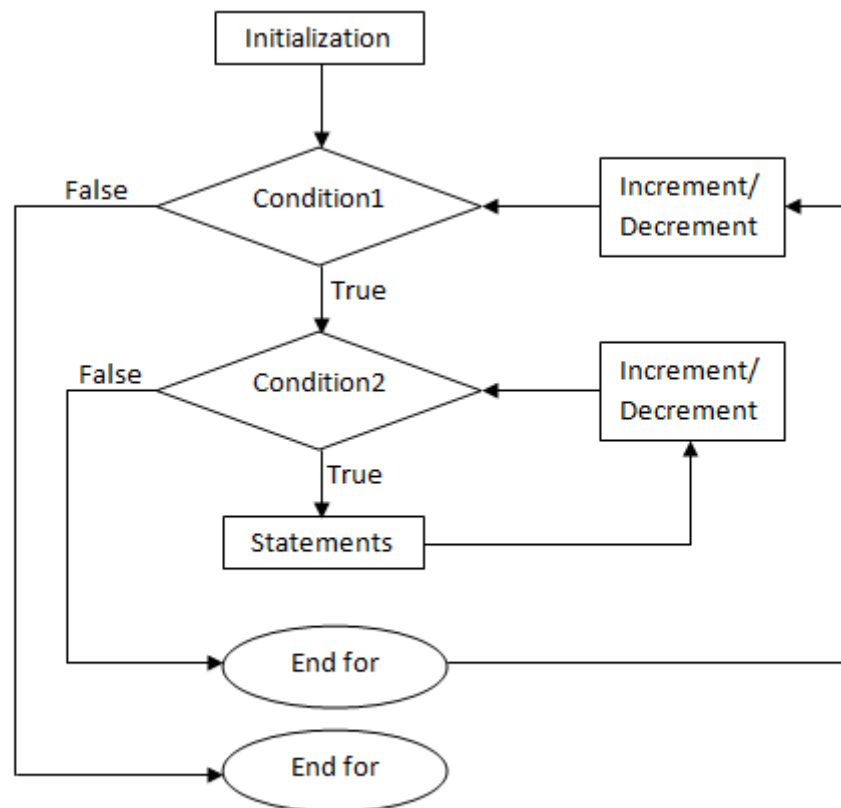


Fig: Flowchart for nested for loop

### Lab Tasks

#### Task#01

Write a C++ program to print the following:

Hadith from Al-Bukhari #7392 which Abu Huraira Reports the Messenger of Allah (pbuh) as saying, "Allah has ninety-nine Names, one-hundred less one; and he who memorized them all by heart will enter Paradise."

#### Tsk#02

Use do while for finding the sum of positive numbers.

- ✚ The program will ask use for a number and keeps on asking a new number from user and adding in previous number.

- ✚ If the user enters a negative number, the loop ends
- ✚ The negative number entered is not added to the sum
- ✚ In the end displays the sum of positive numbers.

Output

```
Enter a number: 6
Enter a number: 12
Enter a number: 7
Enter a number: 0
Enter a number: -2

The sum is 25
```

Output

```
Enter a number: -6
The sum is 0.
```

### Task#03

Use Nested-while loop for printing the following pattern

First ask the user to enter the number of rows of Triangle

If user enters 5 the output will be:

```
5
a
ab
abc
abcd
abcde
```

If user enters 9 the output will be



```
9
a
ab
abc
abcd
abcde
abcdef
abcdefg
abcdefgh
abcdefghi
```

Hint (Use ASCII and Type casting)

#### Task#04

Write a program that takes value of **N** as input and displays Table of all the numbers between 2 and N

Enter value of N: 3

Use Nested for loop

\*\*\* Table of 2 \*\*\*

```
1 * 2 = 2
2 * 2 = 4
3 * 2 = 6
4 * 2 = 8
5 * 2 = 10
6 * 2 = 12
7 * 2 = 14
8 * 2 = 16
9 * 2 = 18
10 * 2 = 20
```

\*\*\* Table of 3 \*\*\*

```
1 * 3 = 3
2 * 3 = 6
3 * 3 = 9
4 * 3 = 12
5 * 3 = 15
6 * 3 = 18
7 * 3 = 21
8 * 3 = 24
9 * 3 = 27
10 * 3 = 30
```

#### Task#05



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A Palindromic prime is a prime number that is also a palindromic number. Write a program that displays all the palindromic prime numbers between 100 and 999.

Output

```
101
131
151
181
191
313
353
373
383
727
757
787
797
919
929
```

**Practice Question:**

Run all sample programs



**Submission Instructions:**

1. Save all .cpp files with your roll no and task number  
e.g. i21XXXX\_Task01.cpp
2. Save all screenshots of terminal with your roll no and task number
3. Now create a new folder with name ROLLNO\_LAB03 e.g. i21XXXX\_LAB03
4. Move all your .cpp files to this newly created directory and compress it into .zip file.
5. Now you must submit this zipped file on Google Classroom.

OR

You can make a single file where you will be pasting all your solutions with screenshots.