if-else statement in C++

In a program, the control statement is used for the following reasons:

- To execute the program according to a specific condition,
- To exclude a specific statement in the program or To execute the same statement multiple times,
- We use a control statement in C ++ to perform several tasks, such as to terminate a program under a particular type of operation.

In C++ or in any other programming language, control statement has an important role. **Control statement is the basic concept of a language**. where we describe the problem in Programming world and catch the problem solution.

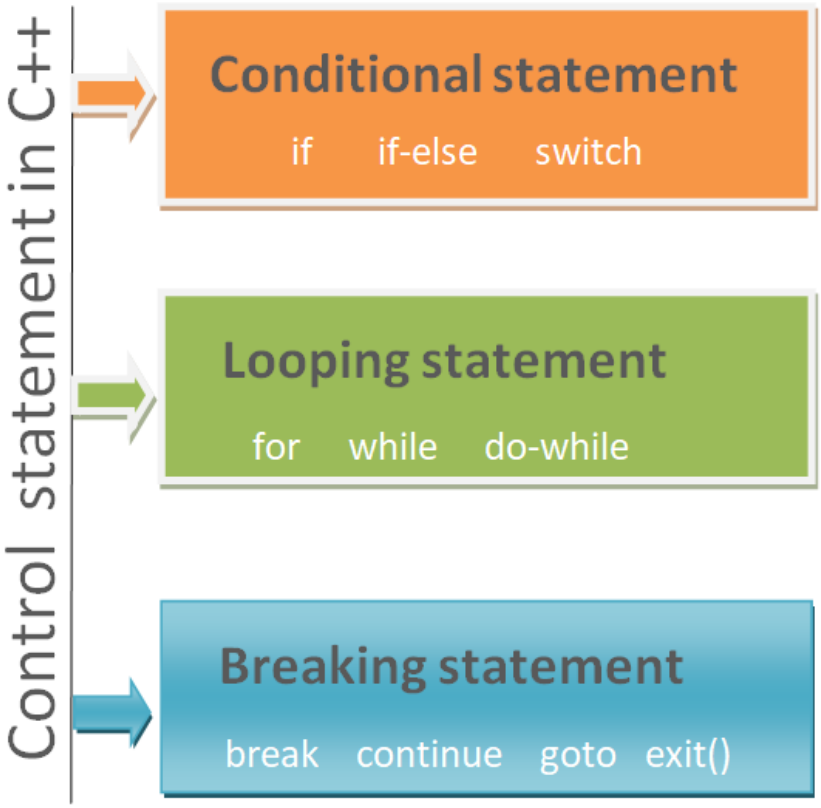
Type of Control Statement in C++

The control statement in C++ is divided into three parts which are as follows-

- Conditional statement in C++

- Looping statement in C++
- Breaking statement in C++

such as,



Conditional statement in C++

The selection statement contains one or more set of statements that are declared in the parentheses bracket ({}) and execute only when each block expression value is true. This type of statement is also called **Decision-Making statement** because it executes the statement when the expression value is true.

Type of conditional statement in C++

- if statement
- if-else statement
- switch statement

Here is another one,

nested if-else

if statement in C++

If the expression value is true then **body of if** will be executed and if expression value becomes false then **body of if** will be skipped and execution will go to the next statement,

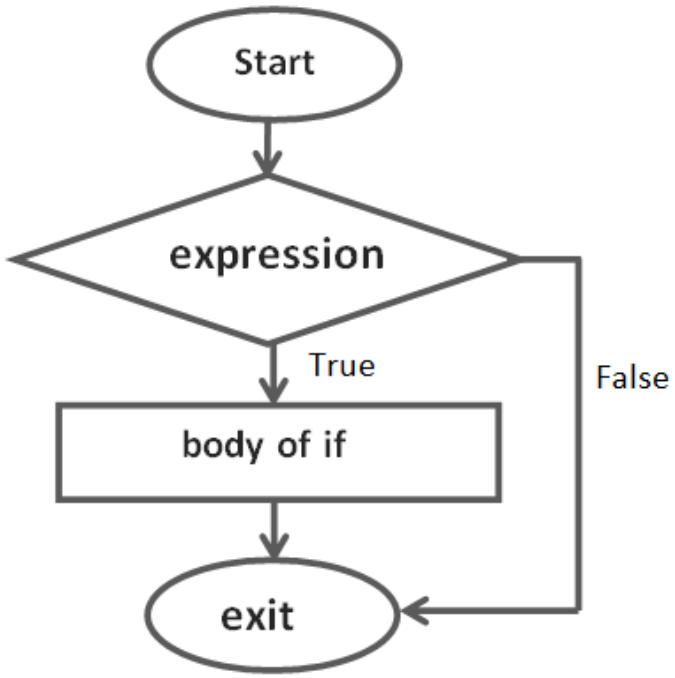
we can understand it with the help of the program given below

syntax

```
if(expression/condition)

  {

    body of if;

  }
```

if-statement flow diagram in C++

an if-statement flow diagram will make as follows,



Example of if statement in C++

In this program, we have been given the condition that **if** the user-input is less than 5, then the **body of if** will be executed.

```
#include<iostream>

using namespace std;

int main()

 {



  int x; // variable declaration



  cout<<"Enter number: ";

  cin>>x;



   if(x<5) // expression

    {

      cout<<"Given input is smaller than 5: "<<x; // Body of if

    }

return 0;
```

```
}
```

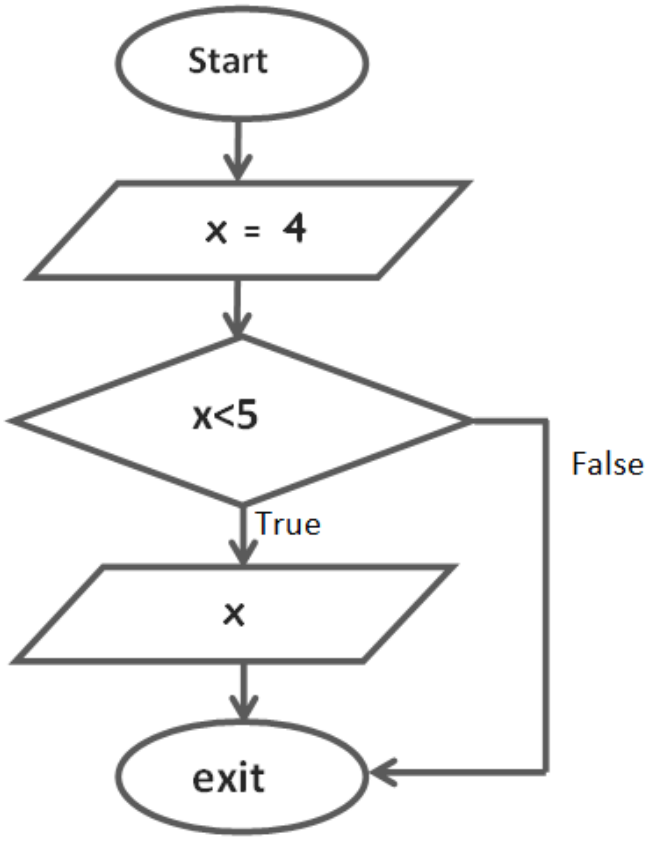
OUTPUT

```
Given input is smaller than 5: 4
```

Explanation

- In the program, input given by the user will be stored in variable **x**,
- And then expression value checks in the if statement. which is becoming true (4<5), so **body of if** will execute.

implementation of the nested if statement will as follows,



if-else statement in C++

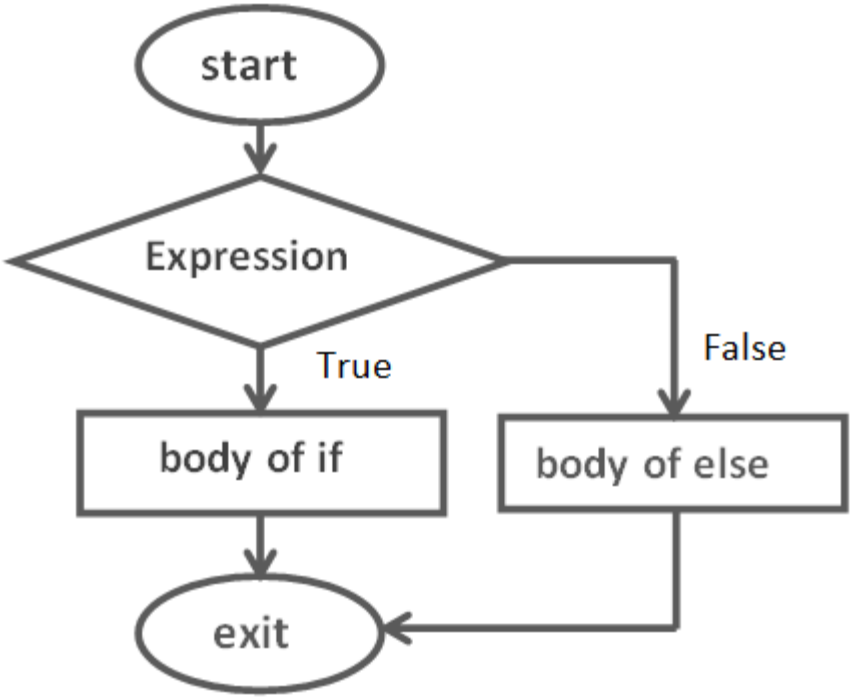
If the expression value is true so the **body of if** will be executed, and if it becomes false then the **body of else** (which can also be other **if-statement**) will be executed.

SYNTAX:

```
if(expression/condition)

  {

     body of if;

  }

else

  {

     body of else;

  }
```

if-else flow diagram in C++

Here is the Flow-diagram of the **if-else statement**,



Example of an if-else statement in C++

In this program, there we have gives the condition that if the given value by the user is less than 5 then the **body of if** will be executed and if it becomes false, then the **body of else** will be executed.

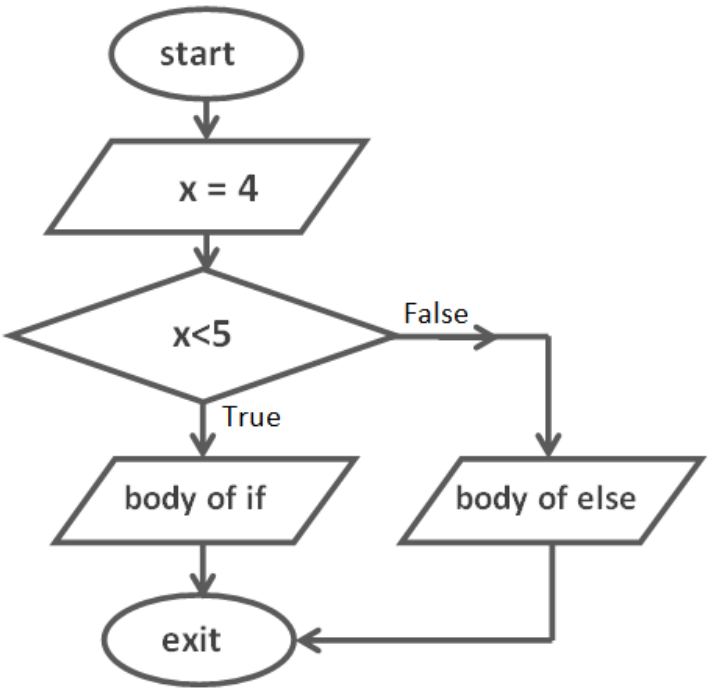
```
#include<iostream>

using namespace std;



int main()

 {
```

```
  int x; // variable declaration

  cout<<"Enter number: ";

  cin>>x;

    if(x<5) // expression

   {

     cout<<"number smaller then 5"; // body of if

   }

  else {

         cout<<"number greater then 5"; //body of else

      }

return 0;

}
```

OUTPUT

```
Enter number: 4

number smaller then 5
```

such as,



Let's try with another example,

creating a calculator using if-else in C++

```
#include<iostream>

using namespace std;

 int main()

 {

    int num1,num2; // variable declaration



   cout<<"Enter Two number: ";
```

```
   cin>>num1>>num2;

   char select;

   cout<<"select operation(+,-,*,/): ";

   cout<<select;

    if(select=='+')

            cout<<num1+num2;

     else if(select=='-')

            cout<<num1-num2;

     else if(select=='*')

            cout<<num1*num2;

     else if(select=='/')

            cout<<num1/num2;

  return 0;

 }
```

OUTPUT

```
Enter two number: 4 8




select operation(+,-,*,/): 12
```

above Program also made with switch statement- [creating a calculator using switch statement in C++]

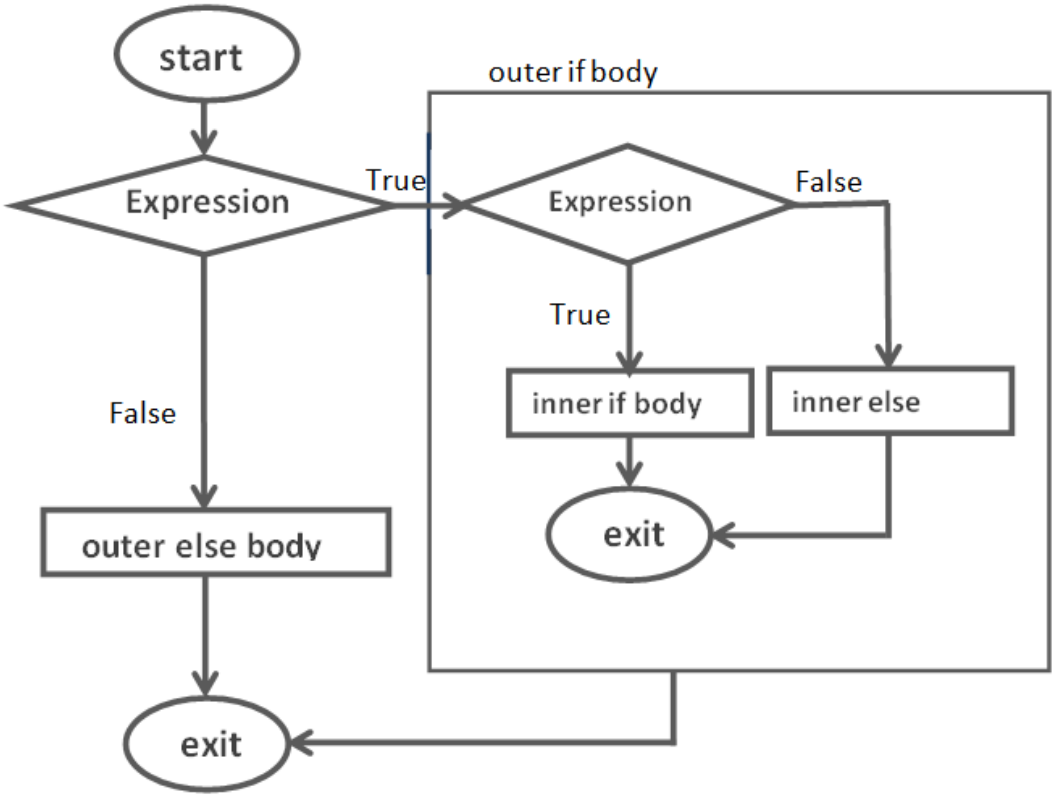
nested if-else statement in C++

when an **if statement** is the body of another **if statement** in the program then it's called a **nested if-else**.

```
if(expression)

  {

//outer if body

      if(expression)

         {

           body of if;  // inner if body

         }

      else

         {

            body of else  // inner else body

         }

   } // close outer if body

else

   {

       body of else // outer else body

   }
```

you can see above syntax of nested if-else in below flow daigram.

nested if-else flow diagram in C++



Explanation

In the nested if-statement, first **if-statement** (**outer-if statement**) body will be a second **if-statement** when in the **outer if-statement** expression becomes true then execution will go to the **inner if-statement** and if it becomes false then execution will go to **outer else body**.

inner if-statement will execute as normal **if-statement**. if the execution goes there.

Example of a nested if-else statement in C++

You can understand it below with the help of the program given below.

```
#include<iostream>


using namespace std;
```

```
 void main()

{

 int x;

  cout<<"Enter number: ";

  cin>>x;

  if(x<5) // outer if statement

  {

       // outer if body

     if(x<3) //inner if statement

      {

         cout<<"number greater than 3"; // inner if body

      }else {

               cout<<"number smaller than 3";//inner else body

             }

  }

 else{

      cout<<"outer else body execute"; // body of outer else

   }
```

```
  return 0;

}
```

OUTPUT

```
Enter number: 2

number greater than 3



Enter number: 5

Outer else body execute
```

Related Exercise

- Found out Negative or Positive number in C++
- Find out In Given number Even or Odd In C++
- Find the largest number in any three given number in C++
- real world examples