In C++, if else statements are used to perform conditional execution of statement(s). Based on the result of a condition, the decision to execute a block is taken.

In this tutorial, we shall learn the different forms of if else statement, their syntax with detailed explanation and examples for each of them.

In C++, If Else statement can occur in three forms. They are:

- If statement
- If-Else statement
- If-Else-If statement

### C++ If Statement

Following is the syntax of simple C++ If statement.

```cpp
if (condition) {
    // statement(s)
}
```

If the condition is true, the statement(s) inside if block are executed. If the condition is false, the statement(s) inside if block are not executed. In either of the cases, the execution continues with the subsequent statements after the completion of if statement.

### Flow Diagram

Following is the flow diagram of if statement in C++.
Example

Following is an example C++ program, where we use if statement to print a message only if the number is positive.

C++ Program

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

int main() {
    int a = 10;
    if (a>0) {
        cout << a << " is positive.";
    }
}
```

Output

```
10 is positive.
```

C++ If Else Statement

Following is the syntax of C++ If Else statement.

```cpp
if (condition) {
    // statement(s)
} else {
    // statement(s)
}
```

If the condition is true, the statement(s) inside if block are executed. If the condition is false, the statement(s) inside else block are executed. After the execution of either if block or else block, program execution continues with next statements after if-else statement.
Else block is optional. So, if you do not provide else block to an if block, it becomes a simple if statement. So, if-else could be considered as an extension to simple if statement.

Flow Diagram

Following is the flow diagram of if-else statement in C++.

![Flow Diagram of if-else Statement]

Example

In the following example C++ program, we use if-else statement to check if a number is positive or not.

C++ Program

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

int main() {
    int a = -10;
    if (a>0) {
        cout << a << " is positive."
    } else {
        cout << a << " is not positive."
    }
}
```

Output

```
-10 is not positive.
```
C++ If Else If Statement

Following is the syntax of C++ if-else-if statement.

```cpp
if (condition1) {
    // statement(s)
} else if (condition2) {
    // statement(s)
} else if (condition3) {
    // statement(s)
} else {
    // statement(s)
}
```

If condition1 is true, executes the statement(s) inside if block are executed. Else, the next condition in the else-if ladder is evaluated. The next condition is condition2. If the condition2 is true, the statement(s) inside corresponding else if block are executed. If condition2 is also false, condition3 is executed, and so on, until a condition is true. If no condition evaluates to true, then else block is executed.

Even in if-else-if statement, the last else block is optional.

Flow Diagram

Following is the flow diagram of if-else-if statement in C++.

Example

In the following example C++ program, we use if-else-if statement to check if a number is positive, negative or zero.
C++ Program

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

int main() {
    int a = -7;
    if (a>0) {
        cout << a << " is positive."
    } else if (a<0) {
        cout << a << " is negative."
    } else {
        cout << a << " is zero."
    }
}
```

Output

-7 is negative.

Conclusion

In this C++ Tutorial, we learned about different type of C++ If Else statement: simple If statement, if-else statement, if-else-if statement, with syntax, flow diagram and example for each one of them.
- C++ Break
- C++ Comments
- C++ Recursion
- C++ Try Catch
- C++ String Operations
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