C++ IF...ELSE STATEMENT

An if statement can be followed by an optional else statement, which executes when the boolean expression is false.

Syntax:
The syntax of an if...else statement in C++ is:

```cpp
if (boolean_expression)
{
    // statement(s) will execute if the boolean expression is true
} else
{
    // statement(s) will execute if the boolean expression is false
}
```

If the boolean expression evaluates to true, then the if block of code will be executed, otherwise else block of code will be executed.

Flow Diagram:

Example:

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

int main ()
{
    // local variable declaration:
    int a = 100;

    // check the boolean condition
    if( a < 20 )
    {
        // if condition is true then print the following
        cout << "a is less than 20;" << endl;
    }
    else
    {
```

```cpp
```
```cpp
// if condition is false then print the following
cout << "a is not less than 20;" << endl;
}
cout << "value of a is : " << a << endl;
return 0;
```

When the above code is compiled and executed, it produces the following result:

```
a is not less than 20;
value of a is : 100
```

**The if...else if...else Statement:**

An if statement can be followed by an optional else if...else statement, which is very useful to test various conditions using single if...else if statement.

When using if , else if , else statements there are few points to keep in mind:

- An if can have zero or one else's and it must come after any else if's.
- An if can have zero to many else if's and they must come before the else.
- Once an else if succeeds, none of the remaining else if's or else's will be tested.

**Syntax:**

The syntax of an if...else if...else statement in C++ is:

```cpp
if(boolean_expression 1)
{
    // Executes when the boolean expression 1 is true
}
else if( boolean_expression 2)
{
    // Executes when the boolean expression 2 is true
}
else if( boolean_expression 3)
{
    // Executes when the boolean expression 3 is true
}
else
{
    // executes when the none of the above condition is true.
}
```

**Example:**

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

int main ()
{
    // local variable declaration:
    int a = 100;

    // check the boolean condition
    if( a == 10 )
    {
        // if condition is true then print the following
        cout << "Value of a is 10" << endl;
    }
    else if( a == 20 )
    {
        // if else if condition is true
        cout << "Value of a is 20" << endl;
    }
    else
    {
        // executes when the none of the above condition is true.
    }
```
else if( a == 30 )
{
    // if else if condition is true
    cout << "Value of a is 30" << endl;
}
else
{
    // if none of the conditions is true
    cout << "Value of a is not matching" << endl;
}
cout << "Exact value of a is : " << a << endl;
return 0;

When the above code is compiled and executed, it produces the following result:

Value of a is not matching
Exact value of a is : 100