Condition is true

```
    int number = 5;

    if (number > 0) {
        // code
    }

    // code after if
```

Condition is false

```
    int number = 5;

    if (number < 0) {
        // code
    }

    // code after if
```

Example : C++ if Statement

// Program to print positive number entered by the user
// If the user enters a negative number, it is skipped

```cpp
#include <iostream>
using namespace std;
int main() {
  int number;
  cout << "Enter an integer: ";
  cin >> number;

  // checks if the number is positive
  if (number > 0) {
    cout << "You entered a positive integer: " << number << endl;
  }

  cout << "This statement is always executed.";

  return 0;
}
```

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Output 1

```
Enter an integer: 5
You entered a positive number: 5
This statement is always executed.
```

When the user enters `5`, the condition `number > 0` is evaluated to `true` and the statement inside the body of `if` is executed.

Output 2

```
Enter a number: -5
This statement is always executed.
```

When the user enters `-5`, the condition `number > 0` is evaluated to `false` and the statement inside the body of `if` is not executed.

The if ... else Statement

Use the `else` statement to specify a block of code to be executed if the condition is `false`.

Syntax

```
if (condition) {
  // block of code to be executed if the condition is true
} else {
  // block of code to be executed if the condition is false
}
```

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Condition is true

```
int number = 5;

if (number > 0) {
    // code
}
else {
    // code
}

// code after if...else
```

Condition is false

```
int number = 5;

if (number < 0) {
    // code
}
else {
    // code
}

// code after if...else
```

Example

```cpp
int time = 20;
if (time < 18) {
  cout << "Good day.";
} else {
  cout << "Good evening.";
}
// Outputs "Good evening."
```

Example explained

In the example above, time (20) is greater than 18, so the condition is `false`. Because of this, we move on to the `else` condition and print to the screen "Good evening". If the time was less than 18, the program would print "Good day".

Example : C++ if...else Statement

```cpp
// Program to check whether an integer is positive or negative
// This program considers 0 as a positive number

#include <iostream>
using namespace std;
int main() {
  int number;

  cout << "Enter an integer: ";
  cin >> number;

  if (number >= 0) {
    cout << "You entered a positive integer: " << number << endl;
  }
  else {
    cout << "You entered a negative integer: " << number << endl;
  }

  cout << "This line is always printed.";

  return 0;
}
```

Output 1

```
Enter an integer: 4
You entered a positive integer: 4.
This line is always printed.
```

Output 2

```
Enter an integer: -4
You entered a negative integer: -4.
This line is always printed.
```

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C++ if...else if …else statement

The `if...else` statement is used to execute a block of code among two alternatives. However, if we need to make a choice between more than two alternatives, we use the `if...else if...else` statement.

The syntax of the `if...else if...else` statement is:

```
if (condition1) {
  // code block 1
}
else if (condition2){
  // code block 2
}
else {
  // code block 3
}
```

1st Condition is true

```
int number = 2;
if (number > 0) {
    // code
}
else if (number == 0){
    // code
}
else {
    //code
}

//code after if
```

2nd Condition is true

```
int number = 0;
if (number > 0) {
    // code
}
else if (number == 0){
    // code
}
else {
    //code
}

//code after if
```

All Conditions are false

```
int number = -2;
if (number > 0) {
    // code
}
else if (number == 0){
    // code
}
else {
    //code
}

//code after if
```

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Example : C++ if…else if…else

// Program to check whether an integer is positive, negative or zero

```cpp
#include <iostream>
using namespace std;
int main() {

  int number;

  cout << "Enter an integer: ";
  cin >> number;

  if (number > 0) {
    cout << "You entered a positive integer: " << number << endl;
  }
  else if (number < 0) {
    cout << "You entered a negative integer: " << number << endl;
  }
  else {
    cout << "You entered 0." << endl;
  }

  cout << "This line is always printed.";

  return 0;
}
```

Output 1

```
Enter an integer: 1
You entered a positive integer: 1.
This line is always printed.
```

Output 2

```
Enter an integer: -2
You entered a negative integer: -2.
This line is always printed.
```

Output 3

```
Enter an integer: 0
You entered 0.
This line is always printed.
```

In this program, we take a number from the user. We then use the `if...else if...else` ladder to check whether the number is positive, negative, or zero.

If the number is greater than `0`, the code inside the `if` block is executed. If the number is less than `0`, the code inside the `else if` block is executed. Otherwise, the code inside the `else` block is executed.

Example : Check Whether Number is Even or Odd using if else

Integers that are perfectly divisible by 2 are called even numbers.

And those integers that are not perfectly divisible by 2 are not known as odd numbers.

To check whether an integer is even or odd, the remainder is calculated when it is divided by 2 using modulus operator **%**. If the remainder is zero, that integer is even if not that integer is odd.

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

int main() {
  int n;

  cout << "Enter an integer: ";
  cin >> n;

  if ( n % 2 == 0)
    cout << n << " is even.";
  else
    cout << n << " is odd.";

  return 0;
}
```

Output

```
Enter an integer: 23
23 is odd.
```

In this program, an `if..else` statement is used to check whether `n % 2 == 0` is `true` or not.

If this expression is `true`, `n` is even. Else, `n` is odd.

Example: write a C++ Program to Find Largest Number Among Three Numbers

In this program, the user is asked to enter three numbers.

Then this program finds out the largest number among three numbers entered by user and displays it with a proper message.

This program can be written in more than one way.

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

int main() {

    double n1, n2, n3;

    cout << "Enter three numbers: ";
    cin >> n1 >> n2 >> n3;

    // check if n1 is the largest number
    if(n1 >= n2 && n1 >= n3)
        cout << "Largest number: " << n1;

    // check if n2 is the largest number
    else if(n2 >= n1 && n2 >= n3)
        cout << "Largest number: " << n2;

    // if neither n1 nor n2 are the largest, n3 is the largest
    else
        cout << "Largest number: " << n3;

    return 0;
}
```

Output

```
Enter three numbers: 2.3
8.3
-4.2
Largest number: 8.3
```