

# Basic Operations in C++

Basic operations in C++ refer to the fundamental arithmetic, relational, and logical operations that can be performed using C++ programming language, which are essential for any kind of program or calculation in a real-world scenario.

Here's a summary of the basic operations in C++

## Arithmetic Operations

These operations are used for performing calculations in C++ and include the following:

- Addition (+): Adds two numbers.

```
int a = 5;
int b = 6;
int sum = a + b; // sum is 11
```

- Subtraction (-): Subtracts one number from the other.

```
int a = 10;
int b = 6;
int diff = a - b; // diff is 4
```

- Multiplication (\*): Multiplies two numbers.

```
int a = 3;
int b = 4;
int product = a * b; // product is 12
```

- Division (/): Divides one number by another, yields quotient.

```
int a = 12;  
int b = 4;  
int quotient = a / b; // quotient is 3
```

- Modulus (%): Divides one number by another, yields remainder.

```
int a = 15;  
int b = 4;  
int remainder = a % b; // remainder is 3
```

## Relational Operators

These operations compare two values and return a boolean value (true/false) depending on the comparison. The relational operations are:

- Equal to (==): Returns true if both operands are equal.

```
5 == 5 // true  
3 == 4 // false
```

- Not equal to (!=): Returns true if operands are not equal.

```
5 != 2 // true  
1 != 1 // false
```

- Greater than (>): Returns true if the first operand is greater than the second.

```
5 > 3 // true
```

```
2 > 3 // false
```

- **Less than (<):** Returns true if the first operand is less than the second.

```
3 < 5 // true
```

```
6 < 5 // false
```

- **Greater than or equal to (>=):** Returns true if the first operand is greater than or equal to the second.

```
5 >= 5 // true
```

```
6 >= 2 // true
```

```
3 >= 4 // false
```

- **Less than or equal to (<=):** Returns true if the first operand is less than or equal to the second.

```
4 <= 4 // true
```

```
2 <= 3 // true
```

```
5 <= 4 // false
```

## Logical Operators

Logical operators are used for combining multiple conditions or boolean values.

- **AND (&&):** Returns true if both operands are true.

```
true && true // true
```

```
true && false // false
```

- **OR (||):** Returns true if any one of the operands is true.

```
true || false // true  
false || false // false
```

- NOT (!): Returns true if the operand is false and vice versa.

```
!true // false
```

```
!false // true
```