

Programming

Prefix and Postfix Operators

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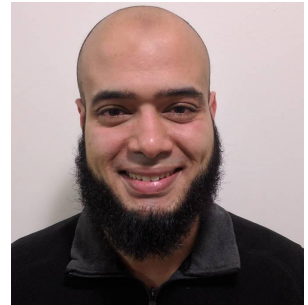
Teaching, Training and Coaching for more than a decade!

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++ Operator (Increment Operator)

```
int a, b;

// ++a: prefix increment: increment then assign
a = 10;
b = ++a;
cout << a << " " << b << "\n"; // 11 11

a = 10;
cout << ++a << "\n"; // 11

// a++: postfix increment: assign then increment
a = 10;
b = a++;
cout << a << " " << b << "\n"; // 11 10

a = 10;
cout << a++ << "\n"; // 10

a = 10;
cout << (a++) << "\n"; // 10

a = 10;
cout << a++ + ++a << "\n"; // undefined
```

- ++ is another **unary** operator
 - **Prefix operator:** ++x
 - Pre = before
 - Increments x first, then assigns this value to the right hand side
 - **Postfix operator:** x++
 - Post = after
 - Assigns the value to the right hand side first, **and then** increments it
- Your turn:
 - int a = 5, b = 10;
 - cout<<a + 5 + b;
 - cout<<++a + 5 + b++;

++ Operator (Increment Operator)

- What's the problem with this expression? `g + ++g`
- Don't code like that. This is **undefined behaviour**
 - `X + Y`: there's no defined order as to whether X or Y is evaluated first.
- Tips
 - Don't overuse this operator!
 - Avoid using it in complex expressions
 - Does your expression use any **one variable** more than once?
 - Don't use ++ on that variable!
 - The best usage:
 - `++x;`
 - `Int temp = x++;`

-- Operator (Decrement Operator)

```
int a, b;

// --a: prefix decrement: decrement then assign
a = 10;
b = --a;
cout << a << " " << b << "\n"; // 9 9

a = 10;
cout << --a << "\n"; // 9

// a--: postfix decrement: assign then decrement
a = 10;
b = a--;
cout << a << " " << b << "\n"; // 9 10

a = 10;
cout << a-- << "\n"; // 10

a = 10;
cout << (a--) << "\n"; // 10

a = 10;
cout << a-- + --a << "\n"; // undefined
```

- The same concept as ++
 - It decrements the value of a variable

“Acquire knowledge and impart it to the people.”

“Seek knowledge from the Cradle to the Grave.”