Lecture 5

Increment and Decrement Operators

An increment or decrement operator that is postfixed to (placed after) a variable is referred to as the ***postfix increment*** or ***postfix decrement operator***, respectively.

Operator	Called	Sample expression	Explanation
++	Pre-increment	++a	Increment a by 1, then use the new value of a in the expression in which a resides.
++	Post-increment	a++	Use the current value of a in the expression in which a resides, then increment a by 1.
--	Pre-decrement	--b	Decrement b by 1, then use the new value of b in the expression in which b resides.
--	Post-decrement	b--	Use the current value of b in the expression in which b resides, then decrement b by 1.

Difference between ++a and a++

a=3;
X=++a;
X=4;
a=4;
	a=3;
	X=a++;
	X=3;
	a=4;

Example pre-increment

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


int main()
{
int x,i;
i=10;
x=++i;
cout<<"x: "<<x;
cout<<"i: "<<i;
return 0;

}
```

Output

```
x: 11

i: 11
```

Example post-increment

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

int main()
{
int x,i;
i=10;
x=i++;
cout<<"x: "<<x;
cout<<"i: "<<i;
return 0;
}
```

Output

```
x: 10

i: 11
```

Example pre-decrement

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

Int main()
{
int x,i;
i=10;
x=--i;
cout<<"x: "<<x;
cout<<"i: "<<i;
return 0;
}
```

Output

```
x: 9

i: 9
```

Example post-decrement

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


int main()
{
int x,i;
i=10;
x=i--;
cout<<"x: "<<x;
cout<<"i: "<<i;
return 0;
}
```

Output

```
x: 10

i: 9
```

Example

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


int main()
{
int x,a,b,c;
a = 2;
b = 4;
c = 5;
x = a-- + b++ - ++c;
cout<<"x: "<<x;
return 0;
}
```

Output

```
x: 0
```

Assignment Operators

Assignment operators	Sample expression	explanation
+=	c+=7	c=c+7
-=	d-=4	d=d-4
*=	e*=5	e=e*5
/=	f/=3	f=f/3
%=	g%=12	g=g%12

Example

```
#include <iostream>
using namespace std;
int main() {
   int a = 3, b = 6, d = 0xAAAA, e = 0x5555;

   a += b;       // a is 9
   b %= a;       // b is 6
```

```
   d |= e;       // Bitwise--d is 0xFFFF

   cout  << "a = 3, b = 6, d = 0xAAAA, e = 0x5555" << endl;
         << "a += b yields " << a << endl;
         << "b %= a yields " << b << endl;
         << "d |= e yields " << hex << d << endl;
return 0;
}
```