COL 100 Lecture 4

Note Title 8/2/2018

Review

C++ cout << expr << expr... <<expr;

hello world.

```
#include <iostream>
using namespace std;
int main()
{
    int age = 20;
    cout << "Hello, world" << endl;
    cout << "Your age is " << age << endl;
    return 0;
}
```

```
int age;
age = 20;
```

Types

int ... -1, 0, 1, 2, 3 ...

double 2.0, 3.1, ...

char 'a' ... 'z', 'A' ... '9', '\n', '\t', ...

bool true false

Tab

Related Arithmetic operators

```
1 + 2
1 * 2
1 - 2
1 / 2    :  0
```

```
1.0 + 2.0   :  3.0

1.0 / 2.0   :  0.5
```

double/double:
int/int : double
int/double:
double

```
1 + 2.0   : 3.0

1 / 2.0   : 0.5
1.0 / 2   : 0.5
```

In general:
value of the more "expressive" type is returned

```
int z;
z = 10;
cout << z+1 << endl;
z++;
cout << z++ << endl
```

post-increment

error ✓
warning ✓
0
z
random value ✓
1

10 11
11 22

post-increment operator

```
z = 10
cout << z++ << endl
```

returns old value of z
updates value in z to z+1

10

pre-increment operator . ++z;

updates value in z to z+1,
returns new value of z

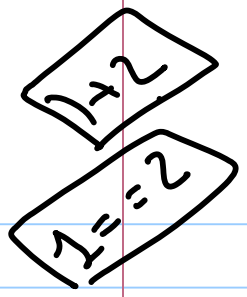
```
int z=0;
cout << z++ << endl;
cout << (++z) + 1 << endl;
```

0 1

2

`--` decrement

```
z--;
--z;
```



Relational operators

a == b : true or false : bool

a != b : bool

a < b : bool

a > b : bool

a <= b

a >= b

x123

```
int x = 3;
int y = 4;
bool x = false;
bool z = (x == y);
int a = x+y;
```

x error

x = y; → assignment

z = z + 1

1 = y; error

1 = 2; error

1 == 2;

int x = 3;
int y = 4;

x = x + y; ✓
cout << x << endl
~~int x = x + y;~~ ✗

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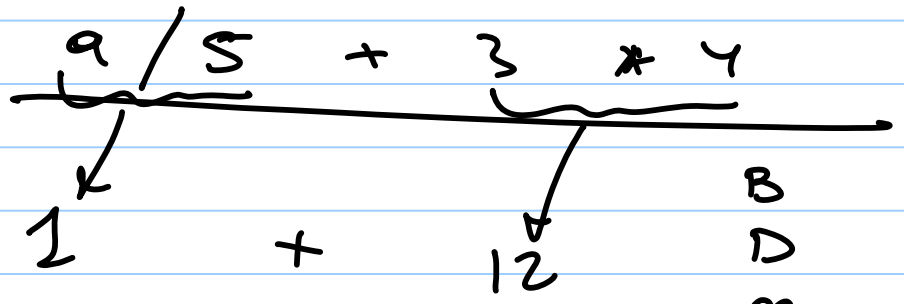
we will assume this is
bool z = int (x == 0) // type error

z = (x != 0);

Precedence



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Relational Operators

arithmetic operators

$9 + (3 \geq 0) * 2 - 1 * 4$ ✗

arithmetic ops
relational ops