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', '0', .. '9', '\n', '\t', ...
bool	true false

Tab

~~Relat~~ Arithmetic operators

1 + 2

1 * 2

1 - 2

<u>1</u> <u>/</u> <u>2</u> : 0

1.0 + 2.0 : $\underline{\underline{3.0}}$

1.0/2.0 : 0.5

double/double: double

int/int : int

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

---

post-increment

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

error ✓

warning ✓

0

z ✓

random value

1

---

10 11

12 ~~10~~ 22

post-increment operator

z = 10

cout << z++ << endl

returns old value of z
updates values 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++ +1 << endl;
→cout << ++z +1 << endl;
```

~~0~~ 1

~~2~~ 3

-- decrement

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

$\boxed{1+2}$

$\boxed{1==2}$

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 = (x == y); X error

int a = x + y;

x = y; assignment

1 = y; error

1 = 2; error

1 == 2;

Z = Z + 1

```
int  x = 3;
int  y = 4;

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

7
                int                 we will assume this is
bool z = x; (x==0) // type error

     z = (x!=0);
```

Precedence

$$\underbrace{9 / 5} + \underbrace{3 * 4}$$

$$1 + 12$$

$$13$$

B
D
M
A/S

Relational operators

arith metic operat

$\underbrace{9 + (3 \geq 0)}\underbrace{* 2 \quad - 1 * 4}$ X

arithmetic ops
relational ops