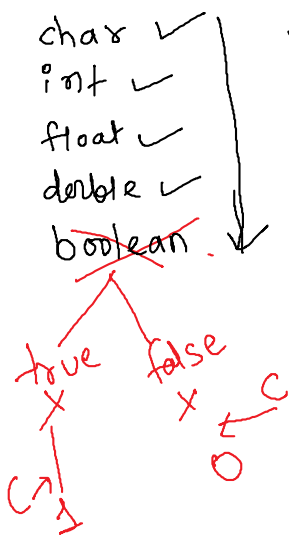


Operators
If else..

1. Arithmetic Operators + - / * %
- ✓ 2. Relational Operators > < >= <= == !=
- ✓ 3. Logical Operators && || !
- ✓ 4. Unary Operators + - ++ -- sizeof * & -> .
5. Conditional/Ternary Operators ? :
6. Bitwise Operators & | ^ << >> ~
7. Assignment Operator =
8. Special Operators , (comma) () []
9. Shorthand Operators += -= *= /= %=
10. &= |= ^= <<= >>= ~=

$2 + (3 * 5)$



signed
unsigned

-10 non zero - 1
15 non zero - 1
0 zero - 0

double int
23.45 + 2
double

0 ... 4 2 9 4 9 6 7 2 9 5

$(2 + (3 * 5))$ here * has more precedence than +

1. precedence

2. Associativity
left to right

int x;

x = 5; — right to left

signed > unsigned
signed + unsigned
implicitly unsigned
-5 -
4 2 9 4 9 6 7 2 9 1 < 5
= 0

95-
94
93
92
91

logical operators

&& is binary

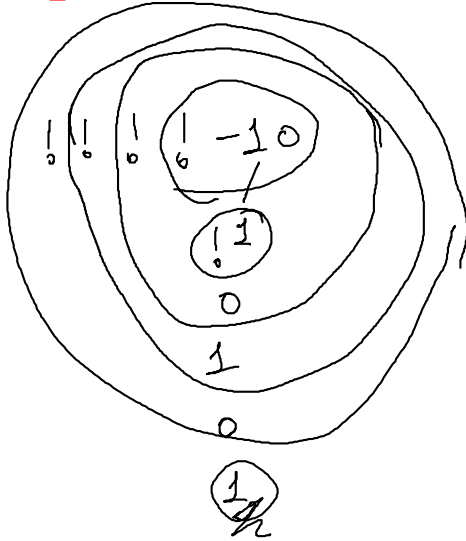
$$\langle \text{exp1} \rangle \&\& \langle \text{exp2} \rangle = \langle \text{result} \rangle$$

$$1 \&\& 0 = 0$$

$$0 \&\& 1 = 0$$

$$0 \&\& 0 = 0$$

$$1 \&\& 1 = 1$$



$$\langle \text{exp1} \rangle \parallel \langle \text{exp2} \rangle = \langle \text{result} \rangle$$

$$1 \parallel 0 = 1$$

$$0 \parallel 1 = 1$$

$$0 \parallel 0 = 0$$

$$1 \parallel 1 = 1$$

Unary operator ++ / --

Can be applied pre or post to the operand

++a a=a+1

a++ a=a+1

--a a=a-1

a-- a=a-1

$$\begin{array}{l} a=3 \\ a=2 \quad b=3 \\ (+a) > b \\ 3 > 3 \\ 0 \end{array}$$

$$\begin{array}{l} a=3 \\ a=2 \quad b=3 \\ (a++) > b \\ 2 > 3 \\ 0 \end{array}$$

- ✓ 1. associate
- ✓ 2. increment/decrement
- ✓ 3. relational checks

$$2 + (3 * 5)$$

① $a++ \parallel (+b \&\& c++)$
 $\&\&$ logical operator has more precedence than \parallel

$$-10 \parallel$$

$$1 \parallel <\text{skip}>$$

② $(c++ \&\& ++b) \parallel a++$

$$(0 \&\& <\text{skip}>)$$

$$0 \parallel a++$$

$$0 \parallel -10$$

$$0 \parallel 1$$

$$1$$

```
int main()
{
    int a=-10, b=3, c=0, d;
    d = a++ || ++b && c++;
    printf("a=%d b=%d c=%d d=%d\n", a, b, c, d);
    a=-10, b=3, c=0, d;
    d = (c++ && ++b) || a++;
    printf("a=%d b=%d c=%d d=%d\n", a, b, c, d);
}
```

if...else
switch case

