Decisions I

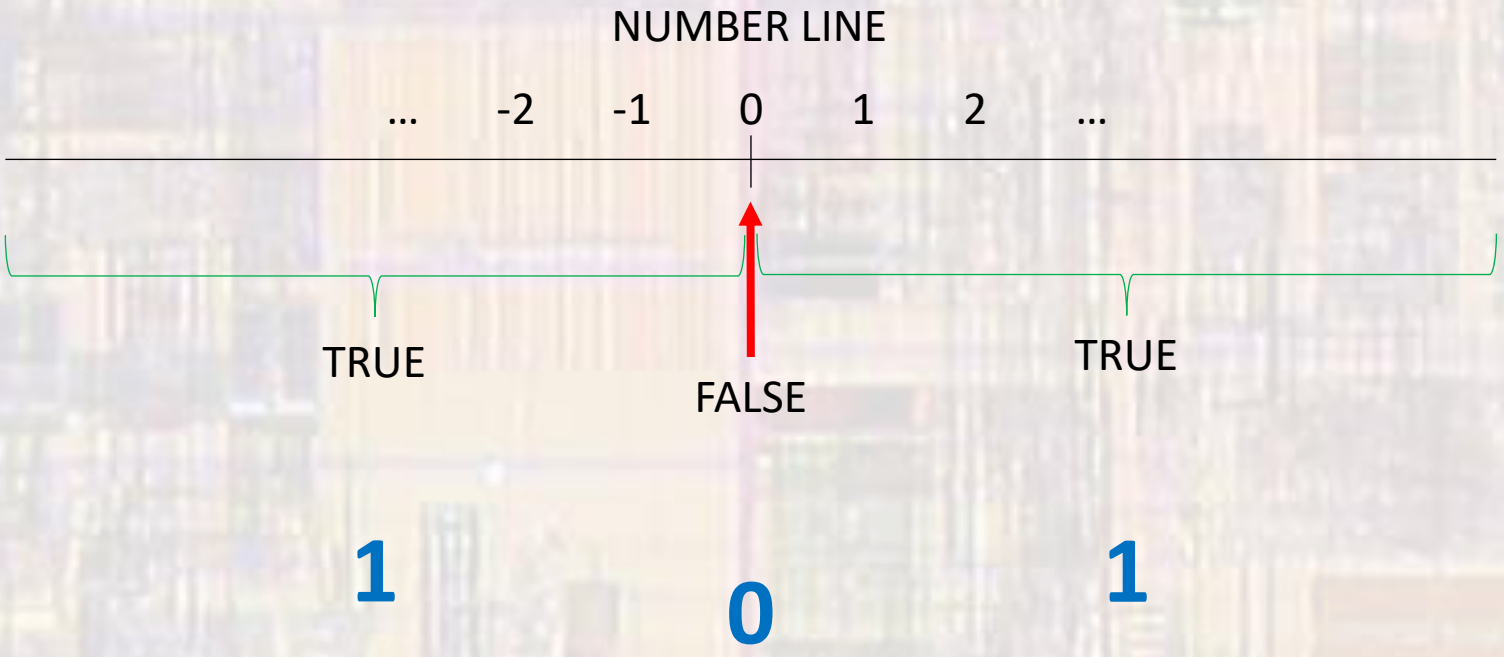
Last updated 10/29/20

Statements

- These slides introduce the basics of making descisions
- Upon completion: You should be able interpret and code using these basic elements

Decisions

- Logic in C



Decisions

- Logical Operators
  - NOT: !
    - !foo
  - AND: &&
    - foo && boo
  - OR: ||
    - foo || boo

Decisions

- Logical Operators

```
int foo;
float boo;
char soo;
foo = 1;
boo = -2.3;
soo = ‘a’;


!foo
!boo

foo && boo
!foo && soo

boo || soo
foo || !soo
!(foo && !boo)
```

Decisions

- Logical Operators

```
int foo;
float boo;
char soo;
foo = 1;
boo = -2.3;
soo = 'a';
```

!foo	0
!boo	0
foo && boo	1
!foo && soo	0
boo || soo	1
foo || !soo	1
!(foo && !boo)	1

Decisions

- Evaluating Logical Expressions
  - Computer languages use one of two methods to evaluate logical expressions
  - Complete Evaluation
    - The entire expression is evaluated in all cases
  - Short Circuit Evaluation
    - As soon as possible the result is determined – all the remainder of the expression is ignored
  - C uses short circuit evaluation

Decisions

- Evaluating Logical Expressions
  - Short circuit evaluation

foo || boo → stop evaluating if foo is true

foo || boo++ → boo never gets incremented if foo is true

True || anything → true
False && anything → false

Decisions

- Comparative Operators
  - Relational

    < > <= >=
  - Comparative

    == !=
  - Relational have higher precedence than Comparative

A == B < C → A == (B < C)

Decisions

- Two way decisions