Conditionals

What are Conditionals?

Conditional: subject to one or more conditions or requirements being met; made or granted on certain terms. -Google

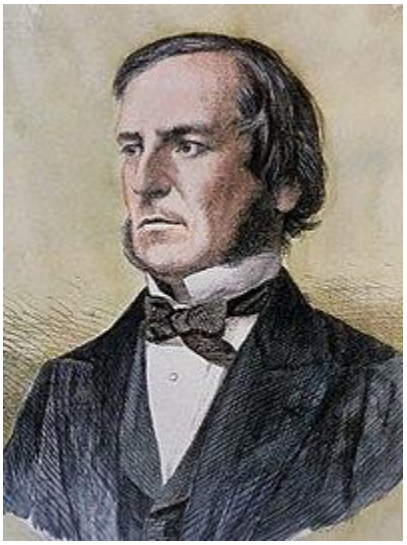
In the context of coding, conditionals are meant to execute different code when different conditions are met. This allows the programmer to make more versatile code. Given different arguments the same program can execute in very different and unique ways.

Ex.

```
public static void foo(boolean nukeAustin){
    if(nukeAustin){
        callNorthKorea();
    } else {
        doNothing();
    }
}
```

How are Conditionals executed?

Boolean evaluation!



George Boole: made Boolean Algebra

if and else if statements have parameters with one argument, a boolean. When that argument is true code encapsulated by that if statement is run. booleans are any truth value. Furthermore we can create statements that produce booleans *dynamically* given the following operators: >, >=, <, <=, ==, and !=

Ex:

```
if(a > b){              //we don't know what a or b are, but we know that whatever code
   <some code>          //is in the curly braces will only execute if a is greater than b
}
```

Scanners

Setup

Magic:

Scanner sc = new Scanner(System.in);

Do we care about magic? No! We now have this magical item stored in a variable called sc. With sc (or whatever you want to call it) we can finally make programming INTERACTIVE.

Tokens

Quick/Necessary aside

Tokens: small elements that can be recognized when reading input. This definition is sufficient for now, but not complete.

Delimiters: The separator between tokens.

Ex:

Say we set the delimiter to 'e' for a given string "catsearecool".

There are 3 String tokens:

"cats"

"ar"

"cool"

Methods

next(), nextLine(), nextInt(), hasNext(), hasNextInt()

next: delimiter is ‘ ‘ and ‘\n’, token is String

nextLine: delimeter is ‘\n’, token is String

nextInt: delimeter is non-ints, token is String

hasNext(): return boolean true if there is another token in Scanner path.

hasNextInt(): see hasNext()

If, if vs if, else if vs if, else

1) Scanning through a String and storing consonants

2) putting lions in one cage and zebras in another

3) giving 4 legged animals a bath and striped animals candy

4) giving lions food and giving other animals water

5) multiplying odd numbers by 2

6) multiplying odds by 3 and adding 1 to evens

Coding prompts

skeleton:

```
public foo{
   public static final int VAR = 1;
    public static void main(String[] args){
          <your code>
    }
    <your methods>
}
```

1. print out if your variable is odd or even.
2. print out if your variable is positive
3. print out the square of even numbers and the square root of odd numbers
4. in 1 println print out “this is odd”, “this is even”, or “this is 3” accordingly