Control Flow & Logical Operators

Our Goals

- Be able to talk about the execution of a program
- Be able to structure a program using control flow statements
- Identify and use both comparison and logical operators effectively

Execution of a program

Conditionals

- Conditional statements execute or skip parts of a program based on the value of an expression
- These are the decision points of your code, or the "branches"
- You use them to "ask a question" about some data your program is working with, and
  - Do something when the answer is "true"
  - Do something else when the answer is "false"
- They rely quite heavily on boolean(ish) values

The if Statement

- This is the fundamental control statement that allows Javascript to make decisions
- This is roughly how it works

```
if( expression ){
    // statement(s)
}

if( true ){
    console.log( "This will run" );
}

if( false ){
    console.log( "This won't" );
}
```

The If Statement

```
if( expression ){
    // statement(s)
} else {
    // statement(s)
}

if( true ){
    console.log( "This will run" );
} else {
    console.log( "This won't" );
}

if( !false ){
    console.log( "The opposite is true" );
}
```

Comparison Operators

Operator	Meaning	Examples
==	Equality	4 == "4";
===	Strict Equality	42 === 42;
!=	Inequality	1 != "5";
!==	Strict Inequality	8 !== 2;
>	Greater than	6 > 4;
>=	Greater than or equal to	84 >= 84;
<	Less than	1 < 9;
<=	Less than or equal to	11 <= 12;

Equality vs. Strict Equality

That is, a comparison between **==** and **===.**

Always use threequals!

GOTCHA: Remember that one equals sign means assignment! Don't use it in an 'if' condition.

Logical Operators

Operator	Meaning	Examples
&&	AND	1 === 1 && 2 === 2
||	OR	true || false
!	NOT	!false

The If Statement

```
if ( 5 > 4 ) {
    console.log( "Yes, it is!" );
}

var myNumber = 42;
if ( myNumber === 42 ) {
    console.log( "Equal" );
}

if ( 3 >= 2 && 7 === 7 ) {
    console.log( "Yep" );
}

if ( false || true ) {
    console.log( "Yep" );
}
```

The else Statement

```
var age = 42;

if ( age >= 18 ) {
    console.log( "You can vote" );
} else {
    console.log( "You can't" );
}
```

More complex if statements

```
if ( someCondition ) {

} else if ( someOtherCondition ) {

} else {
  // This runs if none of the above
  // conditions were true.. a "catch-all"
}

if ( 4 === 3 ) {
    console.log( "First statement" );
} else if ( 42 !== 42 ) {
    console.log( "Second statement" );
} else {
    console.log( "Third statement" );
}
```

More complex if statements

```
var age = 42;

if (age >= 35) {
    console.log('You can vote AND hold any place in government!');
} else if (age >= 25) {
    console.log('You can vote AND run for the Senate!');
} else if (age >= 18) {
    console.log('You can vote!');
} else {
    console.log('You have no voice in government!');
}
```

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Have a crack at these exercises

This is your homework