Boolean Logic

True, False, and Beyond

Boolean Logic

- Everything starts with the idea that a statement is either True or False

- Then we can combine those initial statements to create more complex statements that also evaluate to True or False

Comparison Operators

Assuming x = 5

Operator	Name	Example	Result
>	Greater than	x > 10	false
>=	Greater than or equal to	x >= 5	true
<	Less than	x < -50	false
<=	Less than or equal to	x <= 100	true
==	Equal to	x == "5"	true
!=	Not equal to	x != "b"	true
===	Equal value and type	x === "5"	false
!==	Not equal value or equal type	x !== "5"	true

Equality Operators

== vs. ===

```
var x = 99;

x == "99"  //true

x === "99" //false


var y = null;

y == undefined //true

y === undefined //false
```

"==" performs *type coercion*, while "===" does not

A Few Interesting Cases

```
true == "1"          //true

0 == false           //true

null == undefined    //true

NaN == NaN           //false
```

Logical Operators

AND, OR, and NOT

Operator	Name	Example	Result
&&	AND	x < 10 && x !== 5	false
||	OR	y > 9 || x === 5	true
!	NOT	!(x === y)	true

Assuming x = 5 and y = 9

Exercise 1

```
var x = 10;
var y = "a"

y === "b" || x >= 10
```

Exercise 2

```
var x = 3;
var y = 8;

!(x == "3" || x === y) && !(y != 8 && x <= y)
```

Truthy and Falsy Values

Values that aren't actually *true* or *false*, are still inherently "truthy" or "falsey" when evaluated in a boolean context

Try These Examples:

```
!"Hello World"

!""

!null

!0

!-1

!NaN
```

Truthy and Falsy Values

Falsy Values:

- false
- 0
- ""
- null
- undefined
- NaN

Everything Else Is Truthy

Exercise 3

```
var str = ""
var msg = "haha!"
var isFunny = "false"

!(( str || msg ) && isFunny)
```