Working with Logical Operators and Short-circuit Evaluation



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Module Goals



True and false values

- Known as 'truthy' and 'falsy'

Learn logical operators

- And, Or, and Not

Short circuiting



True and False

Any variable with a value ("Hey", 10, etc.) or a Boolean true is 'true'

Any variable = false, null, undefined, NaN, "" is 'false'



Demo



Truthy and falsy



Logical Operators

Operator

Example

```
And (&&)
```

Or (||)

Not (!)

```
price > 10 && price < 1600;
```

```
price > 10 || price < 1400;
```

!(price > 10);



Demo



Logical operators



Short Circuiting

Optimization for logical expressions

Bypasses subsequent expressions in && or || based on truthy or falsy



Short Circuiting (&&)

```
result = isColorRed("Black") && isGreaterThan1400(1401);
                                 When using the AND
                                 operator, both sides
                                 must return true for the
                                 expression to be true.
function isColorRed(value) {
  return value === "Red";
function isGreaterThan1400(value) {
  return value > 1400;
```

Short Circuiting (&&)

```
result = isColorRed("Black") && isGreaterThan1400(1401);
                               Since this function
                               returns false, the
                               isGreaterThan1400()
                               function never runs.
function isColorRed(value)
  return value === "Red";
function isGreaterThan1400(value) {
  return value > 1400;
```

Short Circuiting (||)

```
result = isColorRed("Red") || isGreaterThan1400(1401);
```

When using the OR operator, all sides must return true for the expression to be true.



Demo



Short circuiting



Order of Precedence

Grouping (())

Not (!)

Multiplication (*)

Division (/)

Modulus (%)

Addition (+)

Subtraction (-)

Less than (<)

Less than or equal (<=)

Greater than (>)

Greater than or equal (>=)

Equal (=)

Not equal (!=)

Strict equal (===)

Strict not equal (!==)

And (&&)

Or (||)

Assignment (=)



Summary



True is...

- Boolean true
- Variable that has a value

False is...

- false, null, undefined, NaN and ""

Logical operators (And, Or, and Not)

- Helps you make complicated decisions

Remember short circuiting

- Determines if a function runs





Coming up in the next module...

Exception handling try...catch finally

