

# Conditionals

## Control Flow

Control flow is the order in which statements are executed in a program. The default control flow is for statements to be read and executed in order from left-to-right, top-to-bottom in a program file.

Control structures such as conditionals ( `if` statements and the like) alter control flow by only executing blocks of code if certain conditions are met. These structures essentially allow a program to make decisions about which code is executed as the program runs.

## `if` Statement

An `if` statement accepts an expression with a set of parentheses:

- If the expression evaluates to a truthy value, then the code within its code body executes.
- If the expression evaluates to a falsy value, its code body will not execute.

```
const isMailSent = true;

if (isMailSent) {
  console.log('Mail sent to recipient');
}
```

## `else` Statement

An `else` block can be added to an `if` block or series of `if - else if` blocks. The `else` block will be executed only if the `if` condition fails.

```
const isTaskCompleted = false;

if (isTaskCompleted) {
  console.log('Task completed');
} else {
  console.log('Task incomplete');
}
```

## Logical Operator `!`

The logical NOT operator `!` can be used to do one of the following:

- Invert a Boolean value.
- Invert the truthiness of non-Boolean values.

```
let lateToWork = true;
let oppositeValue = !lateToWork;

console.log(oppositeValue);
// Prints: false
```

In JavaScript, values evaluate to `true` or `false` when evaluated as Booleans.

- Values that evaluate to `true` are known as *truthy*
- Values that evaluate to `false` are known as *falsy*

Falsy values include `false`, `0`, empty strings, `null`, `undefined`, and `NaN`. All other values are *truthy*.

## Comparison Operators

Comparison operators are used to comparing two values and return `true` or `false` depending on the validity of the comparison:

- `===` strict equal
- `!==` strict not equal
- `>` greater than
- `>=` greater than or equal
- `<` less than
- `<=` less than or equal

```
1 > 3           // false
3 > 1           // true
250 >= 250      // true
1 === 1         // true
1 === 2         // false
1 === '1'       // false
```

## else if Clause

After an initial `if` block, `else if` blocks can each check an additional condition. An optional `else` block can be added after the `else if` block(s) to run by default if none of the conditionals evaluated to *truthy*.

```
const size = 10;

if (size > 100) {
  console.log('Big');
} else if (size > 20) {
  console.log('Medium');
} else if (size > 4) {
  console.log('Small');
} else {
  console.log('Tiny');
}

// Print: Small
```

## Logical Operator &&

The logical AND operator `&&` checks two values and returns a boolean. If *both* values are *truthy*, then it returns `true`. If one, or both, of the values is *falsy*, then it returns `false`.

```
true && true;           // true
1 > 2 && 2 > 1;          // false
true && false;           // false
4 === 4 && 3 > 1;        // true
```

## Logical Operator ||

The logical OR operator `||` checks two values and returns a boolean. If one or both values are *truthy*, it returns `true`. If both values are *falsy*, it returns `false`.

A	B	A    B
false	false	false
false	true	true
true	false	true
true	true	true

```
true || false;           // true
10 > 5 || 10 > 20;        // true
false || false;           // false
10 > 100 || 10 > 20;      // false
```

## switch Statement

The `switch` statements provide a means of checking an expression against multiple `case` clauses. If a case matches, the code inside that clause is executed.

The `case` clause should finish with a `break` keyword. If no case matches but a `default` clause is included, the code inside `default` will be executed.

**Note:** If `break` is omitted from the block of a `case`, the `switch` statement will continue to check against `case` values until a `break` is encountered or the flow is broken.

```
const food = 'salad';

switch (food) {
  case 'oyster':
    console.log('The taste of the sea 🍤');
    break;
  case 'pizza':
    console.log('A delicious pie 🍕');
    break;
  default:
    console.log('Enjoy your meal');
}

// Prints: Enjoy your meal
```

## Ternary Operator

The ternary operator allows for a compact syntax in the case of binary (choosing between two choices) decisions.

It accepts a condition followed by a `?` operator, and then two expressions separated by a `:`. If the condition evaluates to truthy, the first expression is executed, otherwise, the second expression is executed.

```
let price = 10.5;
let day = "Monday";

day === "Monday" ? price -= 1.5 : price += 1.5;
```