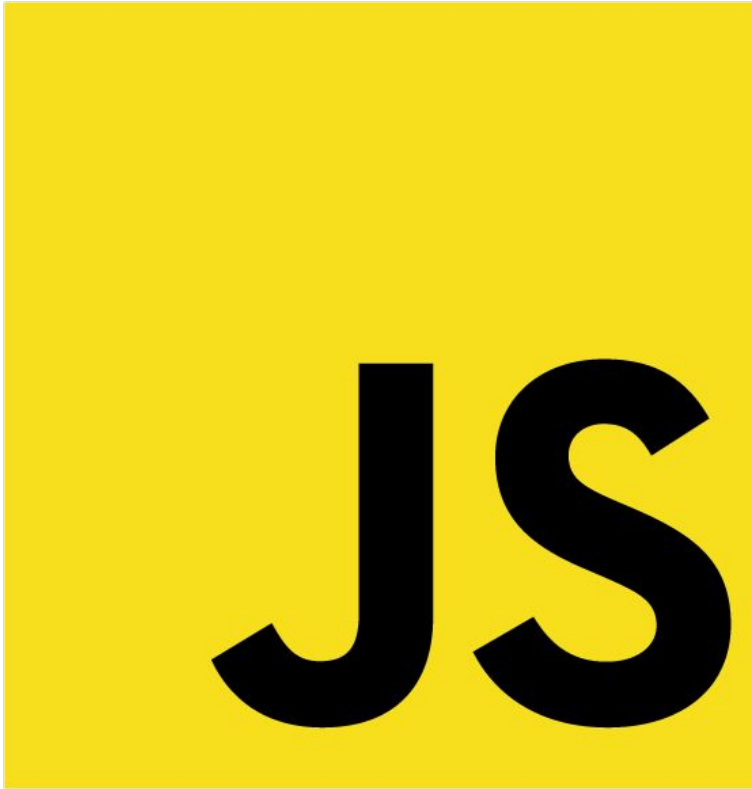# JavaScript

JS

What is JS?

- JavaScript is a scripting language that enables you to create dynamically updating content, control multimedia, animate images, and pretty much everything else.

  JavaScript was invented by Brendan Eich in 1995 for Netscape (in 10 days). With a need to standardize JS, ECMA released ES1, the first official standard for JS.

  ECMA is a standard and JS is the language in practice.

 Java is to JavaScript as Car is to Carpenter.

Why is JS?

(- Drax, probably!)

While HTML is used to create the structure of the web page and control the layout of the content, and CSS is used to stylize the web page & handle its look and feel, **JavaScript** is used to control the functionality of the web page and manipulate the DOM.

JavaScript can also dynamically insert, update and delete elements in the DOM.

Back in the days of CRT monitors, JS was only used for client side scripting, but nowadays, it is also used for server side scripting (backend).
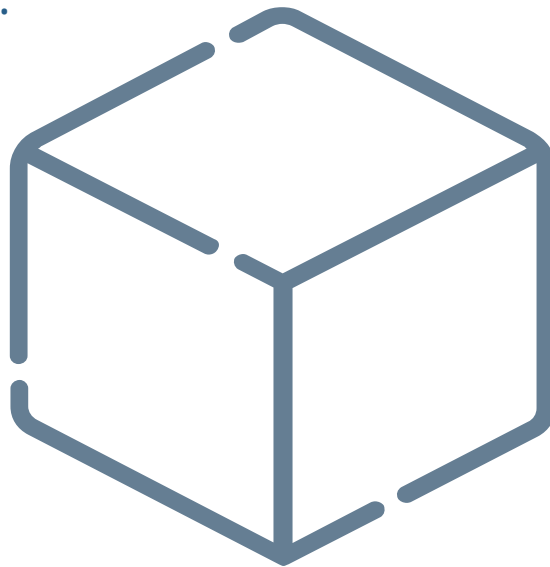
Getting ready...
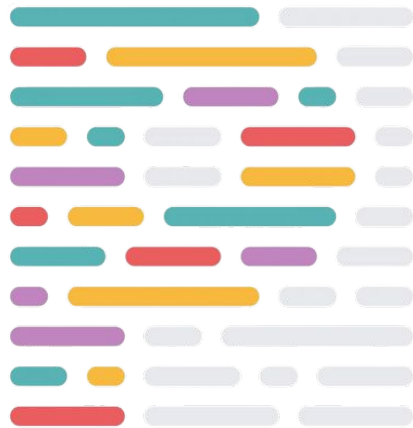
Variables & Data Types

- A variable is a container for a value, like a number we might use in a sum, or a string that we might use as part of a sentence.

Value can be of following types in JS:

- ❏ Number
- ❏ String
- ❏ Boolean
- ❏ Undefined
- ❏ Null

Declaring Variables - var

```
1 // var (1995-2015)
2 // used to store variables
3 var x = "hello world";
4 x = 20;
```

Declaring Variables - let

```
1 // let (ES6)
2 {
3   let x = "hello world";
4   let x = 20; // SyntaxError
5 }
6 // x cannot be used here
```

Declaring Variables - const

```
1 // const (ES6)
2 const x = "hello world";
3 // x cannot be reassigned or
4 // redeclared again
5
6 x = 20; // SyntaxError
```

Operators

```
1  let x = 10;  // assignment
2  let y = 5;
3
4  console.log(x + y);   // addition
5  console.log(x - y);   // subtraction
6  console.log(x * y);   // multiplication
7  console.log(x / y);   // division
8  console.log(x % y);   // remainder
9  console.log(x == y);  // equality
10 // '===' is also used for equality
```

if...else

```
1  const x = 20;
2
3  // conditional statements
4  if (x % 2 === 0) {
5    console.log("Even!");
6  }
7  else {
8    console.log("Odd.");
9  }
```

Loooooooooops

Loops offer a quick and easy way to do something repeatedly.

for

```
1 let x = 1;
2
3 // for loop
4 for (let i=0; i<5; i++){
5     x = x + 1;
6 }
7 console.log(x);
8
```

while

```
1 let x = 1;
2
3 // while loop
4 while (x < 10) {
5     console.log(x);
6     x = x + 1;
7 }
8
```

Arrays

Arrays enables storing a collection of multiple items under a single variable name.

```javascript
1 // arrays
2 const houses = ["Gryffindore", "Slytherin", "Ravenclaw", "Hufflepuff"];
3
4 for (let i in houses) {
5     console.log(houses[i]);
6 }
7
8 console.log(houses[0]); // prints value at 0th index
```

Objects

Objects are unordered collection of related data, in the form of "key: value" pairs.

```
1// object
2const person = {
3   firstName: "Tony",
4   lastName: "Stark",
5   age: 48,
6};
7
8console.log(person.firstName);
9console.log(person.gender); // undefined
```

Functions

A function is a reusable block of code that performs a specific task.

```javascript
let x = 10;

// declaring a function
function square(x) {
    // returning a value
    return x * x;
}

// calling a function
let num = square(x);
console.log(num);
```

DOM & Events

DOM is a structured representation of the HTML page.

```
1 // changing CSS
2 document
3   .querySelector('body')
4   .style
5   .backgroundColor = '#00b2d2';
6
7 // adding event handlers
8 document
9   .querySelector('.button')
10  .addEventListener('click', function(e) {
11  console.log('Clicked!')
12 });
```

Thanks