# In this course

- TypeScript - what and why?

- Language features

- Core Concepts

- Building an application

# The plan

- Unit 1: Introduction and Setting Up

- Unit 2: Basic Features and Types

- Unit 3: Classes and Interfaces

- Unit 4: Revisiting the development environment

- Unit 5: Hands on development

# What is TypeScript?

- A programming language

- Free and open-source

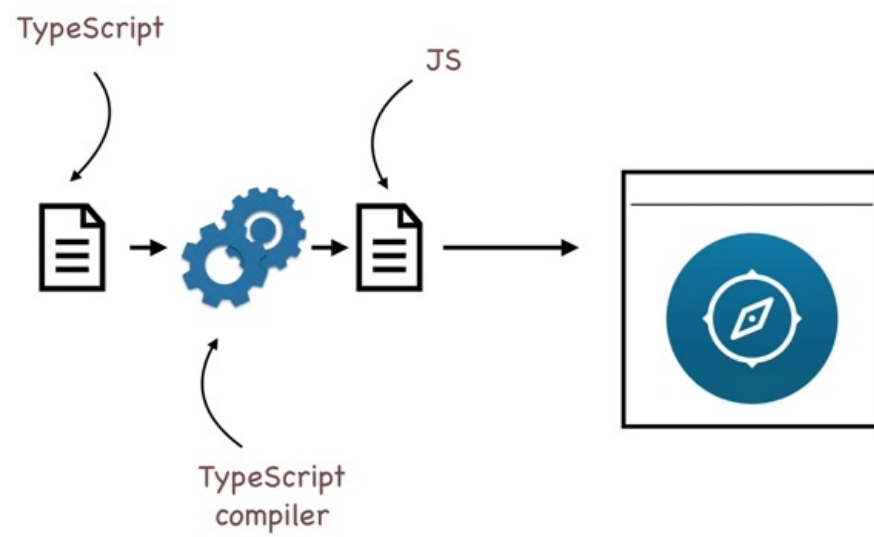- Developed and maintained by Microsoft

# Why TypeScript?

## Problems with JavaScript

```
> var a;
⊖ undefined
> a = 10;
⊖ 10
> a = "Hello"
⊖ "Hello"
> a = {};
⊖ ▶ {}
> fetch
```

| | |
|---|---|
| **fetch** | Window |
| find | |
| focus | |
| frameElement | |
| frames | |
| FederatedCredential | |
| File | |
| FileList | |
| FileReader | |
| Float32Array | |
| Float64Array | |
| FocusEvent | |
| FontFace | |
| FontFaceSetLoadEvent | |
| FormData | |
| Function | |
| ArrayBuffer | |
| AudioBuffer | |
| AudioBufferSourceNode | |
| BeforeInstallPromptEvent | |

TypeScript

JS

TypeScript
compiler

TypeScript $\longrightarrow$ JavaScript

\+

types
(and some
other stuff)

```typescript
TS hello-world.ts ●
1  var a: number;
2  var b: boolean;
3  var c: string;
4
5  a = 10;
6  b = true;
7  c = 'Hello';
```

```typescript
var a: number;
var b: boolean;
var c: string;


a = 10;
b = true;
c = 'Hello';

var myArr : number[];
myArr = [];
myArr = [1, 2];
myArr.push(1);
b = myArr.pop();
```

```
14  function add(a : number, b : number) {
15      return a + b;
16  }
17
18  var sum = add(1, 2);
19  console.log(sum);
20
21  add(1);
22
23
```

```typescript
class Person {
    firstName : string;
    lastName : string;

    greet() {
        console.log("Hey there!");
    }
}

class Programmer extends Person {

    greet() {
        console.log("Hello world");
    }

    greetLikeNormalPeople() {
        super.greet()
    }

}

var aProgrammer: Person = new Programmer();
aProgrammer.greet();
```

```typescript
class Person {
    private firstName : string;
    private lastName : string;

    constructor(firstName: string, lastName: string) {
        this.firstName = firstName;
        this.lastName = lastName;
    }

    greet() {
        console.log("Hey there!");
    }

    getFirstName() {
        return this.firstName;
    }

    setFirstName(firstName: string)  {
        this.firstName = firstName;
    }

    getLastName() {
        return this.lastName;
    }

    setLastName(lastName: string)  {
        this.lastName = lastName;
    }

    getFullName() {
```