

# TypeScript Basics



# What is TypeScript?

- Language developed by Microsoft in 2012
  - Free and open-source
- Provides static typing support to JavaScript
  - Helps with IDE support: code completion and debugging
- Adds support for object-oriented programming
  - Classes, objects, inheritance, interfaces, etc ...

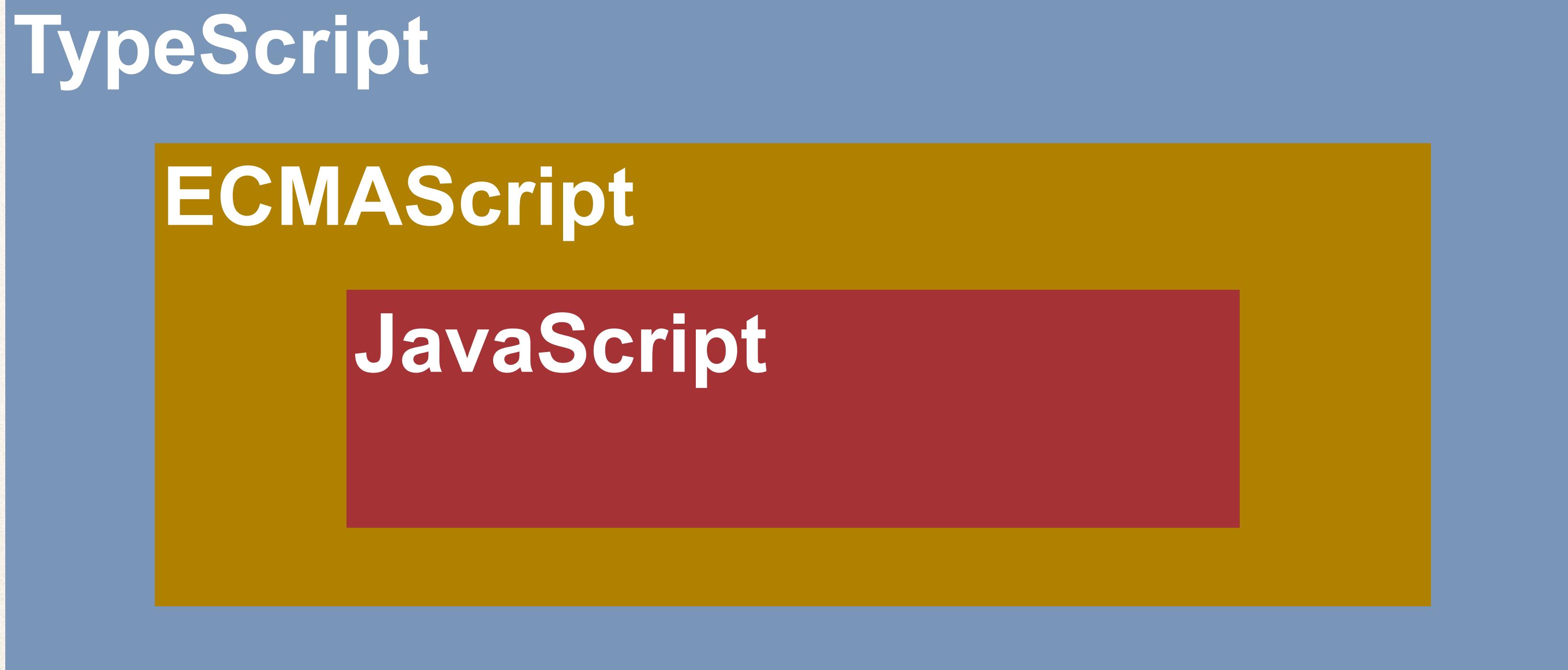
[www.typescriptlang.org](http://www.typescriptlang.org)

# React Development

- For React development, we can develop using various languages
  - **JavaScript**: extremely popular programming language
  - **ECMAScript**: standardized version of JavaScript (ES6, ES9, ...)
  - **TypeScript**: adds optional types to JavaScript
  - *Other languages such as Dart, etc ...*
- TypeScript is the most popular language for React development

# Relationships

- TypeScript is a superset of JavaScript and ECMAScript



# TypeScript

- FAQ: Why do most React developers use TypeScript?
- Strongly-typed language with compile time checking and IDE support
- Increased developer productivity and efficiency

# Practical Results

- Introduction to TypeScript development
- Not an A to Z reference
- For complete reference, see TypeScript Documentation

[www.typescriptlang.org](http://www.typescriptlang.org)

# Development Process

Step-By-Step

1. Create TypeScript code
2. Compile the code
3. Run the code

# Step 1: Create the TypeScript code

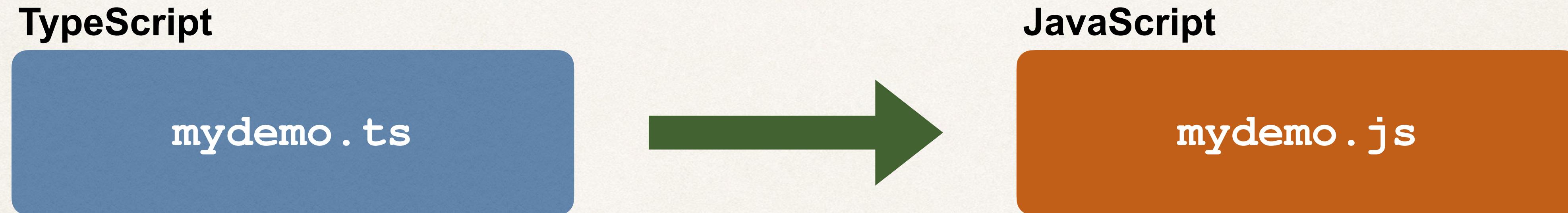
- TypeScript files have the .ts extension

**File: mydemo.ts**

```
console.log("Hello World!");
```

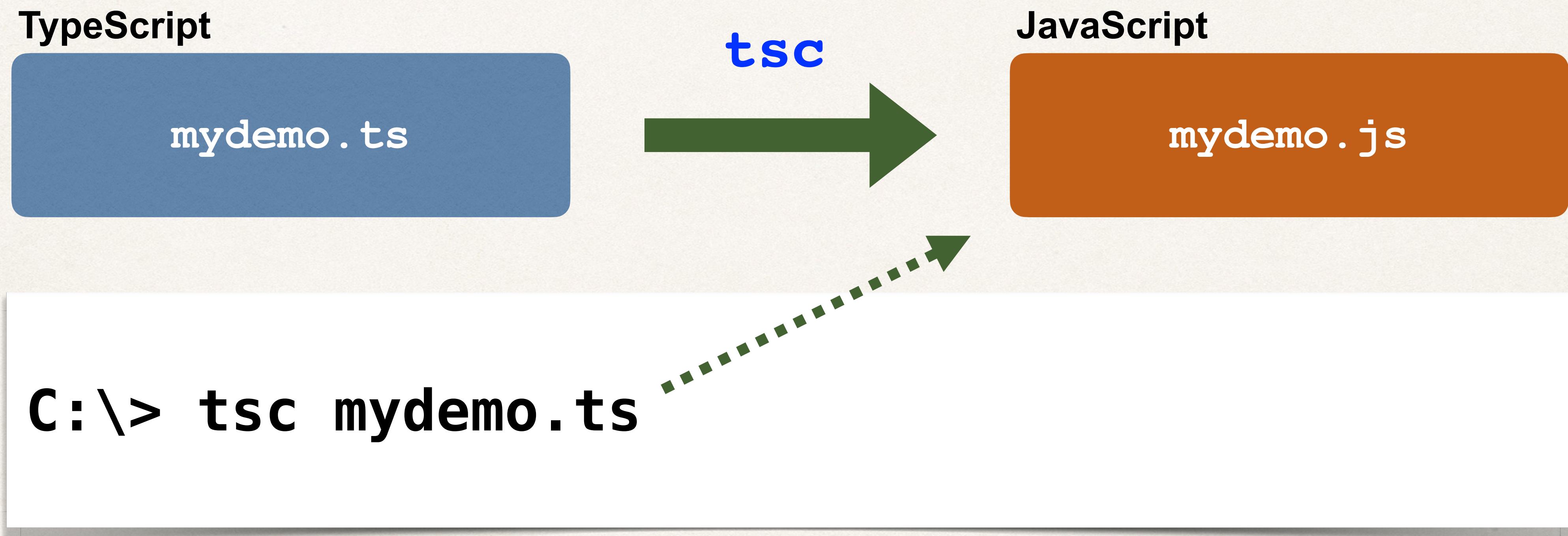
# Step 2: Compile the Code

- Web browsers do not understand TypeScript natively
- Have to convert TypeScript code to JavaScript code
- This is known as "**transpiling**"



# Step 2: Compile the Code (cont)

- 'Transpiling' is accomplished with the **tsc** command



# Step 3: Run the code

- To run the JavaScript code, we use the **node** command
- Run the **generated JavaScript code (.js file)**

```
C:\> node mydemo.js
```

Hello World!

```
console.log("Hello World!");
```

# The Compiler is Your Friend

- The compiler / IDE can find errors earlier at compilation time

```
console.LOGSTUFF("Hello World!");
```

Compile code using: tsc

```
C:\> tsc mydemo.ts
```

```
myhello.ts:1:9 - error TS2339: Property 'LOGSTUFF' does not exist on type 'Console'.
```

```
console.LOGSTUFF("Hello World!!");  
~~~~~
```

Found 1 error.

Compilation error ... much better