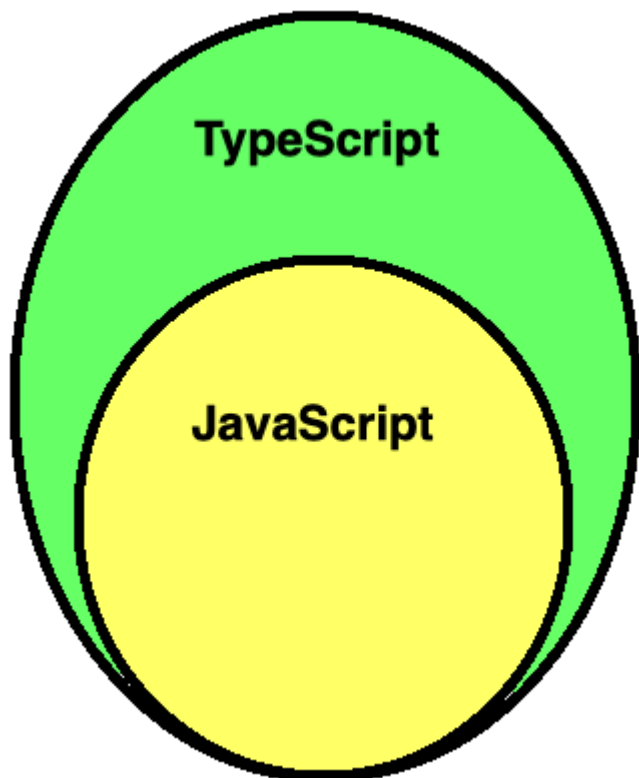JavaScript

- original name: LiveScript
- renamed: JavaScript
- ECMA: organisanization which standardizes the languages
  - JavaScript got standardized: ECMAScript (ES)

TypeScript

- lanugage which is developed on top of JavaScript

- initiative taken by Microsoft to implement latest versions (ES7+) of ECMAScript

- better JavaScript

  - data types
  - compiled
  - introduction to class
  - statically typed language

- to install typescript on your machine
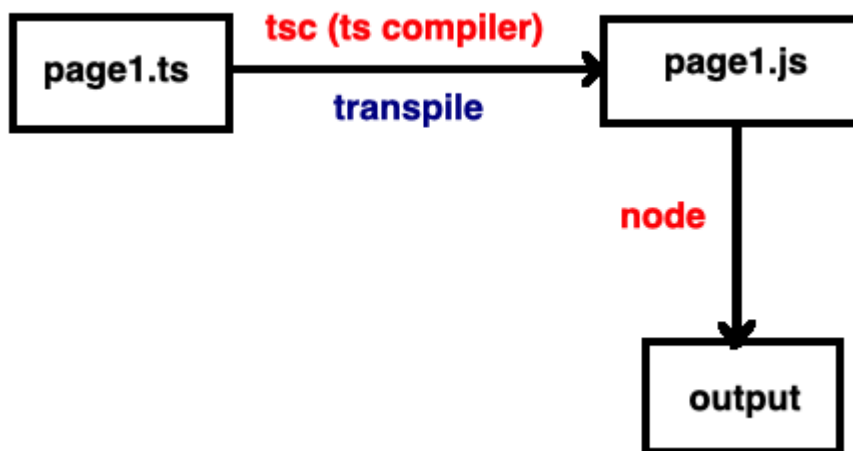
  ```
  sudo npm install -g typescript
  ```

- to test if ts is installed on your machine

```
    tsc --version
```

hello world

```
// page1.ts

console.log("hello world")
```



```
# to execute the code

> tsc page1.ts
> node page1.js
```

fundamentals

variables

- **implicit declaration**
  - similar way to declare a variable in JS
  - all data types are inferred
  - data type will be implicitly or dynamically assigned
  - e.g.

```
// number
const num = 100

// number
const salary = 10.56

// boolean
const canVote = true

// string
const firstName = "steve"
const lastName = 'Jobs'
const address = `USA`

// object
const person = {name: "person1", age: 40}
```

- **explicit declaration**

    - declaring a variable with required data type

    - syntax

        - <const/let> <var name>: <data type> = <initial value>

    - e.g.

```
// number
const num: number = 100
```

data types

- **number**
- **string**
- **boolean**
- **undefined**
- **object**
- **union**
    - data type with mixture of values
    - dynamically variable can store any one of the data types
    - e.g.

```
let num: string|number

// okay
num = 100

// okay
num = "test"

// not okay
// num = true
```

- **any**

  - any type of value can be stored in the variable

  - e.g.

    ```
    // let myvar2: number|string|boolean|object|undefined
    let myvar2: any
    myvar2 = 100
    myvar2 = "test"
    myvar2 = true
    myvar2 = {name: "test"}
    myvar2 = undefined
    ```