



Introduction to TypeScript



TS

Background





What is TypeScript?

TS is part of JS

TS code compiles to JS

→ only compile time safety, at runtime still JS

Generated JS can have different targets:

- Browser + different JS version
- Node



Situation without TypeScript

One variable different types

```
let person = "Max";
```

```
// ...
```

```
person = { name: "Max", age: 20 };
```



Situation without TypeScript

Unclear functions

```
function registerPerson(name, age) {  
    // ...  
}
```



Situation without TypeScript

```
/**
 * JSDoc example
 * @param name {string}
 * @param age {number}
 * @return {Person}
 */
function registerPerson(name, age) {
    // ...
}
```



Why Typescript?

Strict type safety

Self documenting code

→ better autocompletion

Adds features which are missing or complicated in JS

Syntax





Variable Types

Explicit

```
// explicit type number  
let age: number;
```

Implicit

```
// implicit type string  
let name = "Max";
```



Types - Primitives

- `string`
- `boolean`
- `number`
- `bigint`
- `symbol`
- `null`
- `undefined`



Types - Other

- any
- unknown
- never



Types - Arrays & Tuples

```
// array of type number  
number[]
```

```
// Tuple  
let person: [string, number];  
person = ["Max", 20];
```



Types - Functions

```
let equals: (a: number, b: number) => boolean;
```

```
function equals(a: number, b: number): boolean {  
    return a === b;  
}
```



Much more

```
// unions
let direction: "north" | "east" | "south" | "west";
// enums
enum Direction {
    north, east, south, west
}
// type aliases
type Direction = "north" | "east" | "south" | "west";
let direction: Direction;
// casting
document.getElementById("main") as HTMLDivElement;
```



Interfaces

```
interface Person {  
    name: string;  
    age: number;  
    other?: string  
}
```

```
const max: Person = {  
    name: "Max",  
    age: 20  
    // other is optional  
}
```

Hands on





Useless Fact Generator

Useless Fact Generator

Random Fact

Fact of the Day



EN

DE

Average number of people airborne over the US any given hour: 61,000.

djtech.net



Random Useless Facts API

uselessfacts.jsph.pl

Endpoints:

`https://uselessfacts.jsph.pl/random.json`

`https://uselessfacts.jsph.pl/today.json`

Parameter:

`language = "en" or "de"`

Reponse

GET `https://uselessfacts.jsph.pl/random.json?language=en`

```
{
  "id": "668684e3-54a4-...",
  "text": "There is approximately one
chicken for every human being in the
world.",
  "source": "djtech.net",
  "source_url": "http://www.djtech...",
  "language": "en",
  "permalink": "https://uselessfacts..."
}
```

github.com/...



The End

