Typescript Notes

What is Typescript and why?

1. Typescript is statically typed programing language.
2. superset of JavaScript and builds on JavaScript.
3. Checks error before execution.
4. It compiles into JavaScript.
5. Developer: Anders Hejlsberg at Microsoft in 2010.
6. Released : in 2012 open source.
7. Made for creating large, complex systems that the modern Web abounds with.

Environment setup

1. Install (Text-Editor like Vscode)
2. Install Node.js globally.
3. Install typescript globally in **cmd** (**npm install typescript –g**)
4. To check typescript installed or not (**tsc –v**) in **cmd**
5. Create folder and file with .js extension (**demo.ts**)

In Cmd	In Terminal
1. Open the folder in **cmd**	1. Open terminal
2. tsc demo.ts (compile ts file into js file)	**2. tsc.cmd demo.ts**
3. tsc demo.ts –w (auto compile every time)	**3. tsc.cmd demo.ts-w**
4. node demo.ts	**4. node demo.ts**
5. node demo.js	**5. node demo.js**

Data Types in Typescript

Once Assign value/datatype . Can’t Assign other datatype in the same variable

Type Assignment

When creating a variable, there are two main ways Typescript assigns a type:

1. **Explicit:** writing out the type:
2. **Implicit:** Typescript will "guess" the type, based on the assigned value:

➢ **Note:** Having Typescript "guess" the type of a value is called **infer**.

Implict	Explicit
Let myName = “Abid”;	**Let myName:string = “Abid”**

Typescript may not always properly infer what the type of a variable may be. In such cases, it will set the type to **any which disables type checking.**

Basic Data Types

There are three main primitives in JavaScript and Typescript.

1. **boolean** - true or false values
2. **number -** whole numbers and floating point values
3. **string -** text values like "Typescript Rocks"

Typescript Special Data types

Example

```
let x: any = 123;
```

1. any

any is a type that disables type checking and effectively allows all types to be used.

any can be a useful way to get past errors since it disables type checking, but TypeScript will not be able provide type safety, and tools which rely on type data, such as auto completion, will not work. Remember, it should be avoided at "any" cost...

2. unknown

unknown is a similar, but safer alternative to any.

unknown is best used when you don't know the type of data being typed. To add a type later, you'll need to cast it.

Casting is when we use the "as" keyword to say property or variable is of the casted type.

3. Never

never effectively throws an error whenever it is defined.

never is rarely used, especially by itself, its primary use is in advanced generics.

4. undefined & null

undefined and null are types that refer to the JavaScript primitives undefined and null respectively.

These 4 special types don't have much use unless strictNullChecks is enabled in the tsconfig.json file.

Array in Typescript

Implict	Explicit
Lat a = [“Karachi”,”Hyderabad”,”Islamabad”]	Let a:string =[“Karachi”,”Hyderabad”,”Islamabad”]

In process...

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