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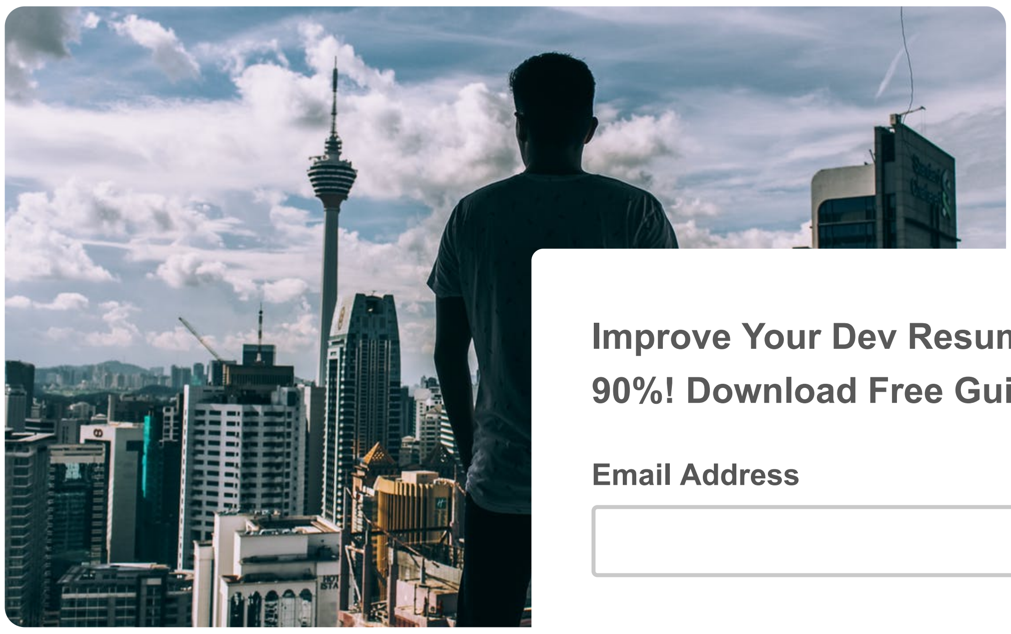
#TypeScript

20 Basic TypeScript Interview Questions (2018 Edition)

7



ECMAScript 2015 and future proposals, like async functions and decorators, to help build robust components. TypeScript compiles to clean, simple JavaScript code which runs on any browser, in Node.js, or in any JavaScript engine that supports ECMAScript 3 (or newer).

Q1: What is TypeScript and why would I use it in place of JavaScript?

Topic: **TypeScript**
Difficulty: ⭐

Answer:
TypeScript is a superset of JavaScript which primarily provides optional static typing, classes and interfaces. One of the big benefits is to enable IDEs to provide a richer environment for spotting common errors as *you type the code*. For a large JavaScript project, adopting TypeScript might result in more robust software, while still being deployable where a regular JavaScript application would run.

In details:

- TypeScript supports new ECMAScript standards and compiles them to (older) ECMAScript targets of your choosing. This means that you can use features of ES2015 and beyond, like modules, lambda functions, classes, the spread operator, destructuring, today.
- JavaScript code is valid TypeScript code; TypeScript is a superset of JavaScript.
- TypeScript adds type support to JavaScript. The type system of TypeScript is relatively rich and includes: interfaces, enums, hybrid types, generics, union and intersection types, access modifiers and much more. TypeScript makes typing a bit easier and a lot less explicit by the usage of type inference.
- The development experience with TypeScript is a great improvement over JavaScript. The IDE is informed in real-time by the TypeScript compiler on its rich type information.
- With strict null checks enabled (`--strictNullChecks` compiler flag) the TypeScript compiler will not allow undefined to be assigned to a variable unless you explicitly declare it to be of nullable type.
- To use TypeScript you need a build process to compile to JavaScript code. The TypeScript compiler can inline source map information in the generated .js files or create separate .map files. This makes it possible for you to set breakpoints and inspect variables during runtime directly on your TypeScript code.
- TypeScript is open source (Apache 2 licensed, see github) and backed by Microsoft. *Anders Hejlsberg*, the lead architect of C# is spearheading the project.

🔗 **Source:** stackoverflow.com
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Q2: Explain generics in TypeScript

Topic: **TypeScript**
Difficulty: ⭐

Generics are able to create a component or function to work over a variety of types rather than a single one.

```
/** A class definition with a generic parameter */
class Queue<T> {
  private data = [];
  push = (item: T) => this.data.push(item);
  pop = (): T => this.data.shift();
}

const queue = new Queue<number>();
queue.push(0);
queue.push("1"); // ERROR : cannot push a string. Only numbe
```

🔗 **Source:** basarat.gitbooks.io
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Difficulty: ☆ ☆

The answer is **YES**. There are 4 main principles to Object Oriented Programming:

- Encapsulation,
- Inheritance,
- Abstraction, and
- Polymorphism.

TypeScript can implement all four of them with its smaller and cleaner syntax.

Source: jonathanmh.com
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Q4: How could you check null and undefined in TypeScript?

Topic: **TypeScript**
Difficulty: ☆ ☆

Just use:

```
if (value) {
}
```

It will evaluate to `true` if `value` is not:

- `null`
- `undefined`
- `NaN`
- empty string `''`
- `0`
- `false`

TypesScript includes JavaScript rules.

Source: stackoverflow.com
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All TypeScript Q&A

Q5: How to implement class constants in TypeScript?

Topic: **TypeScript**
Difficulty: ☆ ☆

In TypeScript, the `const` keyword cannot be used to declare class properties. Doing so causes the compiler to an error with "A class member cannot have the 'const' keyword." TypeScript 2.0 has the `readonly` modifier:

```
class MyClass {
    readonly myReadonlyProperty = 1;

    myMethod() {
        console.log(this.myReadonlyProperty);
    }
}

new MyClass().myReadonlyProperty = 5; // error, readonly
```

Source: stackoverflow.com
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Topic: **TypeScript**
Difficulty: ★ ★

`.map` files are source map files that let tools map between the emitted JavaScript code and the TypeScript source files that created it. Many debuggers (e.g. Visual Studio or Chrome's dev tools) can consume these files so you can debug the TypeScript file instead of the JavaScript file.

Source: stackoverflow.com
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Q7: What is getters/setters in TypeScript?

Topic: **TypeScript**
Difficulty: ★ ★

TypeScript supports **getters/setters** as a way of intercepting accesses to a member of an object. This gives you a way of having finer-grained control over how a member is accessed on each object.

```
class foo {
  private _bar:boolean = false;

  get bar():boolean {
    return this._bar;
  }
  set bar(theBar:boolean) {
    this._bar = theBar;
  }
}

var myBar = myFoo.bar;  // correct (get)
myFoo.bar = true;  // correct (set)
```

Source: typescriptlang.org
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All TypeScript Q&A

Q8: Could we use TypeScript on backend and how?

Topic: **TypeScript**
Difficulty: ★ ★

Typescript doesn't only work for browser or frontend code, you can also choose to write your backend applications. For example you could choose Node.js and have some additional type safety and the other abstraction that the language brings.

1. Install the default Typescript compiler

```
npm i -g typescript
```

2. The TypeScript compiler takes options in the shape of a tsconfig.json file that determines where to put built files and in general is pretty similar to a babel or webpack config.

```
{
  "compilerOptions": {
    "target": "es5",
    "module": "commonjs",
    "declaration": true,
    "outDir": "build"
  }
}
```

3. Compile ts files

```
tsc
```

```
node build/index.js
```

Source: jonathanmh.com
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Q9: What are different components of TypeScript?

Topic: **TypeScript**
Difficulty: ☆ ☆ ☆

There are mainly 3 components of TypeScript .

1. **Language** – The most important part for developers is the new language. The language consist of new syntax, keywords and allows you to write TypeScript.
2. **Compiler** – The TypeScript compiler is open source, cross-platform and open specification, and is written in TypeScript. Compiler will compile your TypeScript into JavaScript. And it will also emit error, if any. It can also help in concating different files to single output file and in generating source maps.
3. **Language Service** – TypeScript language service which powers the interactive TypeScript experience in Visual Studio, VS Code, Sublime, the TypeScript playground and other editor.

Source: talkingdotnet.com
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Q10: Is that TypeScript code valid? Explain why.

Topic: **TypeScript**
Difficulty: ☆ ☆ ☆

Consider:

```
class Point {
    x: number;
    y: number;
}

interface Point3d extends Point {
    z: number;
}

let point3d: Point3d = {x: 1, y: 2, z: 3};
```

Answer:
Yes, the code is valid. A class declaration creates two things: a *type* representing instances of the class and a *constructor function*. Because classes create types, you can use them in the same places you would be able to use interfaces.

Source: typescriptlang.org
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All TypeScrip

Q11: Explain how and why we could use pr

Topic: **TypeScript**
Difficulty: ☆ ☆ ☆

Decorators can be used to modify the behavior of a class or becom
instance, if your framework has methods with restricted access rec
method decorator to deny access to non-administrative users, or ar
ability to modify it.

```
    post() { }

    @admin
    delete() { }

    @owner
    put() { }
}
```

Source: www.sitepen.com

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Q12: Are strongly-typed functions as parameters possible in TypeScript?

Topic: **TypeScript**
Difficulty: ★ ★ ★

Consider the code:

```
class Foo {
    save(callback: Function) : void {
        //Do the save
        var result : number = 42; //We get a number from the save operation
        //Can I at compile-time ensure the callback accepts a single parameter of type number somehow?
        callback(result);
    }
}

var foo = new Foo();
var callback = (result: string) : void => {
    alert(result);
}
foo.save(callback);
```

Can you make the result parameter in `save` a type-safe function? Rewrite the code to demonstrate.

Answer:

In TypeScript you can declare your **callback type** like:

```
type NumberCallback = (n: number) => any;

class Foo {
    // Equivalent
    save(callback: NumberCallback): void {
        console.log(1)
        callback(42);
    }
}

var numCallback: NumberCallback = (result: number) : void => {
    console.log("numCallback: ", result.toString());
}

var foo = new Foo();
foo.save(numCallback)
```

Source: stackoverflow.com

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Q13: How can you allow classes defined in module?

Topic: **TypeScript**
Difficulty: ★ ★ ★

Classes define in a module are available within the module. Outside

```
        constructor (
            public make: string,
            public model: string) { }
    }
    var audiCar = new Car("Audi", "Q7");
}
// This won't work
var fordCar = Vehicle.Car("Ford", "Figo");
```

As per above code, `fordCar` variable will give us compile time error. To make classes accessible outside module use `export` keyword for classes.

```
module Vehicle {
    export class Car {
        constructor (
            public make: string,
            public model: string) { }
    }
    var audiCar = new Car("Audi", "Q7");
}
// This works now
var fordCar = Vehicle.Car("Ford", "Figo");
```

Source: http://www.talkingdotnet.com

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All TypeScript Q&A

Q14: Does TypeScript supports function overloading?

Topic: **TypeScript**
Difficulty: ⭐ ⭐ ⭐

Yes, TypeScript does support function overloading but the implementation is a bit different if we compare it to OO languages. We are creating just one function and a number of declarations so that TypeScript doesn't give compile errors. When this code is compiled to JavaScript, the concrete function alone will be visible. As a JavaScript function can be called by passing multiple arguments, it just works.

```
class Foo {
    myMethod(a: string);
    myMethod(a: number);
    myMethod(a: number, b: string);
    myMethod(a: any, b?: string) {
        alert(a.toString());
    }
}
```

Source: typescriptlang.org

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Q15: Explain why that code is marked as W

Topic: **TypeScript**
Difficulty: ⭐ ⭐ ⭐ ⭐

```
/* WRONG */
interface Fetcher {
    getObject(done: (data: any, elapsedTime?: number) => voi
}
```

Q16: How would you overload a class constructor in TypeScript?

Topic: **TypeScript**
Difficulty: ⭐⭐⭐⭐

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Q17: What is the difference between "interface vs type" statements?

Topic: **TypeScript**
Difficulty: ⭐⭐⭐⭐

```
interface X {
    a: number
    b: string
}

type X = {
    a: number
    b: string
};
```

Answer:

Sign In To See Answer

Q18: Explain when to use "declare" keyword in TypeScript

Topic: **TypeScript**
Difficulty: ⭐⭐⭐⭐⭐

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Q19: What are Ambients in TypeScripts and when to use them?

Topic: **TypeScript**
Difficulty: ⭐⭐⭐⭐⭐

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Q20: Is it possible to generate TypeScript declaration files from JS library?

Topic: **TypeScript**
Difficulty: ⭐⭐⭐⭐⭐

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