

TypeScript Modules

Short about modules

Motivation

A basic understanding of modules is helpful for all frameworks.

Modules

There are three main things to consider when writing module-based code in TypeScript:

- **Syntax:** What syntax do I want to use to import and export items?
- **Module Resolution:** What is the relationship between module names (or paths) and files on disk?
- **Module Output Target:** What should my emitted JavaScript module look like?

Modules

ES-Module syntax export with default:

```
1 // @filename: hello.ts
2 export default function helloWorld() {
3   console.log("Hello, world!");
4 }
```

And import via:

```
1 import helloWorld from "./hello.js";
2 helloWorld();
```

Modules

ES-Module syntax export and omitting default exports:

```
1 // @filename: maths.ts
2 export var pi = 3.14;
3 export let squareTwo = 1.41;
4 export const phi = 1.61;
5
6 export class RandomNumberGenerator {}
7
8 export function absolute(num: number) {
9   if (num < 0) return num * -1;
10  return num;
11 }
```


```
1 import { pi, phi, absolute } from "./maths.js";
2
3 console.log(pi);
4 const absPhi = absolute(phi);
```

Addition "old" as "new:

```
1 import { pi as  $\pi$  } from "./maths.js";
```

Modules


ES-Module mixed:



```
1 // @filename: maths.ts
2 export const pi = 3.14;
3 export default class RandomNumberGenerator {}
4
5 // @filename: app.ts
6 import RandomNumberGenerator, { pi as  $\pi$  } from "./maths.js";
```

Modules

ES-Module syntax export with a single namespace:



```
1 // @filename: app.ts
2 import * as math from "./maths.js";
3
4 console.log(math.pi);
5 const positivePhi = math.absolute(math.phi);
```

Well done!

We can now continue with more advanced topics.

Modules

CommonJS Syntax (most used by npm):

```
1 function absolute(num: number) {  
2   if (num < 0) return num * -1;  
3   return num;  
4 }  
5  
6 module.exports = {  
7   pi: 3.14,  
8   squareTwo: 1.41,  
9   phi: 1.61,  
10  absolute,  
11 };
```

```
1 const maths = require("./maths");  
2 maths.pi;
```

Or:

```
1 const { squareTwo } = require("./maths");  
2 squareTwo;
```

End

That was all for this chapter
