

Creating a strongly-typed tuple

In this lesson, we will learn what tuples are and how we can use them in TypeScript.

WE'LL COVER THE FOLLOWING ^

- Understanding a tuple
- Creating a simple tuple
- Creating open-ended tuples
- Wrap up

Understanding a tuple

A tuple can be thought of as an array with a fixed number of elements. Some of React's hooks return tuples. Can you guess those hooks?

 Show Answer

Tuples are useful when we want to store multiple bits of data. Tuples are a little more concise than an object but aren't as self-documenting as objects. Tuples are nice for small and obvious data structures.

The tuple type doesn't exist in JavaScript. The closest we have are arrays, but there is no way of enforcing the number of elements and the type of each element.

Creating a simple tuple

Is it possible to use TypeScript's rich type system to create tuples? Let's find out with an example. Let's imagine we need to store a person's first name as well as a numeric score like in the example below:

```
["Tom", 70]
```

We can define this as a type as follows:

```
[string, number]
```

So, declaring a tuple variable of this type and assigning the value can be done as follows:

```
const tomScore: [string, number] = ["Tom", 70];
```

Is it necessary to include the type annotation in this example? Will TypeScript correctly infer the type we want?

 Show Answer

We need to be careful about type inference with tuples and will likely need to specify the type annotation explicitly for these.

Creating open-ended tuples

An open-ended tuple is where its items have some structure, but the number of elements isn't fixed. An example is a person's first name with numerous scores like below:

```
["Tom", 70]  
["Jane", 70, 60]  
["Fred", 70, 60, 80]
```

We can specify the type for the above example as follows:

```
[string, ...number[]]
```

The `...number[]` is a **rest element**, and it means that we can have a varying amount of `number` elements at the end of the structure.

Create a statement in the code widget below that declares a variable called `benScores` that has the above structure with its value set to `["Ben", 50, 75,`

`85]`

85].

</> TypeScript



 Show Answer

Wrap up

TypeScript tuples are a convenient way of strongly-typing small and obvious data structures. It is essential to use a type annotation with these rather than rely on type inference.

More information on TypeScript tuples can be found in the [TypeScript handbook](#).

In the next lesson, we are going to learn how to create object types in TypeScript.