Mastering Array in Typescript

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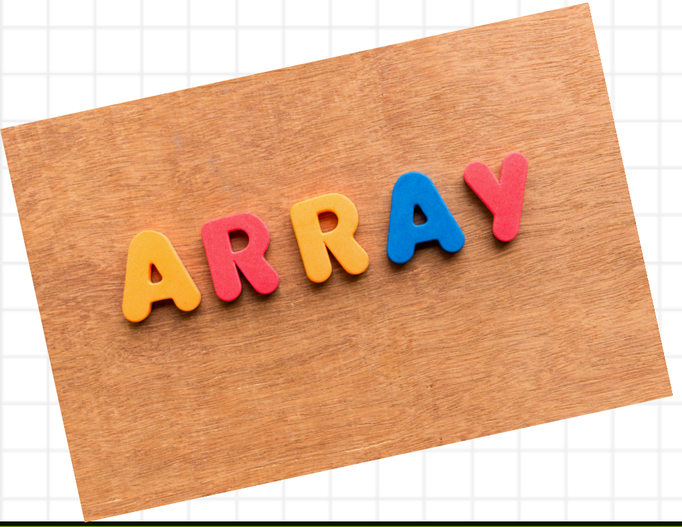
What are Arrays

Arrays are a type of data structure used to store multiple values in a single variable.



What are Arrays in Typescript?

An array is a collection of elements, each identified by an index or key. The elements can be of any type, and an array can contain elements of different types if needed.

```
let numbers: number[] = [1, 2, 3, 4, 5];
```

Declaring Array

Using square brackets:

```
let numbers: number[] = [1, 2, 3, 4, 5];
```

Using the Array generic type:

```
let strings: Array<string> = ["apple", "banana", "cherry"]
```

Types of Array

Single Type Arrays: Arrays that contain elements of a single type.

```
let names: string[] = ["Rida", "sumaira", "Afsheen"]
```

Multi Type Arrays: Arrays that contain elements of multiple types.

```
let mixedArray: (number | string)[] = [1, "two", 3, "four"];
```

Array of Objects: Arrays that contain objects

Nested Array

why do we use Array?

Storing Multiple Values:

Arrays allow us to store multiple values in a single variable, which is more convenient than creating separate variables for each value.

indexed Access:

Arrays use zero-based indexing, which makes it easy to access elements by their position.

Array Methods

indexOf()

The indexOf method returns the first index at which a given element can be found in the array, or -1 if it is absent.

```
let fruits: string[] = ["apple", "banana", "cherry", "apple"];
let index = fruits.indexOf("apple"); // 0
let missingIndex = fruits.indexOf("grape"); // -1
```

push()

The push method adds one or more elements to the end of an array and returns the new length of the array.

syntax:

array.push(element)

pop()

The pop method removes the last element from an array and returns that element. This method changes the length of the array.

typescript

syntax:

```
array.pop()
```

shift()

The shift method removes the first element from an array and returns that element. This method changes the length of the array.

syntax:

array.shift()

unshift()

The unshift method adds one or more elements to the beginning of an array and returns the new length of the array.

syntax:

```
array.unshift(element)
```

slice()

The slice method returns a shallow copy of a portion of an array into a new array object selected from start to end (end not included). The original array will not be modified.

syntax:

```
array.slice(start_index, end_index)
```

splice()

This method can be used for multiple purposes.

For,

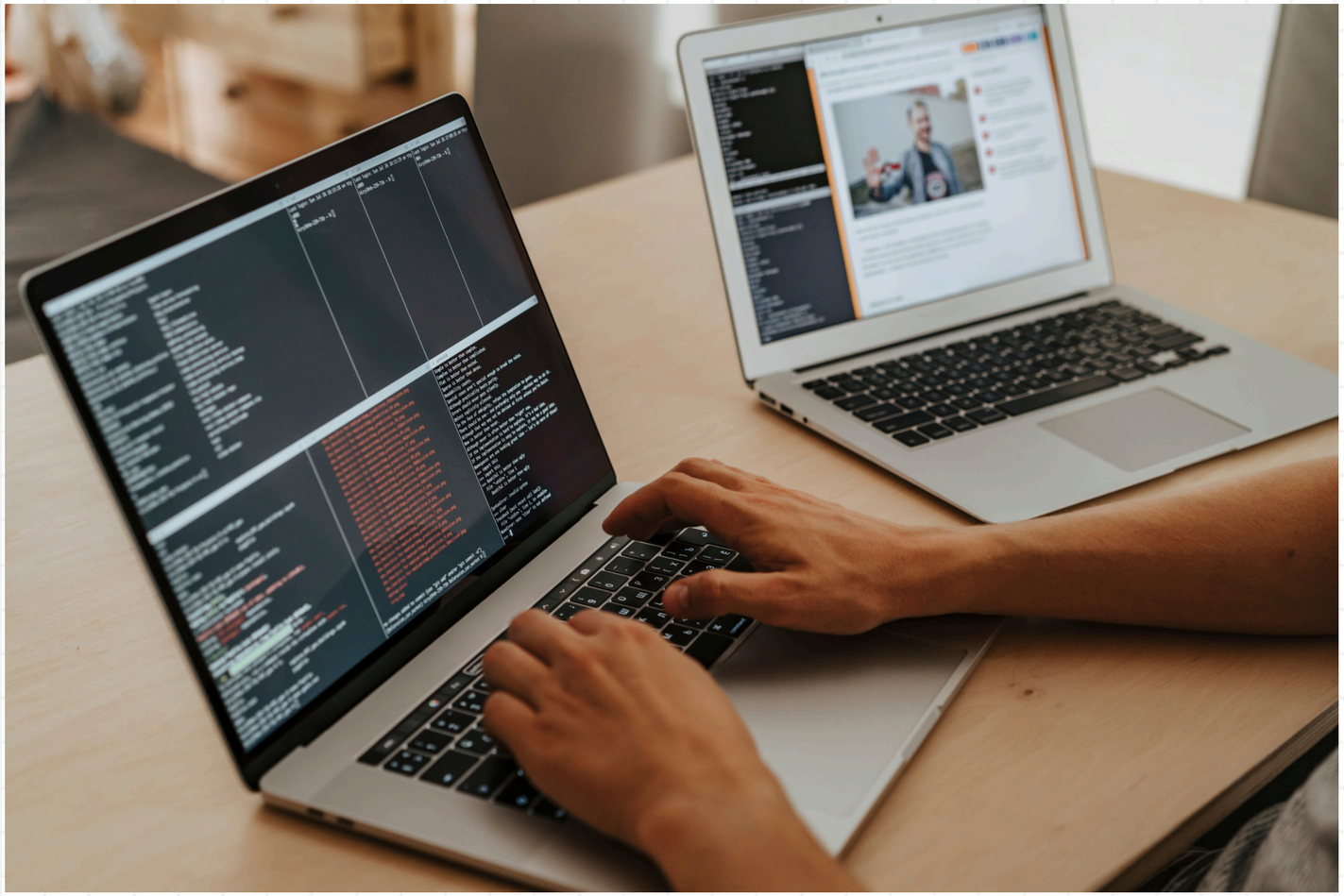
1. Add an element to an array
2. Replace specific elements within an array
3. Remove specific elements from an array

syntax:

array.splice(index, number of elements to be removed, element1,..,elementN)

Summary of Methods

- indexOf: Finds the index of the first occurrence of a specified element.
- push: Adds elements to the end of an array.
- pop: Removes the last element from an array.
- shift: Removes the first element from an array.
- unshift: Adds elements to the beginning of an array.
- slice: Creates a shallow copy of a portion of an array.
- splice: Adds/removes/replaces elements in an array.
- These methods are widely used in TypeScript (and JavaScript) for array manipulation, allowing you to perform various tasks efficiently.



Thank you for listening!