What are Arrays?

You'll get an idea of what arrays are and in what ways can you declare them!

WE'LL COVER THE FOLLOWING

- Definition
- Declaring an Array
  - Declaring Static Arrays
  - Declaring Dynamic Arrays

Definition

An *array* is a data structure consisting of a collection of **elements** (values or variables), each identified by at least one array `index` or `key`.

> It is a collection of *similar data* types under the same **name**.

Declaring an Array

Let us look into how arrays are declared in C#.

Declaring Static Arrays

> Static arrays are allocated in memory at *compile time* and the memory is allocated on the **stack**.

Following syntax is followed when we declare static arrays:

```
dataType arrayName[arraySize];
```

Let's take a look at an example:

```
int arr[5];    //int is the datatype, arr is the name, 5 is the size of array
```

Declaring Dynamic Arrays

> Dynamic arrays are allocated in memory at the *runtime* and the memory is allocated in the **heap**.

For declaring dynamic arrays, we use the `new` keyword:

```
dataType[] arrayName = new dataType[arraySize];
```

Let's have a look at an example:

```
int[] arr = new int[10];
```

You've now got the idea of what arrays are and how they are allocated in stack and in heap. Now, let's learn about how they're initialized!