1. Single Dimensional array

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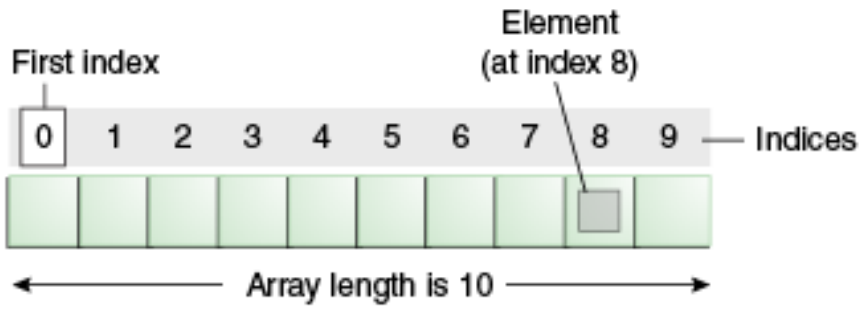
E.x

Int [ ] array = new int [10] ; // Single dimensional array



2. Multidimensional array

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- In a multidimensional array the data is stored in rows and columns based on indexes.
- It is also known as matrix form.

Representation of multidimensional array

E.x Int [ ][ ] x = **new int** [3] [3]; //3 row and 3 column or multidimensional array

	Column 0	Column 1	Column 2
Row 0	x[0][0]	x[0][1]	x[0][2]
Row 1	x[1][0]	x[1][1]	x[1][2]
Row 2	x[2][0]	x[2][1]	x[2][2]

```
public class dclass
{
	public static void main(String[] args)
	{
		int[][] a = new int[3][3]; // Multidimensional array deceleration

		a[0][0] = 10; // 1st way to store the values in array
		a[0][1] = 20;
		a[0][2] = 30;
		a[1][0] = 40;

	int[][] b = new int[][] {{10,20,30},{40,50,60}}; // 1st way to store the values in array

		System.out.println(Arrays.deepToString(a)); //Retrieve the data from array
		System.out.println(Arrays.deepToString(b));
	}
}
```

Output : [[10, 20, 30], [40, 0, 0], [0, 0, 0]]
[[10, 20, 30], [40, 50, 60]]

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What is Data Structure
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- It is the way by which we can store the data in an efficient way, as per time and space.

Storing single data >> Int i = 10;

Storing multiple data >> Int [ ] i = new int [10] ;

Storing multiple data >> Int [ ] [ ] i = new int [3] [3] ;

Types of data structure
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1. **Primitive**
    a. Int, char, short, float, double, byte, boolean, long
    b. E.x by using primitive data type programmers can create following applications
    c. Calculator, snake game, converters like currency converter , length converter.

2. **Non Primitive**
    a. **Linear** > String, Array, List, Set, Queue.
    b. **Non linear** > Graphs, Trees.
    c. E.x by using non primitive data type programmers can create the following websites.
    d. e- commerce , social networking, banking, health care.