Lesson 4: Loops, Conditions Functions and Arrays

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- WhileLoop :
  - RocketLaunching
  - Sequence

- ForLoop
  - ForLoop
  - NestedLoop

Write a program to
(a) Ask for number of *double* input
(b) Ask all the double input and
(c) Calculate the average of all the inputs
The sample output should look like this

```
Enter the number of items: 10  ⏎Enter
Enter the numbers: 3.4 5 6 1 6.5 7.8 3.5 8.5 6.3 9.5  ⏎Enter
Average is 5.75
Number of elements above the average is 6
```

Algorithm

- Average of Three numbers
  - Average
  - AverageUsingFunction
  - AverageUsingArray

Step 1: Declare the array

```
int[] anArray;
```

This does not allocate memory for the array but only to store the reference to the array.
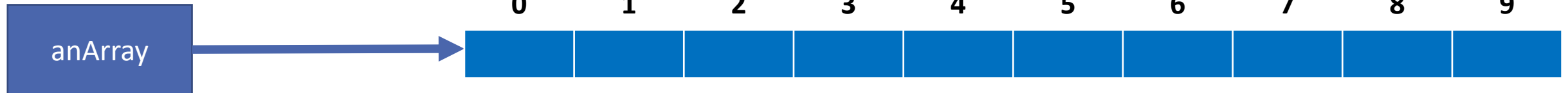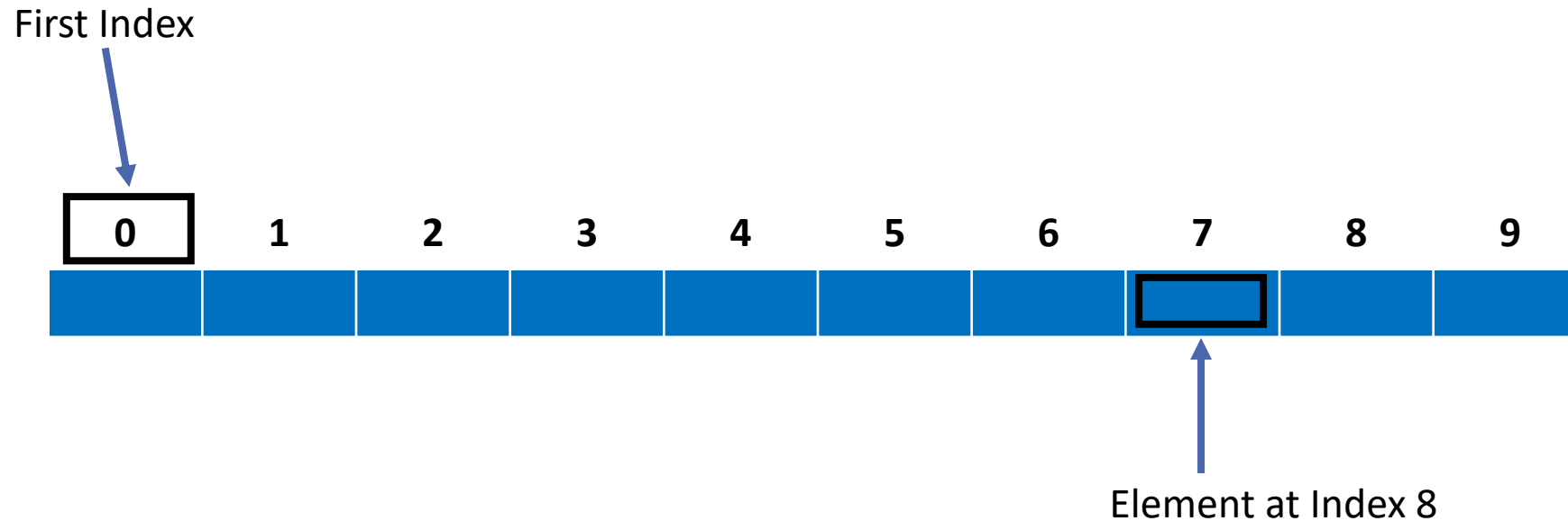
Step 2: Creating the array

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

Step 3: Initialize the array

Or do it all in one step

```
int[] anArray = {1, 2, 3, 4};
```

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

anArray →

- An *array* is a container object that holds a fixed number of values of a single type.

First Index

0   1   2   3   4   5   6   7   8   9
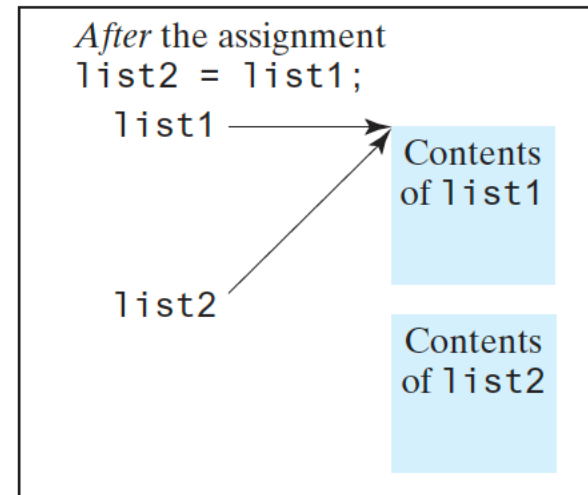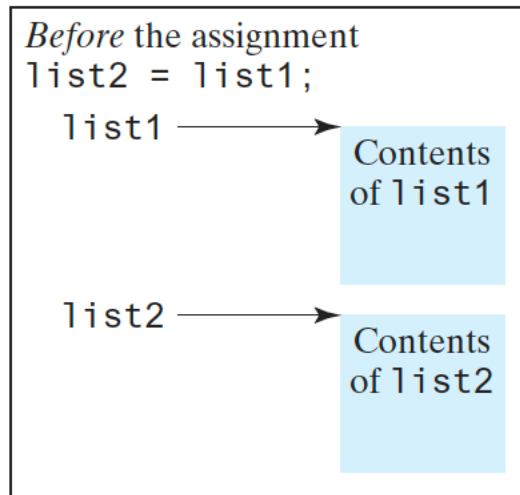
Element at Index 8

- Demonstration3: ArrayDemo

- Demonstration3: DisplayArray

- Practice:
  - Initialize Arrays with console input
  - Initialize arrays with random input
  - Sum all the elements of the array
  - Finding largest element in the array
  - Finding smallest index of largest element
  - Random Shuffling
  - Shifting elements
  - Obtain month name based on the user input

- ArrayCopy

- Practice:
  - Write a for loop to copy one array to another

Before the assignment list2 = list1;	After the assignment list2 = list1;
list1 → Contents of list1	list1 → Contents of list1
list2 → Contents of list2	list2 ↗ (to Contents of list1) Contents of list2

- PassingVariable

- PassinngArray