**Section 8\_Arrays, Java inBuilt Lists, Autoboxing and ...**

**Topics Covered:**

Arrays

Reference values vs Value types

List and ArrayList

**Arrays**

Is a data structure that allows you to store multiple values of the same data type into a single variable.

The default values of a numeric array elements are set to zero

When you create an array and not initialize it all the array values are set to zero by default

Arrays are zero indexed an array of n elements is indexed from 0 to n-1 for example 10 elements index range is from 0 to 9.

If we try to access an index that is out of range java will give us an **ArrayIndexOutOfBoundsException** which indicates that the index is out of range in other words out of bounds.

Array Initialization

int[] myIntArray = new int [10];  
  
**//this is only allowed when defining an array for the first time**int[] array = { 1,2,3,4,5,6,7,8,9,10};

Array function call

public static double getAverage(int[] array)

Array function return

public static int[] getIntegers(int number)

sometimes you do not need to return an array because it is returned by reference

**Reference values vs Value types**

Reference types like arrays or classes

A Reference type holds a reference or an address of the object in memory but not the actual object

Int [] myIntArray = new int[5];

Int [] anotherArray = myIntArray;

**// both anotherArray and myIntArray have been modified since they point to the same array in memory**

anotherArray[0] =1;

**// anotherArray is now pointing to a completely new different array due to the use of the new keyword**

anotherArray = new int []{1,2,3,4,5};

A build itn java command that prints out the contents of an entire array

toString methods joins multiple strings or objects into a string using a comma as a separator

Arrays.toString(myIntArray);

**List and ArrayList**

Resizing an array baseData

Int[] original = baseData;

baseData = new int [12];

for (int i=0;i<original.length;i++)

baseData[i]=original[i];

ArrayList

inherits from a list(an abstract list)

it is a resizable array, the resizing occurs automatically