Arrays Homework

Regina Biktimirova

3/23/2022 Batch 4

**What is Array?**

Array is one of the collection types in java. By using an Array, we can store many similar items/elements in one variable.Arrays are used to store multiple values in a single variable, instead of declaring separate variables for each value.

**What is for each loop in Java and when it is used?**

For each loop in Java is used to loop through each element in an array and other collections in Java.

Example: int[] numbers = {5, 3, 8};

For(int number : numbers){}

**How to sort Array elements?**

Sorting an array means ordering elements inside an array. Sorting is very useful to find max and min int values.Arrays class has method called sort() and it can be used to sort array elements.Sorting can be used for String, char and other data types as well

(sorting numbers returns array sorted from smaller to bigger)  
(sorting words or characters returns array sorted lexicographically )

**How to search for an element in an Array?**

Arrays class has method called binarySearch() and it can be used to search for an element in an Array.Searching is possible ONLY IF array is already sorted.

binarySearch() method always returns an integer and it is the index of found element.

a)If element is found in sorted array, then the index of element that we are looking for will be returned  
b)If element is not found in sorted array, then a negative number will be returned - (insertion point) - 1  
c)If binarySearch() method performed with unsorted array, then result is unpredictable (any number)  
d)If element found but element occurs two or more times within an array, then it returns the last index of element.

**What is multi-dimensional Arrays and when do we use them?**

Arrays we have learned till now are called one-dimensional arrays. However, we can declare multidimensional arrays in Java. A multidimensional array is an array containing one or more arrays. Multidimensional arrays are useful for creating tables. When declaring two dimensional arrays, we don't have to set inner array sizes because subarray(inner array) can be any size for each outer array.If we set inner size when declaring the two-dimensional array, that means all inner array sizes are same.