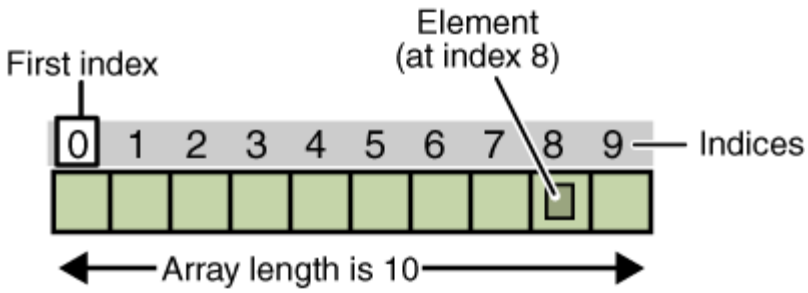
Lab – Linear Search for an Array of ints

See Canvas for due date

An array in Java is a collection of variables of a given type – for example chars or ints. One standard method to search for a given value within an array is called 'Linear Search'.



Linear Search works by traversing an array – visiting each element in the array – and comparing the value at each element with a target value. If the target value is found within the array, the method returns the index of the element where the value was found. If the value is not found in the array, -1 is returned.

Complete the following lab instructions to create a utility class and a linear search method within that class. Note your utility class will receive more methods as the quarter goes on.

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1. Create a new .java class file named SortSearchUtil.java. Note this utility class will not contain a main method – it's just a number of helper methods.
2. Create a method within the SortSearchUtil class named 'linearSearch'. This method should be defined as public, static and should return a value of type int. The method should also accept incoming parameters of int[] array – the array to search – and a single int – the target value to search for.
3. Write an array traversal looping structure that will visit each element of the array, one at a time. Each element's value should be compared to the target and if a match is found, the current element's index is returned. If no element's value matches the target value, -1 is returned.

4. Copy and paste the following code into another .java file named 'SearchTester.java'. This code contains a 'main' method that will use your utility class to perform a test of your linearSearch method:

```
public class SearchTester
{
   public static void main(String[] args)
   {
      int[] intAra = {42, 11, 68, 27, 23, 76};

      int found = SortSearchUtil.linearSearch(intAra, 68);

     if (found > -1)
      {
         System.out.println("Value 68 was found at index " +
found);
      }
      else
      {
         System.out.println("Value 68 was not found in the
array.  Sad...");
      }

}
```

5. Run your SearchTester main method to confirm the value '68' was found at index 2.

6. Print your code listings and turn in your solution on paper in class.