JUnit and Assertions

COMP 2210 – Dr. Hendrix

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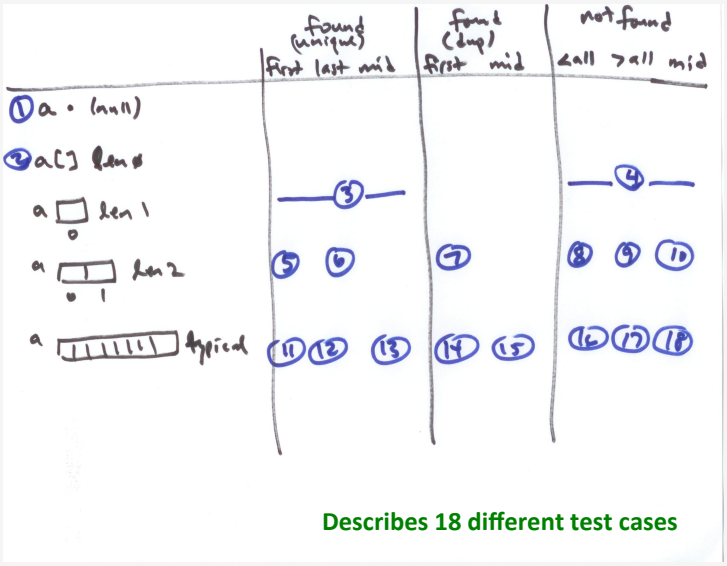
Code to develop

```
/**
 * ArrayLib.java. Defines static utility methods on arrays.
 *
 * @author  Dean Hendrix (dh@auburn.edu)
 * @version 2013-01-14
 *
 */
public class ArrayLib {

   /**
    * Returns the index of target in a or -1 if
    * target is not in a. In the case of duplicates,
    * the index nearest zero is returned. If a is null
    * or zero-length, this method throws an IllegalArgumentException.
    *
    * @param a       the array to be searched through
    * @param target  the value being searched for
    * @return        the location of target in a or -1 if not present
    * @throws        IllegalArgumentException if a is null or zero-length
    *
    */
    public static int search(int[] a, int target) {
       return -1;
    }

}
```

Planning test cases



Implementing tests with JUnit

```
import org.junit.Assert;
import org.junit.Before;
import org.junit.Test;

public class ArrayLibTest {

  @Test(expected=IllegalArgumentException.class)
  public void searchTest_null() {
     int[] a = null;
     ArrayLib.search(a, 2);
  }

  @Test public void searchTest_length0() {
     int a[] = new int[0];
     try { ArrayLib.search(a, 2);  Assert.fail(); }
     catch (IllegalArgumentException e) { // correct }
  }

  @Test public void searchTest_length1_found() {
     int[] a = {2};
     int expected = 0;
     int actual = ArrayLib.search(a, 2);
     Assert.assertEquals(expected, actual);
  }

  @Test public void searchTest_length1_not_found() {
     int[] a = {2};
     int expected = -1;
     int actual = ArrayLib.search(a, 1);
     Assert.assertEquals(expected, actual);
  }
```

Implementing tests with Java assertions

```
public class ArrayLibTest {
    public static void main(String[] args) {
        searchTest_null();
        searchTest_length0();
        searchTest_length1_found();
        searchTest_length1_not_found();
    }

    public void searchTest_null() {
        int a[] = null;
        try { ArrayLib.search(a, 2);  assert false; }
        catch (IllegalArgumentException e) { assert true; }
    }

    public void searchTest_length0() {
        int a[] = new int[0];
        try { ArrayLib.search(a, 2);  assert false; }
        catch (IllegalArgumentException e) { assert true; }
    }

    public void searchTest_length1_found() {
        int[] a = {2};
        int expected = 0;
        int actual = ArrayLib.search(a, 2);
        assert expected == actual;
    }

    public void searchTest_length1_not_found() {
        int[] a = {2};
        int expected = -1;
        int actual = ArrayLib.search(a, 1);
        assert expected == actual;
    }
```