Name: _____ CSCE 146 Program4 (Ch8) **Java Program: Recursive Binary Search**

Setup

1.	Be sure Java and Eclipse are installed.	In Eclipse go to File/New/Java Project.
2.	Name it (with no spaces):	**Program4*YourlastnameYourfirstname***
3.	Go to File/New/Class	name it the exact same as the project
4.	Import the following:	import java.util.Scanner;
5.	Go to File/New/Class	create another class named BinarySearch

Program

1. In the Main class
    a. Write a Java program that asks the user for a number to search in a sorted array of numbers (5%)
    b. hard code an int array of size 20 numbered from 0 to 95 counting by 5 (5%)
    c. create a BinarySearch object sending it the array and the number to search for in that array (5%)
2. In the BinarySearch class:
    a. Create variables: (10%)
        i. an int array called "collection" for storing the array to search in
        ii. an int variable called "target" for storing the value being searched
    b. Create a constructor that
        i. takes in an array and stores it in the "collection" & takes in an int and stores it in the "target" (10%)
        ii. call recursiveBinarySearch sending it 0 for "first" and collection.length-1 for "last" (10%)
    c. Create a method call recursiveBinarySearch that
        i. takes in int variables "first" & "last" that correspond to first & last indices to search through (5%)
        ii. have a print statement that lists the current values of first and last (5%)
        iii. check the middle ("first" + "last")/2 (10%)
            1. if middle = target return index of middle (10%)
            2. else call recursiveBinarySearch sending it new "first" and "last" values as needed (10%)

Be sure to use proper and clear comments and variable names and include the following information at the top of your code:

Name: *Your Name* **Assignment:** Program4 **Class:** CSCE 146
Semester: Spring 2015 **School:** USC Sumter

Turn in: allow instructor to copy or grade in class

Grading:	**Function:**	objectives met in part1 (send target and array)	15%
		objectives met in part2a (proper setup)	10%
		objectives met in part2b (take in target and array & proper recursive calls)	20%
		objectives met in part2c (proper recursive calls, and correct results)	40%
	Organization & Style: doc, code (variable & method names) & clear explanation (messages to user)		15%