Recitation 13 – recursion and mergesort

Exercise 1: Mergesort

Implement mergesort on an array of ints. Use the following array to get started (but create more test cases later):

int[] arr = {11, 13, 9, 101, 13, 45, 46, 21, 7, 18, 2, 33, 76, 25, 21, 2, 44};

Here are some hints:
- implement a helper method for merging parts of the array.
- test your merge method independently of the rest of your program
- Remember that the two sets of ints being merged have to each be sorted already. So merging {1,55,67} and{3, 44,60} would work, but {13, 1, 3} and {32, 22, 99} would not.

Exercise 2: Recursive Binary search
- Re-write the binary search method you wrote last week using recursion (no loops)
- What is your base case? What is your recursive step?

The output of the test
int[] arr = {1, 4, 6, 12, 16, 17, 26, 28};
System.out.println(binarySearch(arr, 6));
System.out.println(binarySearch(arr, 7));

should be

2
-1

Exercise 3: Recursion
- Write a recursive method to reverse a String.
- Write a recursive method to determine if a String is a palindrome

The output for this test
String a = "Hello";
String b = "Catdog";
String c = "CattaC";
System.out.println(reverse(a));
System.out.println(palindrome(b));
System.out.println(palindrome(c));

should be:
elloH
false
true

Last 10 Minutes – peer leader Evaluations: http://goo.gl/forms/0w8ORmuo1W