**Assignment 10 (Recursion)**

1. **Do the following problems (number 5 is for extra credit).**
2. Write a recursive method according to the following header:

public static void reverseArray(char[ ] arr, int lower, int upper)

//precondition: lower and upper are array indices, lower < upper

//postcondition: the portion of the array, arr, between lower and upper (inclusive) is reversed

1. Write a method that produces an output similar to the following (your method should be capable of reaching any specified level of depth):

This was written by call number 1.

This was written by call number 2.

This was written by call number 3.

This was written by call number 4.

This was ALSO written by call number 4.

This was ALSO written by call number 3.

This was ALSO written by call number 2.

This was ALSO written by call number 1.

1. Write a recursive method to rotate a String by N characters to the right. For example,

rotateR(“hello”, 3) should return “lohel”.

1. Given a string that contains a single pair of parentheses, compute recursively a new string made of only the parentheses and the content enclosed:

public static String retainSpecifiedCotent(String str)

Here are some sample method calls:

retainSpecifiedCotent("xyz(abc)123") 🡺 "(abc)"

retainSpecifiedCotent("x (hello)") 🡺 "(hello)"

retainSpecifiedCotent(" (xy)1") 🡺 "(xy)"

1. (Extra credit) Re-implement, with a recursion, remove method of the link-based sorted list.
2. **This part is a survey, thus will not be graded upon. I do however appreciate the feedback and your candidness. (It is suggested that you answer the following questions after you’ve done with the recursion questions above.)**
3. Did you have knowledge about “recursion” before the class we just had?
4. Now, use your own language to describe what a recursion is (if you can elaborate). (It is fine to base your description on either the information we discussed in class or your prior understanding.)
5. In your experience, what were the difficulties of using recursion to solve problems?
6. Conceptually, is there still something about recursion you don’t understand or are confused about?