CPS 210 Lab 14

PROBLEMS:

1. Read the data from *in.csv*, line by line.

   a. Store the id, name, and gpa in separate ArrayLists. Display all three lists.

   - **Hint:** id is type string due to the N in front, for the name you can store "firstName lastName", and for gpa you need to extract the double value from the string form.
   - **Recall:** Double.parseDouble(*String*))

   b. Determine the person with the highest gpa. Use a method for this. So, how can we do this? Let's think about this:

      We have 3 ArrayList's like below:

      id ⇒ [id, id2, id3,. . . , idN]

      name⇒[name1, name2, name3,…, nameN]

      gpa⇒ [gpa1, gpa2, gpa3, . . . , gpaN]

      N is the number of entries we read in.
      Note: index 0 of id, gpa and name all correspond to one person.

      If we find the index of the maximum gpa. then we can get the corresponding name at the same index in the name ArrayList.

      - **Ex.** If the max gpa is at index 2 then we can get the name at index 2.

      Even though we have three separate lists the data at each index is related, because it comes from the same line of data from the file.

The following questions should all be done **recursively**, not iteratively (no loops!!). You must call your method in the main header to test your work.

2. Write a recursive method to **compute**: $x^0 + x^1 + x^2 + \ldots + x^n$
   - **Note:** The method should take x and n as parameters.
3. Write a recursive method to **display**: $x^0 + x^1 + x^2 + \ldots + x^n$
   - **Note:** The method should display the computed values x^n .
   - **Ex.** n=3 the output should be: *1+3+9+27*
4. Write a recursive method to return the number of occurrences of a character in a string. The string and character should be parameters.
5. Write a recursive method to test if a string is a palindrome.
6. Write a recursive method to compute the sum of digits of a number.
   - **Recall:** How do we get the ones digit of a number? How do we remove the ones digit of a number?