**CS150 Lab Exam 2 v1 Fa16 Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

* Build your program a little at a time. I suggest that you write one function at a time and then run your program to make sure it works. You will receive points for the portion of the program you complete. If you submit a program that contains syntax errors, 10 points will automatically be deducted from your total score.
* Be sure to include your name as a comment at the top of the program
* Two files named **numbers1.txt** and **numbers2.txt** will be given. Each number will be on a separate line.

Write functions to complete the following tasks.

* readFile(file)
  + read numbers from a text file and store in a list
* mergeAndSort(list1, list2)
  + concatenate two lists and sort
* countMultiplesOf3(list)
  + count how many numbers in the merged list are multiples of 3 (divisible by 3 evenly)
  + write multiples of 3 to a file named **multiplesOf3.txt** (one per line)
* cubeOdds(list)
  + count how many numbers in the merged list are odd
  + write the **cube** of these odd numbers to a file named **cubeOdds.txt** (one per line)
* main()
  + call functions as appropriate to display results as shown

List 1: [70, 40, 62, 92, 63, 83, 3, 28, 22, 92, 69, 48, 41, 4, 40, 91, 70, 7, 11, …]

List 2: [47, 91, 92, 42, 20, 27, 77, 48, 50, 48, 8, 62, 93, 80, 74, 88, 31, 95, …]

Merged and Sorted: [2, 2, 3, 4, 4, 6, 7, 7, 8, 10, 11, 12, 13, 14, 16, 16, 17, 19, …]

Merged list has 100 numbers

24 numbers were divisible by 3 and sent to a file

45 numbers were odd and their cubes were sent to a file