# CS12 SI LAB4

**Problem 1: Statistic generator**

This problem is designed to get you comfortable with reading input from a file as well as becoming familiar with taking command line arguments. Your program will take as a command line argument in an input file containing a list of numbers. The first number will represent the total remaining numbers in the document . You will then read in all the numbers from the file and calculate the mean and median, printing your results to cout.

ex: *your program will be called like this:* *./a.out testfile.txt*
*if testfile.txt contains this:* *5 9 12 10 9 5*
*your output would be this:* *mean: 9 median: 9*

bonus: also calculate the mode!

// Name your .cpp file for this problem *username_l4_p1.cpp*

**Problem 2: Find the area of the triangles:**

This problem will make use of arrays and structures. You will be taking a text file as an argument (like in problem 1). The first number in the file will represent the number of triangles in the file.

ex:

*3 // the first number represents the number of triangles*
*5 7 // these two numbers represent the Height and Width of the triangle*
*3 6*
*2 4*

You will then store all the triangles in an array of structures containing three fields: Height, Width and Area. Height and Width will come from the file, but you must calculate the area. Once all the areas are calculated you will then also calculate the sum of the area that all these triangles would cover. Now write all the data back to a an output file, this time including the area of each triangle. The total area should be output to cout.

bonus: do this problem using only one fstream object!

// Name your .cpp file for this problem *username_l4_p2.cpp*

**Problem 3: Makefile!!**

Write a makefile that compiles both problem 1 and problem 2 and names their binaries problem1 and problem2. Also give your makefile the ability to clean out its binaries by typing *make clean.*

**Submission:**

To turn in this lab first make sure that all of your .cpp files are in the same directory. Then run

*tar -czvf username_lab4.tar username_l4* Makefile*

This should create a file called *username_lab4.tar* which you should upload to the given link.
https://drive.google.com/folderview?id=0B9ModvlYGFFENnVXU3U3M3MzcXM&usp=sharing