CS110 – Spring 2012

Problem Set 6 (Due Tuesday 4/24. Put in Dropbox or bring a hardcopy to class.)

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**String Manipulation**

1. (18 pts) Write a program that splits the numbers in the given myNums String, converts them to floats, and prints them to the console.

void setup() {

String myNums = "1.2, 2.3, 3.4, 4.5, 5.6";

**// Add your code here**

}

1. (18 pts) Finish the following program, which was designed to count and print the number of duplicate Strings in the myArray String array.

// Count and print the number of duplicate strings in myArray

String [] myArray = {"A", "B", "C", "D", "A", "F", "C"};

void setup() {

int count = 0;

**// Add code here**

println("There are " + count + " duplicates.");

}

**Functions and Multidimensional Arrays**

1. (10 pts) Write a function frac that takes an two integers , a numerator and a denominator, and returns a float which is the corresponding fraction. For example: println(frac(1,4)); will print 0.25.
2. (18 pts) Write a program that declares a 2D ragged float array that matches the following triangular shape and fills it with random numbers.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

**Recursion**

1. (18 pts) Add a recursive function named recursiveDigitSum () to the following program. The new function should compute and returns the sum of the digits in a string myDigits.

void setup() {

String myDigits = "123456789";

println( recursiveDigitSum( myDigits ) );

}

**ArrayLists**

1. (18 pts) Write a short program that (i) creates an ArrayList, (ii) adds to the ArrayList the numbers 0 through 9, (iii) then removes the odd numbers, and (iv) prints out all remaining items in the ArrayList.