**Programming Design Worksheet - Plata  
 for CS1310** (programs 2-7) **and CS1311** (programs 1-6) Copy this file. Type and past images to create new documents for designs.  
Print it for class (if you must miss, submit one file to Designs).

First name: Jacqueline Last name: Plata

Design for program name: Area of a Triangle

**DATA** Formulas+ if any

Heron’s formula:

Where ; a, b, and c are lengths of the sides.

Variables needed in **words** in **main** and **global**ly

The variables needed are the sides of the triangle which will be named a, b, and c these would be double. Then we also need a variable to hold the semi-perimeter which is needed in the Heron’s Formula. This variable will be named s and it will be a double. Then for Heron’s formula which we will use to find the area of the triangle will need a variable to hold the Area calculation, this variable is named Area and it is a double.

C ***declarations*** in main & global

double a;

double b;

double c;

double s;

double Area;

*(STARTING TicTacToe:put image; or draw: Insert, Drawing; or put at end of the file)***draw** in RAM with possible values

**Algorithm to PSEUDOCODE level** for each function   
(*remember to indent under if, switch, while, do-while, for*)  
 main:

Declare variables a, b, c, s and Area

Print instructions for user Print This C program will tell the user if the three side lengths they enter will make a triangle if so, it will also tell the user the Area of said triangle.

Ask user for a triangle length a

Read in length of side of triangle a

If a < 0

Print Value a is not a positive number please type a positive number

Ask user for a triangle length b

Read in length of side of triangle b

If b < 0

Print Value b is not a positive number please type a positive number

Ask user for triangle length c

Read in length of side of triangle c

If c < 0

Print Value c is not a positive number please type a positive number

If a or b or c == 0

Print The side length entered is zero please print a number greater than zero

Use the First Triangle Inequality Theorem to find out if the side make a triangle

If length of a + length of b > length of c

And length of b + length of c > length of a

And length of a + length of c > length of b

Then calculate the semi-perimeter with the formula

Then calculate Area of the Triangle with Heron’s Formula

Then Print out These side lengths are valid lengths to make a triangle

Then Print out Triangle Area

Then Print out Triangle Graphic

ELSE

Print out Not a Triangle

other functions (for above main): (put them before main in the program!)

#include<stdio.h>

#include<math.h>

**OTHER part of the design** (see assignment - *sometimes sample output*)

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