```c
/* C Program 2: Triangle. By Dave Russillo for CS1310. Returns area of triangle based on length of sides.
 * It'll use the formula A = sqrt(s * (s-a) * (s-b) * (s-c)) for the area.
 * It'll use the formula s = 1/2 * (a + b + c) for s.
 */

#include <stdio.h>
#include <math.h>

void main(void) {
    double side_a;
    double side_b;
    double side_c;
    double s;
    double area;

    printf("This program prints out the area of a triangle based on the lengths of the sides. \n"
           "It does this using Heron's formula! \n\n");
    printf(""
           "        # \n"
           "    a  #   # b \n"
           "     #      # \n"
           "   # # # # # # # \n"
           "        c \n");
    printf("Input length of side a in cm: ");
    scanf("%lf", &side_a);
    printf("\nInput length of side b in cm: ");
    scanf("%lf", &side_b);
    printf("\nInput length of side c in cm: ");
    scanf("%lf", &side_c);
    printf("\nYour inputs are: a = %lfcm, b = %lfcm, c = %lfcm. \n\n", side_a, side_b, side_c); // prints out given inputs

    if(side_a <= 0 || side_b <= 0 || side_c <= 0) { // checks if any of the values are negative
        printf("Invalid inputs. All side lengths have to be positive. \n");
    } else if(side_a + side_b <= side_c || side_a + side_c <= side_b || side_b + side_c <= side_a) { // checks if the lenghts are unviable
        printf("Not a triangle. The lengths don't make up a triangle. \n");
    } else {
        s = 0.5 * (side_a + side_b + side_c); // calculate s
        area = sqrt(s * (s - side_a) * (s - side_b) * (s - side_c)); // calculate the area
        printf("The area of your triangle is of %lf. \n", area); // prints out result
    }
}
```

```
This program prints out the area of a triangle based on the lengths of the sides.
It does this using Heron's formula!

        #
    a  #   # b
     #      #
   # # # # # # #
        c
Input length of side a in cm: 3

Input length of side b in cm: 3

Input length of side c in cm: 3

Your inputs are: a = 3.000000cm, b = 3.000000cm, c = 3.000000cm.

The area of your triangle is of 3.897114.
```

```
This program prints out the area of a triangle based on the lengths of the sides.
It does this using Heron's formula!

         #
  a  #   #  b
    #       #
  # # # # # # #
        c
Input length of side a in cm: 1

Input length of side b in cm: 2

Input length of side c in cm: 3

Your inputs are: a = 1.000000cm, b = 2.000000cm, c = 3.000000cm.

Not a triangle. The lengths don't make up a triangle.
```

```
This program prints out the area of a triangle based on the lengths of the sides.
It does this using Heron's formula!

         #
  a  #   #  b
    #       #
  # # # # # # #
        c
Input length of side a in cm: 3

Input length of side b in cm: 3

Input length of side c in cm: -3

Your inputs are: a = 3.000000cm, b = 3.000000cm, c = -3.000000cm.

Invalid inputs. All side lengths have to be positive.
```