In-Section Exercises - Week 2

CS50 — Fall 2012

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1. Declare and write a function `validTriangle()`, that takes three real numbers representing the lengths of the three sides of a triangle as its arguments, and outputs a true or false value corresponding to whether or not the three inputted sides are capable of making a triangle. Note the following:

   - A triangle may not have a side with negative length.
   - A triangle may not have a side with zero length.
   - The sum of the lengths of two of the sides of the triangle must be greater than the length of the third side.

   The function is called in this context:

```
#include <cs50.h>
#include <stdio.h>

int main(int argc, char *argv[]) {

   printf("Please input, one at a time, the lengths of the sides of a triangle.\n");

   printf("First side: ");
   int a = GetFloat();
   printf("Second side: ");
   int b = GetFloat();
   printf("Third side: ");
   int c = GetFloat();

   bool valid = validTriangle(a, b, c);

   if(valid)
      printf("This is a valid triangle!\n");
   else
      printf("This is NOT a valid triangle!\n");
}
```

2. Write a function that accepts as its parameters an integer array (called, say, `arr`) and an integer (called, say, `size`) representing the size of that array. In the body of the function, determine whether that array is in descending numerical order from `arr[0]` to `arr[size-1]`. If it is, return the string "yes" to the calling function. Otherwise, return the string "no". Do **NOT** modify the contents of `arr`!

3. Write a program that prompts the user for a message, and then outputs the message with its first letter capitalized, with all other letters in alternating case, as in the example below:

```
thanks for the add
ThAnKs FoR tHe AdD
```

   For simplicity, you may assume that the user will only input lowercase letters and spaces.