Basic String Formatting

Formatting Strings Using `upper`, `lower`, `strip`, etc.

1. A product code like A72X9 must contain a mixture of capital letters and numbers. Read a product code from the user, and capitalize all lowercase letters in it. For example, the code "`d3Jk18`" would become "`D3JK18`".
2. Ask the user to enter their name, then display it with its first letter capitalized and all other letters lowercase. For example, you should display "`Jon`" if the user enters "`jon`", "`JON`", "`JoN`", and so on.
3. Modify your program from Q2 such that it removes all whitespace from the beginning and the end of the user's name. If the user enters "`  JON  `", the name should be converted to "`Jon`".
4. Write a loop that asks the user if they want to generate a random number between 1 and 10. If the user answers "`yes`", do so. If they answer "`no`", stop the loop. For any other input, display a message indicating that the user should enter either "`yes`" or "`no`". Your program should handle all possible capitalizations, such as "`YES`" or "`yEs`", as well as additional whitespace, such as "`  Yes  `".
5. Given two strings, determine if they contain the same letters but use opposite cases, such as with the strings "`aBCdE`" and "`AbcDe`".
6. Write the program from Q5 without using the `swapcase` method.

Formatting Strings Using `center`, `rjust`, etc.

7. Ask the user to enter their name, then display it in a centred column of 20 characters padded with equal signs. That is, "`Jon`" would become "`========Jon=========`".
8. Modify your program from Q7 such that the equal signs are separated from the name by a space. That is, "`Jon`" would become "`======= Jon ========`".
9. Modify your program from Q8 to write a function, `heading`, that takes a string (*s*), a character (*char*), and a positive integer (*n*) as arguments, then displays the string centred in a column of *n* characters, padded with the specified character and a space on either side of the string, written as a title. For example, given the string "`CHAPTER 1: THE BEGINNING`", the character "*" and a width of 40, it would be displayed as "`******* Chapter 1: The Beginning *******`".
10. Given a positive integer *n*, display a table of the first *n* cubes. Display both a value and its cube on the same line, in right-aligned columns of 10 characters. For example, if *n* is 3, output should appear as follows:

```
n           n cubed
          1           1
          2           8
          3          27
```

11. Write a function that takes a positive integer (*n*) and a character (*char*) and draws a right triangle made up of that character, whose base and height are both *n* characters in size. Your function should also take a third parameter, *orientation*, which can be "TL" (top left), "TR" (top right), "BL" (bottom left) or "BR" (bottom right) which specifies the location of the right angle. For example, if *n* is 4, *char* is "X" and *orientation* is "BR", the triangle would appear as follows:

```
   X
  XX
 XXX
XXXX
```