Lab 10

Instructions:

Provide your solutions in a file named **lab10.py**. Make sure you run doctest.

Problems:

This lab will be practice for the final exam. Note that this lab will focus on recursion as it is the topic that probably deserves the most attention. The final will cover additional topics.

1. Write a ***recursive*** function `maximum` that takes an arbitrarily nested list containing numbers and returns the maximum item in that list. If given a number (not a list), then the maximum is obviously that number. If given a (nested) list, then you should accumulate a list consisting of the maximum of each branch, and return the max of the newly accumulated list. Write the base case first, then get it to work for a non-nested list, then finally for a nested list.

```
>>> maximum( 7 )
7
>>> maximum( [7,8] )
8
>>> maximum( [7,8,[9,10],[[11,[12]],13]] )
13
>>>
```

2. Write a ***recursive*** function `printstack` that prints a stack of cups with a given number of rows. The function MUST be recursive and is not allowed to use a loop (but can use multiplication with strings). Hint: have the function allow an additional parameter, and indentation value, see the last test run. Sample output:

```
>>> printstack(1)
U
>>> printstack(2)
 U
U U
>>> printstack(3)
  U
 U U
U U U
>>> printstack(6)
     U
    U U
   U U U
  U U U U
```

```
 U U U U U
U U U U U U
>>> printstack(3,2)
    U
   U U
  U U U
>>>
```