

Lab 7

Instructions:

Provide your solutions in a file named **lab7.py**. Make sure you run the doctest.

Problems:

1. Write a **recursive** function `silly` that takes a non-negative integer `n` as an input and then **prints** `n` question marks followed by `n` exclamation marks. Your function should **not** use a loop:

```
>>> silly(0)
>>> silly(1)
*!
>>> silly(2)
**!!
>>> silly(3)
***!!!
>>> silly(10)
*****!!!!!!!
>>>
```

2. Write a recursive function `stars` that accepts a positive integer as an argument and **prints** the following patterns:

```
>>> stars(1)
*
>>> stars(2)
*
**
*
>>> stars(3)
*
**
*
***
*
**
*
```

3. Write a recursive function `pattern` that accepts one argument, an integer that is a power of 2, and **prints** the following patterns. (Assume that you will always be given a power of 2, i.e., the user will not call `pattern(3)`).

```
>>> pattern(1)
1
>>> pattern(2)
112
>>> pattern(4)
1121124
>>> pattern(8)
112112411211248
```