Exercises – Functions

1. Guess Two Randoms Decomposed

   Before attempting this question you should, run and thoroughly understand the example program `guess_two_numbers_again.py`.

   The (incomplete) program `guess_two_numbers_decomposed.py` is intended to behave identically as `guess_two_numbers_again.py`.

   So far, it differs from `guess_two_numbers_again.py` in that there are invocations to two new functions: `outputYes()` and `outputNo(...)` within the if-else statement in the main function.

   Complete `guess_two_numbers_decomposed.py` by adding function declarations for `outputYes()` and `outputNo(...)`.

2. Diamond

   Before attempting this question you should, run and thoroughly understand the example program - `pyramid.py`. The example answer makes the left-hand slope of the pyramid by printing an upside down triangle of spaces to the left of the pyramid.

   Write a program called `diamond.py` and modify it. Your program should work like this:

```
Enter the height of the diamond: 11
Enter the character from which the diamond should be made: *

             *
            ***
           *****
          *******
         *********
        ***********
         *********
          *******
           *****
            ***
             *
```

   NB: This pattern only works for diamonds with an odd height. Therefore, you should deal with any attempts by the user to create diamonds of even height by adding 1.

3. This is an assessed question

Write a program called `square_numbers.py` that accepts a minimum and maximum integer as parameters and prints a square of lines of increasing numbers. The first line should start with the minimum, and each line that follows should start with the next-higher number. The sequence of numbers on a line wraps back to the minimum after it hits the maximum. Program `square_numbers.py` should contain the function `squareString`() such that the call `squareString(3, 7)` will produce the following string:

```
34567
45673
56734
67345
73456
```

If the maximum is equal to or less than the minimum, the program will produce no output.

Note: This problem is adapted from "Building Python Programs" by: Stuart Reges, Marty Stepp, and Allison Obourn, 2018

Further practice questions can be found in any of the course textbooks or at the following websites:

https://codingbat.com/python https://www.codestepbystep.com