

*Your submission for this tutorial must include your full name and you nine-digit student number as a comment at the top of every source file you submit. All source code files must be written using the Python 3 programming language and must run on the course's official virtual machine.*

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**Exercise A: "Number Triangles"**

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For this exercise you will design and implement a program that will ask the user for an integer and then print out the corresponding "number triangle". Each row of the number triangle should be printed using a repeated sequence of digits that is the same length as the row number (starting from 1), and must use the digit that corresponds to that row (with one '1' on the first row, two '2's on the second row, three '3's on the third row, four '4's on the fourth row, etc.)

```
1
22
333
4444
55555
666666
7777777
```

In order to complete this task, you will need to:

- decide whether to use a Boolean flag or a break statement for your postcondition loop

Your submission for this exercise:

- must be a source code file with filename<sup>1</sup> `'comp1405_f21_#####_tutorial_04_a.py'`
- must use a **postcondition**, **event-controlled** loop to ensure input is between 0 and 9 exclusive
- must use nested counter-controlled loops to construct the number triangle from the input

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**Exercise B: "Higher / Lower"**

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For this exercise you will design and implement a program to play the "Higher / Lower" guessing game with the user. Your program will start by generating a pseudorandom integer that is between 1 and 100 (inclusive), and then the user will have no more than 10 guesses to determine what the selected number was. After each incorrect guess, your program must report whether the actual number is higher or lower than the last guess.

In order to complete this task, you will need to:

- ensure you know how to use the random library's "randint" function

Your submission for this exercise:

- must be a source code file with filename `'comp1405_f21_#####_tutorial_04_b.py'`
- must import random and use the "randint" function to get the pseudorandom integer
- must use a postcondition, **event-controlled** loop, terminating if user wins or after 10 guesses
- must report, after each incorrect guess, whether the actual value is higher or lower
- must report whether the user has won or lost the game before ending

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<sup>1</sup> You must replace the number signs in the filename with your official nine-digit student identification number.