EFM Fall 2014, Week 3 Python Assignment

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1 Instructions

Complete as many of the following questions as possible. You should not spend more than an hour total on this assignment, regardless of your skill level. Feel free to work in groups or refer to online sources such as Stack Overflow, but refrain for looking for specific solutions to the questions.

Email your solutions to efm.uchicago@gmail.com in a single python file, named `LASTNAME_FIRSTNAME.py` Also feel free to email us if you have any problems.

2 Questions

Question 1

For n from 1 to 20, print n^2. Then do the same only for odd-numbered n.

Question 2

Using only 1 line of code, print a list of all even numbers from 0 to 100. (From what we covered, there are at least 2 ways of doing this.)

Question 3 Take a string:

```
s = "The quick brown fox jumps over the lazy dog."
```

Remove all spaces using **split**/**join**. Now do the same, except without using **split** or **join**. (Hint: You can add things to an empty string, and you can iterate over individual characters of a string.)

Question 4

Your code is probably saved to a single Python file. Print out your own source code!

Question 5

Your code probably has (should have!) some comments along the way. Print out your own source code, except omitting any lines that are comments. You may assume that a line is a comment if-and-only-if the first character of the line is a #. (You may find **splitlines** helpful.)

Question 6

Here is a randomly generated list of numbers:

```
list_1 = [44,  7, 70, 74, 55,  8, 98, 93,  3, 73, 30, 66, 99, 16, 34, 88, 28, 69, 49, 21]
```

Making use of loops and ifs, print out a list of the strictly increasing elements of that list. In other words, starting from the first element, keep ignoring elements until the next element that is larger-than the first. For example for

```
list_2 = [2,1,4,3,5]
```

Your result should be

```
[2,4,5]
```

Question 7

Go to https://www.quandl.com/FRED/UNRATE-Civilian-Unemployment-Rate and download the relevant CSV file.

1. Print the average unemployment rate.
2. Print the date and value of the highest unemployment rate. Do the same for the lower unemployment rate.
3. Create a list of the *changes* in unemployment rate. Create the corresponding list of dates.
4. Print the dates and values of the highest and highest and lowest changes in unemployment.
5. (Bonus) Create a list of the average unemployment rates per year (as well as the corresponding list of dates). Which year has the highest level of unemployment?