Natural Language Processing (CSC 206) **Name (Print):** _____
Spring 2015

Problem Set 1: Remembering Python

Due: Monday, March 6 2015, before class

Review your Python. See the links to resources on Nexus. Then write some Python programs addressing the following tasks. Please save your programs in files with names *exactly* as indicated in the problem description. Save all your Python files in one folder and then .zip up the folder. Submit the zipped folder on Nexus.

Make sure to ask if you have problems with any of these steps.

Questions:

1. *99 Bottles of Beer* is a traditional song in the United States and Canada. It is popular to sing on long trips, as it has a very repetitive format which is easy to memorize, and can take a long time to sing. The song's simple lyrics are as follows:

   > 99 bottles of beer on the wall, 99 bottles of beer. Take one down, pass it around, 98 bottles of beer on the wall.

   The same verse is repeated, each time with one fewer bottle. The song is completed when the singer or singers reach zero.

   Your task here is write a function called `beer` capable of printing out all the verses of the song.

   Save your program in a file called `beer.py`.

2. The third person singular verb form in English is distinguished by the suffix -s, which is added to the stem of the infinitive form: run $\rightarrow$ runs. A simple set of rules can be given as follows:

   - If the verb ends in y, remove it and add ies
   - If the verb ends in o, ch, s, sh, x or z, add es
   - By default just add s

   Your task in this exercise is to define a function `make_3sg_form` which given a verb in infinitive form returns its third person singular form. Test your function thoroughly with words covering all the different cases. Note however that the rules must be regarded as heuristic, in the sense that you must not expect them to work for all cases. Tip: Check out the string method `endswith()`.

   Save your program in a file called `third-person.py`.

3. Define a function `histogram` that takes a list of integers and prints a histogram to the screen. For example, `histogram([4, 9, 7])` should print the following:

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

   Save your program in a file called `histogram.py`.

Make sure that you use the function names and file names that are specified in the instructions.