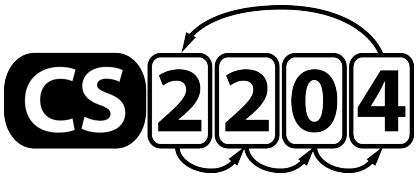
Homework #1



CDC Mortality Statistics - 2014

Purpose

Gain experience in using and manipulating Python list and string objects.

Background

The Centers for Disease Control and Prevention (CDC) Wide-ranging ONline Data for Epidemiologic Research (WONDER) database contains a rich collection of public-use data on U.S. births, deaths, and various illnesses. You will be supplied with a simplified version of the 2014 U.S. Mortality Statistics grouped by ICD-10 codes. ICD-10 allows more than 10000 different codes for exact medical diagnoses. For example, "I25.4" encodes "Coronary artery aneurysm". See the relevant Wikipedia entry (https://en.wikipedia.org/wiki/ICD-10) for details.

You will be supplied by two python files: `cdc.py` and `hw1.py`. The first file contains the actual database, but can be safely ignored, because `hw1.py` already takes care of loading this data and makes it available through two global variables: `db` and `code_names`.

The `db` object is a list of lists: every element is a pair of an ICD-10 diagnosis code (as a string) and the number of deaths in this category (integer):

```
[['A02.0', 11], ['A02.1', 23], ['A02.2', 2], ... ]
```

The second variable, `code_name` is a dictionary containing ICD-10 code (string) to diagnosis name (string) mappings:

```
code_names = {'P23.9': 'Congenital pneumonia, unspecified',
'W37': 'Explosion and rupture of pressurized tyre, pipe or
hose', 'G61.0': 'Guillain-Barre syndrome', ...}
```

The Assignment

There are 6+1 functions in the `hw1.py` file, which have not been implemented. You assignment is to replace the current `pass` statements with proper implementation. The specification for each function is given in their *docstrings*.

There is a built-in testing function, so you can run `hw1.py` any time and see your current progress.

Grading

This project is worth 100 points (not counting the extra credit function). Your grade depends on the correct implementation of each function as follows:

Function	Points
deaths_by_code()	10
most_deaths()	15
codes_above()	15
codes_below()	15
sum_deaths_by_codes()	20
sum_deaths_by_query()	25
sum_deaths_by_chapter()	+13

Note, that passing all or any of the built-in tests **does not guarantee maximum points** in the final grading. We also consider the followings:

- The use of good programming style (following PEP 8 guidelines)
  You can use http://pep8online.com/ to check your style.
- Clear and concise solutions: no functions are expected to be longer then ~10 lines

Assignments can and should be submitted even if do not pass all of the built-in tests by the submission deadline.

Submission

Please, fill in the `hw1.py` header your name, VUnetID and email address. You need to submit only this (`hw1.py`) file by visiting the assignment page on Blackboard. You should also review the syllabus regarding the penalties for late programming assignments and last minute assistance.

Acknowledgements

CDC WONDER is a public service developed and operated by the Centers for Disease Control and Prevention, an agency of United States federal government. The public web site at http://wonder.cdc.gov is in the public domain, and only provides access to public use data and information. You may access the information freely, and use, copy, distribute or publish this information without additional or explicit permission.