Lab 12

Learning Objectives:

I. **What characters do I type next?** *What is the syntax of a regular expression? How do I use the regular expression module?* This lab will give you the opportunity to practice writing and using regular expressions.

Part 1: Regex Exercises

Use website: `http://www.regexr.com/` for testing regular expressions (regexes). Start by entering some text in the "Text" tab. You can then write a regex in the top window, and the matches will appear highlighted.

Write regexes to match the following patterns:
* An email address, i.e. `someone@somewhere.com`
* A URL (`http://www.website.com/page` or similar)
* A name listed as `Lastname, Firstname` with the first letter of each capitalized
* A phone number. Should have area code and be correct length.
* A data in `MM/DD/YY` format (be careful about what values are permitted!)

For each example above, write down its corresponding regex in the file `regex.txt`, with each regex preceded by a 1-line description of what it does. You'll submit this file with the rest of the lab.

Part 2: Working with Groups

The files `people.txt` and `people-long.txt` contain lists of names, email addresses, and phone numbers in a consistent format. Open one in a text editor to see what you're dealing with. **Your task is to write a regular expression that allows you to selectively extract fields of interest while ignoring any extraneous information** (like white spaces, formatting, etc.).

To do this, you'll want to create groups inside your regex using the `"...(`*`pattern`*`)..."` notation. Alternatively, you can name your groups with the syntax `"(?P<`*`name`*`>`*`pattern`*`)"`, which will assign each matched pattern a name. You can then extract the groups as a Python `dict` using `m.groupdict()`.

Feel free to use the website from Part 1 to prototype your regex, using a few sample lines from `people.txt` to test. Then, modify the starter code in `contacts.py` to extract the full name and email address of each person and print them in the following format:

<div align="center">

`John Doe: username@domain.com`

</div>

Run contacts.py using e.g. `./contacts.py people.txt`. Once you have this working, augment your code so that it prints them in alphabetical order (by first name). *Hint: if you have a list of tuples, the built in* `sorted()` *and* `list.sort()` *functions will sort by the first element.*