CS 8, Winter 2015

Homework Assignment #? (draft)

Assignment Overview

This assignment focuses on a combination of file, string, list and dictionary processing to answer two types of queries: What actors appeared in a particular movie and in what movies did an actor take a part in?

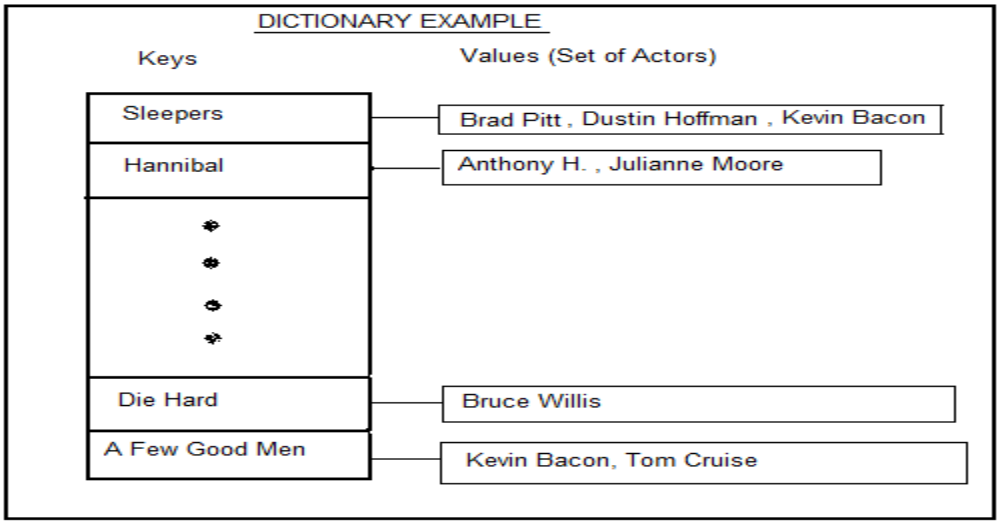
Background

Websites like IMDB (which stands for Internet Movie DataBase) maintain a lot information about movies, actors, etc. If you search for a movie on the website, a web page showing information about the movie is displayed. It also shows all the actors in it. If you click on the hypertext link for an actor, you are taken to the actor's web page and can find all the info about him/her, e.g., names of movies in which the actor has acted. This assignment should give you some insight into the working of such websites.

Assignment Specifications

Provided to you is a file called "movies.txt" in which each line is of the form:
Name of Actor, Movie1, Movie2, Movie3…. Fields in the files are separated by comma.

What is an appropriate data structure for this assignment? Both movie names and actor names are unique, and in a dictionary, the keys are unique. Hence, dictionary seems to be the logic choice for the data structure. Do note that while it is obvious that you can create a dictionary with the keys being the names of actors and values being the movies that he/she was in by parsing the input file, that particular dictionary is not suited for answering queries like "which actors are featured in this particular movie?" Or another dictionary, depicted graphically below will need to be constructed too, i.e., using names of the movies as keys and storing names of the actors, instead of using names of the actors as keys and storing names of the movies the actors were in.



Assignment Deliverables

The deliverable for this assignment is the following file:

movies.py – the source code for your Python program

Be sure to use the specified file name and submit it for grading via the **turnin** system before the project deadline.

Assignment Notes

1. Read in the lines from the "movies.txt" file. Each line should contain a unique actor name and the movies that the actor played in. This should be sufficient to create an entry in the "actor" dictionary.

2. To create a "movie" dictionary, you need to do the following for each line:
    a. If the movie name has not already been entered into the "movie" dictionary, add it as a key, and store the name of the actor as a value.
    b. If the movie name exists in the movie dictionary, add the actors name to the set of actors (i.e., to the value) in the dictionary.

3. You must allow partial match of movie and actor names in a case insensitive manner. E.g., a search term "tom" will match both "Tom Hanks" and "Tom Cruise."

4. Your program cannot prompt the user for any other inputs.

5. Your program will handle erroneous user inputs. If there are any problems with a particular user input, your program will display the menu and allow the user to select another option or provide a default option.

6. Your program should comprise the following functionalities: open and parse input files into two databases – one uses actors as keys and the other uses movies as keys, display a user prompt and return user choice, perform database search using either the actors or movies dictionary, and format and display search results. All these functionalities should be invoked appropriately by one function called “query” which accepts one single argument that is the name of the input file.

Sample Output:

```
>>> movies.query('movies.txt')
movies [1] or actresses/actors search [2], or quit [0] : 5
choice not recognized, default to movie search
enter the name of the movie: harry potter
sorry, no movie with such a name found
movies [1] or actresses/actors search [2], or quit [0] : 1
enter the name of the movie: mail
the following actresses/actors are in moive you have got mail : ['tom hanks', 'meg ryan']
movies [1] or actresses/actors search [2], or quit [0] : 2
enter the name of the actor/actress: tom
the following movies: ['top gun', 'mission impossible', 'jerry maguire', 'a few good men'] starred tom cruise
the following movies: ['you have got mail', 'apollo 13', 'sleepless in seattle', 'catch me if you can'] starred tom hanks
movies [1] or actresses/actors search [2], or quit [0] : 2
enter the name of the actor/actress: ryan
the following movies: ['you have got mail', 'sleepless in seattle'] starred meg ryan
movies [1] or actresses/actors search [2], or quit [0] : 2
enter the name of the actor/actress: smith
the following movies: ['wild wild west', 'pursuit of happyness', 'hitch', 'men in black'] starred will smith
movies [1] or actresses/actors search [2], or quit [0] : 1
enter the name of the movie: men
the following actresses/actors are in moive a few good men : ['tom cruise', 'kevin bacon']
the following actresses/actors are in moive men in black : ['will smith']
movies [1] or actresses/actors search [2], or quit [0] : 0
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