

CS118

Phone Book

Write a simple phone book program. Provide a menu that allows the user to choose from four options:

- A. Add to the phone book
- D. Delete from the phone book
- L. Look up phone number using name
- X. Exit the program.

For the Add and Delete options process the option through function calls – provide a function for each option (name them `add_phone()` and `delete_phone()`) except for the Lookup and Exit option. For the L option there is no need for a function since there is very little code needed – just put it in the main program's menu processing section.

Keep it simple – keep just first names, last names, and phone numbers in the phone book. Repeat the menu and processing of the user's choices until the user chooses to exit.

· When the program is working with phone book data, everything will be stored in a dictionary called `Book` which maps (lastname, firstname) → phone number. At the start of the program this dictionary will be empty and the program will provide the ability to add new entries.

· For each of the menu options, have the user provide the desired name and/or phone number in the main program and send it/them to the appropriate function as argument(s) along with the dictionary `Book` – see the function details below.

· The functions will update the phone book dictionary every time an addition or deletion is made to the dictionary and return the modified dictionary to the main program.

`add_phone()`

This function will need the phone book, a first name, a last name, and a phone number provided as arguments. Have the `add_phone()` function determine if the desired name is already in the phone book. If it is and there is no phone number associated with that name, add the provided phone number to the dictionary under the name pair tuple as key. If the name is not in the phone book, add a new mapping with the names and phone number provided. The function will return two values: First, a Boolean value (**Python keyword `True` or `False` – note that these are NOT strings, so there are no quotes around them**) indicating success or failure; second, the possibly-modified phone book. Have the main program use the Boolean return value to print out an error message if the addition failed, or a confirmation of success.

`delete_phone()`

This function will need the phone book, a first name, and a last name provided as arguments. Have the `delete_phone()` function determine if the desired name is already in the phone book dictionary. If it is, delete the entire mapping. Return two values: First, a Boolean value indicating success or failure; second, the possibly-modified phone book. Have the main program use the Boolean return value to print out an error message if the deletion failed, or a confirmation of success.

Use of a Data File

It is a fairly simple extension to add a data file to this program once it's complete, although **you are not required to do that**. If you wish you can read data from a file and fill the starting dictionary with that data instead of making the dictionary start empty. Upon choice of Exit from the menu the program would then reverse the process, erasing the data file and writing the dictionary contents out to the file.