Programming Project 2 : Repetition, Lists, and Tuples

Before looking at this assignment, please give the following video, which gives advice on how to learn to program, a good, long, look.

← click the blue image to open a YouTube video

Writing a progam

Assignment

The data for this program is a list containing information on trips some employees have made, while on business, to a couple of cities where the company has offices. Each list item is a tuple that contains a name, a destination, and a round-trip mileage. This is the data you should use. As you can see, the first trip is taken by alice, to chicago, traveling 302 miles round trip.

```
trips = [
        ("alice", 'chicago', 302),
        ("bruce", 'chicago', 309),
        ("david", 'chicago', 307),
        ("carol", columbus', 212),
        ("alice", 'chicago', 304),
        ("bruce", 'chicago', 301),
        ("david", columbus', 215),
        ("alice", 'chicago', 302),
        ("carol", 'chicago', 305),
        ("bruce", 'chicago', 304),
        ("carol", columbus', 218),
        ("alice", columbus', 217),
        ("carol", 'chicago', 309),
        ("david", columbus', 219)
    ]
```

Write a program using menus as discussed near the end of the lesson on functions.

The menu options must be the following. Each of the first 3 options should call a function to accomplish the proper task.

```
Program Options.
    1.) Display all trips
    2.) Input new trip
```

```
    3.) Display trips by Name
    4.) Exit
```

Here is a possible program run. We enter 1 to print all trips in the list. If we enter 3, we are asked to enter a name, and after entering a name and hitting enter the code displays all the trips by a given person, alice in this case.

If we enter 2 we would be prompted to enter the name, destination, and milage for a new trip. That new trip would be added, as a tuple, to the list of trips. After adding a new trip, it should show up if we then choose option 1 and display all trips. Note that the data lines up neatly for option 1.

```
========== RESTART: E:\CIT-257\program_solutions\prog2s

 Program Options.
    1.) Display all trips
    2.) Input new trip
    3.) Display trips by Name
    4.) Exit

Enter 1, 2, 3, or 4: 1

Round-trip Milage
Name      Destination       Miles
alice     chicago            302
bruce     chicago            302
david     chicago            302
carol     columbus           217
alice     chicago            302
bruce     chicago            302
david     columbus           217
alice     chicago            302
carol     chicago            302
bruce     chicago            302
carol     columbus           217
alice     columbus           217
carol     chicago            302
david     columbus           217

 Program Options.
    1.) Display all trips
    2.) Input new trip
    3.) Display trips by Name
    4.) Exit

Enter 1, 2, 3, or 4: 3

Enter first name (alice, bruce, carol, or dave): alice
alice     chicago            302
alice     chicago            302
alice     chicago            302
alice     columbus           217

 Program Options.
    1.) Display all trips
    2.) Input new trip
    3.) Display trips by Name
    4.) Exit

Enter 1, 2, 3, or 4:
```

For full credit, you need to do the following.

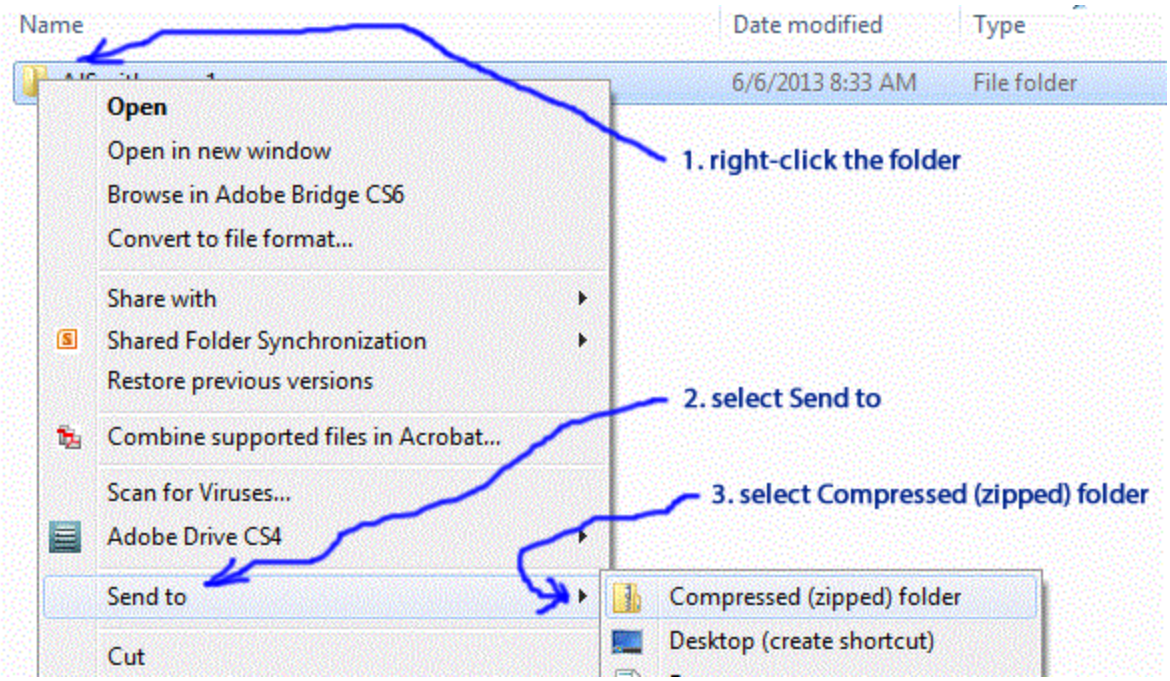
1. use the list of tuples given above as a starting point for data.
2. option 1 should print the full list of tuples, and the printing needs to be formatted so that the data lines up neatly.
3. option 2 needs to work so that a user can enter the name, destination, and mileage for a new trip, and have that data be added as a tuple to the list.
4. options 3 need to allow filtering the list by name. examples of this are given in the lecture notes
5. option 4 just needs to allow the program to end
6. if the user does not enter 1, 2, 3 or 4 as an option, you need to print an error message and have them re-enter their choice.
7. there needs to be a main function that kicks things off, and you need to write a function to print the whole list, a function that allows inputting a new trip, and a function that filters by name and prints all the trips for that given name. These functions are called when the user types in a given option from the menu.
8. if you add a new trip, everything should still work

If you get good and stuck email me you code and we'll get it working.

How To Submit Your Program

When you're finished put the program in a new folder and name that folder using your name and project number. For example the folder might be named `AJSmith-prog1`. ***Please put your name on the folder as well as having your name in a comment in the file itself.*** I get lots of programs; putting your name on the folder help keep things organized and shortens the amount of time it takes to get things graded.

After creating the folder, Zip (compress) the folder by right-clicking on it, and then choosing **Send to** from the pop-up menu, then select **Compressed folder**. This will crate a new zipped folder identifiable by the little zipper on the folder icon.



Then, attach the zipped folder to an email and send it to me.

> Please use your student email account rather than Blackboard email.

Thanks...

Again, if there are questions about this, let me know: mark.prather@kctcs.edu..