

Program Instructions

1. Write a Python program that performs as a Tuffy Titan Contact List which contains a dictionary of contacts that is stored on the hard drive and that can have contacts added, modified, or deleted.
2. Create a contacts module to meet the following requirements:
 - i. Create a file named `contacts.py`.
 - a. Define a class named `Contacts`.
 - a. Define a member function named `__init__` to meet the following requirements:
 - a. Take a `self` as a positional parameter.
 - b. Take a `filename` as a keyword parameter.
 - c. Set a member variable equal to the filename.
 - d. Set a member variable equal to an empty data dictionary.
 - e. Open the filename and load the JSON decoded contents to the empty data dictionary.
 - f. Cleanly manage the `FileNotFoundError` if the filename does not exist.
 - b. Define a member function named `add_contact` to meet the following requirements:
 - a. Take a `self` as a positional parameter.
 - b. Take `id` as a keyword parameter.
 - c. Take `first_name` as a keyword parameter.
 - d. Take `last_name` as a keyword parameter.
 - e. If the `id` exists in the data dictionary, return the string error.
 - f. Set the `id:[first_name, last_name]` key:value pair to the data dictionary.
 - g. Sort the data dictionary in ascending order by last name, and then by first name, ignoring case.
 - h. Write the contents of the data dictionary to the filename that was set to the member variable.
 - i. Return the key:value pair that was added.
 - c. Define a member function named `modify_contact` to meet the following requirements:
 - a. Take `self` as a positional parameter.

- b. Take `id` as a keyword parameter.
 - c. Take `first_name` as a keyword parameter.
 - d. Take `last_name` as a keyword parameter.
 - e. If the `id` does not exist in the dictionary, return the string `error`.
 - f. Set the `id:[first_name, last_name]` key:value pair to the contact dictionary.
 - g. Sort the data dictionary in ascending order by last name, and then by first name, ignoring case.
 - h. Write the contents of the data dictionary to the filename that was set to the member variable.
 - i. Return the key:value pair that was modified.
 - d. Define a member function named `delete_contact` to meet the following requirements:
 - a. Take `self` as a positional parameter.
 - b. Take `id` as a keyword parameter.
 - c. If the `id` does not exist in the dictionary, return the string `error`.
 - d. Remove the key:value pair with the key equal to `id`.
 - e. Write the contents of the data dictionary to the filename that was set to the member variable.
 - f. Return the key:value pair with the key equal to `id`.
- 3. Create a main driver program to meet the following requirements:
 - i. Create a file named `main.py`.
 - ii. Import the `contacts` module.
 - iii. Instantiate a `Contacts` object with any default filename.
 - iv. Implement a menu within a loop with following choices:
 - a. Add contact
 - b. Modify contact
 - c. Delete contact
 - d. Print contact list
 - e. Set contact filename
 - f. Exit the program
 - v. Prompt the user for the menu choice.
 - vi. Prompt the user for the information needed for the appropriate `contacts` member function and call the function.
 - vii. Print out appropriate errors with function return values of `error`.

4. After thoroughly testing your program, upload main.py and contacts.py to Canvas.

Typical input and output for the program:

```
*** TUFFY TITAN CONTACT MAIN MENU
```

1. Add contact
2. Modify contact
3. Delete contact
4. Print contact list
5. Set contact filename
6. Exit the program

Enter menu choice: 1

Enter phone number: 7145551212
Enter first name: Steve
Enter last name: Jobs
Added: Steve Jobs.

```
*** TUFFY TITAN CONTACT MAIN MENU
```

1. Add contact
2. Modify contact
3. Delete contact
4. Print contact list
5. Set contact filename
6. Exit the program

Enter menu choice: 1

Enter phone number: 5625553333
Enter first name: Bill
Enter last name: Gates
Added: Bill Gates.

```
*** TUFFY TITAN CONTACT MAIN MENU
```

1. Add contact
2. Modify contact
3. Delete contact
4. Print contact list
5. Set contact filename
6. Exit the program

Enter menu choice: 4

```
===== CONTACT LIST =====  
Last Name      First Name      Phone  
=====
```

Gates	Bill	5625553333
Jobs	Steve	7145551212

*** TUFFY TITAN CONTACT MAIN MENU

1. Add contact
2. Modify contact
3. Delete contact
4. Print contact list
5. Set contact filename
6. Exit the program

Enter menu choice: 1

Enter phone number: 7145551111

Enter first name: Alpha

Enter last name: Jobs

Added: Alpha Jobs.

*** TUFFY TITAN CONTACT MAIN MENU

1. Add contact
2. Modify contact
3. Delete contact
4. Print contact list
5. Set contact filename
6. Exit the program

Enter menu choice: 4

```
===== CONTACT LIST =====
Last Name      First Name      Phone
=====
Gates          Bill           5625553333
Jobs           Alpha          7145551111
Jobs           Steve          7145551212
```

*** TUFFY TITAN CONTACT MAIN MENU

1. Add contact
2. Modify contact
3. Delete contact
4. Print contact list
5. Set contact filename
6. Exit the program

Enter menu choice: 1

Enter phone number: 7145551111

Enter first name: Richard

Enter last name: Stallman

Phone number already exists.

*** TUFFY TITAN CONTACT MAIN MENU

1. Add contact
2. Modify contact
3. Delete contact

4. Print contact list
5. Set contact filename
6. Exit the program

Enter menu choice: 2

Enter phone number: 7145551111
Enter first name: Richard
Enter last name: Stallman
Modified: Richard Stallman.

*** TUFFY TITAN CONTACT MAIN MENU

1. Add contact
2. Modify contact
3. Delete contact
4. Print contact list
5. Set contact filename
6. Exit the program

Enter menu choice: 4

```
===== CONTACT LIST =====
Last Name      First Name      Phone
=====
Gates          Bill           5625553333
Jobs           Steve          7145551212
Stallman       Richard        7145551111
```

*** TUFFY TITAN CONTACT MAIN MENU

1. Add contact
2. Modify contact
3. Delete contact
4. Print contact list
5. Set contact filename
6. Exit the program

Enter menu choice: 3

Enter phone number: 5625553333
Deleted: Bill Gates.

*** TUFFY TITAN CONTACT MAIN MENU

1. Add contact
2. Modify contact
3. Delete contact
4. Print contact list
5. Set contact filename
6. Exit the program

Enter menu choice: 4

```
===== CONTACT LIST =====
```

Last Name	First Name	Phone
Jobs	Steve	7145551212
Stallman	Richard	7145551111

*** TUFFY TITAN CONTACT MAIN MENU

1. Add contact
2. Modify contact
3. Delete contact
4. Print contact list
5. Set contact filename
6. Exit the program

Enter menu choice: 3

Enter phone number: 7145559999
Invalid phone number.

*** TUFFY TITAN CONTACT MAIN MENU

1. Add contact
2. Modify contact
3. Delete contact
4. Print contact list
5. Set contact filename
6. Exit the program

Enter menu choice: 4

CONTACT LIST		
Last Name	First Name	Phone
Jobs	Steve	7145551212
Stallman	Richard	7145551111

*** TUFFY TITAN CONTACT MAIN MENU

1. Add contact
2. Modify contact
3. Delete contact
4. Print contact list
5. Set contact filename
6. Exit the program

Enter menu choice: 6