Final Project

College of DuPage

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Intro to Python	Spring 2022	May 1, 2022

Part 6: Saving and Reloading Data

As of now all your data is lost whenever you exit your database program. But a database isn't very useful if it can't save data.

In this part, you will be adding a `save(filename)` and `load(filename)` method to your `[your_datatype]_database.[ClassName]Database` class from Part 5.

- `[your_datatype]_database.[ClassName]Database.save(filename)` will create a `.csv` file named `filename` in the current directory and save the contents of the database to that file. Each line of `filename.csv` will correspond to one item in the database, and within a line, you will print all three attributes separated by commas. (use the `csv.writer` class).

  Ex: Using my NFLPlayerDatabase class from Part 5, suppose I currently a database containing

  - Peyton Manning (QB, 18 years)
  - Shaun Suisham (K, 10 years)

  Then calling: `my_nfl_db.save("myfile.csv")` should create a file named `myfile.csv` in the current directory, with the following 2 lines:

  ```
  Peyton Manning,QB,18
  Shaun Suisham,K,10
  ```

- `[your_datatype]_database.[ClassName]Database.load(filename)` will load data from a `.csv` file named `filename` in the current directory into your current database. You can assume that the data is stored with one item per line, and all 3 attributes are separated by commas, just as you saved it with your `save` function. (hint: use the `csv.reader` class to loop over every line in the file. For each line, create a new `[your_datatype].DataType` object and add it to your database using the `[your_datatype]_database.[ClassName].addItem(item)` method from Part 5).

Next, add two additional options to your `databaseio.display_menu()` function in `databaseio.py`:

- save the current database to a user-specified file;
- load a saved database from a user-specified file.

Finally, update your `main.py` file by adding code for performing the following 2 operations.

- `your_database.[ClassName]Database.save(filename)` when the save option is chosen from the menu;
- `your_database.[ClassName]Database.load(filename)` when the load option is chosen from the menu.

Deliverable:
Send me the following deliverables.

- Send me your updated `databaseio.py` file, with the additional menu options in `databaseio.display_menu()`.
- Send me your latest class files `[your_datatype].py` and `[your_datatype]_database.py`.
- Send me your updated `main_pt6.py` file.
- Send me two output from running `main_pt6.py` in `main_pt6_test_save.txt` and `main_pt6_test_load.txt`.
  - The first test should show you adding several items to a database, then saving it.
  - The second test should show you loading the database from your first test, then displaying it.

Example:
for my NFL Player database, I would send the following files:

- `databaseio.py` file, with the new menu options in `databaseio.display_menu()`;
- `nfl_player.py` and `nfl_player_database.py`;
- `main_pt6.py`; and
- `main_pt6_test_save.txt` and `main_pt6_test_load.txt`.

The contents of `main_pt6_test_save.txt` might look like this:

```
>>> python3 main_pt6.py
------------------------------------------------------
Welcome to the database of NFL players!
------------------------------------------------------
Select one of the following options:
------------------------------------------------------
a -- add a player to the database
d -- delete a player from the database
p -- print the database of players
s -- save the current database of players
l -- load an existing database of players
```

```
e -- exit the NFL Player Database
-----------------------------------------------------
Make your choice here:  a
Enter the name of a NFL Player: Peyton Manning
Enter the abbreviated position of the player: QB
Enter the number of years the player has been in the NFL: 18
-----------------------------------------------------
Welcome to the database of NFL players!
-----------------------------------------------------
Select one of the following options:
-----------------------------------------------------
a -- add a player to the database
d -- delete a player from the database
p -- print the database of players
s -- save the current database of players
l -- load an existing database of players
e -- exit the NFL Player Database
-----------------------------------------------------
Make your choice here:  a
Enter the name of a NFL Player: Shaun Suisham
Enter the abbreviated position of the player: K
Enter the number of years the player has been in the NFL: 10
-----------------------------------------------------
Welcome to the database of NFL players!
-----------------------------------------------------
Select one of the following options:
-----------------------------------------------------
a -- add a player to the database
d -- delete a player from the database
p -- print the database of players
s -- save the current database of players
l -- load an existing database of players
e -- exit the NFL Player Database
-----------------------------------------------------
Make your choice here:  s
Please enter a name for your save file: nfldb.csv
-----------------------------------------------------
Welcome to the database of NFL players!
-----------------------------------------------------
Select one of the following options:
-----------------------------------------------------
a -- add a player to the database
d -- delete a player from the database
p -- print the database of players
s -- save the current database of players
l -- load an existing database of players
e -- exit the NFL Player Database
-----------------------------------------------------
Make your choice here:  e
```

Then the contents of the csv file nfldb.csv would look like this:

```
Peyton Manning,QB,18
Shaun Suisham,K,10
```

After reloading, the contents of `main_pt6_test_load.txt` are:

```
>>> python3 main_pt6.py
-----------------------------------------------------
Welcome to the database of NFL players!
-----------------------------------------------------
Select one of the following options:
-----------------------------------------------------
a -- add a player to the database
d -- delete a player from the database
p -- print the database of players
s -- save the current database of players
l -- load an existing database of players
e -- exit the NFL Player Database
-----------------------------------------------------
Make your choice here:  l
Please enter the name of the data file to load: nfldb.csv
-----------------------------------------------------
Welcome to the database of NFL players!
-----------------------------------------------------
Select one of the following options:
-----------------------------------------------------
a -- add a player to the database
d -- delete a player from the database
p -- print the database of players
s -- save the current database of players
l -- load an existing database of players
e -- exit the NFL Player Database
-----------------------------------------------------
Make your choice here:  p

NFL Player:
Name: Peyton Manning
Position: QB
Years in NFL: 18

NFL Player:
Name: Shaun Suisham
Position: K
Years in NFL: 10
-----------------------------------------------------
Welcome to the database of NFL players!
-----------------------------------------------------
```

```
Select one of the following options:
-----------------------------------------------------
a -- add a player to the database
d -- delete a player from the database
p -- print the database of players
s -- save the current database of players
l -- load an existing database of players
e -- exit the NFL Player Database
-----------------------------------------------------
Make your choice here:  e
```