Final Project

College of DuPage

Course Title:	Academic Semester:	Last Update:
Intro to Python	Spring 2022	May 8, 2022

Final Submission

Your database object and driver is finished! It's time to polish your work for the final submission.

- Make sure that you have met all the specifications for the last 2 deliverables (parts 5 and 6);
- Make sure that all of your code is written in good style and legible (preferably with some comments);
- Take some time to test some corner cases that you may have forgotten.

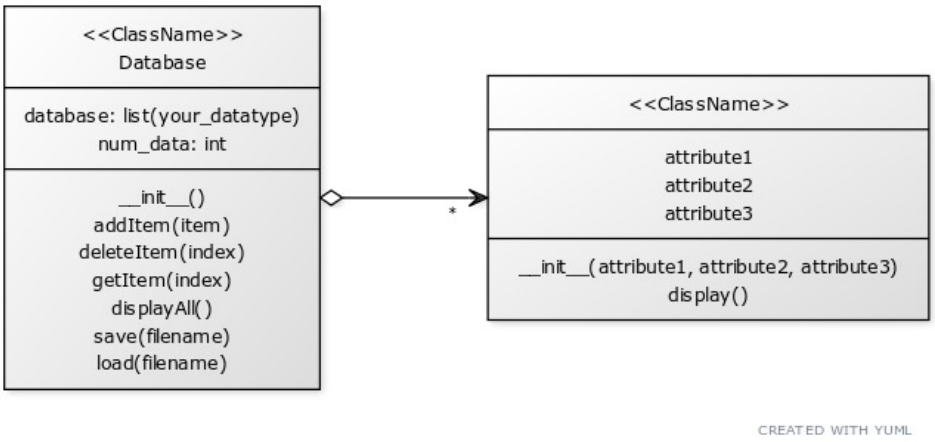
Here is a summary of what you should have at this time:

The `databaseio.py` file/module contains the following 3 functions:

- `databaseio.read_data()`
- `databaseio.print_data(a, b, c)`
- `databaseio.display_menu()` – should display prompts for the following menu options:
  - Add an item to the database
  - Delete an item from the database
  - Print the current database
  - Save the current database to a csv file
  - Load the current database from a csv file
  - Exit

  `databaseio.display_menu()` returns the selection made by the user.

The `[your_datatype].py` file and `[your_datatype]_database.py` files, which implement the classes depicted in the following UML diagram:



`[your_datatype].[ClassName]` (in `[your_datatype].py` is further described below:

- `attribute1`, `attribute2`, and `attribute3` are your 3 attributes, chosen back in Part 1;
- `__init__(self, attribute1, attribute2, attribute3)` is the constructor, which sets `self.attribute1 = attribute1`, `self.attribute2 = attribute2`, and `self.attribute3 = attribute3`
- `display(self)` prints `self.attribute1`, `self.attribute2`, and `self.attribute3` by calling `databaseio.print_data()`

`[your_datatype]_database.[ClassName]Database` (in `[your_datatype]_database.py`) is further desrcibed below:

- `database` is a Python list of `[your_datatype].[ClassName]` objects and `num_data` is an integer tracking the number of entries in `database`;
- `__init__(self)` is a constructor, which sets `database = []` and `num_data = 0`.
- `addItem(self, item)` appends an item (of type [your_datatype]) to the `self.database` list and increments the counter `self.num_data` by +1;
- `deleteItem(self, index)` removes the entry at index `index` from `self.database`;
- `getItem(self, index)` returns the `[your_datatype].[ClassName]` object at `self.database[index]`;
- `displayAll(self)` prints every item in `self.database` using their display() functions;
- `save(self, filename)` serializes this object and prints it to a csv file;
- `load(self, filename)` loads the serialized contents of a previous database from a csv file.

Finally, you should have a fully-update `main.py` (if you got 100% on Part 5 and 6, just copy the same `main_pt6.py` file), which runs an execution loop to get menu options from the user using `databaseio.display_menu()`, then performs the specified action on an instance of your database class.

Deliverable:
Send me the following final deliverables:

- `databaseio.py`;
- `[your_datatype].py`;
- `[your_datatype]_database.py`;
- `main.py`;
- `main_test.txt` – an output file where you run main.py and thoroughly test every option.

Rubric:

Task:	**Points:**
The "add" option prompts user for 3 relevant attributes	50
The "add" option validates inputs and "print" option formats outputs	50
I/O handled in a *separate file*: `databaseio.py`	50
Uses a main execution loop in the `main` file to display menu of options, store multiple items in list, delete items from list, print contents of a list, or exit loop	50
Uses a class for each data entry and a class for the full database (OOP)	50
"save" and "load" options save data to and reload from a CSV file	50
Total:	**300**

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

- `databaseio.py`;
- `nfl_player.py`;
- `nfl_player_database.py`;
- `main.py`;

- `main_test.txt`.

The contents of my `main_test.txt` are:

```
>>> python3 main.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:  d
Enter index of item to delete: 0
Please enter a valid index (-1 to cancel): -1
-----------------------------------------------------
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: quarterback
That was not a legal abbreviation. Please select from list:
['QB', 'HB', 'FB', 'WR', 'TE', 'C', 'OG', 'OT', 'DT', 'DE', 'MLB', 'OLB', 'CB',
'S', 'K', 'P', 'LS', 'H', 'KR', 'PR']

Enter the abbreviated position of the player: QB
Enter the number of years the player has been in the NFL: -7
Years cannot be negative. Please try again.

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:  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:  a
Enter the name of a NFL Player: Ndamukong Suh
Enter the abbreviated position of the player: DT
Enter the number of years the player has been in the NFL: 12
```

```
--------------------------------------------------
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

NFL Player:
Name: Ndamukong Suh
Position: DT
Years in NFL: 12
--------------------------------------------------
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:  d
Enter index of item to delete: 5
Please enter a valid index (-1 to cancel): 2
--------------------------------------------------
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:  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
>>> python3 main.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:  b
Please enter one of ['a', 'd', 'e', 'l', 'p', 's']:  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
```