COM709 FUNDAMENTALS 2020 Assignment AE1 Part 1

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1 Write an online data management application

1.1 Instructions

- You must follow the functional requirement specifications
- You must follow the non-functional requirement specifications
- You must deliver the product on time for the deadline
- You must deliver all parts of the product
- You must deliver the product in the specified form

1.2 Delivery date

- Fri October 2nd 2020

1.3 Functional requirements

- Program is to create an online data retrieval system for stock keeping and prices
  - Items would be like:

Name	ID	Price	In Stock
Soap	0012367345	1.99	100
Chocolate	1998700374	0.99	40
Batteries	6476398475	2.50	60

- Program must:

  - Implement a CRUD protocol for text based data store
  - Program must show start screen/menu

- Must expose menu driven functions to:
  - Help (explain how to use the app)
  - Create (add new) new entry
  - Retrieve (and show) one or all records
  - Update an existing record
  - Delete a record

- Data records will contain the following information:
  - A product name: A string of up to 20 characters, limited to upper case ASCII
  - Product code: A string representing a padded integer of 10 digits from 0000000000 to 9999999999
  - A price: A positive float
  - Number in stock: A positive integer

1.4 Data store requirements

- You may choose ANY of the following storage methods
  - A csv file
  - a flat text file of your own format
  - a SQLite database

- When first launched the program should look in its directory for an existing data store, (this will be called data.csv, or data.sql or data.txt as examples). If a data file does not exist then your program should create a new data store in its directory.

1.5 Optional requirements (extra marks)

- You can implement a search for item names or product codes if you want Otherwise just print them **all** in a list

- You can make the program network enabled - accessible via a socket if you like. Use port 8080 of localhost. Otherwise interaction via command line menus will do.

1.6 Non Functional (constraints)

- Program should be docstring commented and examinable via pydoc
- Program is to be written in Python >= v.3.20
- Program must ONLY use specified libraries
  - socket, sqlite3
  - buitins (os, sys, csv etc)
- Program must execute from the command line
- Program must be self-contained (apart from the data store)
  - a single python file
  - it should not take any command line options
  - no other config files or dependencies necessary

1.7 Delivery requirements

- The program must be named **datamanager.py**
- it should be the only .py file in a **.zip** archive
- you can also include an example data file
- the .zip file must be named as your student number
  - for example: Q1234567.zip

1.8 Marking Criteria

- Is in ZIP file with correct student number
- Folder structure is correct
- Well commented source code
- A sample data set is provided
- Program executes
- Program presents initial interface screen/banner
- Help menu works and is meaningful

- Add item works and does proper data validation
  - bounds checking
  - existing item name/ID
- List items works
  - All items listed
  - BONUS: Items can be searched by name/product ID
- Items can be updated (with validated data)
- Items can be deleted
- Clean program Exit
- BONUS FEATURE: Network interface on port 8080

1.9 Example Usage Session

```
$ python3 datamanager.py
>  ******************************
>  *** WELCOME TO DATAMANAGER   ***
>  ***       Menu:             ***
>  *   1 List All   4 Delete ID   *
>  *   2 List ID    5 Update ID   *
>  *   3 List Name  6 Add         *
>  *   7 Exit                     *
>  ******************************
>
> 1
> Peanuts  4763527385  2.49   30
> Bananas  3452948757  0.30   63
> Beans    3564958777  0.78   34
>
> 2
> ID?      3452948757
> Bananas  3452948757  0.30   63
>
> 6
> Name?       Coconut
> ID?         4763527385
> ERROR ID    EXISTS
> ID?         3423413567
> PRICE?      1.00
> ADD STOCK?  10
> OK

> 3
> NAME?   Coconut
> Coconut 4763527385 1.00  10

> 5
> ID?    4763527385
>  ********************************
>  ***      Update Menu:        ***
>  *   1 Name    3 In Stock       *
>  *   2 Price   4 Exit           *
>  ********************************
> 4
> Update aborted
> 7
> Bye
$
```