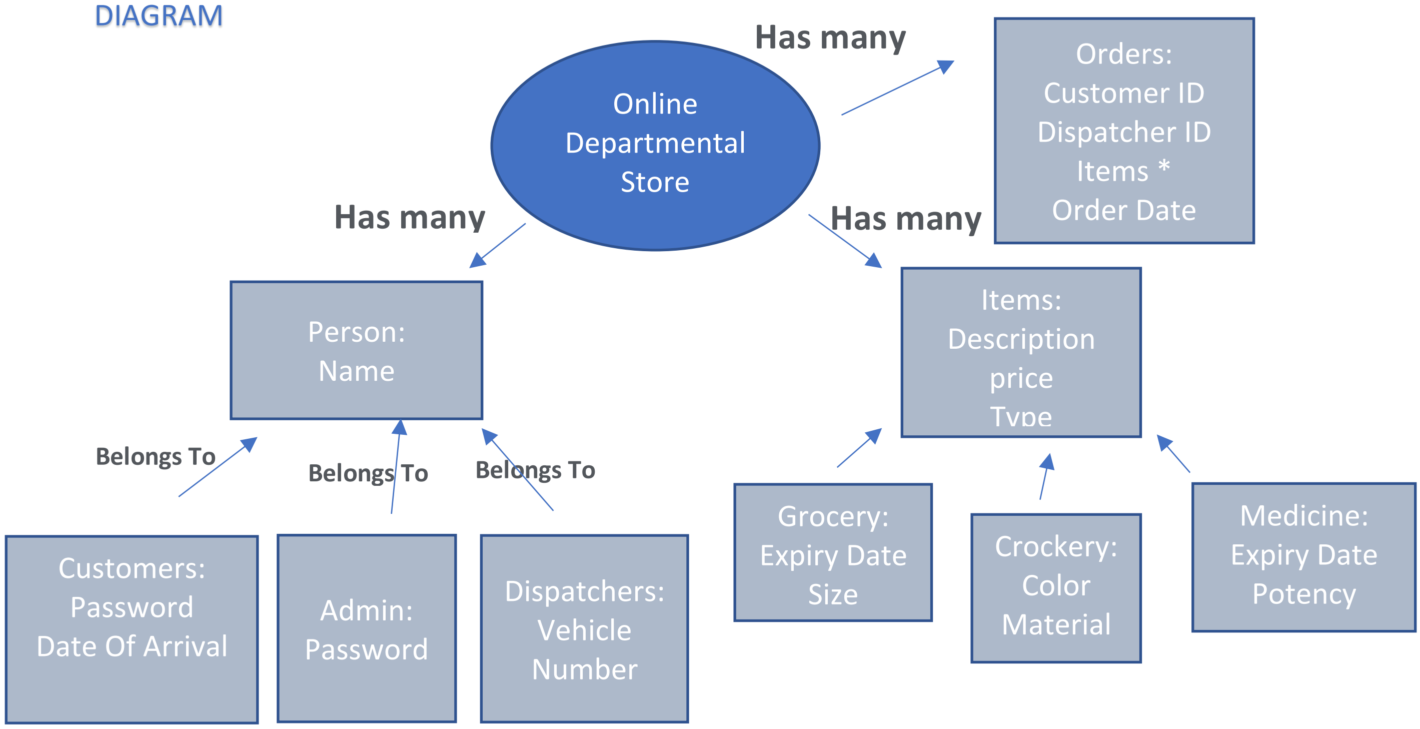
ONLINE DEPARTMENTAL STORE

MARKING SCHEME

- Online Departmental class containing pointer to Person, Items and Orders **10 Marks**
- Person Class **5 marks**
- Derived Admin, Customer, Dispatcher Classes **10 Marks**
- Items Class **5 Marks**
- Derived Grocery, Crockery, Medicine classes **10 Marks**
- Linked List Structure with all relevant Operations in Grocery, Crockery, Medicine classes **15 Marks**
- Queue Structure with all relevant Operations in Customers Class **15 Marks**
- Take Input from txt file and Load Admin, Customer, Dispatcher, Items, Orders data **15 marks**
- Store and save Admin, Customer, Dispatcher, Items, Orders data in the txt file **15 Marks**
- Handle Admin Signin/Signup required Checks **10 marks**
- Handle Empty File, Password length Checks **10 Marks**
- All Functionality of Admin class(Mentioned Under the Sign_Up Heading). **15 marks**
- Maintain Items in Order Class **5 marks**
- Memory Deallocation upon removing items and Allocation based on data in the txt file **10 marks**

DIAGRAM


Online Departmental Store
Has many
Orders: Customer ID Dispatcher ID Items * Order Date
Has many
Has many
Person: Name
Items: Description price Type
Belongs To
Belongs To
Belongs To
Customers: Password Date Of Arrival
Admin: Password
Dispatchers: Vehicle Number
Grocery: Expiry Date Size
Crockery: Color Material
Medicine: Expiry Date Potency

You have to implement an Online Departmental Store as shown above.
The Store has the following main functionality:

The Store has many items (grocery, medicine, Crockery) , maintained in the form of 3 separate LINKED LISTS in their system.
Any item added in the system is added in the OnlineStoreData.txt file. And any item purchased is removed from the file.

SIGNUP

The store has one admin who performs all operations of the system. When you'll start your application it should ask you to enter the credentials of the admin (name and password) and match them with the ones given in the first line of your file OnlineStoreData.txt.
And if no credentials are provided in the txt file then it should ask you to signup and have those credentials in the file for later use.
After that the admin can:

- INSERT_ITEMS(): Add more items in the store (insert them in the file OnlineStoreData.txt as well)
- REMOVE_EXPIRED_ITEMS(): Or remove grocery items which have expired (date checks for this). And also remove them from file.
- VIEW_STORE_ITEMS(): View items in the store, all medicine grocery and crockery items
- VIEW_SALE(): View total sale in terms of money during the day before or after purchase.
- VIEW_ORDERS() Details of all order made in the form of customer name, names and details of items bought .
- ADD_CUSTOMERS() Some buyers may be present in the system (OnlineStoreData.txt) and some others may arrive so this option should allow admin to add more buyers in the QUEUE of buyers, and there date of arrival as well(use library to generate it do not take input) these buyers will be served after the one's in the system (OnlineStoreData.txt) are served.
- ADD_DISPATCHERS() Add dispatcher details(name , vehicle number) in the data , they can be maintained in the form of arrays.
- ATTEND_CUSTOMERS() Attend the buyers present the form of QUEUE. So, upon selecting this option the system should select buyers present in the file based them on First-in-first-out and let them purchase goods.

PURCHASE ITEMS

After that the buyer should be able to purchase items.

- For that you'll ask the buyer to enter his password(validate it with the password in data)
- Then display them all items in the store from the file OnlineStoreData.txt, then user can add as many items in the cart, perform the billing of items, once purchased

remove those items from your database OnlineStoreData.txt , then assign a dispatcher to that Order(select dispatcher randomly) , after that place the details of your order (Customer ID, dispatcher ID, items bought, order date) in the OnlineStoreData.txt file

- Display details to the buyer, Customer Name, Date of Arrival, total Bill , items, price and dispatcher (name, Vehicle number) details.

You have to take care of the following things:

- Customers should be maintained in the form of QUEUE (First-in-first-out) HINT: Your Person class can be the node.
- Items should be maintained in the form separate three LINKED LISTS. Insertion of a new item should add it in its respective linked list.
- Your application should work with an empty OnlineStoreData.txt file as well. In that case the Admin will be added through signup and can then insert data in the file
- Ensure that buyers can’t purchase anything if the file is empty.
- Apply Password checks(Not less then 8 characters, at least one digit and one alphanumeric)
- Memory Deallocation, every time something is removed from system.

OnlineStoreData.txt File Format

Sample file is provided to you. The format of the file will be that Admin will appear in the first line, All people will have People keyword in the start, Items will have Item keyword in the start then the type and then other details

	Admin	Sarah	Abc123		
1	Customer	Ali	Qwe123	22-15-19	
2	Customer	Ahmed	Uwx124	22-15-19	
3	Customer	Arsalan	Quu111	22-15-19	
1	Item	Apple Juice	Grocery	22-15-19	Large
2	Item	Bowl	Crockery	Ceramic	White
3	Item	Wheat Biscuit	Grocery	20-11-19	Medium
4	Item	Panadol	Medicine	26-11-19	20mg
1	Dispatcher	Sam	LEF-1234		

2	Dispatcher	Aam	LEZ-1245				
1	Order	1 (Customer Id)	2 DispatcherID	26-11-19	1 (item ID)		
2	Order	1 (Customer Id)	1 DispatcherID	26-11-19	2 (item ID)	3 (item ID)	4 (item ID)

BONUS PART:

- Implement the Admin class using Singleton Pattern, you may study it online.
- Make a separate login Class and then use it to Login Admin and Customer