When the user opens the software options for sign up/ registration, sign in and account recovery is be displayed. These activities related to accessing the system fall under the category of authentication.

(Registration: data entry)

The owner registers himself/herself as the administrator of the system. The information he/she has to enter at the time of registration includes: full name, username, contact number, e-mail, present address, password, backup questions and their corresponding answers. The administrator has the sole authority to register salespersons and shareholders in the system. To enlist a salesperson to the system, the following data must be provided: full name, username, password, address, contact number, e-mail, date of recruitment, salary, National ID number, date of birth, present and permanent addresses. The following information must be given when registering a shareholder: full name, username, contact number, e-mail, National ID number, investment/share amount. It must be noted that the administrator himself/herself assigns the username and password for a shareholder/salesperson at the time of registration.

(Registration: validity checking and storing information)

At the time of data entry, there would be a validity check. The password must contain minimum 8 characters including at least one number. The format of e-mail, password and contact number is verified at the time of input. Confirmation code of four digits is sent to valid phone number and e-mail address. Before confirming registration, the system asks for the codes. Correct entry of code results in account creation. The registration information of the individual is stored in Database.

(Sign in)

When the user chooses the “sign-in” option he/she is directed to the login page. He/she enters his/her respective username and password. The entered data is matched with the corresponding data stored in Database. If entered data matches the stored data, the user gains access to the system. The first login time of a salesperson is recorded on a daily basis.

(Account recovery)

If the user fails to recall his/her password, he/she can directly choose the “forgot password” option. Otherwise, he/she can try five times. If the entered password is incorrect on the 5th attempt, the user will be directed to the account recovery. In case of owner, the system presents him/her of previously saved backup questions. If the answers to the backup questions match with the answers stored in Database, a confirmation code is sent to the administrator’s phone and e-mail address. On the other hand, salespersons and shareholders are asked to enter their contact numbers. If contact number matches with the number in database, the system sends the confirmation code to that number. Then, the system prompts the user to enter the confirmation code. The confirmation code is valid for 3 hours upon delivery.

(Sign out)

When a user attempts to logout, the system prompts user for unsaved data. If user chooses to save state, data will be saved. Otherwise, the unsaved data will be discarded. If the user is salesperson, the last logout time will be recorded every day.

(HR Management)

The system supports 3 kind of users: Owner, Salesperson and Shareholder. Besides these individuals, every pharmacy has suppliers who provide products on demand. The administrator exercises the power to include or exclude individuals involved. When adding salespersons, shareholders and suppliers to the system, the details of the individuals will be stored. These details include full name, address, e-mail, contact number, Joining data, investment (for shareholder only).All these data are entered by the owner. When owner removes anyone, information will be removed from database and their access to the system will be denied onwards.

(Stock Management)

The stock of a pharmacy includes drugs, first aid products, hygiene products and minimal medical tools. The following attributes of products will be stored in Database: product name, product type, component, company name, cost price, manufactured date, expiry date, discount, sale frequency. Products can be searched by the product name, company name and customer name. One of the most important issues in pharmacy management is to keep record of expiry dates of products. A carton of products whose expiry date will come in four months and another carton of the same product whose expiry date comes in a year can be in the stock. In order to reduce wastage, the pharmacy tries to sell the products whose expiry dates are nearer. For this reason, products are displayed by their expiry date.

(Stock Management: Stock reserve and Transaction Update)

At the beginning, the admin performs the task of updating the stock reserve. After salespersons are added to the system, they will update the stock upon receiving the products delivered by the supplier. The salesperson also updates the stock information after every sale. After every update, system will show pop-up for successful update.

(Stock Management: Product renewal and exception)

Products can also go missing (due to accidents, political conflicts, extortion, theft, natural disasters). The drop in stock will also be recorded in database by salesperson. Again due to less demands and sales, expiry dates of the products in the stock may pass. In these circumstances, the salesperson will update the decrement. Sometimes, supplier allows the return of expired products and provides fresh products in return or even may give products for free.

(Financial management)

The business of a pharmacy starts with an initial investment or principal which will be stored in the system. The daily transactions are handled by the salesperson. When a customer pays for a product, the salesperson updates the cash. The transaction information for product sale is stored by the following attributes: transaction ID or TID, product name, product ID or PID, quantity, date, username. The salesperson also notifies the administrator for paying the supplier. Administrator clears the dues with the cash in the shop and performs the update in the system.

An administrator will give the salespersons their salaries. Besides salaries, there are maintenance expenditures, for example, shop rent, electric bill. All these expenditures are treated as transaction which contain the following attributes: transaction id or TID, transaction type or T-type, transaction amount, username, date and remarks.

The administrator or shareholders may desire to increment/decrement their shares in the business or withdraw their profits. The owner can withdraw cash and update the system anytime. However, the shareholder notifies the administrator for cash withdrawal. During profit withdrawal, share increment/decrement, the sum of money to be deducted/ added is entered as transaction.

Sometimes, loss is incurred from political clashes, extortions, accidents, natural disaster. The salesperson sends notification to the administrator regarding the loss. The administrator keeps record of the amount of the losses in Database with the date of the incident.

(Information System)

The salesperson cannot remember all the products that need to be delivered, which products have their expiry dates nearby, which supplier to contact for which product, how many products have gone missing due to unavoidable circumstances. Also, a salesperson lacks the authority to help a customer by selling a product with due and purchasing a product from a person who is not a supplier who has a deal/contract with the owner. The information management system assists and aids the salesperson in overcoming the problem of recalling everything.

The number of products in the stock decreases naturally after every sale. The salesperson updates the stock regularly after the purchase. When the products reach a certain number (determined by the administrator), the database generates a low stock alert and notify the salesperson. The salesperson sends request to supplier for products. The system shows whether the request has been sent successfully or not.

As stated before, Database keeps record of the expiry date of products. The administrator sets a time period before the expiry date for each product. When a product reaches that date, Database sends “expiry date alert” notifications to the salesperson and administrator.

Sometimes customers are unable to give full payment of purchased products. In these circumstances, a salesperson will enter customer data including: customer name, phone no, National ID number, address and send a notification to owner for the product sold with pending due. Database stores the customer details.

At times, individuals/customers want to sell products purchased from another pharmacy. The salesperson will seek the owner’s permission by sending a request. If owner grants the permission, pharmacy purchases the product checking the expiry date and updates the stock.

There are cases when a customer may be in need of a product that is unavailable at the respective pharmacy and neighboring ones as well. For such incidents, the salesperson sends message to the owner over the software about the customer and the product in need. The admin grants/denies the request for future purchase.

The pharmacy can also fall victim to extortion, accidents. The salesperson sends messages of the products lost in these cases to the admin.