



“Software Engineering Project”

Clothes Store

Abstract

The desktop application that will be introduced in the rest of this document is a clothes store system. The application will be able to store the product id, quantity of items, their prices, it also stores username, mobile, history of sale process and allows each user to have his own privileges and his own access to certain data. and allow each user to have his own privileges and his own access to certain data.



Introduction:

The purpose of this document is to apply what we studied in the Software Engineering and Advanced Software Engineering courses on a real project of our choice which is a desktop application for clothes store.

The document shows our implementation of the full cycle often software development including system requirements, system analysis, system design, system implementation, system testing while applying diagrams and using the Object-Oriented Programming and Design which is a powerful programming style.

The intended readership for these documents are the ones who want a full understanding of how the software development cycle is applied on a real-based application.

User Requirements:

Our product is a clothes store. The system is a simple clothes shop management system that stores the product id, quantity of items, their prices, it also stores username, mobile, history of sale process and allows each user to have his own privileges and his own access to certain data.

It starts with a login screen in which each type of user can login using his own username and password. After logging in successfully each type of user can use his own privileges to use the product as designed.

For example: cashier will login, it can view two options (new purchase / logout), An administrator is the one with the most privilege.



Feasibility study:

1) Financial Feasibility:

The system will flow the freeware software standards. No cost will be charged from the potential customers. Bug fixes and maintaining tasks will have its cost, beside the associated cost.

There will be many benefits for the customers, especially the extra effort that is associated with paper making and marking will be significantly reduced while the effort to create descriptive statistical report.

Now, it is easy for the user to know quantity of products, their prices, history of sale process and etc.

2) Technical Feasibility:

Project is a desktop application, main technologies and the tools that are associated with project are:

- JAVA programming language
- NetBeans
- MySQL
- Swing tool in java used for GUI

Diagram drawing tools:

- Microsoft vision

Each of the technologies are freely available and the technical skills required are manageable.



3) Resource and Time Feasibility:

Resources that are required for the project includes:

- programming device (Laptop).
- programming tools (freely available).
- programming individuals.

Time limitations of the product development and the ease of implementing using these technologies are synchronized.

System Requirements:

Functional Requirements:

1. In the home page, the user shall be able to select one of the two login types (login as a cashier/ login as an admin).
2. The Cashier and Administrator can login with their username and password.
3. If the user logged in as a cashier, a new page will open. This page has two options: New purchase/ Logout.
 - If the user selects New purchase option, another new page will open, it manages him/her to add or remove existed products to/from the cart with their ids, he also will be able to reset the written data. This page also allows the user to enter his name and mobile number, the page may have a text area that contains the product id, name, the unit price, quantity and the total price of the selected products.
 - If the user selects the Logout option, the system will return to the home page.



4. If the user logged in as an administrator, a new page will open. This page has two options: Users/ Clothes.
 - In Users page, the administrator will be able to Add, Delete and Edit any data of the users by their ids, he also will be able to Reset the written data. it may have a text area that contains: User id, Name, Phone Number, Address and Password.
 - In Clothes page, the administrator will be able to Add, Delete and Edit the clothes data by their ids, he also will be able to Reset the written data. the page may have a text area that contains: Product id, Color, Category, Size, Quantity and the Unit price.
 - If the user selects the Logout option, the system will return to the home page.
5. Cashier can register the client's name and phone number.
6. Cashier generates a unique ID to each new product.
7. System contains list of products available, which is accessed by admins and cashier.
8. System have a database to store all existing products and users data.

Non-Functional Requirements:

9. The program should be written in java programming language.
10. The program should be delivered by Friday, 13 May 2022.
11. The program shouldn't take more than 50 Megabytes of memory.
12. The program should have a user guide.
13. The system should have a logo on the home page.
14. The program should work on any laptop or PC running windows operating system.
15. Any process in the program shouldn't take more than 3 seconds.



Requirements Validation:

Requirements:

REQ1	In the home page, the user shall be able to select one of the two login types (login as a cashier/ login as an admin).
REQ2	The Cashier and Administrator can login with their username and password.
REQ3	If the user logged in as a cashier, a new page will open. This page has two options: New purchase/ Logout.
REQ4	If the user logged in as an administrator, a new page will open. This page has two options: Users/ Clothes.
REQ5	Cashier can register the client's name and phone number.
REQ6	Cashier generates a unique ID to each new product.
REQ7	System contains list of products available, which is accessed by admins and cashier.
REQ8	System have a database to store all existing products and users data.
REQ9	The program should be written in java programming language.
REQ10	The program should be delivered by Friday, 13 May 2022.
REQ11	The program shouldn't take more than 50 Megabytes of memory.
REQ12	The program should have a user guide.
REQ13	The system should have a logo on the home page.
REQ14	The program should work on any laptop or PC running windows operating system.
REQ15	Any process in the program shouldn't take more than 3 seconds

Requirements traceability Matrix:

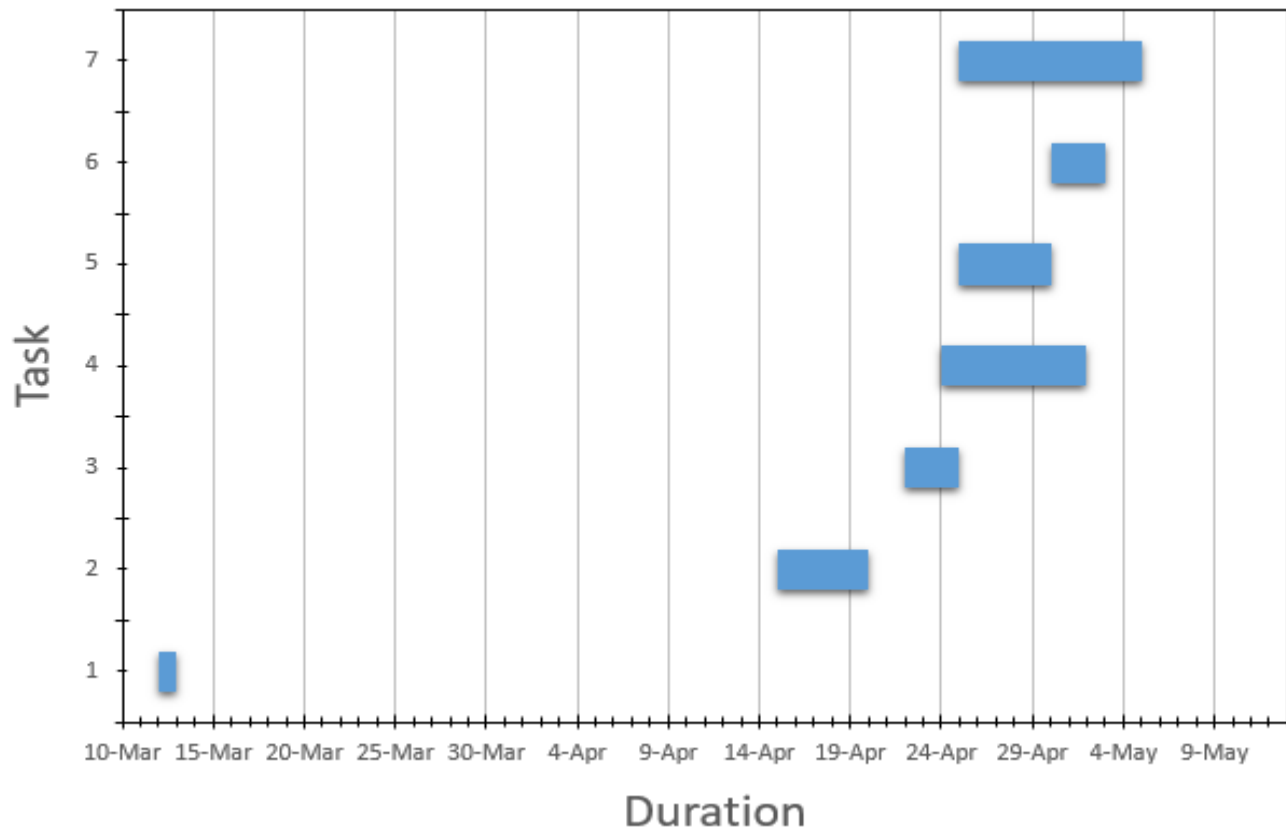
REQn/REQn	REQ1	REQ2	REQ3	REQ4	REQ5	REQ6	REQ7	REQ8	REQ9	REQ10	REQ11	REQ12	REQ13	REQ14	REQ15
REQ1															
REQ2	D														
REQ3	D	D													
REQ4	D	D													
REQ5	D	D	D												
REQ6	D	D	D												
REQ7	D	D	D	D				D							
REQ8		D	D	D		D	D								
REQ9															
REQ10															
REQ11															
REQ12															
REQ13															
REQ14															
REQ15															

Source traceability Matrix:

	Dev team	Admin	Cashier
REQ1	✓	✓	✓
REQ2	✓	✓	✓
REQ3	✓		✓
REQ4	✓	✓	
REQ5	✓		✓
REQ6	✓		✓
REQ7	✓	✓	✓
REQ8	✓		
REQ9	✓		
REQ10	✓		
REQ11	✓		
REQ12	✓		
REQ13	✓		
REQ14	✓		
REQ15	✓		

Gantt chart:

	Task	Start Date	End Date	Duration
1	project initiation	12-Mar	14-Mar	1
2	Develop SRS	15-Apr	20-Apr	5
3	Technical design	22-Apr	25-Apr	3
4	Coding and implementation	24-Apr	2-May	8
5	Unit testing	25-Apr	30-Apr	5
6	Integration testing	30-Apr	3-May	3
7	Project Documentation	25-Apr	5-May	10

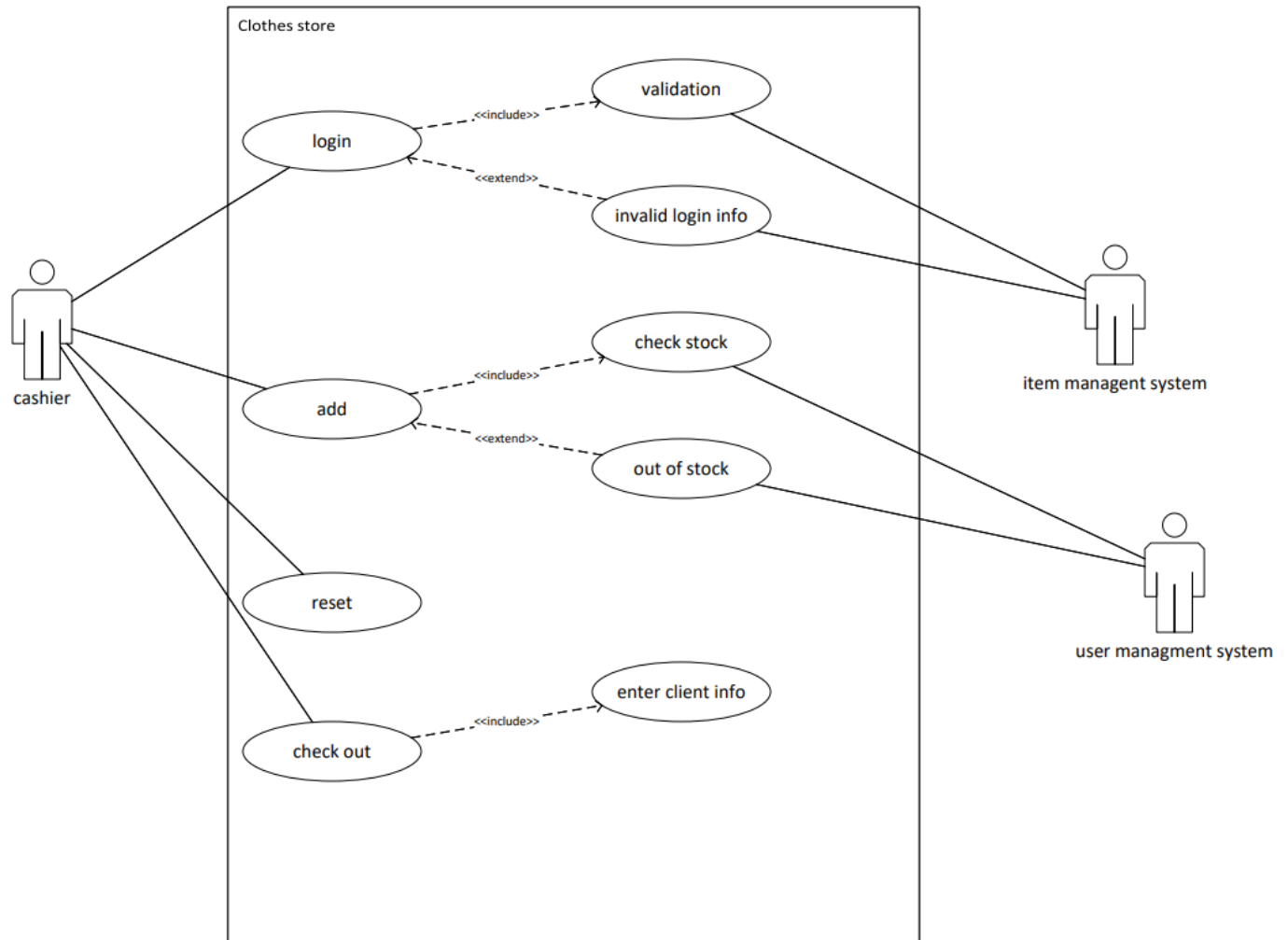




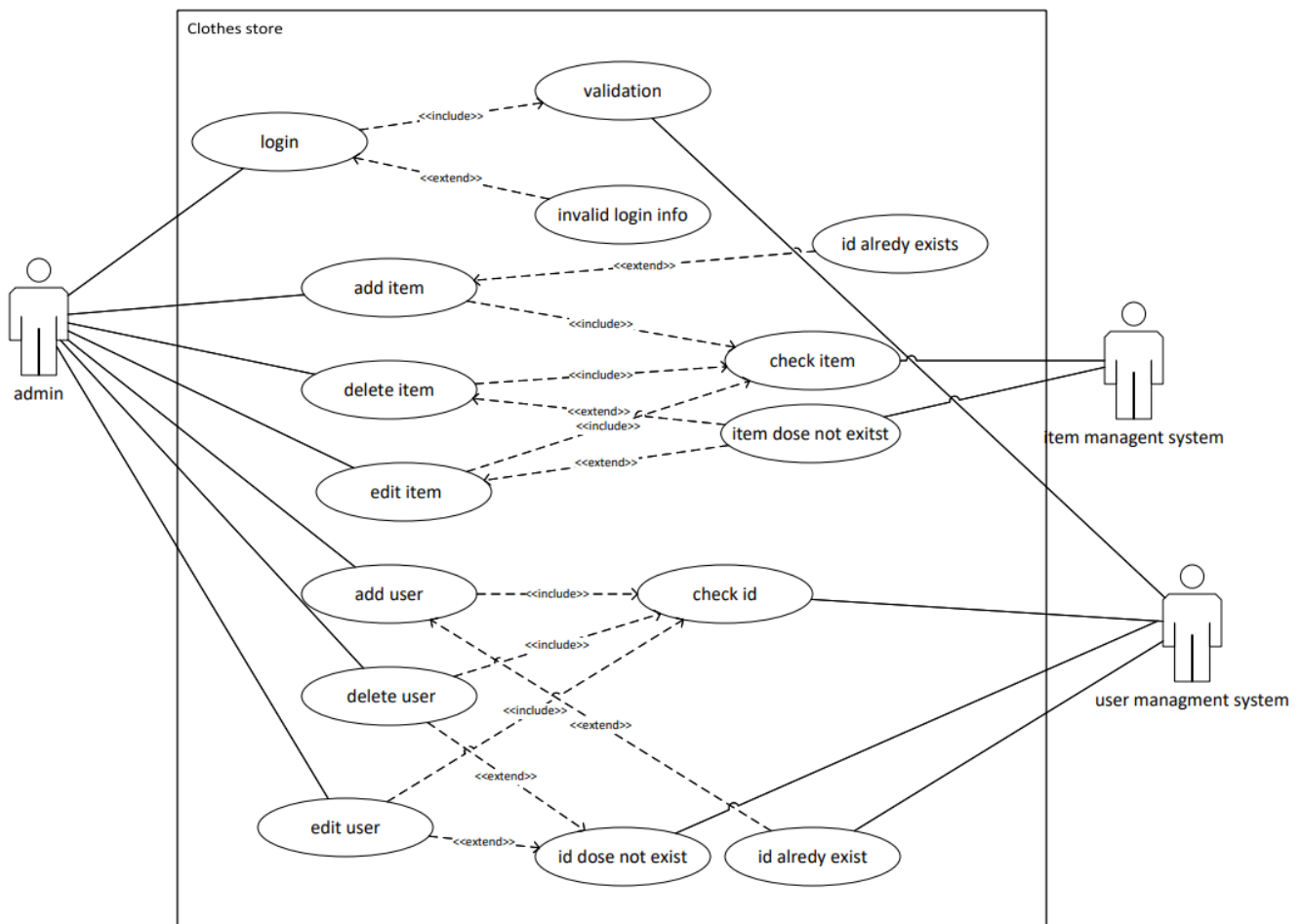
Assumptions:

- Manage users: it performs operations in the users like add, delete or edit user and it requires also verification on the user information.
- Manage items: it performs operations in the items like add, delete or edit user and it requires also verification on the user information.

Use-Case Diagram:



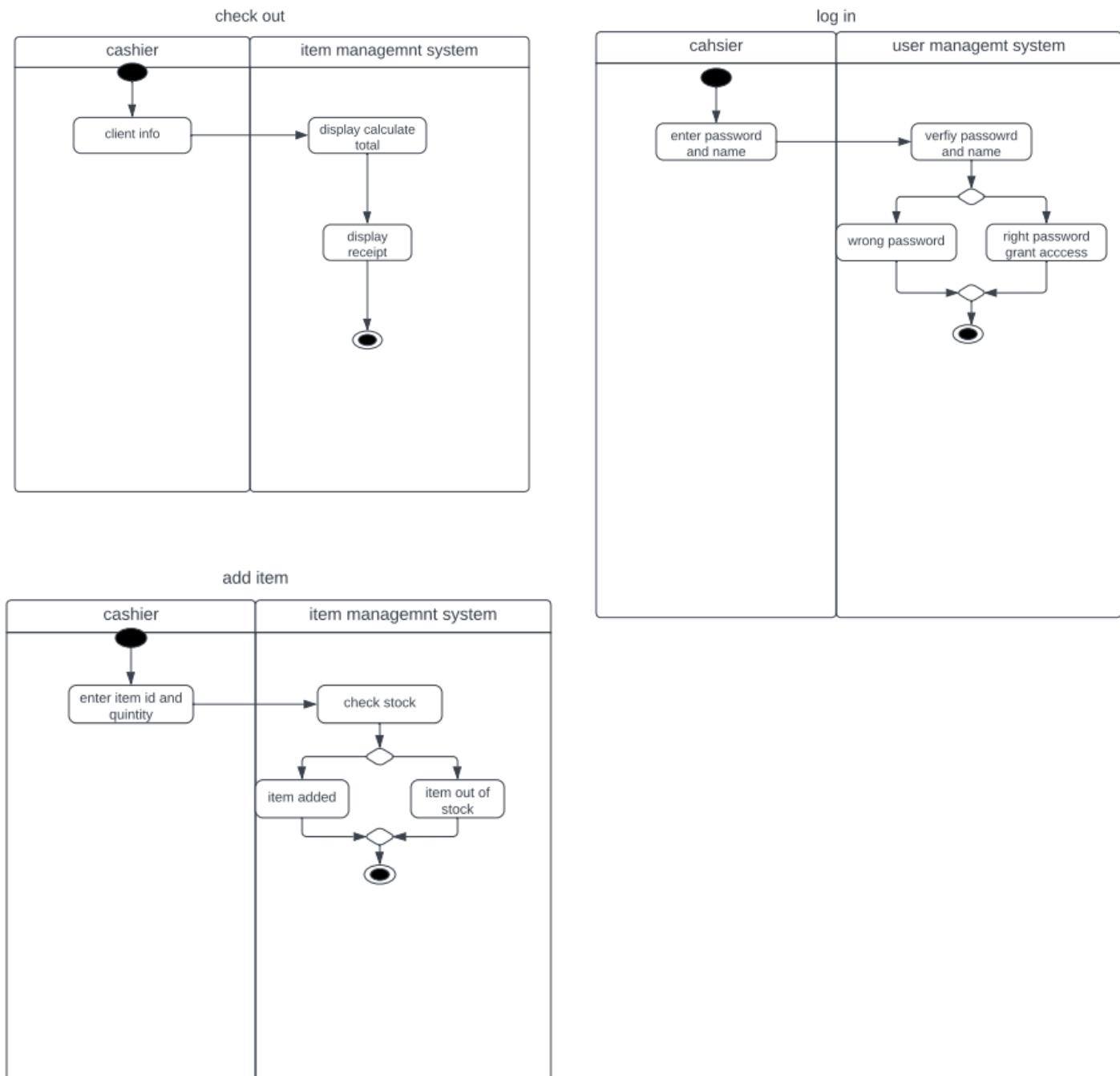
Cashier use case diagram



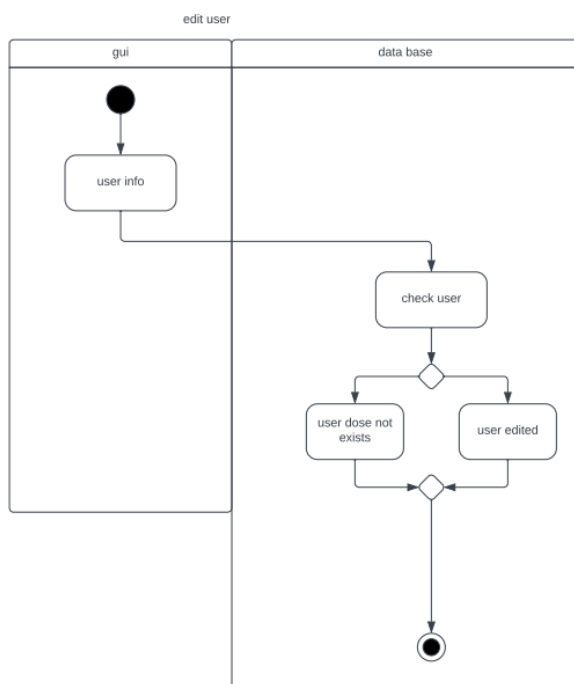
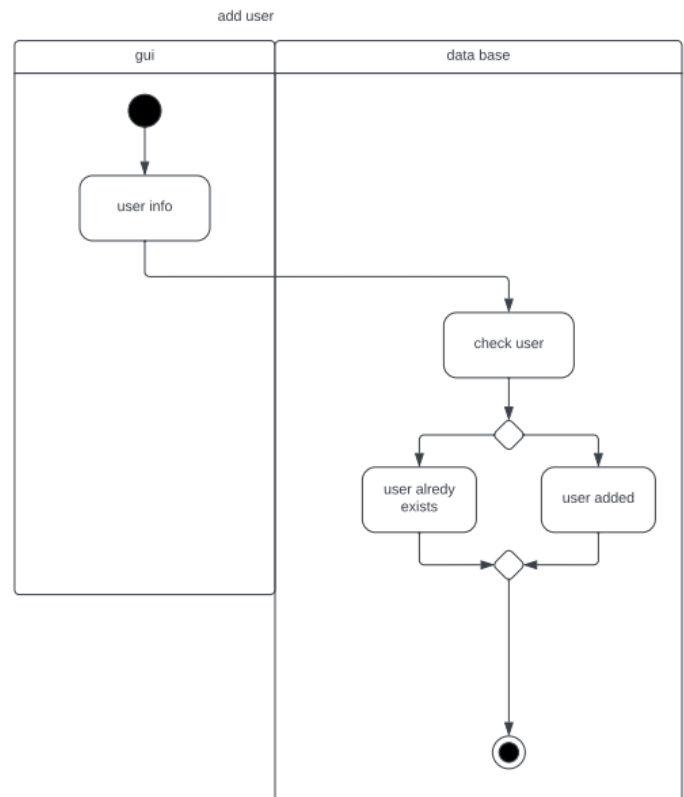
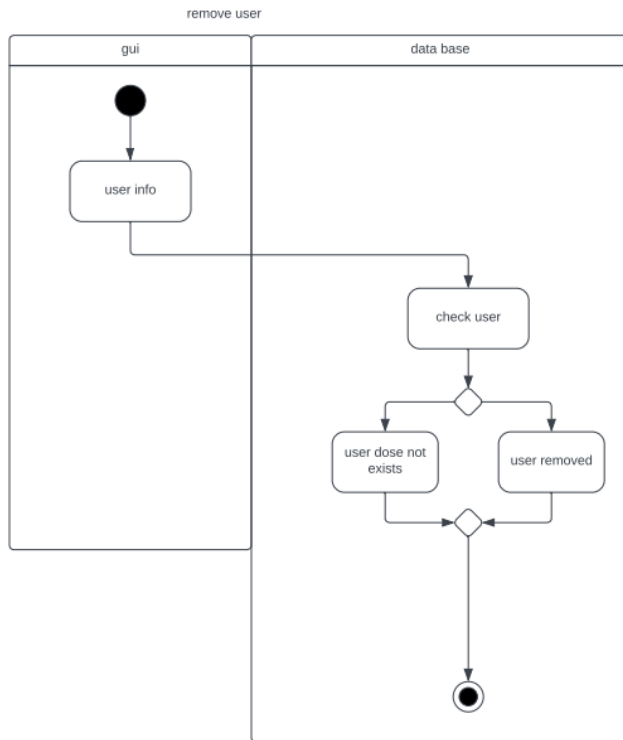
Admin use case diagram

Swimlane Diagram:

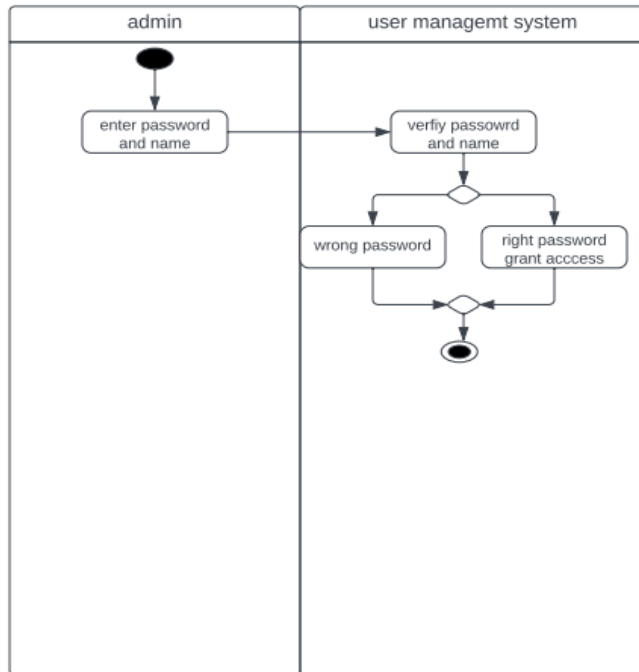
Cashier use cases:



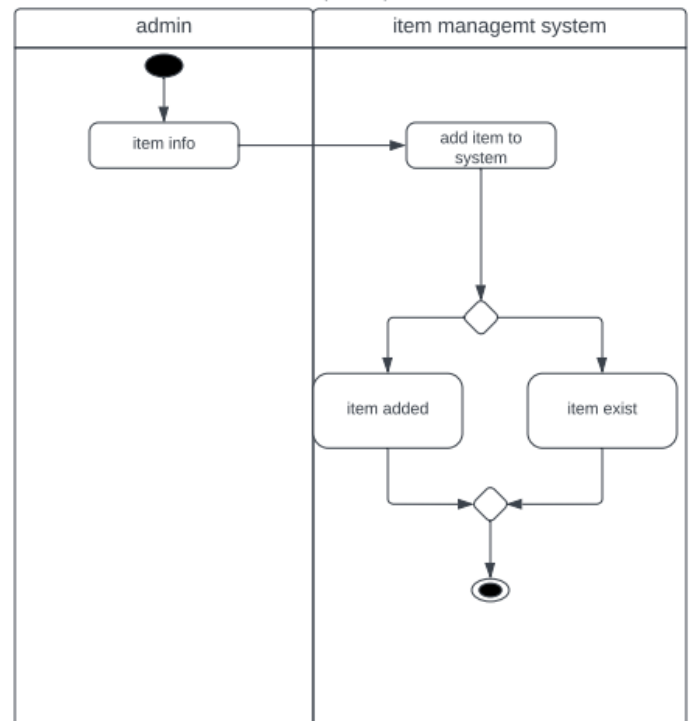
Admin use cases:



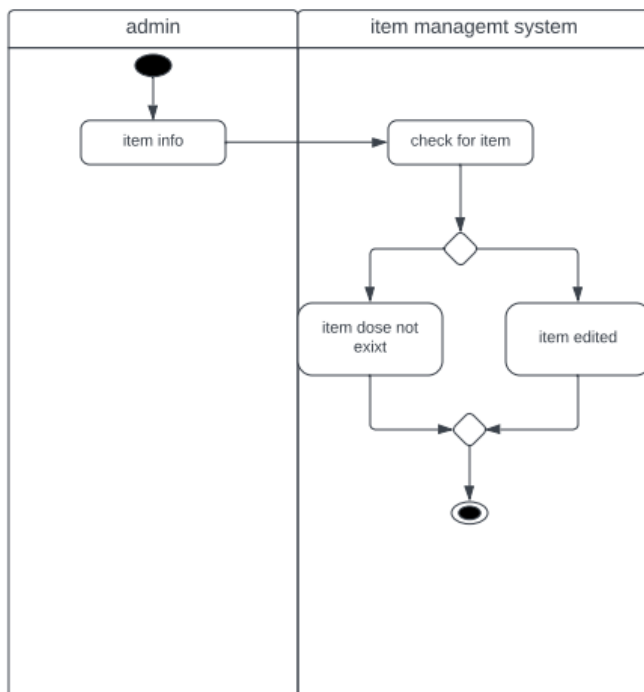
log in(admin)



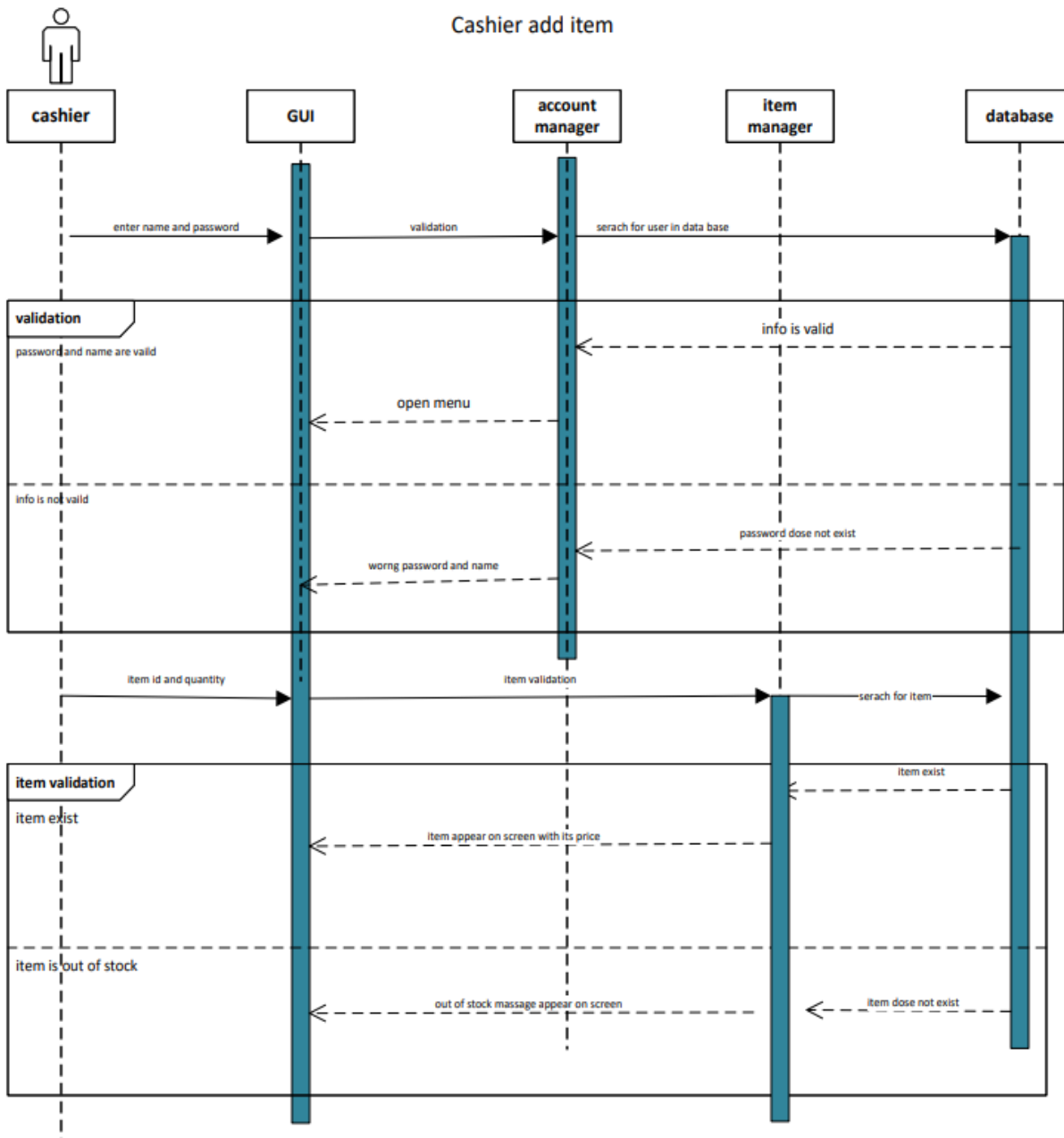
add item (admin)

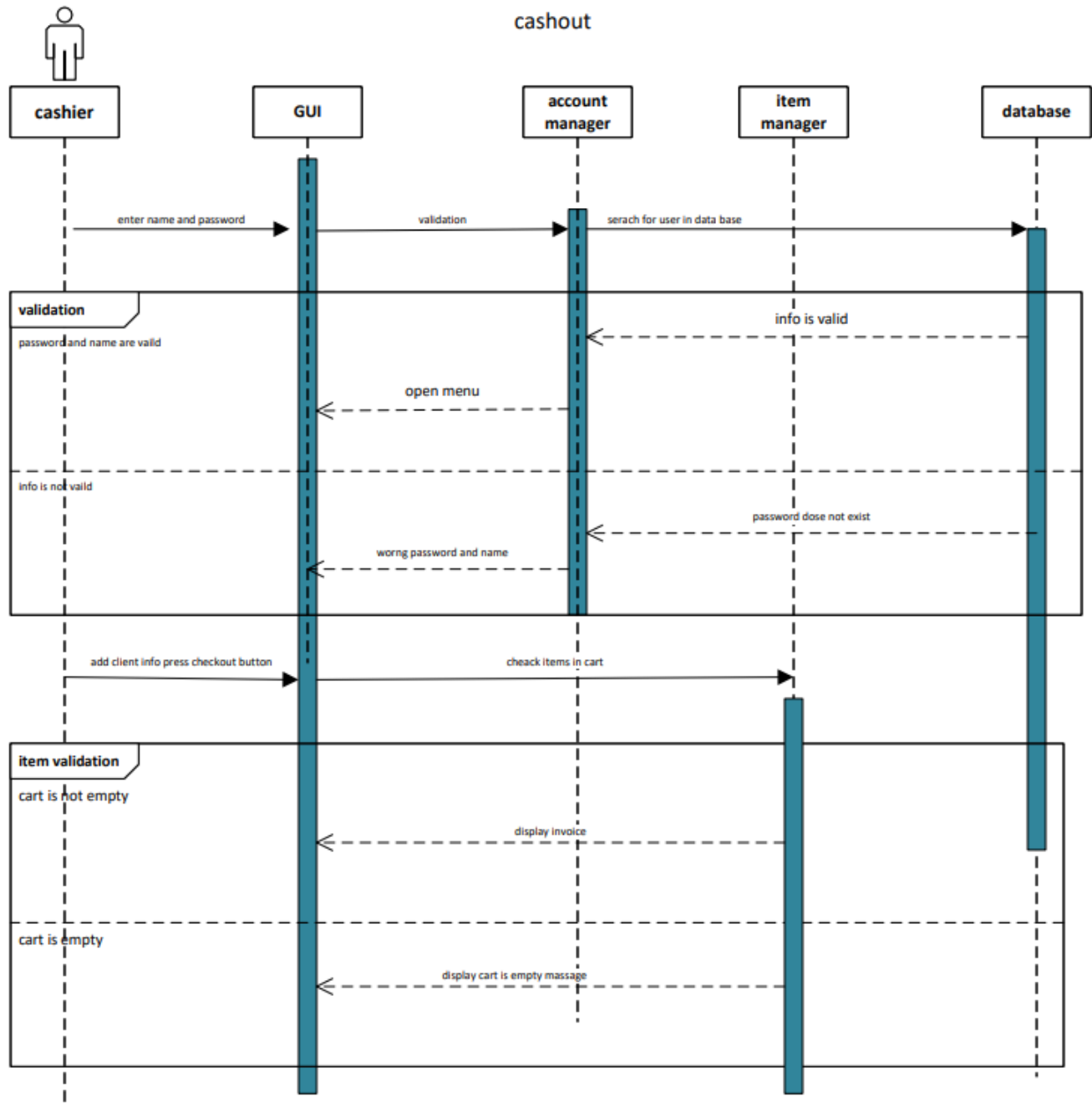


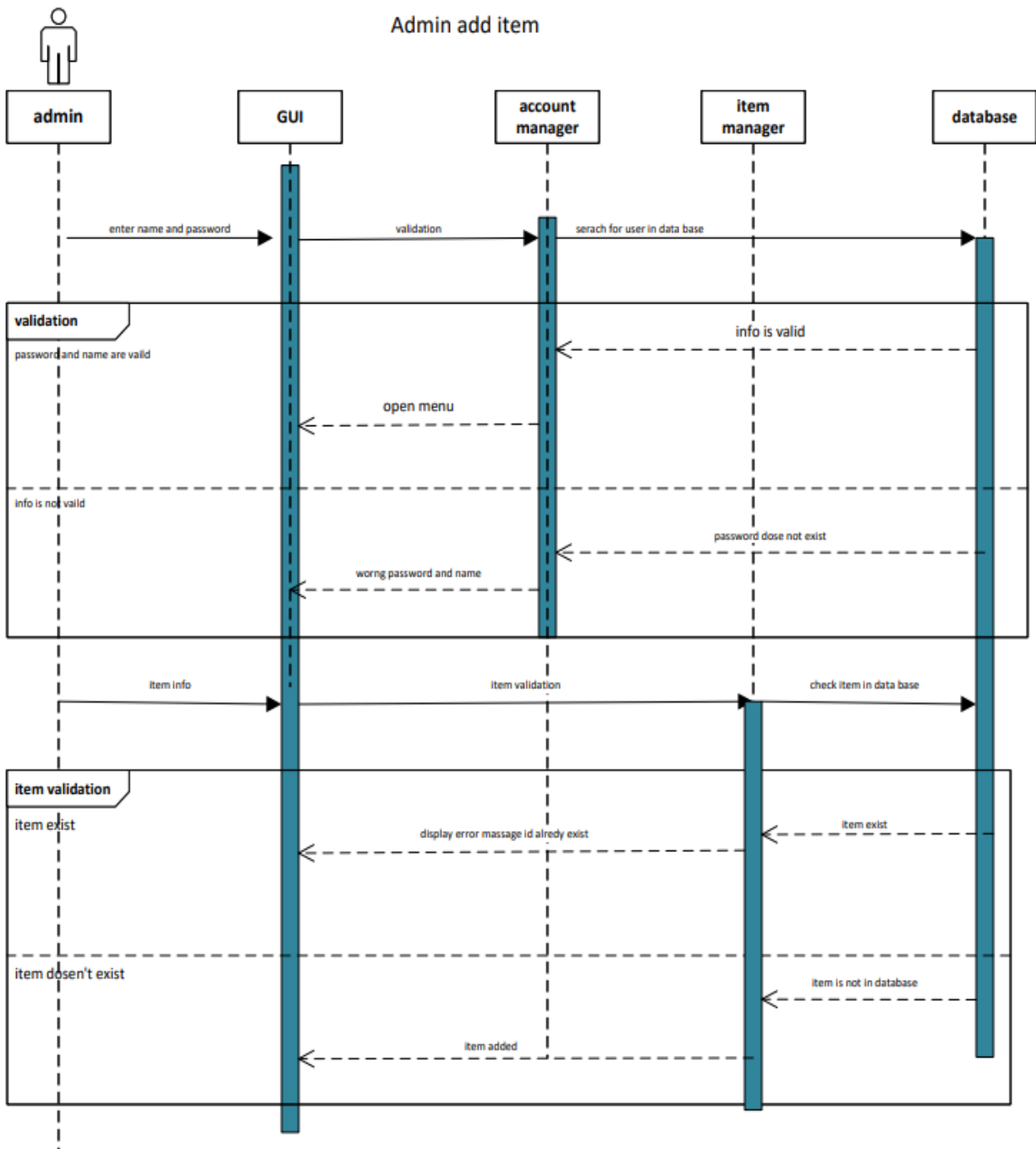
edit item admin

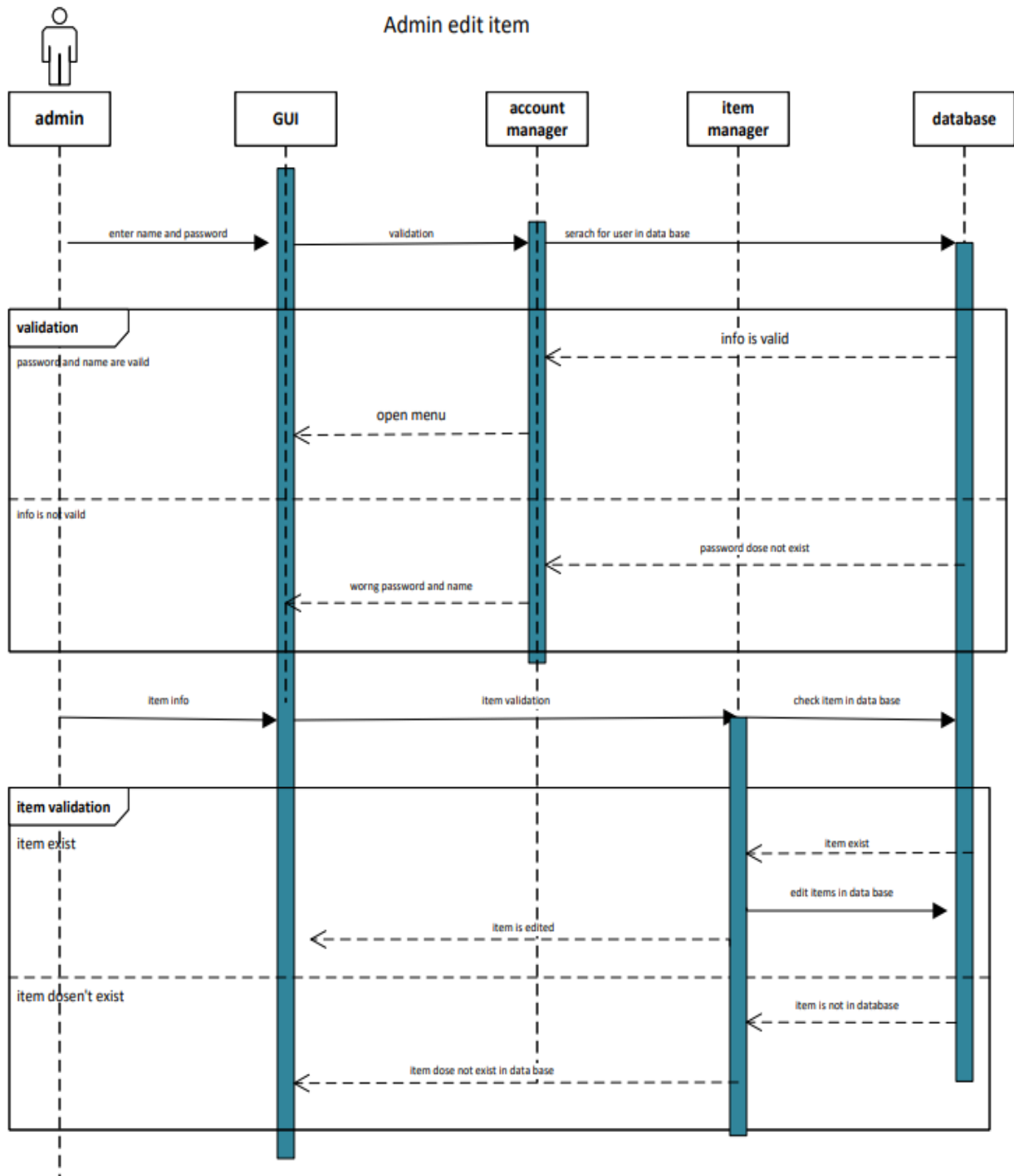


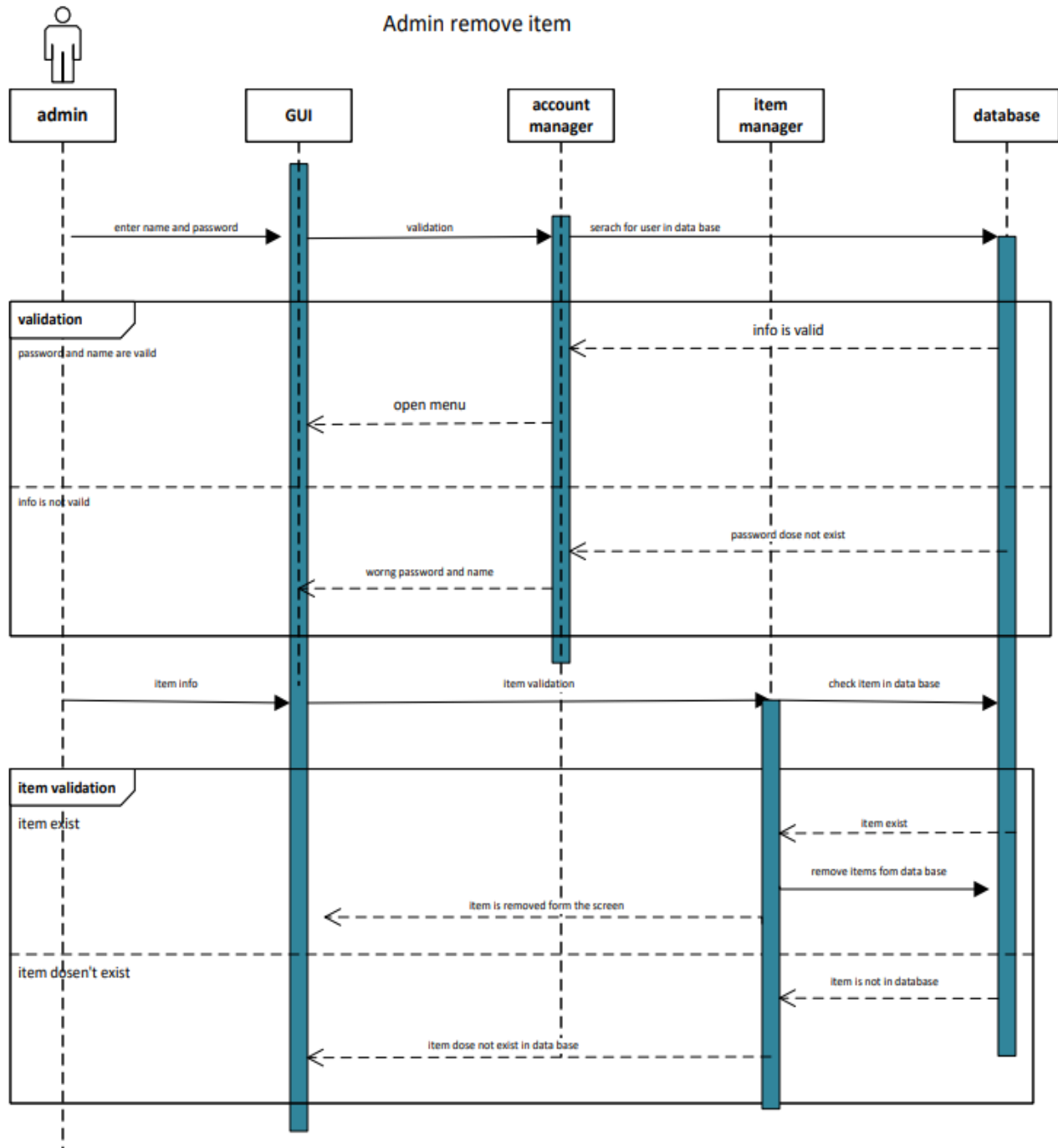
Interaction Diagrams:

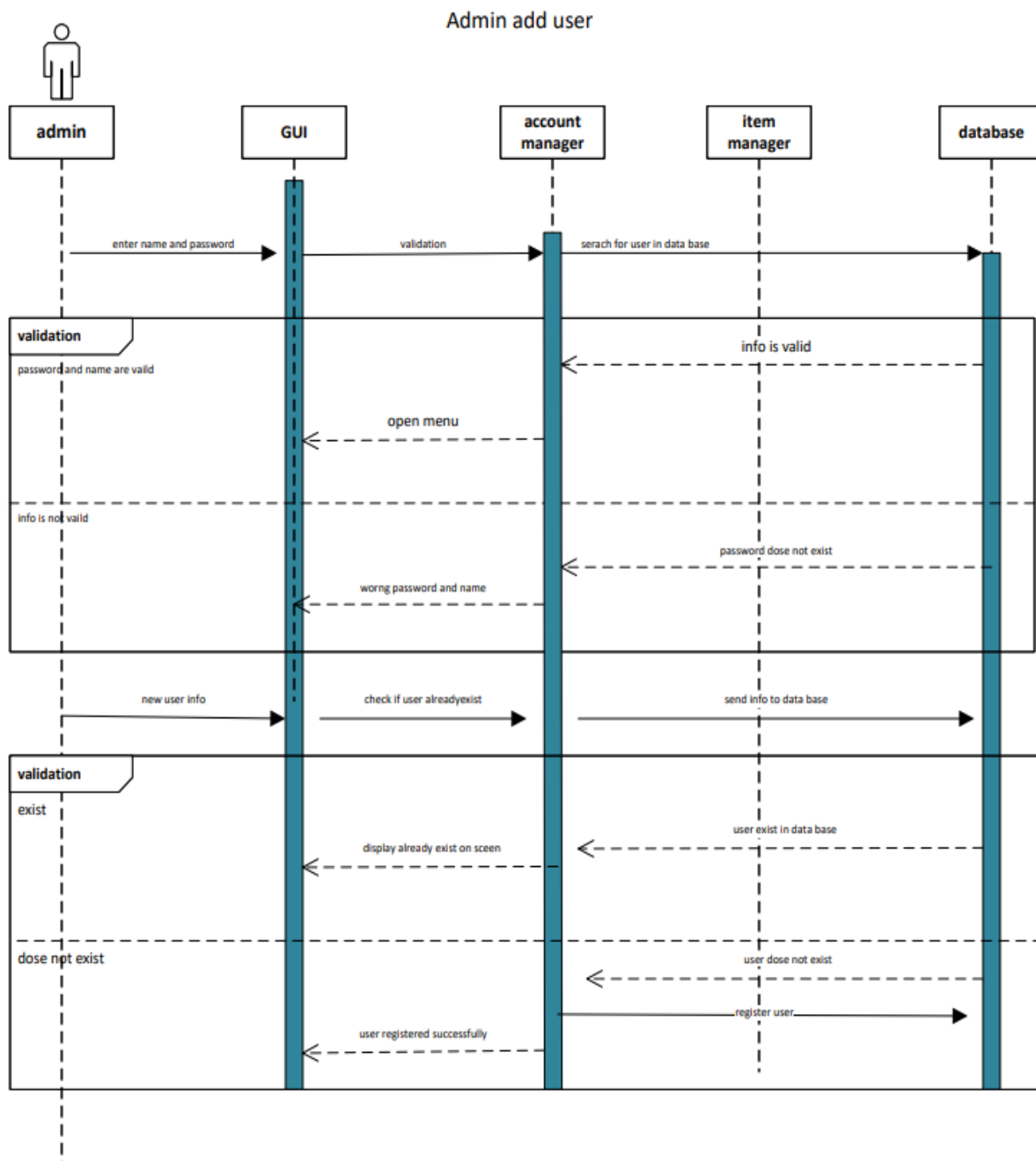


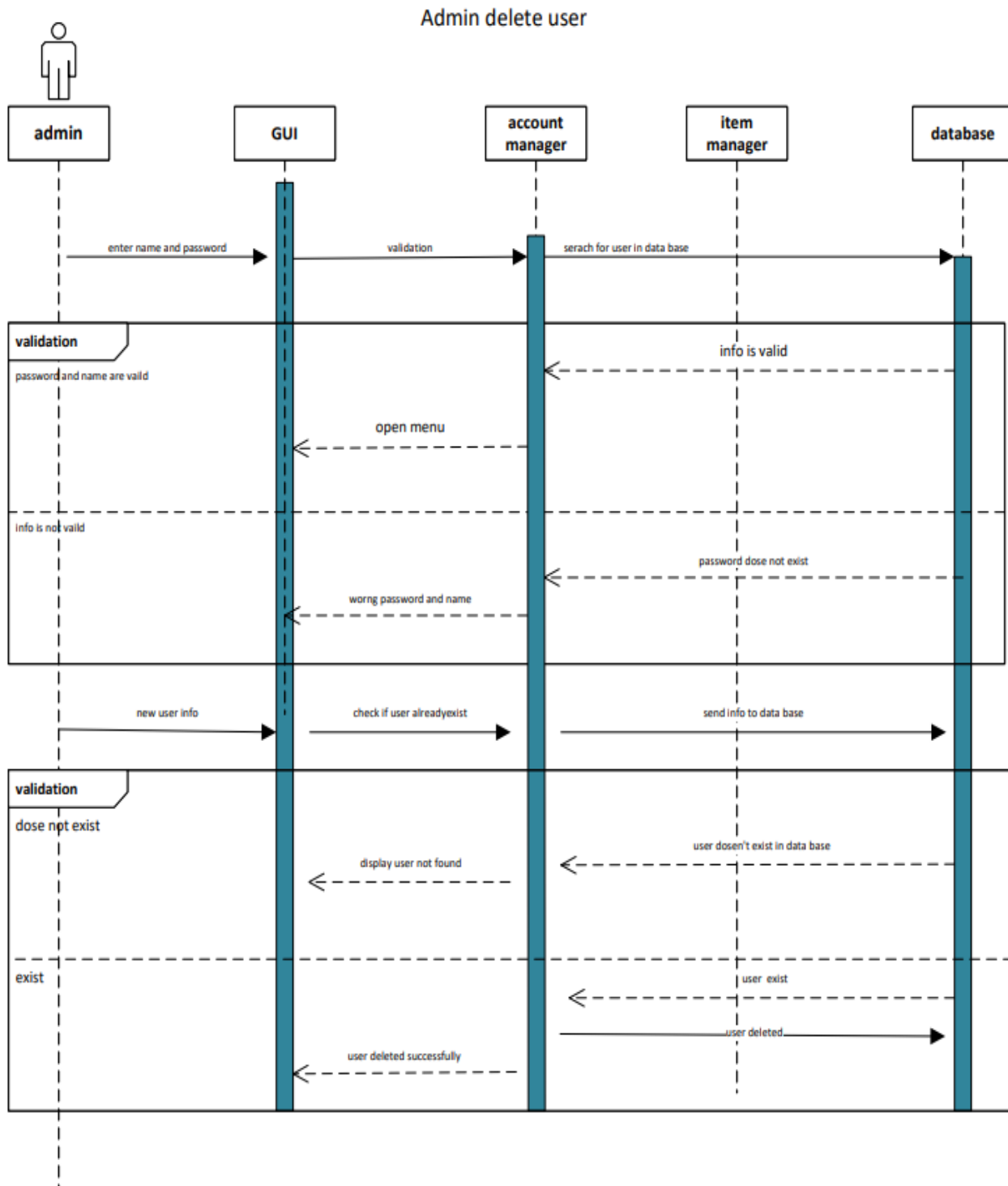


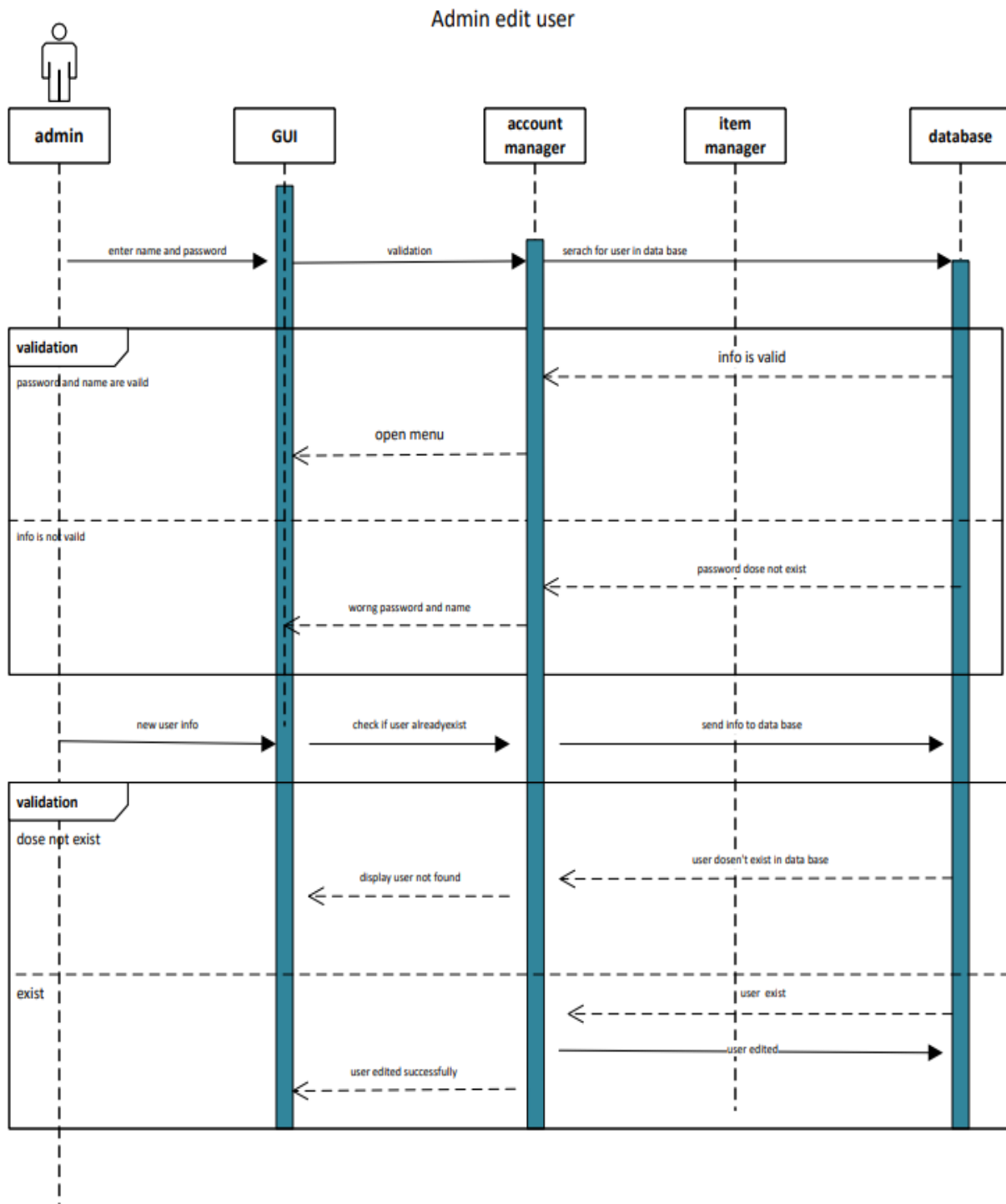




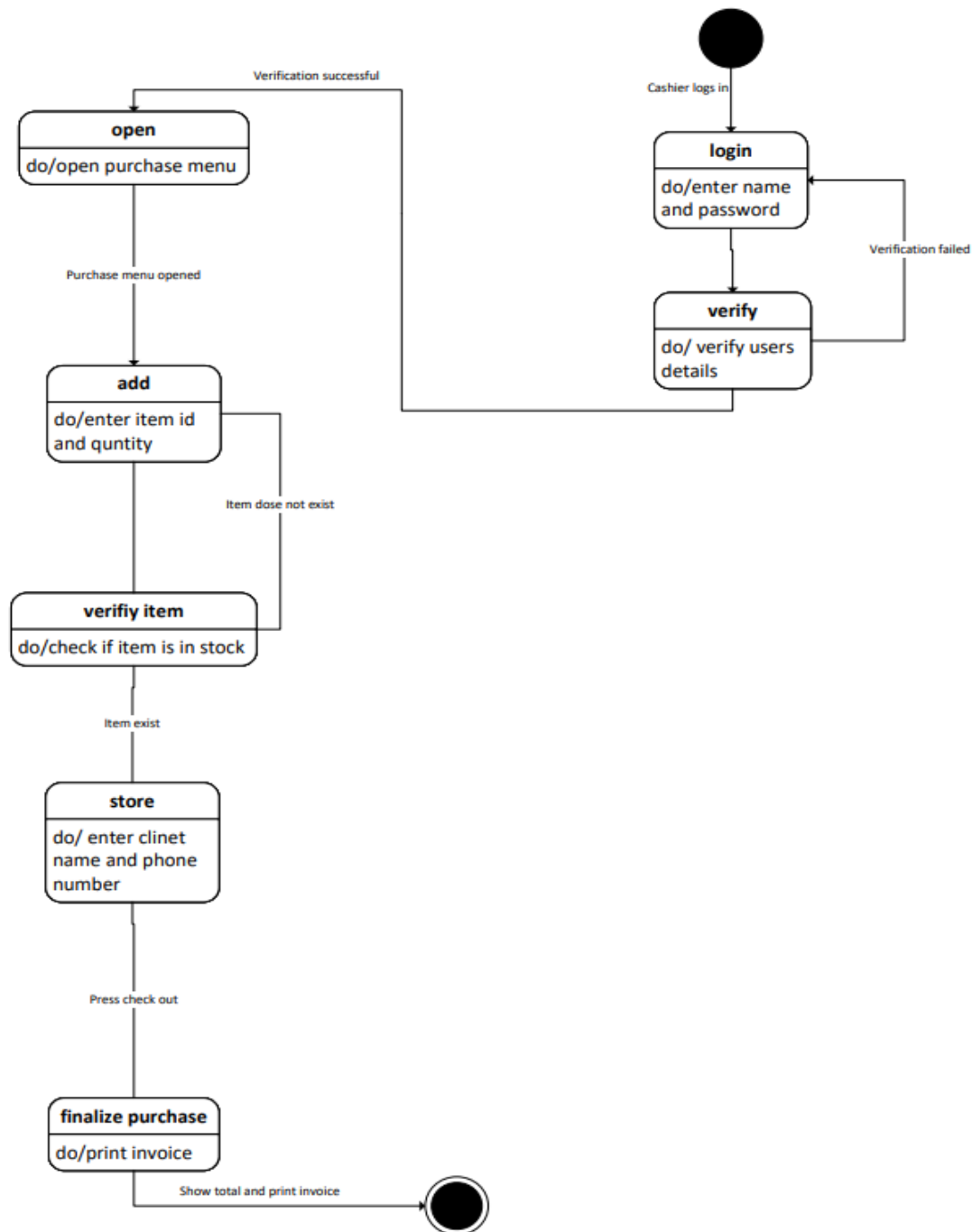




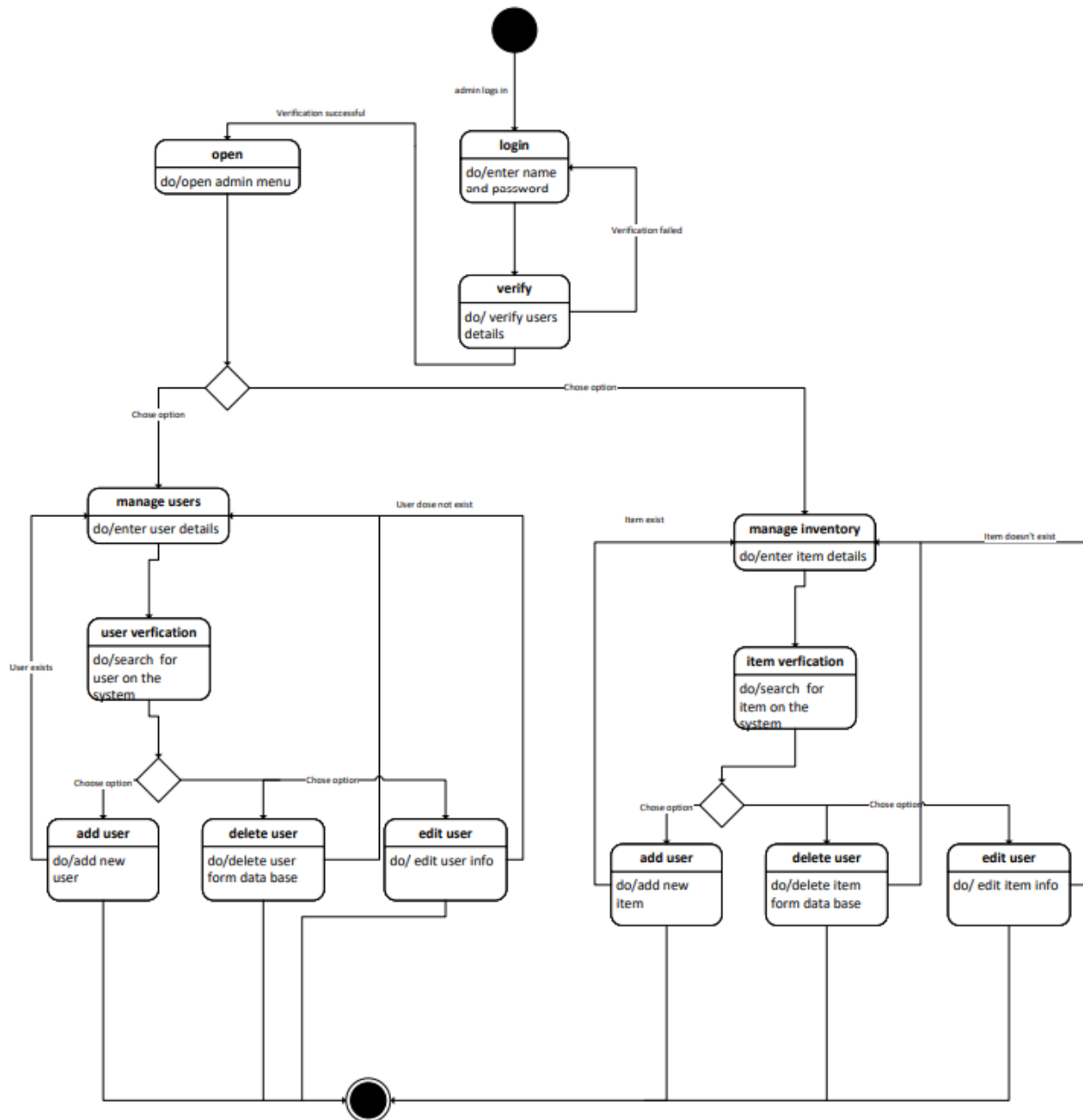




State Diagram:



Cashier state Diagram



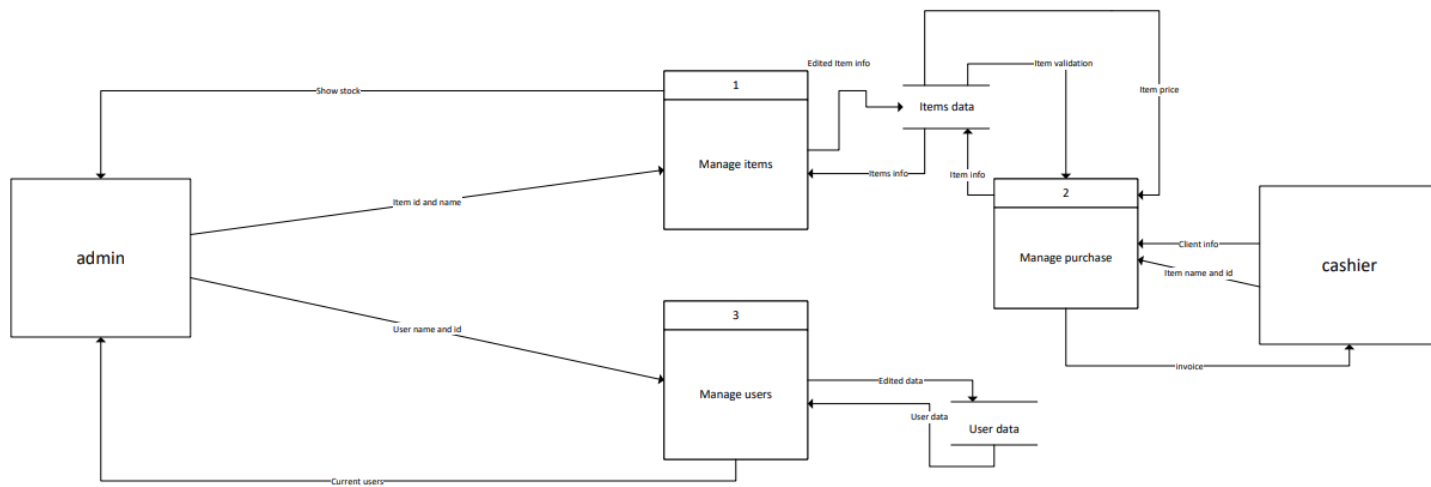
Admin state Diagram

Data Flow Diagrams:



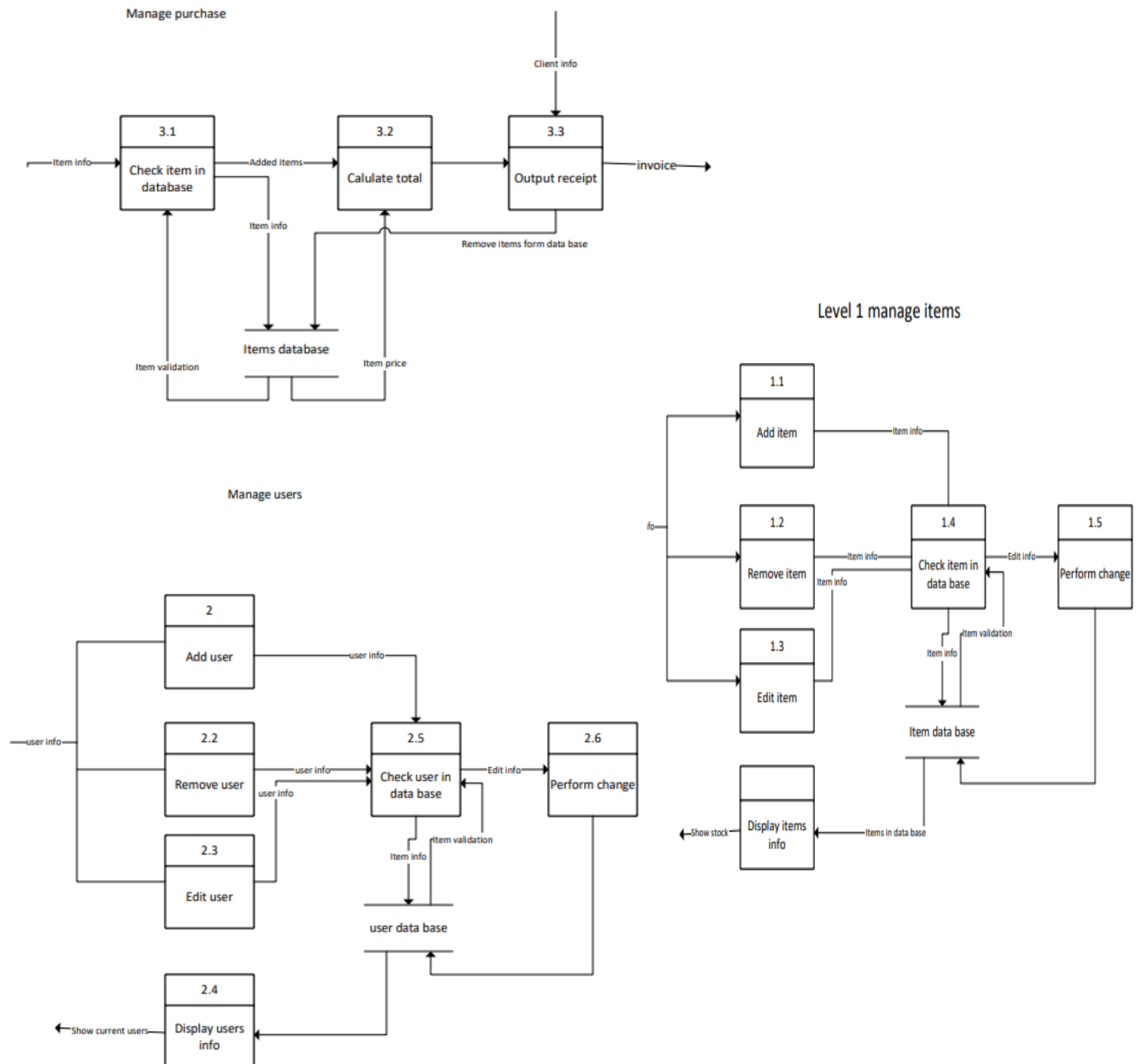
Context level

Context diagram

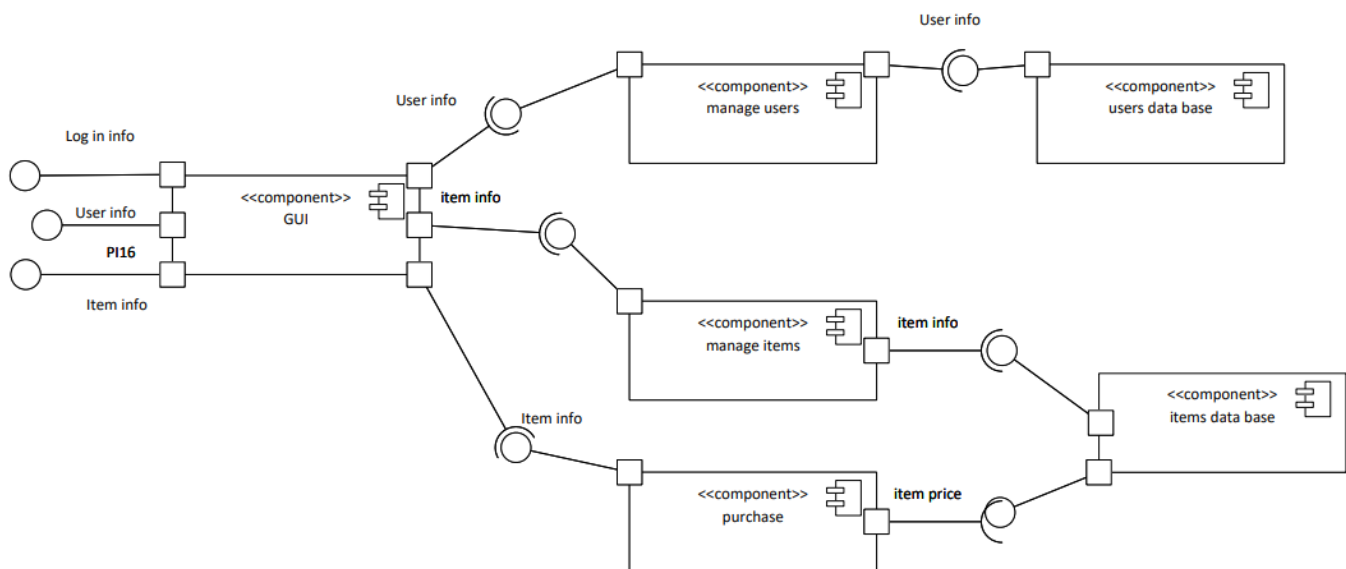


DFD level 0

Level 1:

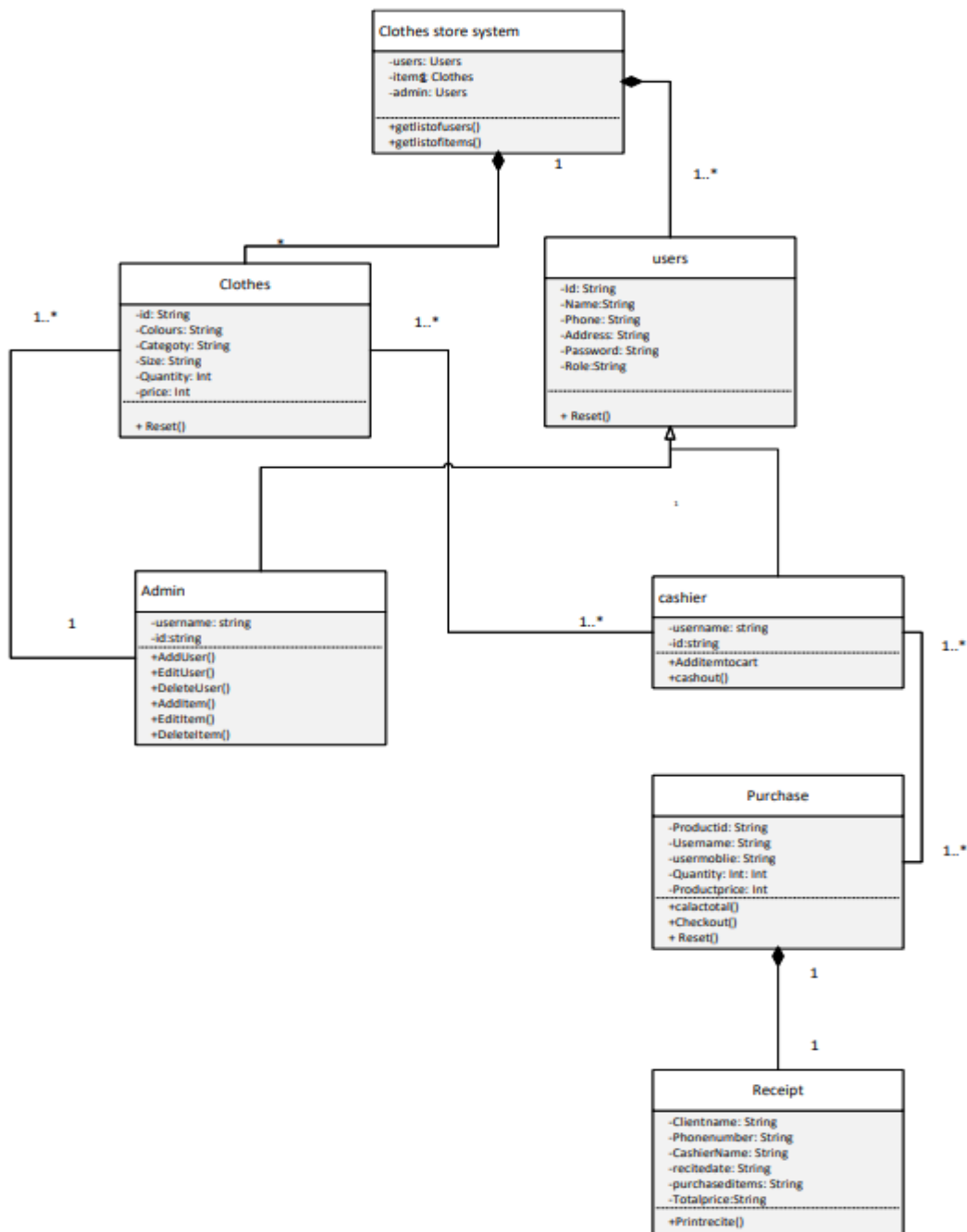


Component Diagram:



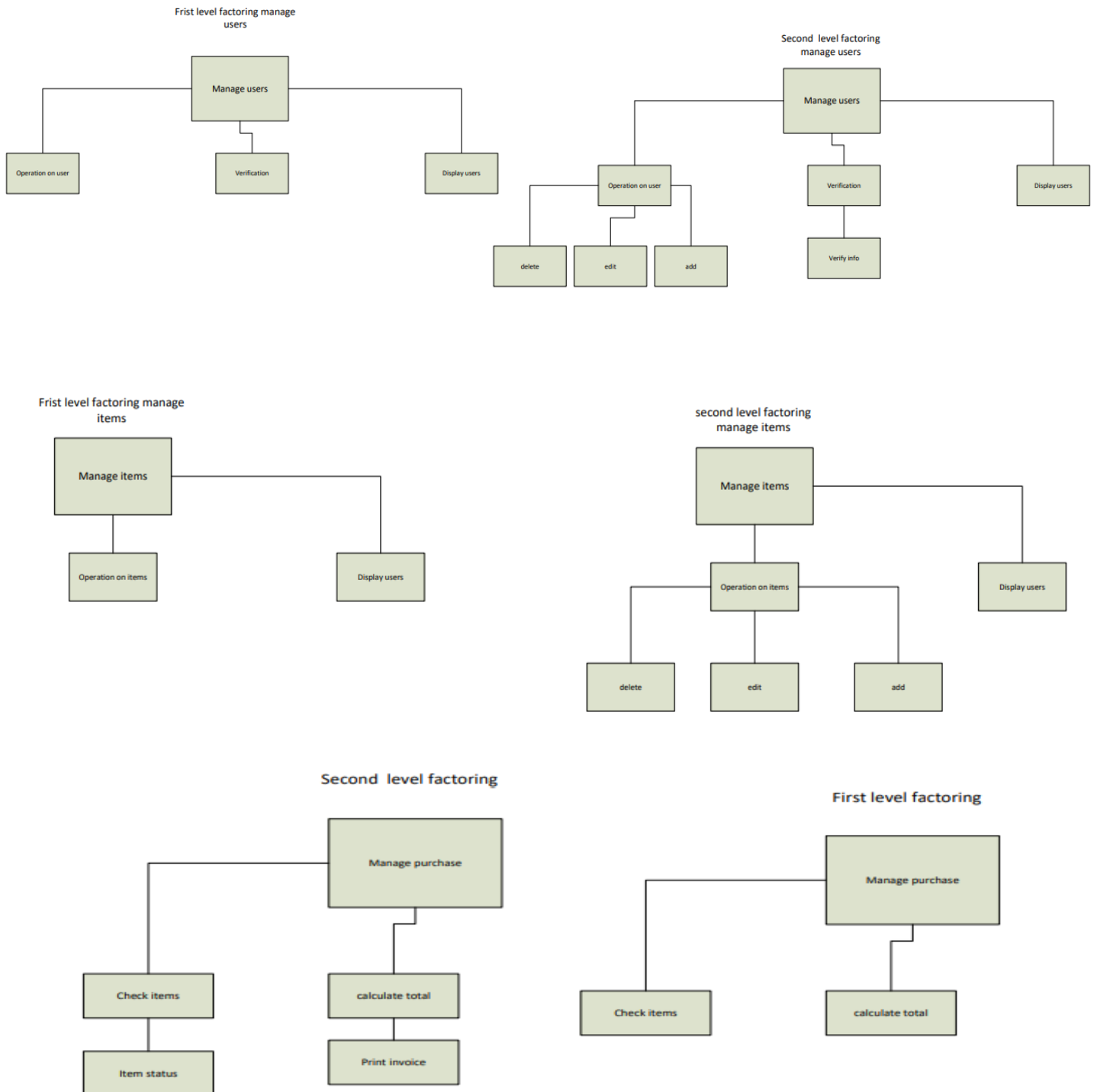
Component diagram

Class Diagram:



Class diagram

Architectural Diagram:



End-User Guide/ User Interface:

Steps:

- 1- Open the system and wait for loading window to complete.



2- After loading window completed, the home page will open.

- In this page there are a selection box, from which you can choose one of the two modes to login:
 - Admin Mode
 - Cashier Mode



The image shows a login window for 'SW clothes store'. At the top is a logo with a shirt icon and letters S, W, C. Below it, the text 'SW clothes store' and 'Login Page' are displayed. A dropdown menu is highlighted with a red box, showing 'Admin' as the selected mode. Below the dropdown are two input fields: 'User name' and 'User Password'. At the bottom are two buttons: 'Login' and 'Clear'.

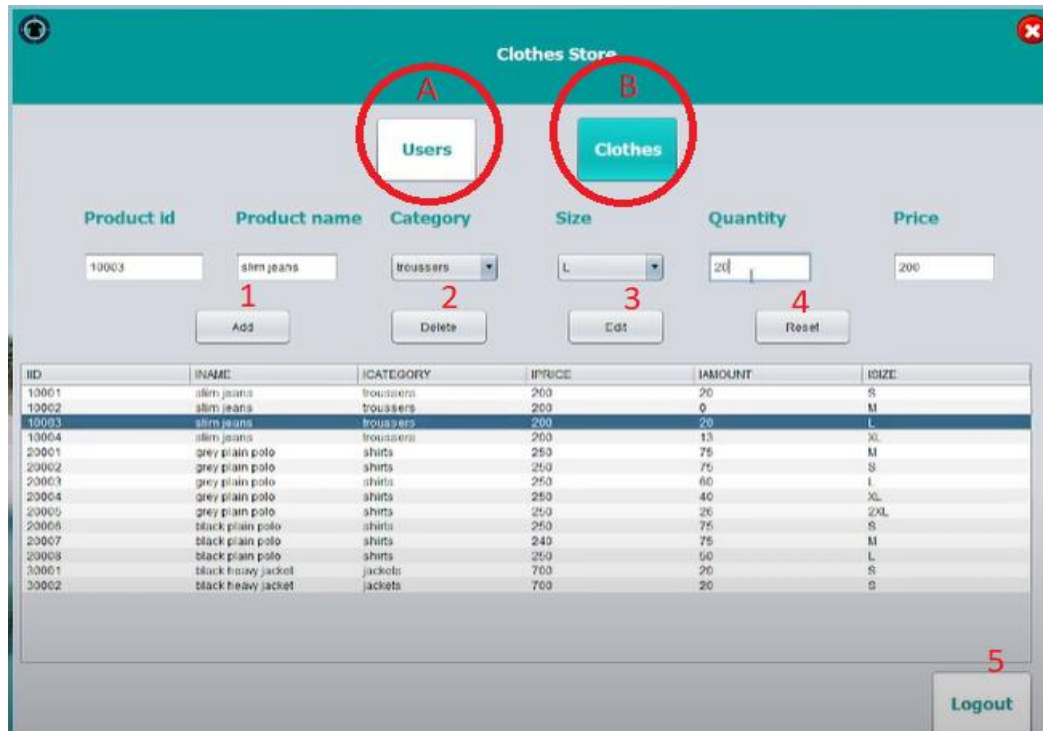


The image shows the same login window for 'SW clothes store'. The dropdown menu is highlighted with a red box, showing 'Cashier' as the selected mode. The 'User name' field now contains the text 'hany'. The 'User Password' field is empty. The 'Login' and 'Clear' buttons remain at the bottom.

- 3- Select one of the two modes, enter your user name and password then press login.
- 4- If you select the Admin mode:
 - If you entered invalid user name or password, a message “Wrong user name or password” will warn you.

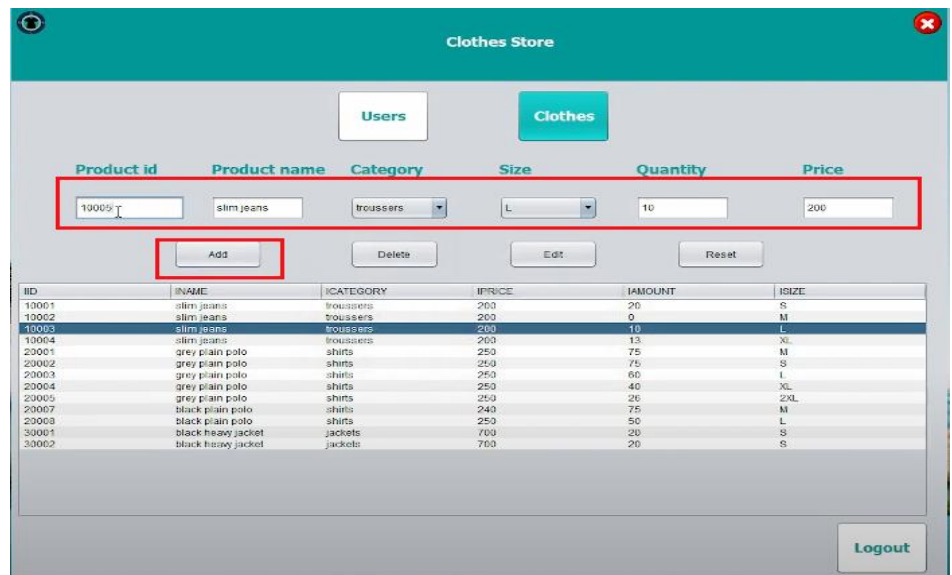


- if you entered a valid user name and password, your page will open. This page contains two options: A (Users)/ B (Clothes).
Login with the default admin user name: ahmed and password: lolbiglol.

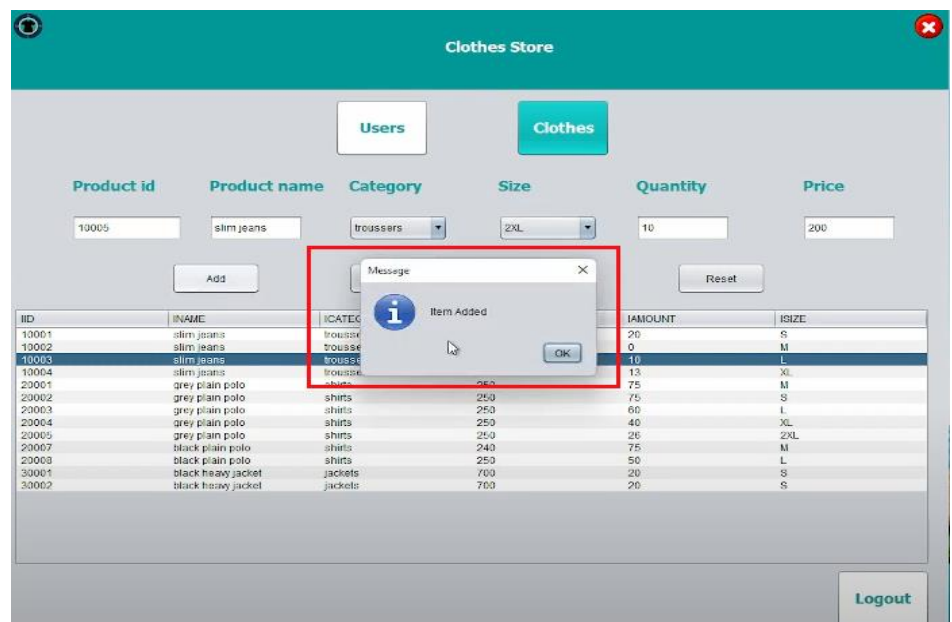


ID	NAME	CATEGORY	PRICE	AMOUNT	SIZE
10001	slim jeans	trousers	200	20	S
10002	slim jeans	trousers	200	0	M
10003	slim jeans	trousers	200	20	L
10004	slim jeans	trousers	200	13	XL
20001	grey plain polo	shirts	250	75	M
20002	grey plain polo	shirts	250	75	S
20003	grey plain polo	shirts	250	60	L
20004	grey plain polo	shirts	250	40	XL
20005	grey plain polo	shirts	250	26	2XL
20006	black plain polo	shirts	250	75	S
20007	black plain polo	shirts	240	75	M
20008	black plain polo	shirts	250	50	L
30001	black heavy jacket	jackets	700	20	S
30002	black heavy jacket	jackets	700	20	S

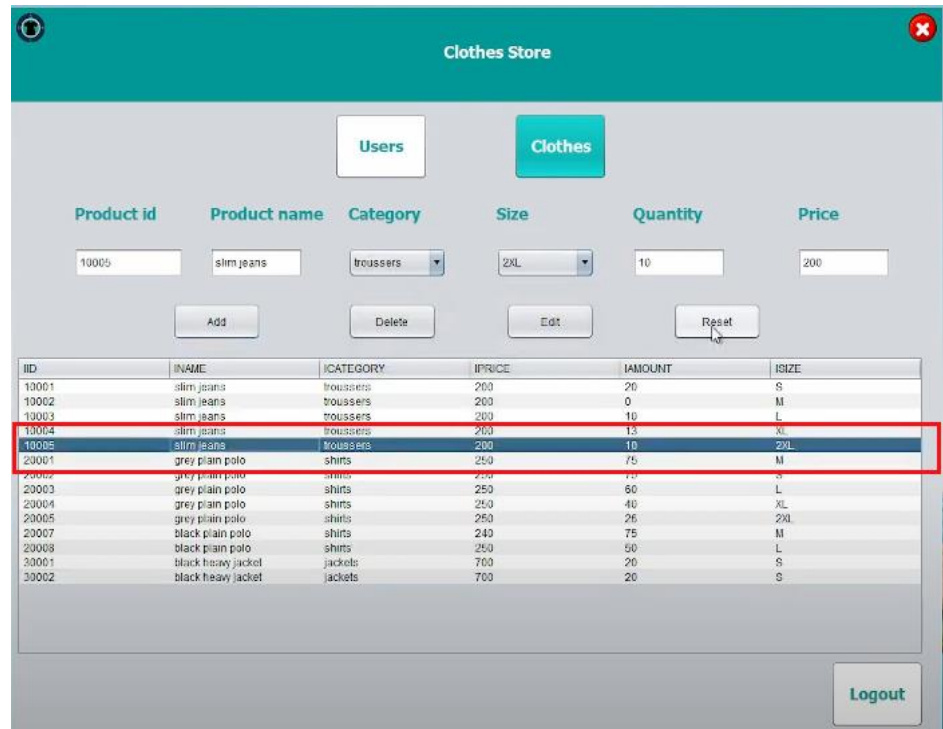
- In Clothes page (option B), the administrator will be able to Add, Delete and Edit the clothes data by their ids, he also will be able to Reset the written data. the page may have a text area that contains: Product id, Color, Category, Size, Quantity and the Unit price.
- if you want to add item fill its data then choose option 1 (add), a message will open says” Item added” then it will be added to the products list.



ID	NAME	CATEGORY	PRICE	AMOUNT	SIZE
10001	slim jeans	trousers	200	20	S
10002	slim jeans	trousers	200	0	M
10003	slim jeans	trousers	200	10	L
10004	slim jeans	trousers	200	13	XL
20001	grey plain polo	shirts	250	75	M
20002	grey plain polo	shirts	250	75	S
20003	grey plain polo	shirts	250	60	L
20004	grey plain polo	shirts	250	40	XL
20005	grey plain polo	shirts	250	26	2XL
20007	black plain polo	shirts	240	75	M
20008	black plain polo	shirts	250	50	L
30001	black heavy jacket	jackets	700	20	S
30002	black heavy jacket	jackets	700	20	S

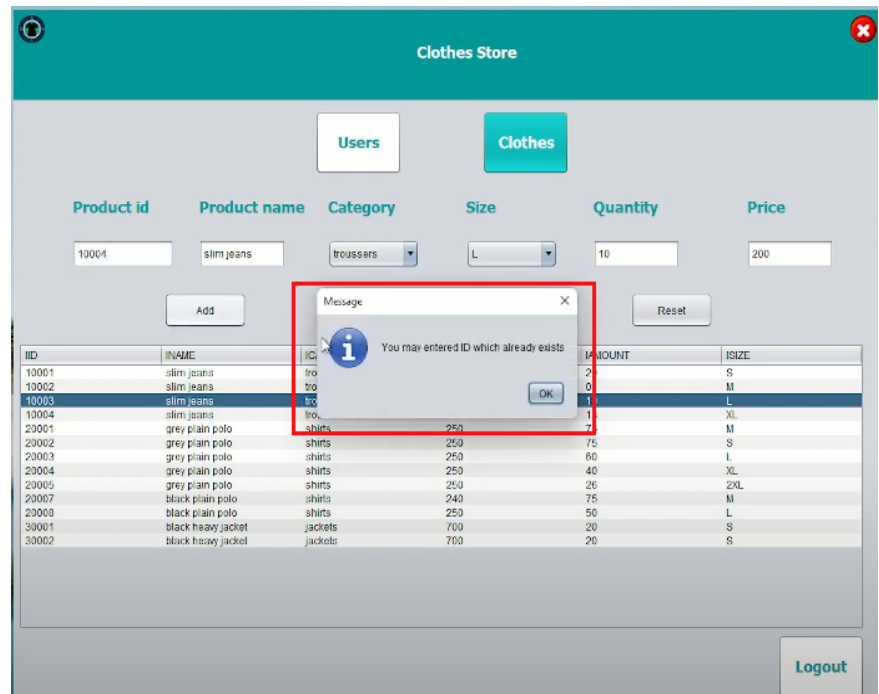


ID	NAME	CATEGORY	PRICE	AMOUNT	SIZE
10001	slim jeans	trousers	200	20	S
10002	slim jeans	trousers	200	0	M
10003	slim jeans	trousers	200	10	L
10004	slim jeans	trousers	200	13	XL
20001	grey plain polo	shirts	250	75	M
20002	grey plain polo	shirts	250	75	S
20003	grey plain polo	shirts	250	60	L
20004	grey plain polo	shirts	250	40	XL
20005	grey plain polo	shirts	250	26	2XL
20007	black plain polo	shirts	240	75	M
20008	black plain polo	shirts	250	50	L
30001	black heavy jacket	jackets	700	20	S
30002	black heavy jacket	jackets	700	20	S



ID	NAME	CATEGORY	PRICE	AMOUNT	SIZE
10001	slim jeans	trousseurs	200	20	S
10002	slim jeans	trousseurs	200	0	M
10003	slim jeans	trousseurs	200	10	L
10004	slim jeans	trousseurs	200	13	XL
10005	slim jeans	trousseurs	200	10	2XL
20001	grey plain polo	shirts	250	75	M
20002	grey plain polo	shirts	250	75	S
20003	grey plain polo	shirts	250	60	L
20004	grey plain polo	shirts	250	40	XL
20005	grey plain polo	shirts	250	26	2XL
20007	black plain polo	shirts	240	75	M
20008	black plain polo	shirts	250	60	L
30001	black heavy jacket	jackets	700	20	S
30002	black heavy jacket	jackets	700	20	S

A warning message will open if you try to add item with id that already exists.

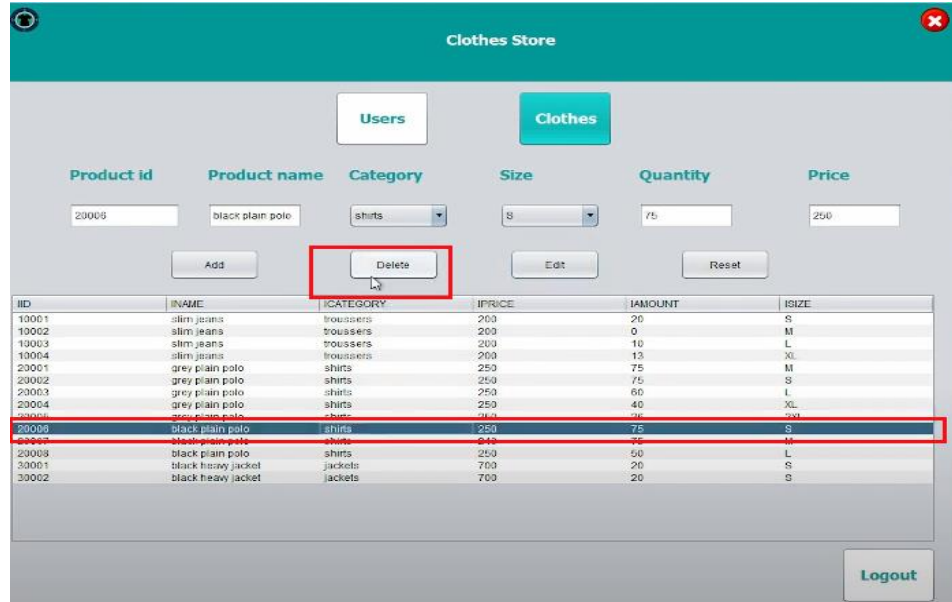


Message

You may entered ID which already exists

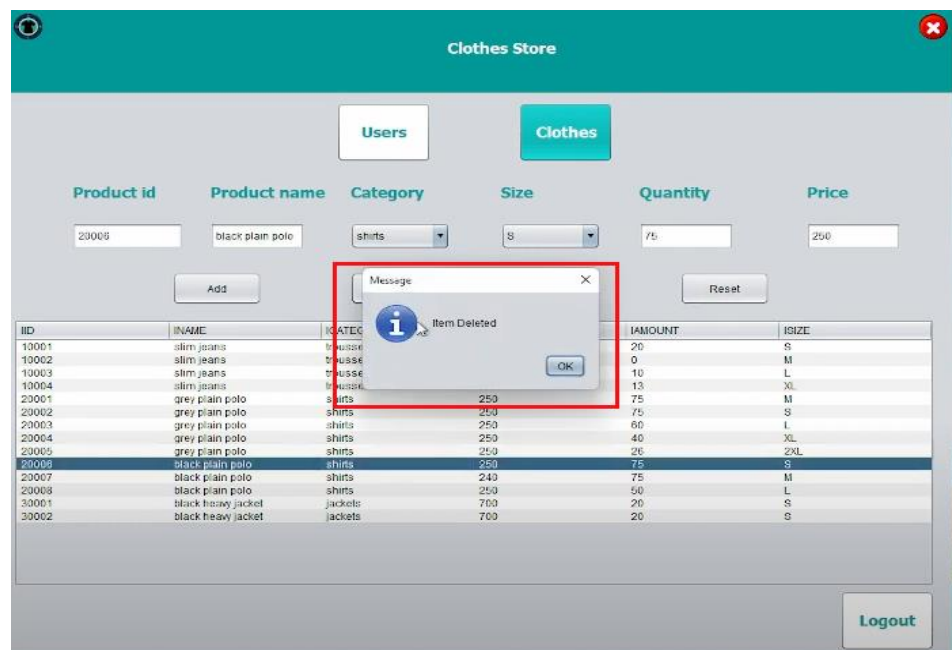
OK

- if you want to delete item choose it from clothes table then choose option 2(delete), a message will open says” Item deleted” then it will be removed from the products list.



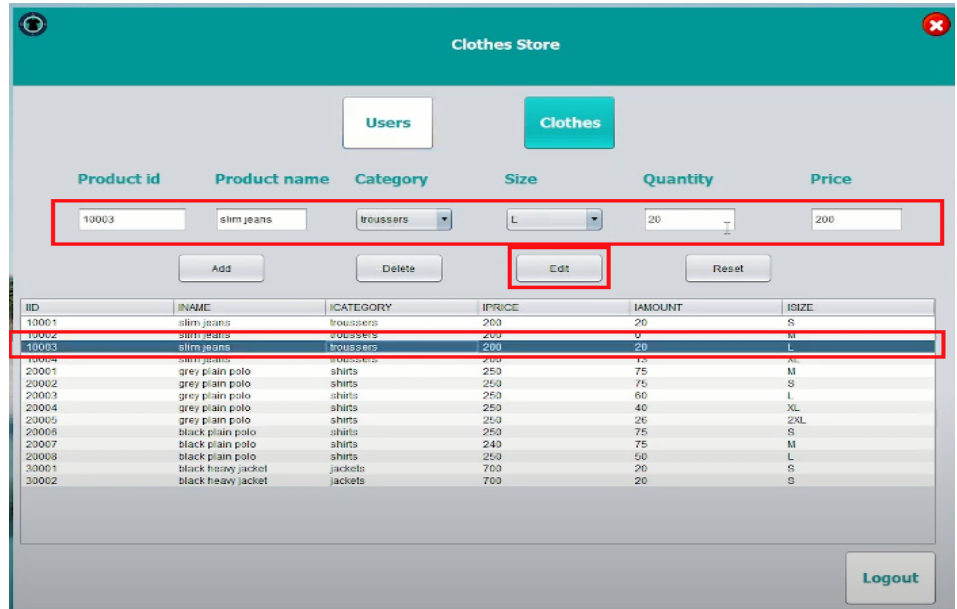
The screenshot shows the 'Clothes Store' application interface. At the top, there are tabs for 'Users' and 'Clothes'. Below the tabs, there is a form with fields for 'Product id', 'Product name', 'Category', 'Size', 'Quantity', and 'Price'. Below the form are buttons for 'Add', 'Delete', 'Edit', and 'Reset'. The 'Delete' button is highlighted with a red box. Below the form is a table with columns: IID, INAME, ICATEGORY, IPRICE, IAMOUNT, and ISIZE. The table contains several rows of product data. The row with IID 20006 is highlighted with a red box, indicating it is the item to be deleted.

IID	INAME	ICATEGORY	IPRICE	IAMOUNT	ISIZE
10001	slim jeans	trousers	200	20	S
10002	slim jeans	trousers	200	0	M
10003	slim jeans	trousers	200	10	L
10004	slim jeans	trousers	200	13	XL
20001	grey plain polo	shirts	250	75	M
20002	grey plain polo	shirts	250	75	S
20003	grey plain polo	shirts	250	60	L
20004	grey plain polo	shirts	250	40	XL
20005	grey plain polo	shirts	250	20	2XL
20006	black plain polo	shirts	250	75	S
20007	black plain polo	shirts	250	75	M
20008	black plain polo	shirts	250	50	L
30001	black heavy jacket	jackets	700	20	S
30002	black heavy jacket	jackets	700	20	S



The screenshot shows the 'Clothes Store' application interface after the deletion of an item. A 'Message' dialog box is displayed in the center of the screen, with the text 'Item Deleted' and an 'OK' button. The dialog box is highlighted with a red box. The background interface is the same as the previous screenshot, but the 'Delete' button is no longer highlighted.

- if you want to edit item choose it from clothes table and change data that you want then choose option 3 (edit), a message will open says" Item updated" then it will be updated in the products list.



Clothes Store

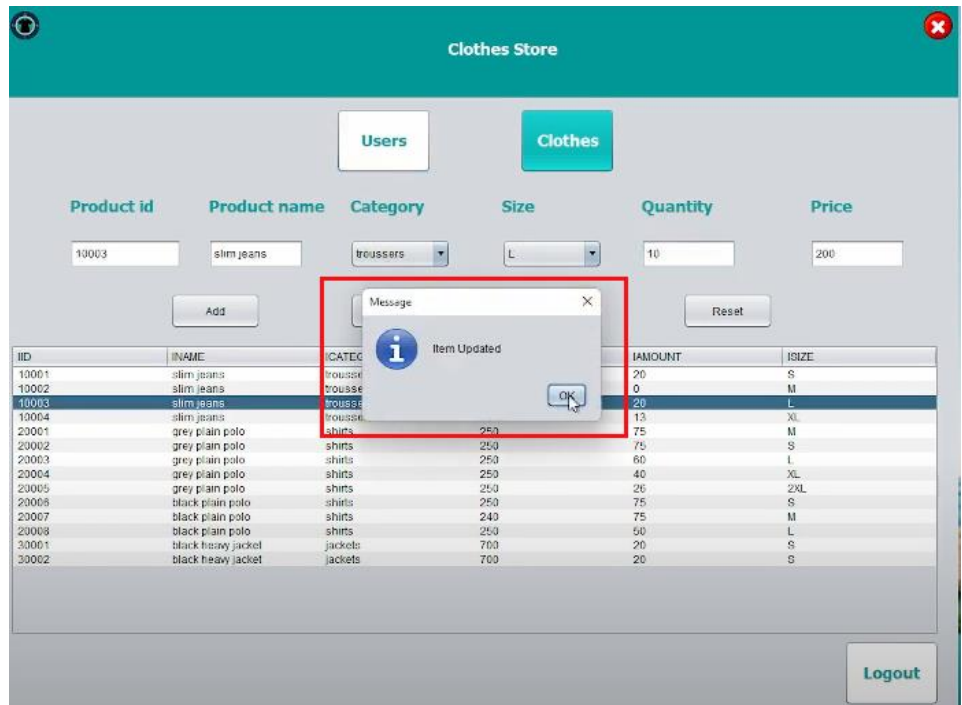
Users Clothes

Product id: 10003, Product name: slim jeans, Category: trousers, Size: L, Quantity: 20, Price: 200

Add Delete Edit Reset

ID	NAME	CATEGORY	PRICE	AMOUNT	SIZE
10001	slim jeans	trousers	200	20	S
10002	slim jeans	trousers	200	0	M
10003	slim jeans	trousers	200	20	L
10004	slim jeans	trousers	250	75	M
20001	grey plain polo	shirts	250	75	S
20002	grey plain polo	shirts	250	75	S
20003	grey plain polo	shirts	250	60	L
20004	grey plain polo	shirts	250	40	XL
20005	grey plain polo	shirts	250	26	2XL
20006	black plain polo	shirts	250	75	S
20007	black plain polo	shirts	240	75	M
20008	black plain polo	shirts	250	50	L
30001	black heavy jacket	jackets	700	20	S
30002	black heavy jacket	jackets	700	20	S

Logout



Clothes Store

Users Clothes

Product id: 10003, Product name: slim jeans, Category: trousers, Size: L, Quantity: 10, Price: 200


Add Delete Edit Reset

Message: Item Updated (OK)

ID	NAME	CATEGORY	PRICE	AMOUNT	SIZE
10001	slim jeans	trousers	200	20	S
10002	slim jeans	trousers	200	0	M
10003	slim jeans	trousers	200	10	L
10004	slim jeans	trousers	250	13	XL
20001	grey plain polo	shirts	250	75	M
20002	grey plain polo	shirts	250	75	S
20003	grey plain polo	shirts	250	60	L
20004	grey plain polo	shirts	250	40	XL
20005	grey plain polo	shirts	250	26	2XL
20006	black plain polo	shirts	250	75	S
20007	black plain polo	shirts	240	75	M
20008	black plain polo	shirts	250	50	L
30001	black heavy jacket	jackets	700	20	S
30002	black heavy jacket	jackets	700	20	S

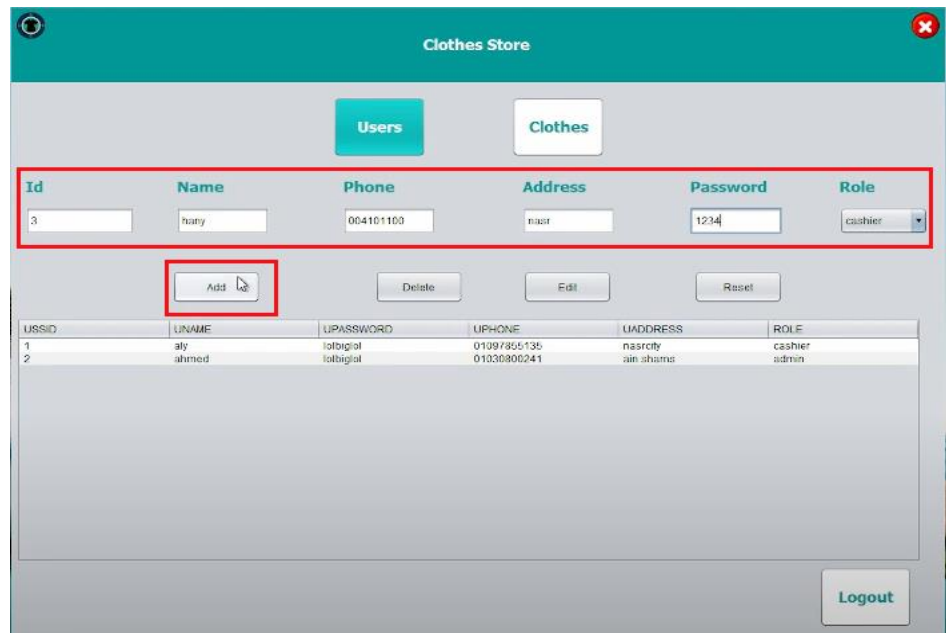
Logout

- If you want to reset the written data, choose option 4.
 - If you want to log out, choose option 5.
- In Users page (option A), the administrator will be able to Add, Delete and Edit any data of the users by their ids, he also will be able to Reset the written data. it may have a text area that contains: User id, Name, Phone Number, Address and Password.



USSID	LNAME	LPASSWORD	LPHONE	LADDRESS	ROLE
1	aly	lolololol	01097855135	nassr city	cashier
2	ahmed	lolololol	01030800241	ain shams	admin

- If you want to add a new user, enter its data then choose option 1 (add), a message will open says” User added” then the user will be added to the users list.



Clothes Store

Users **Clothes**

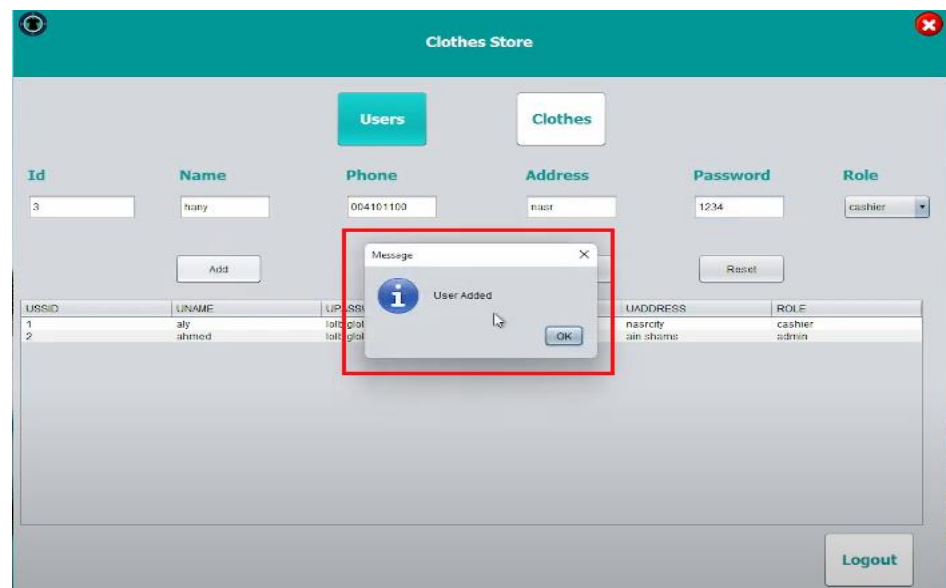
Id **Name** **Phone** **Address** **Password** **Role**

3 hany 004101100 nasr 1234 cashier

Add **Delete** **Edit** **Reset**

USSID	UNAME	UPASSWORD	UPHONE	UADDRESS	ROLE
1	aly	lo1big1al	01997865136	nasrcity	cashier
2	ahmed	lo1big1al	01036806241	ain shams	admin

Logout



Clothes Store

Users **Clothes**

Id **Name** **Phone** **Address** **Password** **Role**

3 hany 004101100 nasr 1234 cashier

Add **Delete** **Edit** **Reset**

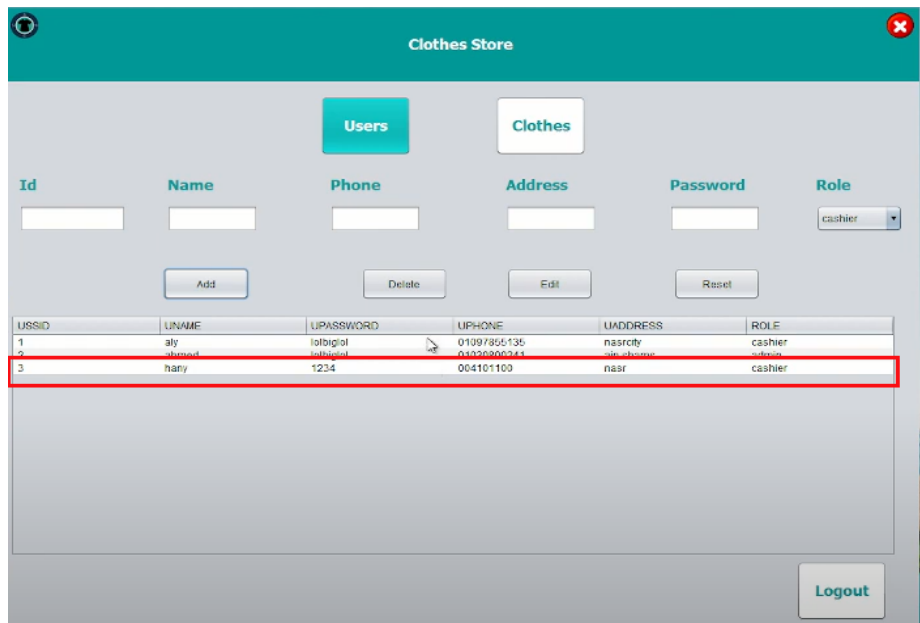
Message

i User Added

OK

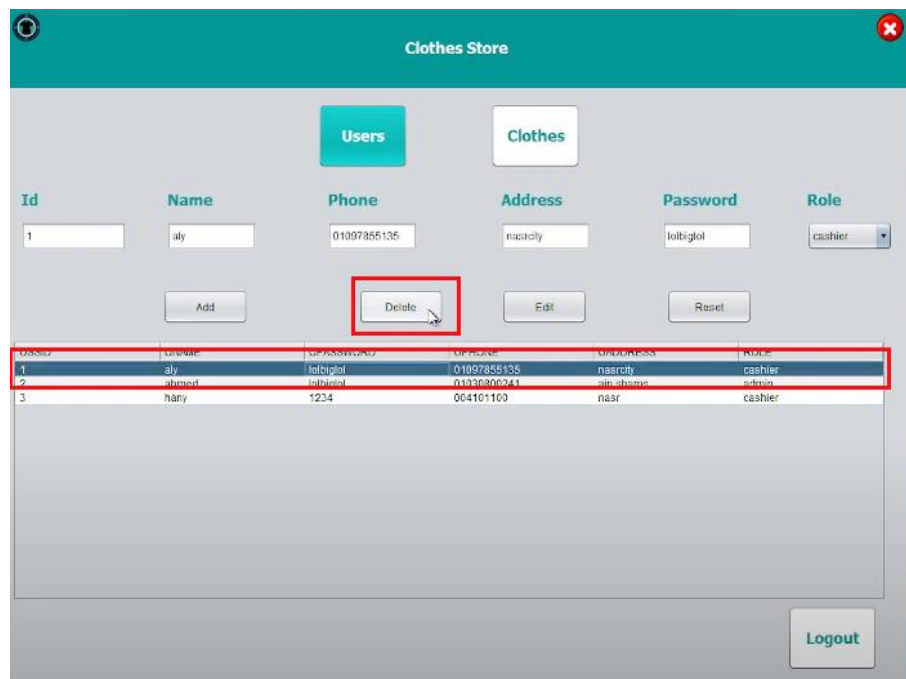
USSID	UNAME	UPASSWORD	UPHONE	UADDRESS	ROLE
1	aly	lo1big1al	01997865136	nasrcity	cashier
2	ahmed	lo1big1al	01036806241	ain shams	admin

Logout

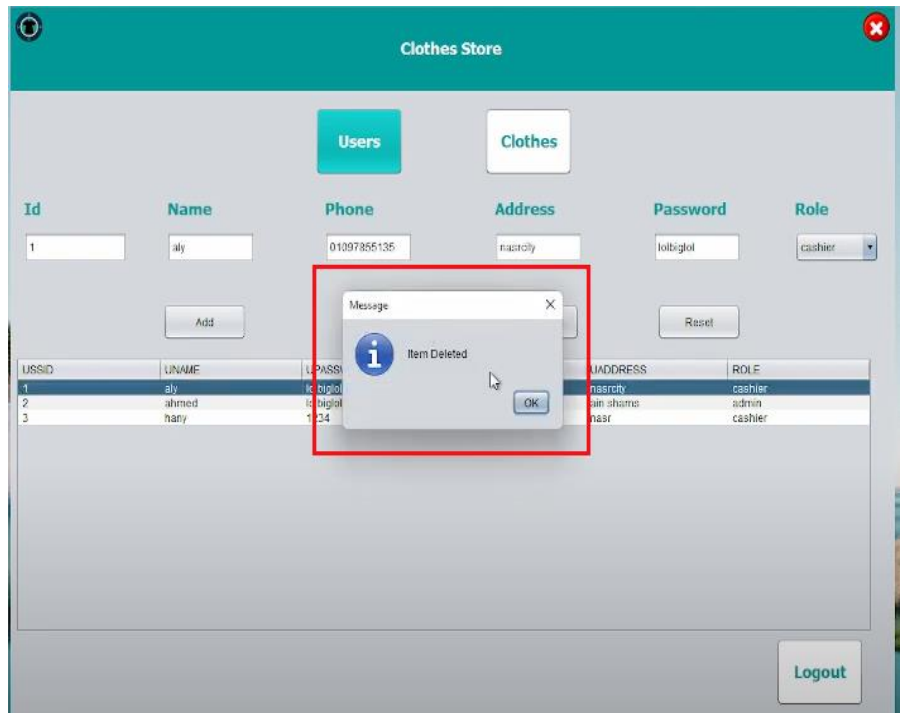


Id	Name	Phone	Address	Password	Role
1	aly	01097855135	nasrcity	loibigiol	cashier
2	ahmed	01036800241	ain shams	loibigiol	admin
3	hany	1234	nasr	loibigiol	cashier

- If you want to delete a user, choose the user you want to delete then choose option 2 (delete), a message will open says” User deleted” then it will be removed from the users list.



Id	Name	Phone	Address	Password	Role
1	aly	01097855135	nasrcity	loibigiol	cashier
2	ahmed	01036800241	ain shams	loibigiol	admin
3	hany	1234	nasr	loibigiol	cashier

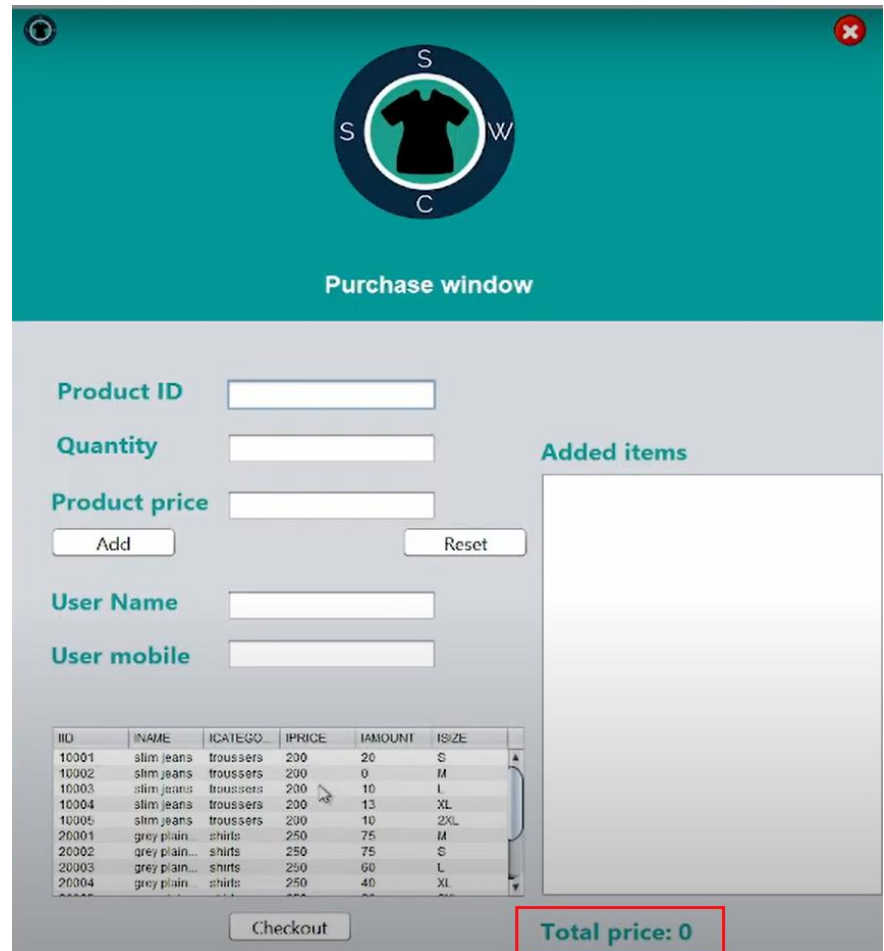


- If you want to rest, choose option 4
- If you want to log out, choose option 5

5- If you select cashier mode, you will have to option: new purchase/logout.



- If you select new purchase option, this window will be opened with a total price zero as no products added yet:



Purchase window

Product ID

Quantity

Product price

User Name

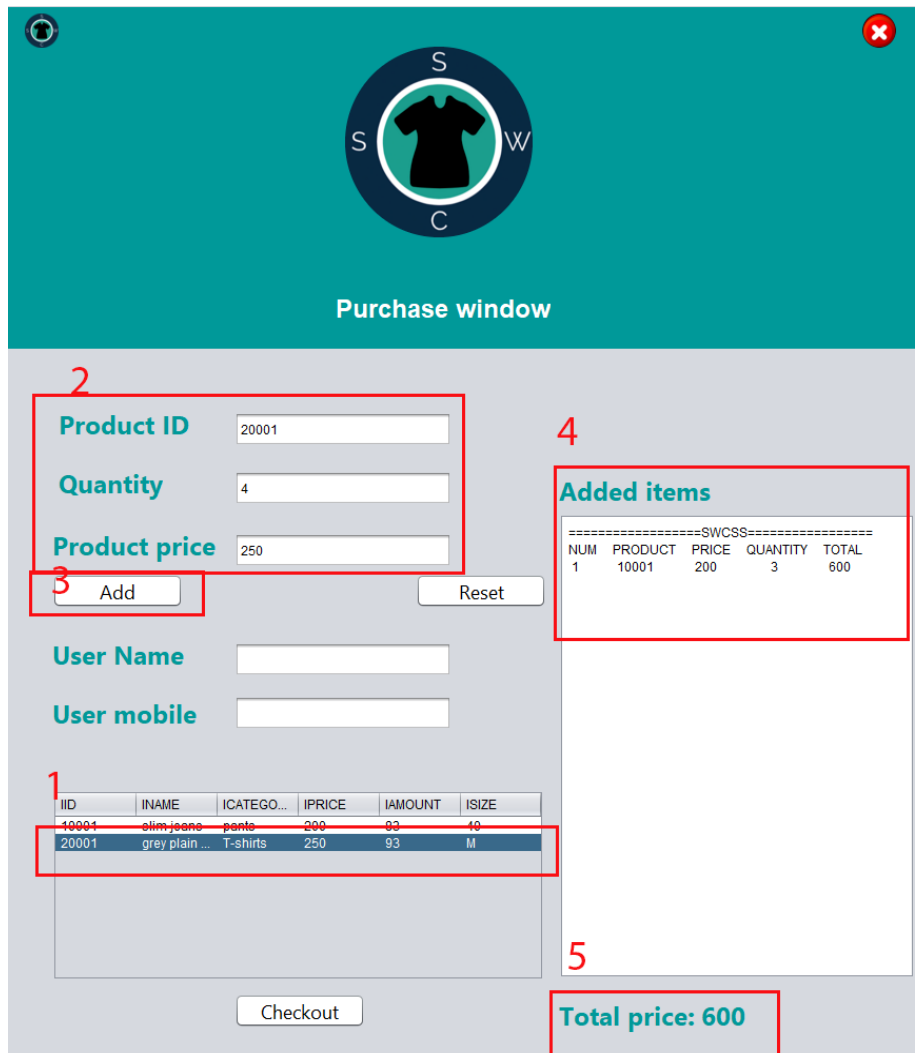
User mobile

Added items

ID	NAME	CATEGORY	PRICE	AMOUNT	SIZE
10001	slim jeans	trousers	200	20	S
10002	slim jeans	trousers	200	0	M
10003	slim jeans	trousers	200	10	L
10004	slim jeans	trousers	200	13	XL
10005	slim jeans	trousers	200	10	2XL
20001	grey plain...	shirts	250	75	M
20002	grey plain...	shirts	250	75	S
20003	grey plain...	shirts	250	60	L
20004	grey plain...	shirts	250	40	XL

Total price: 0

- If you want to add a product choose it from table step (1), then enter its data step (2), then choose add step (3), so quantity of item you choose appear in added items box (4) and the total price appear below added item box (5).



Purchase window

2

Product ID: 20001

Quantity: 4

Product price: 250

3

Add Reset

User Name:

User mobile:

1

ID	INAME	ICATEGO...	IPRICE	IAMOUNT	ISIZE
10001	slim jeans	pants	200	93	40
20001	grey plain ...	T-shirts	250	93	M

4

Added items

-----SWCSS-----				
NUM	PRODUCT	PRICE	QUANTITY	TOTAL
1	10001	200	3	600

5

Checkout

Total price: 600

- Before you choose checkout (2), you should enter user name and user mobile (1).

Press **Esc** to exit full screen

Purchase window

Product ID

Quantity

Product price

1

User Name

User mobile

Added items


NUM	PRODUCT	PRICE	QUANTITY	TOTAL
1	20001	250	4	1000
2	20004	250	5	1250

ID	NAME	CATEGORY	PRICE	AMOUNT	SIZE
10001	slim jeans	trousers	200	20	S
10002	slim jeans	trousers	200	0	M
10003	slim jeans	trousers	200	10	L
10004	slim jeans	trousers	200	13	XL
10005	slim jeans	trousers	200	10	2XL
20001	grey plain...	shirts	250	71	M
20002	grey plain...	shirts	250	75	S
20003	grey plain...	shirts	250	60	L
20004	grey plain...	shirts	250	35	XL

2

Total price: 2250

- After you choose checkout, this window will appear.



The screenshot shows a checkout window with a teal header containing a circular logo with a black t-shirt icon and the letters 'S', 'W', and 'C'. Below the header, a red-bordered box contains the following text:

=====SWCSS=====

NUM	PRODUCT	PRICE	QUANTITY	TOTAL
1	20001	250	4	1000
2	20004	250	5	1250

=====

Client name: aty
Client phone number: 01097855135

At the bottom of the window, a button labeled "Confirm and print receipt" is highlighted with a red border.



Conclusion:

This document starts by an introduction which summaries what is the system we develop, then the user requirements which contains what does the user want (functional and nonfunctional requirements). Then followed by Feasibility study, we discuss in this part the financial, technical, resource and time constrains.

From the user requirements we concluded the system requirements, divided it into functional and nonfunctional requirements, then we built requirement traceability matrix and source traceability matrix.

Then we discussed all the diagrams: use case, swinlane, component, sequential, data flow, class and architectural diagrams. then finally we introduce the end user guide.