

COOP CITY INVENTORY MANAGEMENT SYSTEM

Final Report
ICT2232 Software Engineering

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|------------------------|-------------|
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Declaration

We hereby declare that the work in this project has not been submitted and will not be submitted, either in part or in full, for the award of any other degree or diploma in this university or any other institute. We also hereby this project does not contain any material previously published or written by another person except where due reference is made in the text.

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Abstract

This report describes about a system which is use for computerized data gathering and summarizing. We create this for targeting specific type of company to avoid their day today mistakes and take good long-term decisions. Using this system targeted company can reduce the time and wastage also. Even though this system is designed for a mini coop city, this is suitable for all kind of companies which are still using manual methods. There is no need to keep books or notes because of the system. It automatically generates daily reports and managers can make correct decision at time. Using that method anyone can easily make decisions. In another hand this system just like a decision supporting system.

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List of Abbreviations

COOP: Corporative

IMS: Inventory Management System

C: Mouse Click

DbC: Double Click

RC: Right Click

MMC: Middle Mouse Click

Admin: Administrator

ERD: Entity Relation Diagram

Acknowledgement

The success and final outcome of COOP Inventory Management System required a lot of guidance and assistance from many people and we are extremely privileged to have got this all along the completion of our system. All that we have done is only due to such supervision and assistance and we would not forget them.

We respect Ms. K. H. J. Imalka (Lecturer in Charge), for providing us an opportunity to do this project and giving us all support and guidance which mane us complete the project duly. We are extremely thankful to her for providing such a nice support and guidance.

We owe our deep gratitude to COOP Organization, who took keen interest on our project work and guided us along, till the completion of our project work by providing all the necessary information to develop a good system

We are thankful to and fortunate enough to get constant encouragement, support and guidance from all teaching staff of Department of ICT, Faculty of Technology, University of Ruhuna which helped us in successfully completing our project work.

Chapter 1: Introduction

1.1 Introduction to the Organization

The COOP Organization is one of the largest organizations in Sri Lanka. First the Co-operative societies system of Sri Lanka started during the period of British ruling in order to fulfil the economic needs of rural farming community by granting loans. After that they have established Co-operative shops island wide. Finally, the Co-operative societies re-organized compatible with the economic and business scope. Accordingly, area within the authority of the society was expanded and established as a stable economic unit.

This system is targeting Bibulewela Co-operative shop. When explaining this shop, it's like a one-man show. Because there is only one person working at the shop. Actually, currently that role is playing by the Mrs. Sandya Sepali. All the times is the cashier, she is the manager and she is the admin of this organization. But she must make reports daily, weekly and monthly sometimes yearly for the transactions of this organization. She has to submit all the reports to the head office in Kamburipitiya.

Basically, the person who is working in this organization have some major tasks to do.

Customer helper:

- When a customer came to the shop and he/she wants to measure the weight of some item, above person must do it.
- When a customer asking for some product, that person have to give answers.

Cashier:

- Have to generate the bill manually for the items that customer bought.
- Have to make the transaction by giving the correct balance to the customer.

Manager:

- When the items running out of stock, as the manager she must inform the head office with the correct numbers and reorder the items.
- When the new stocks are arrived, she must accept the order and issue cheques.
- She must make reports belongs to all the transactions.

Security:

- She has to look at on each customer that they are stealing items or not.

This person who works on this organization has to verify generated reports from the Bibulewela rural bank nearby. The organization hasn't any standard date to update stocks. When the items are running out, they call for suppliers.

At the last week of the year, they close the shop. In that period, they are finalizing all the reports, checking the stocks availability and remove items which are not buying mostly. After that their new accounting year start at the 1st of January. All the transactions are happening inside the Coop shop but report generating process is happening inside the rural bank nearby.

1.1.1 Vision

Cooperation for sustainable development as a people entrepreneurship

1.1.2 Mission

Intervention in abundance, being congruous, to construct the good governance in cooperative societies to develop cooperative business as a people's entrepreneurship

1.1.3 Objectives/Functions

- Activity as a coordinator between the government and the cooperation
- Propagation of cooperative business
- Maintenance of good governance and strengthening cooperative societies
- Conduction of cooperative societies along cooperative policies
- Coordination between institutes and external parties related to cooperative service
- Assisting the government in development projects launching

1.1.4 Cooperative Policies and Etiquettes

There are special cooperative policies and etiquettes improved with the historical development of the cooperative business

- Policies
- Volunteer and open membership
- Democratic governance of members
- Socio economic participation
- Independence and Freedom
- Education, Training and Information
- Co-operation among Co-operative organization
- Social concern
- Etiquettes
- Self-support
- Genuinely
- Harmony
- Justice
- Equality
- Social responsibility
- Member responsibility
- Self-responsibility
- Democracy
- Openness

1.2 Current Process of the Organization

COOP Organization is non profitable organization. Hence COOP shops also conducting their business without expecting a profit. Current business of COOP shops is buying and selling goods. When we are considering the current situation of the COOP shops, they are conducting their business as a fully manual way.

1.2.1 Recording Transactions

The management of the COOP shop keeping separate books to record stock details, supplier's details, day to day transactions, etc.

1.2.2 Requesting New Items

When it comes to request new items to the inventory, before creating a request report manager must check the availability of the items in the stock and identify the items that have a low quantity. After that manager can create the request report. Hence it will take minimum one day. After the submission of the request report to the COOP Organization management, they approve and send the items to the COOP shop. For that it will be taken 2 or 3 days.

1.2.3 Recording New Stock Details

Once the arrived the new stock, manager check and record all the items in stock details record book and after that new stock will store in their inventory. Usually when requesting new items to the stock, they are closing their shops until the requested items are arriving to the shop and storing them in their inventory.

1.2.4 Creating Reports

The manager must submit different kinds of reports to the COOP Organization such as monthly selling reports, Daily profit reports, item request reports, etc. To create those reports manager using the details of the record books.

1.2.5 Cashier Activities

When it comes to cashier activities, the cashier is used a calculator to calculate day to day transactions and after that print a bill.

1.2.6 Updating Record Books

After a full selling day, they must check current stock and sold items and using that details manager must update the particular record books.

1.3 Statement of the Problem

By analyzing this manual method, management of COOP Organization has understood their current activities are going on very slow manner and there are many errors have occurred. Hence, to conducting their business without any error and more efficiently they decided to have a software to manage their inventory much easily.

1.4 Aims and Objectives

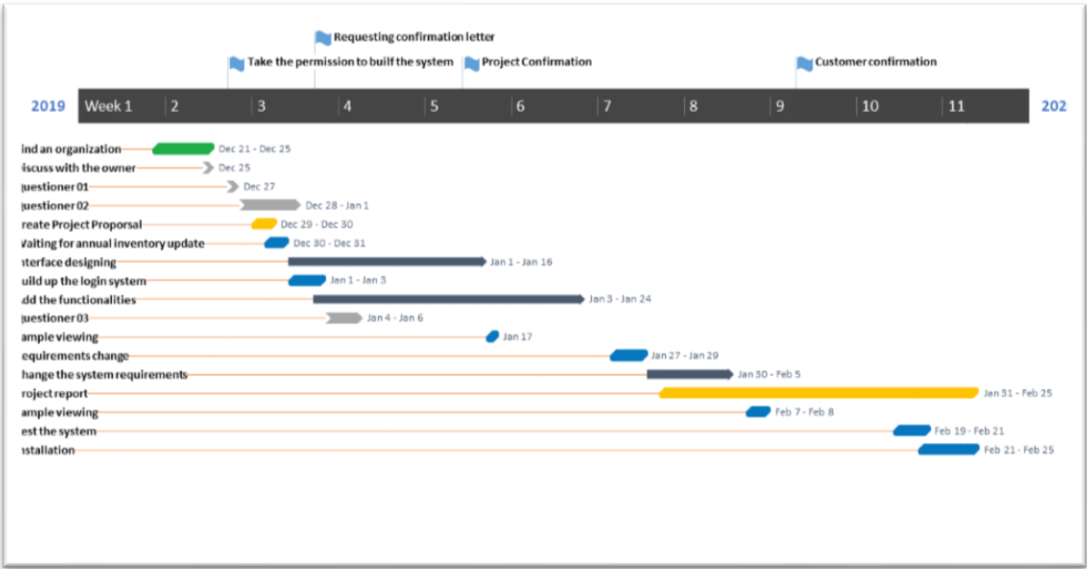
COOP Inventory Management System has developed to manage the inventory of COOP shops much easily and without any errors.

- Need to manage the inventory without any effort
- Need to check availability of items in the inventory at any time without any delay
- Need to generate reports immediately as they want
- Need to update the inventory more efficiently
- Need to reduce the time per transaction
- Need to identify the items that are low in the inventory and generate a request report to request that items immediately
- Need to store supplier's details

1.5 Scope of the Project

According to COOP Inventory Management System, there are three user categories (Admin, Manager and Cashier). In these categories admin is the one who creating user accounts in this system. When we are deploying the system, we will create a default admin account in this system. Using that account administrators of the COOP shop can create new user accounts and they will able to make changes to that account such as delete and update accounts. When updating accounts, they can only update their own accounts. After the creation of user accounts managers of the system can login to the system using their username and password. According to our system every COOP shop should have a barcode reader. Because we developed this system as to store items details using its' barcode. When using a barcode reader, it is easy to store and doing transactions in items. Using this system manager can update current items details and can enter new items details of a stock to the system. When entering new details of the items, manager must set the item limit per each item. Using these limits, the system checks the availability of the items in the stock and provide a suitable alert for the manager. Hence manager can identify easily low quantity items in the stock and generate an item request report immediately. The system also has facilitated to generate reports for a time period that the manager needs such as daily, monthly, yearly or etc. Using this system manager can store and update supplier's details also. Likewise using this system manager can be done his/her job more easily and efficient way without any doubts. We have provided extra facility to COOP Organization in this system, that is the cashier also can do his/her job using this system. When it comes to cashier activities, to do daily transactions cashier using a barcode reader to store day to day selling items in the database directly. In database it will auto updating the stock using reducing the relevant sold items in stock items table. After that the system will generate the bill for the relevant customer. Likewise, the employees of COOP shops have some specific scope in this project. They can do their day to day tasks much more easily using this system.

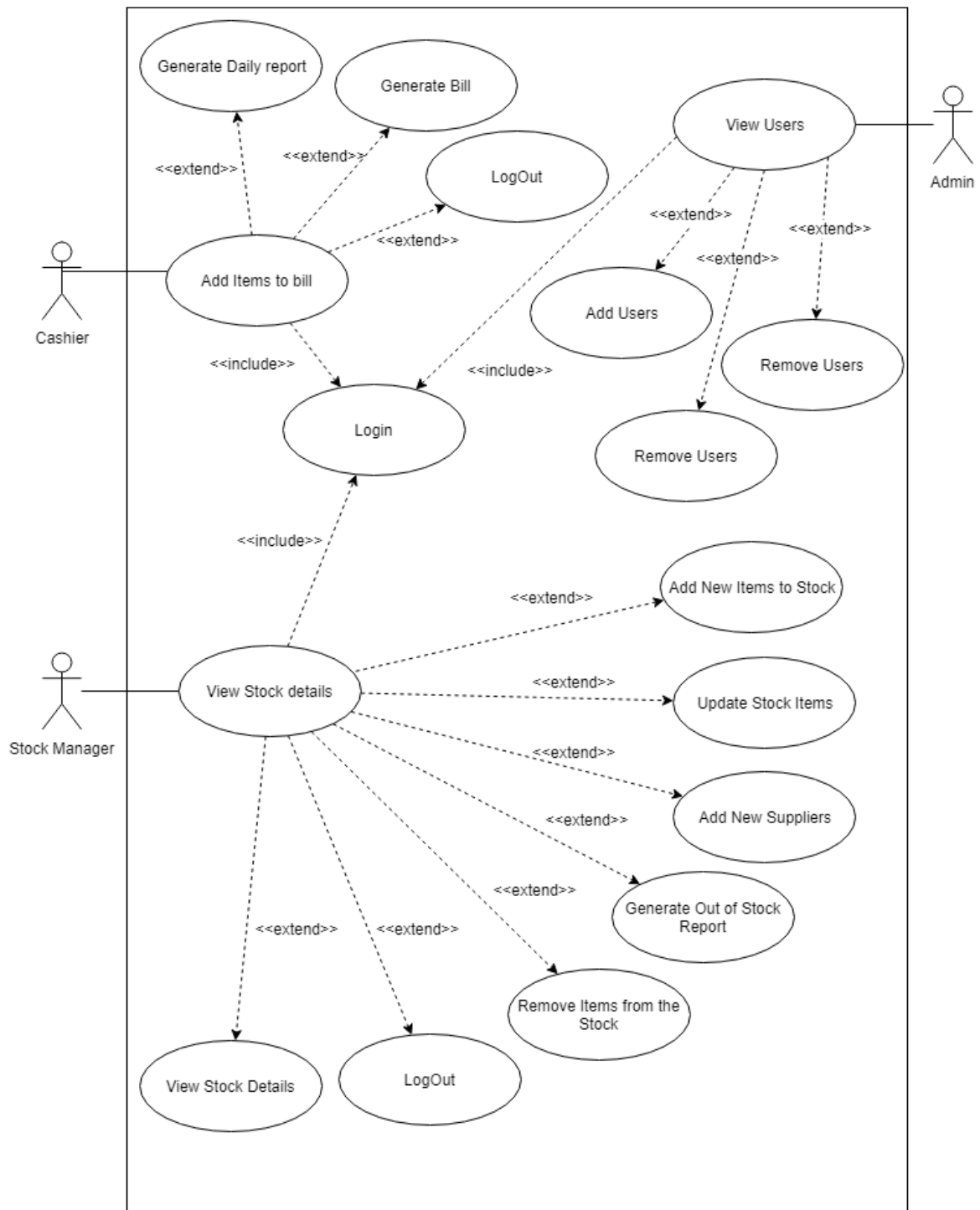
1.6 Gantt Chart



1 Gantt Chart

Chapter 2: System Analysis & Design

2.1 Use Case Diagram

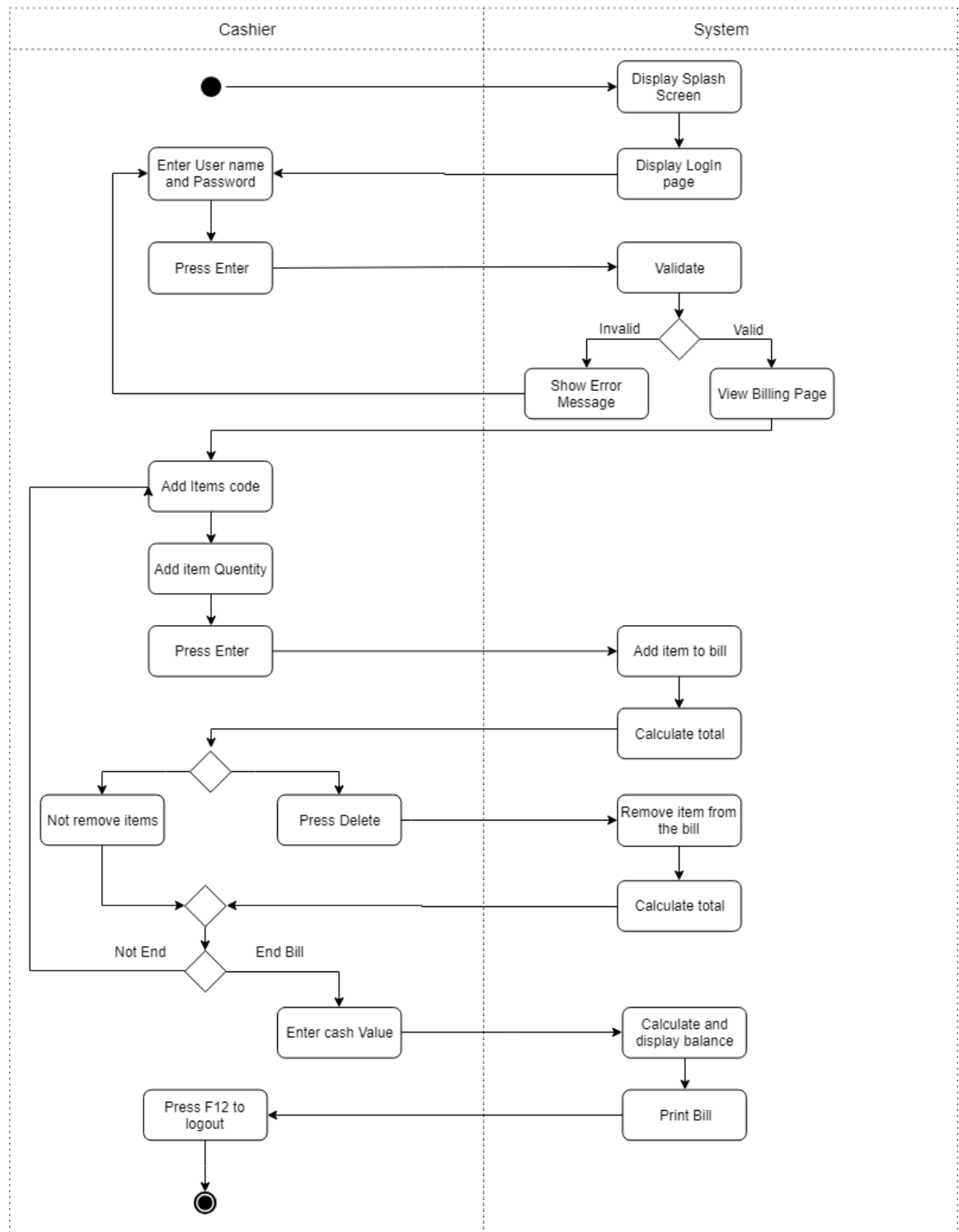


2 Use Case Diagram of COOP

2.3 Activity Diagrams

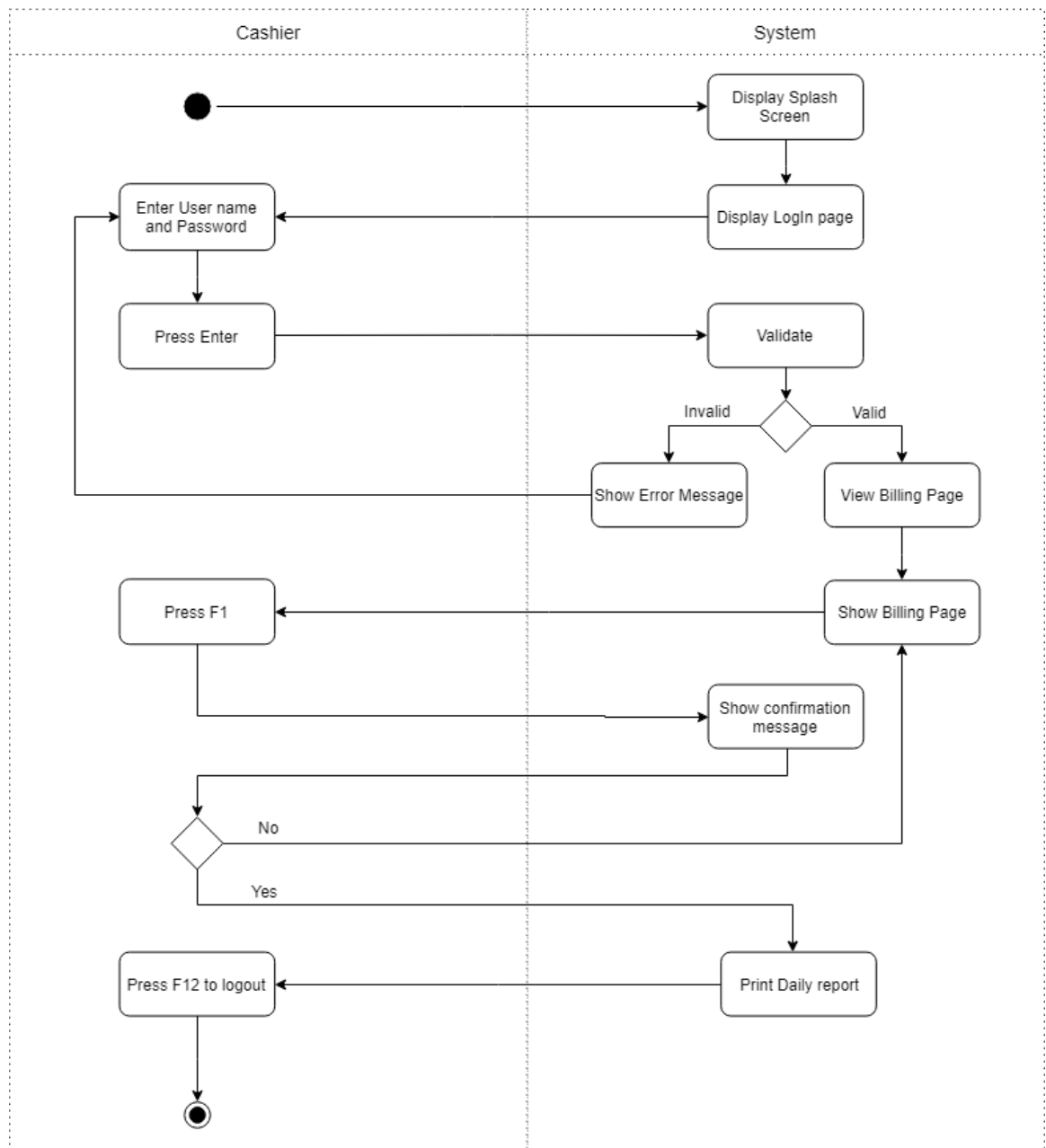
2.3.1 Cashier

Activity diagram for Cashiers' billing



3 Cashier's bill process

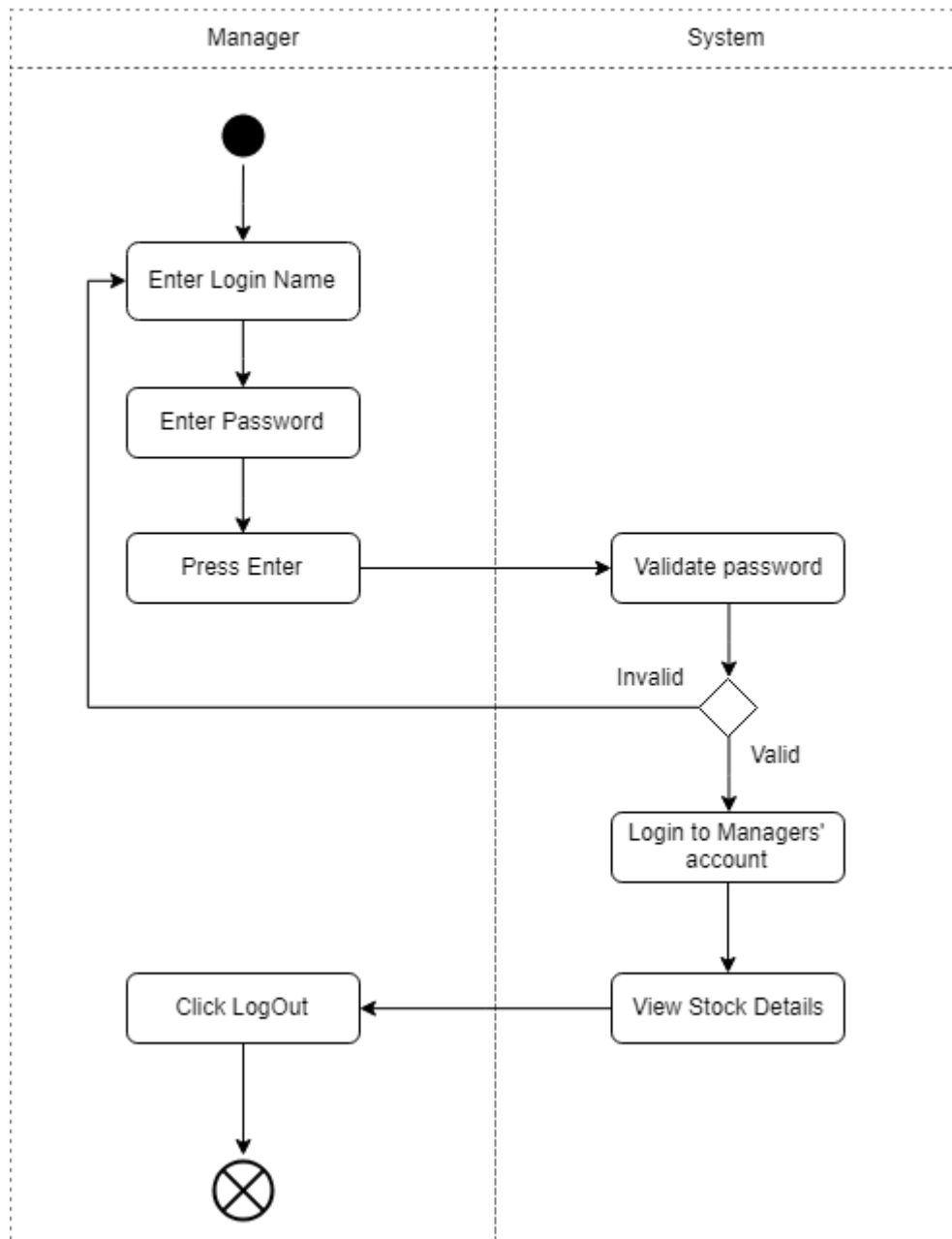
Activity diagram for Cashiers' daily report



4 Cashiers' Daily Report

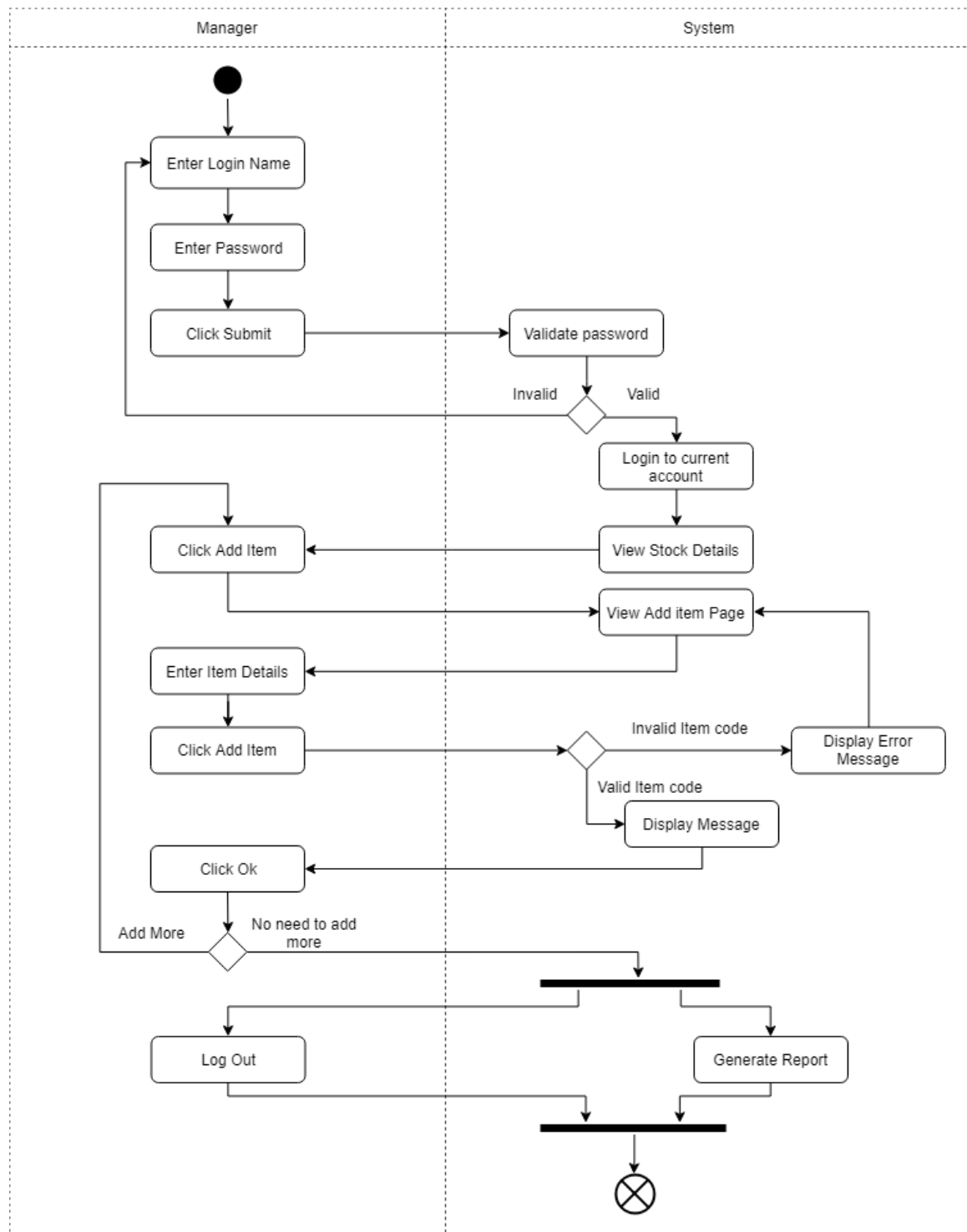
2.3.2 Manager

Activity diagram for Viewing Stock details

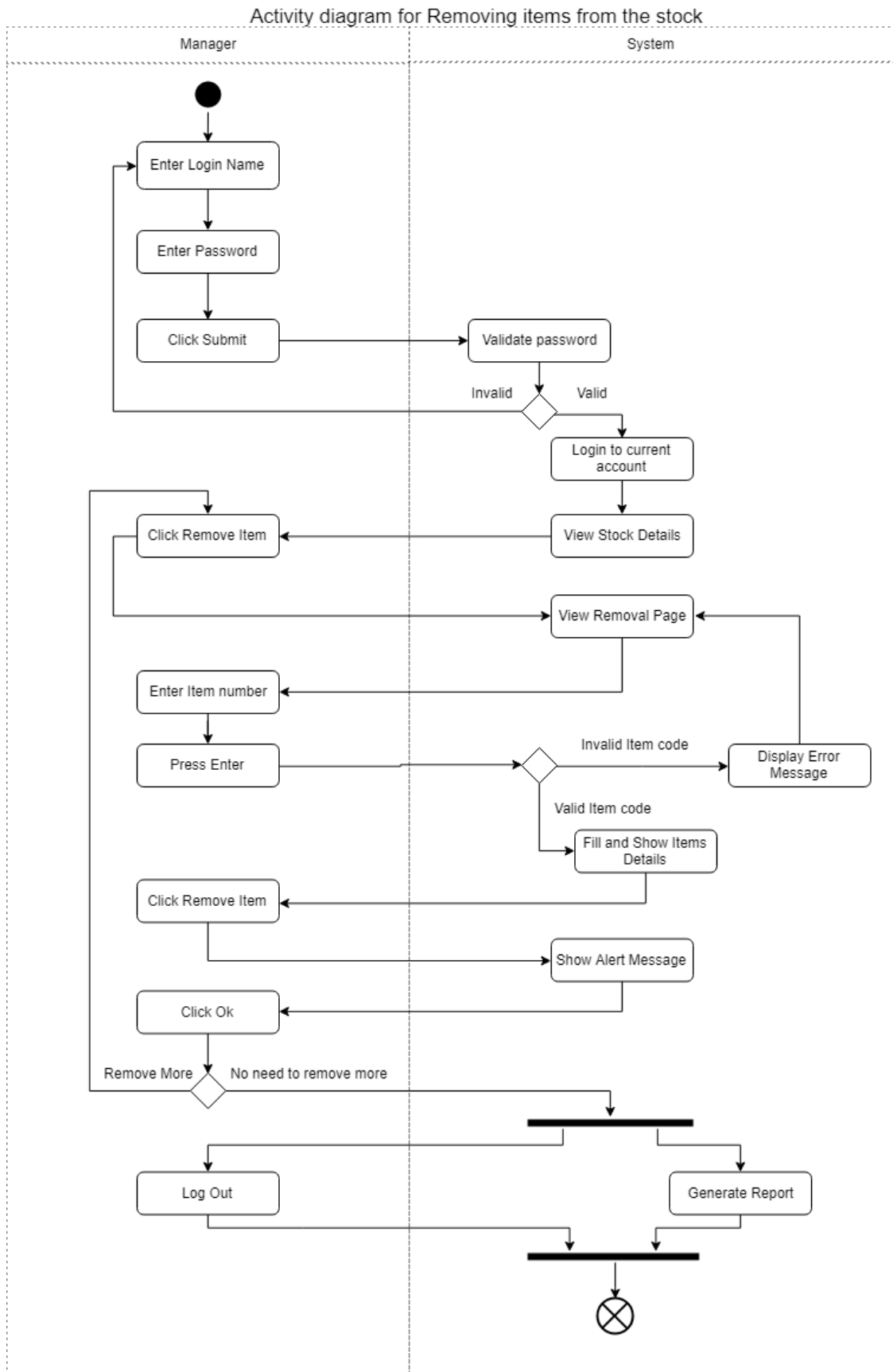


5 Managers' View Stocks

Activity diagram for Adding New Items



6 Managers' Add New Items



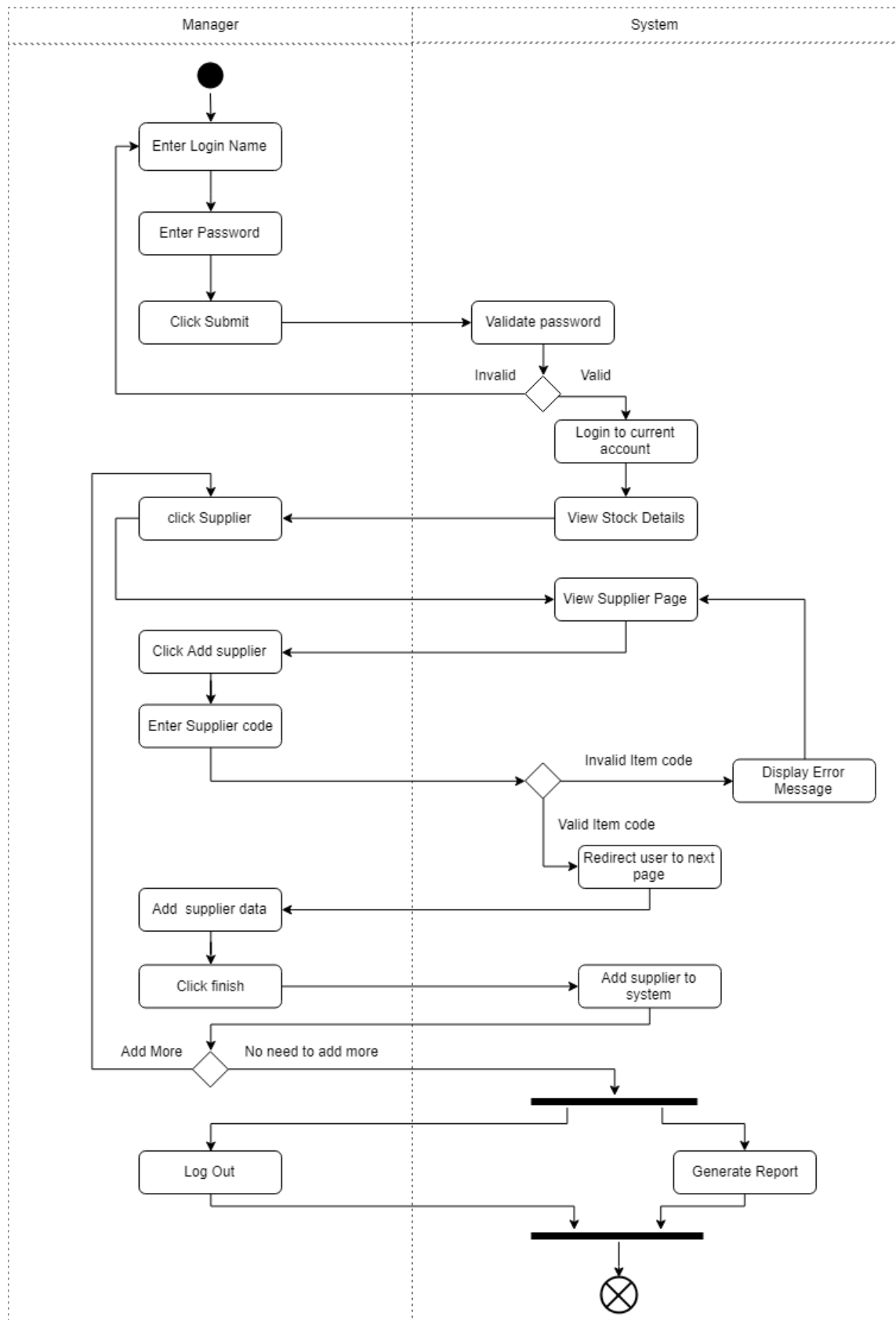
7 Managers' Removing Items

```
graph TD
    subgraph Manager
        Start(( )) --> EnterLogin[Enter Login Name]
        EnterLogin --> EnterPass[Enter Password]
        EnterPass --> ClickSubmit[Click Submit]
        ClickUpdate[Click Update] --> EnterItem[Enter Item number]
        EnterItem --> PressEnter[Press Enter]
        PressEnter --> MakeChanges[Make Changes]
        MakeChanges --> ClickUpdate2[Click Update]
        ClickUpdate2 --> ClickOk[Click Ok]
        ClickOk --> LogOut[Log Out]
    end

    subgraph System
        ValidatePass[Validate password]
        Login[Login to current account]
        ViewStock[View Stock Details]
        ViewUpdate[View Update Page]
        FillShow[Fill and Show Items Details]
        ShowAlert[Show Alert Message]
        GenerateReport[Generate Report]
    end

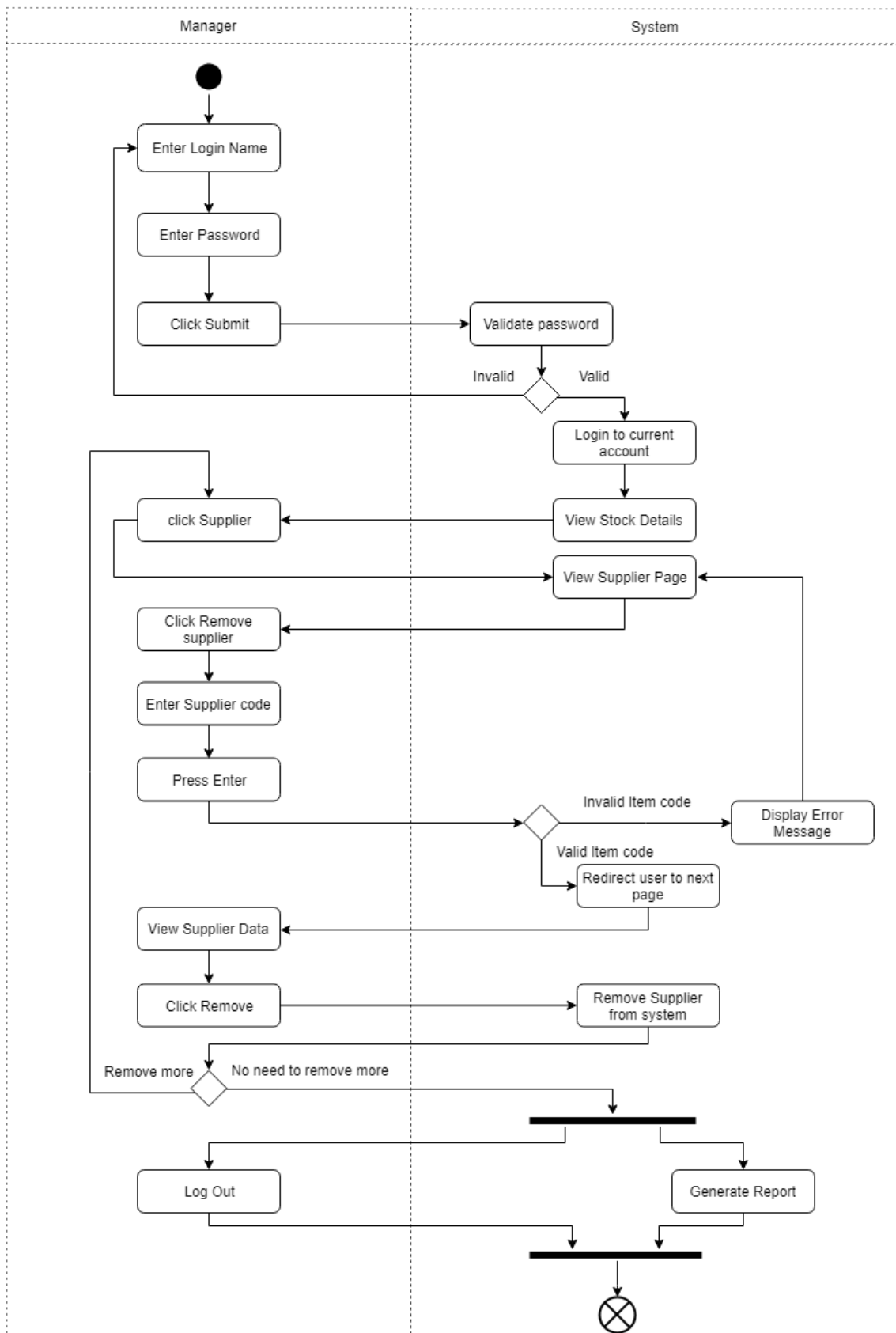
    ClickSubmit --> ValidatePass
    ValidatePass -- Invalid --> EnterLogin
    ValidatePass -- Valid --> Login
    Login --> ViewStock
    ViewStock --> ClickUpdate
    ClickUpdate --> ViewUpdate
    ViewUpdate --> EnterItem
    EnterItem --> PressEnter
    PressEnter -- Invalid Item code --> ErrorMessage[Display Error Message]
    PressEnter -- Valid Item code --> FillShow
    FillShow --> MakeChanges
    MakeChanges --> ClickUpdate2
    ClickUpdate2 --> ShowAlert
    ShowAlert --> ClickOk
    ClickOk -- Update More --> ClickUpdate
    ClickOk -- No need to update more --> Fork1[ ]
    Fork1 --> LogOut
    Fork1 --> GenerateReport
    LogOut --> Join1[ ]
    GenerateReport --> Join1
    Join1 --> End(( ))
```

Activity diagram for Adding suppliers



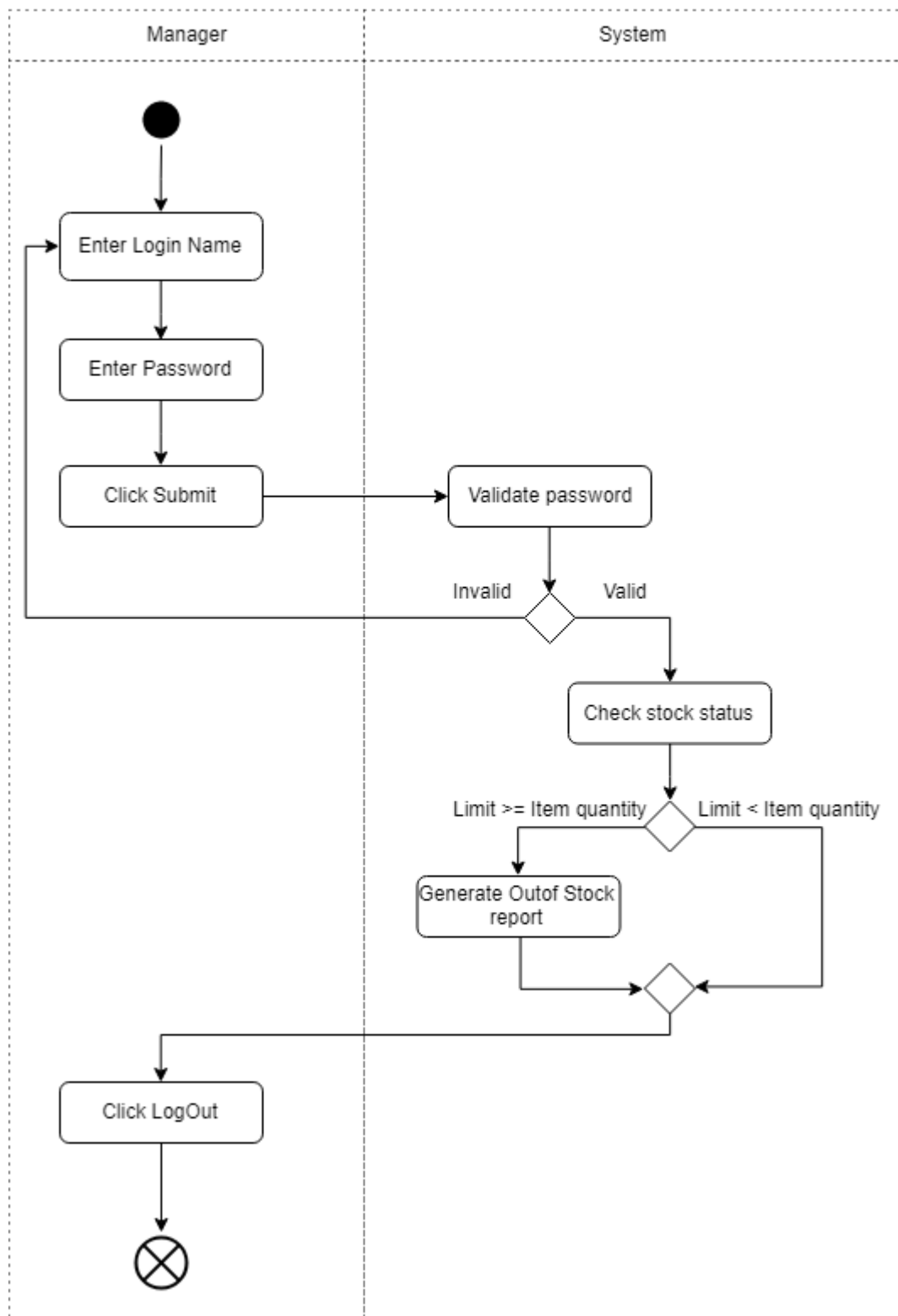
9 Managers' Adding Suppliers

Activity diagram for Removing suppliers



10 Managers' Removing Suppliers

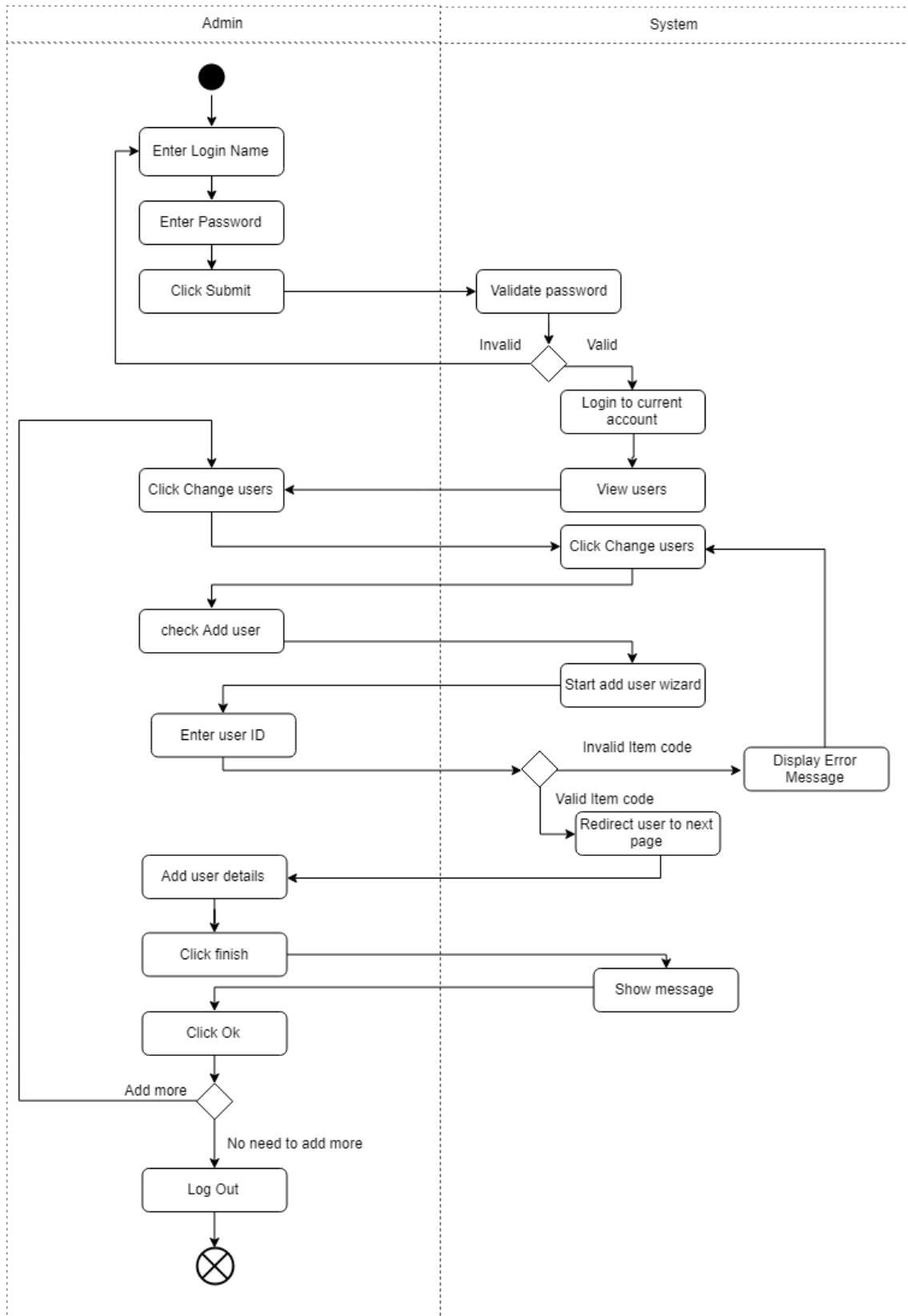
Activity diagram for generating outof stock report



11 System Generates Out of Stock Report

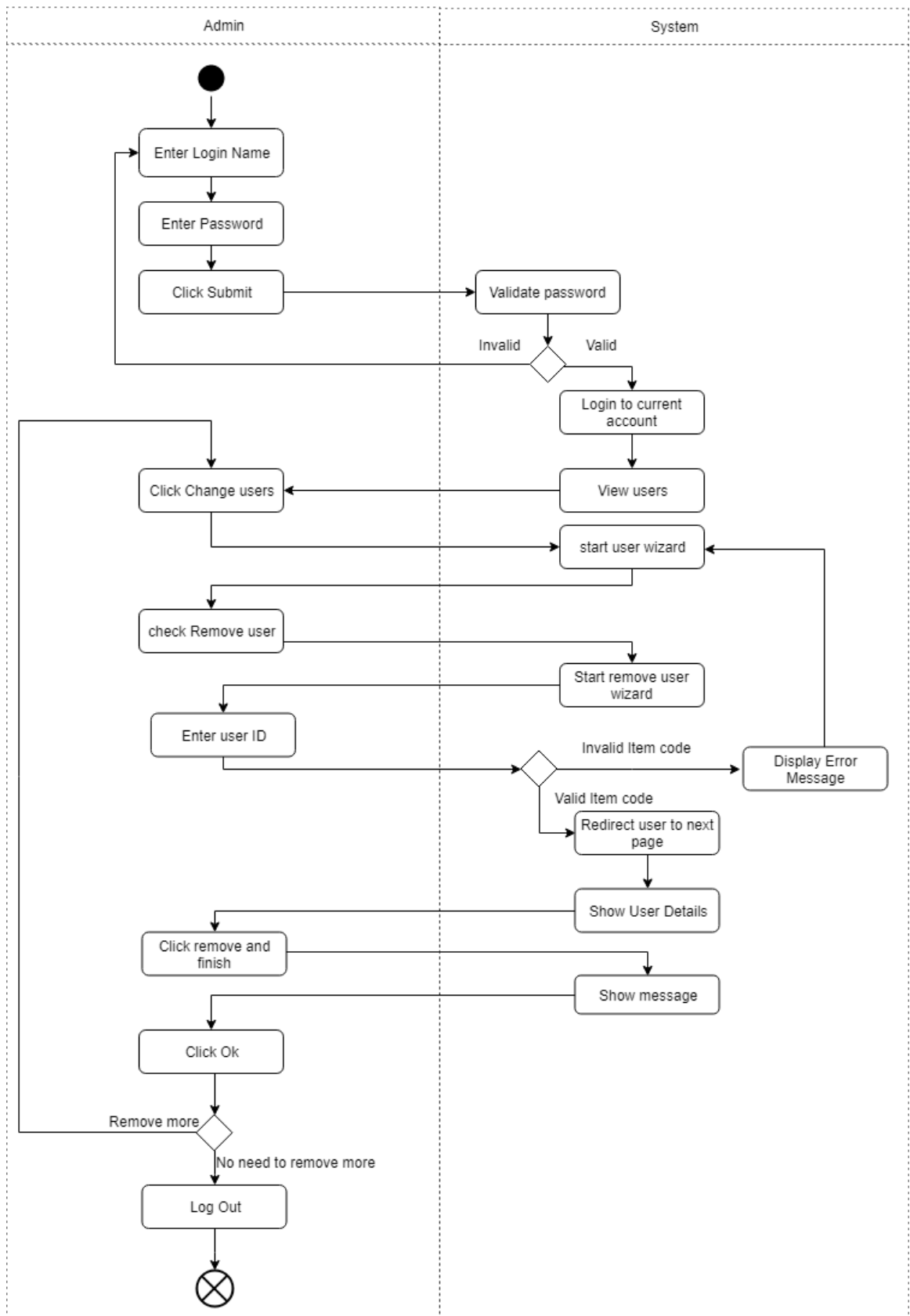
2.3.3 Admin

Activity diagram for Adding users



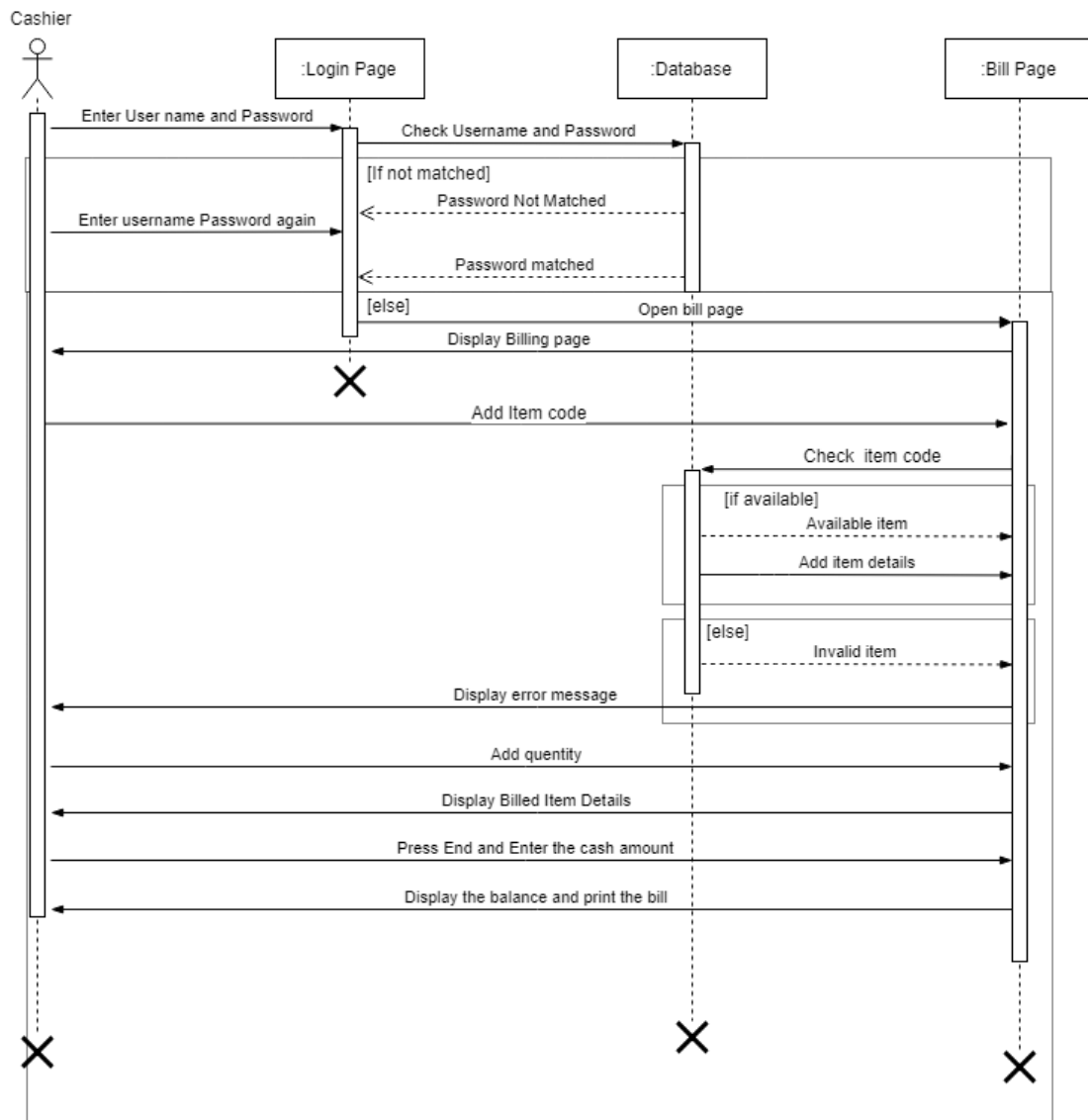
12 Admins' Adding Users

Activity diagram for Removing users



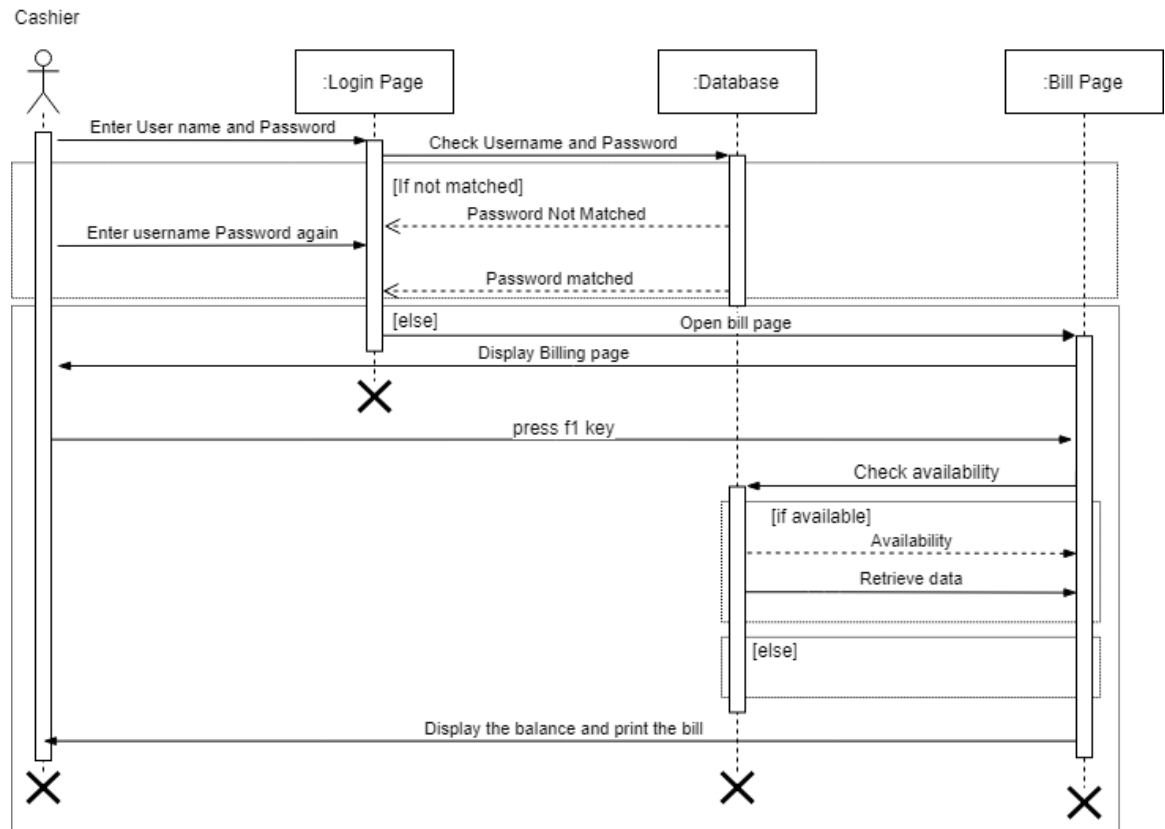
2.4 Sequence Diagrams

2.4.1 Cashier Billing Process



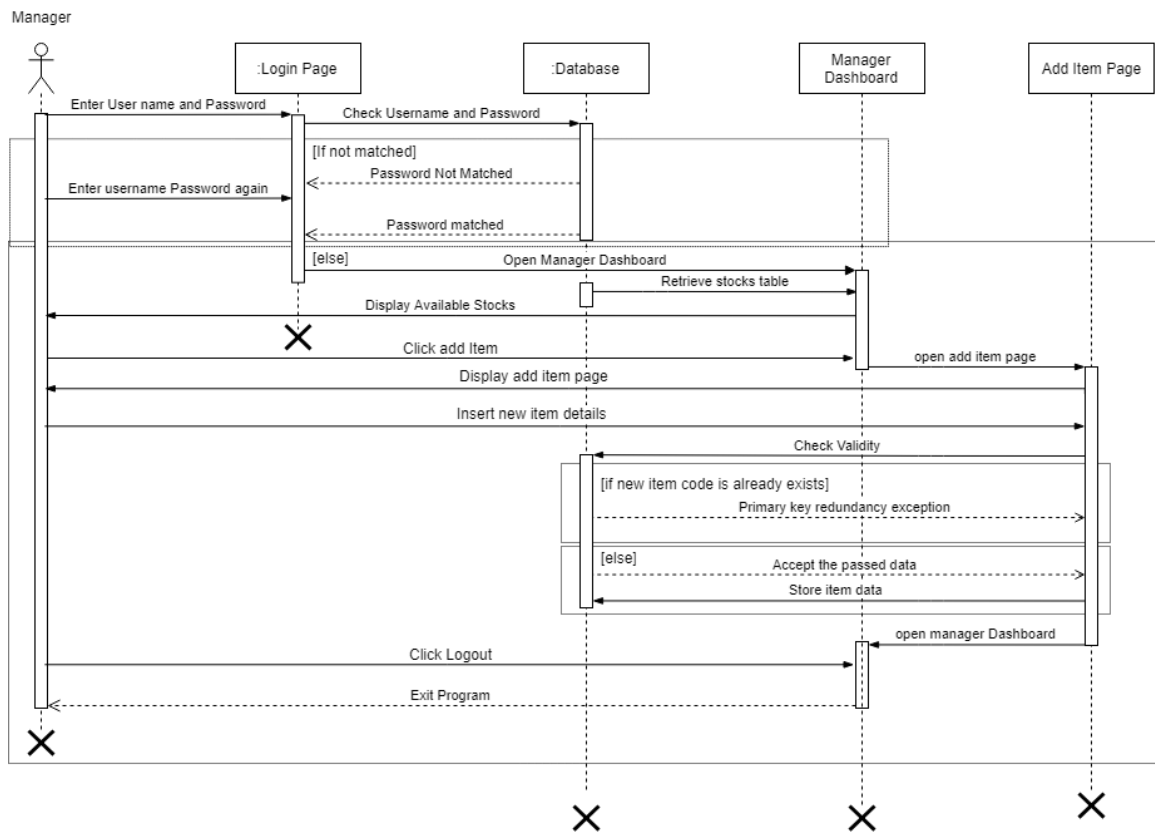
14 Cashiers' Billing Process

2.4.2 Cashier Daily Report



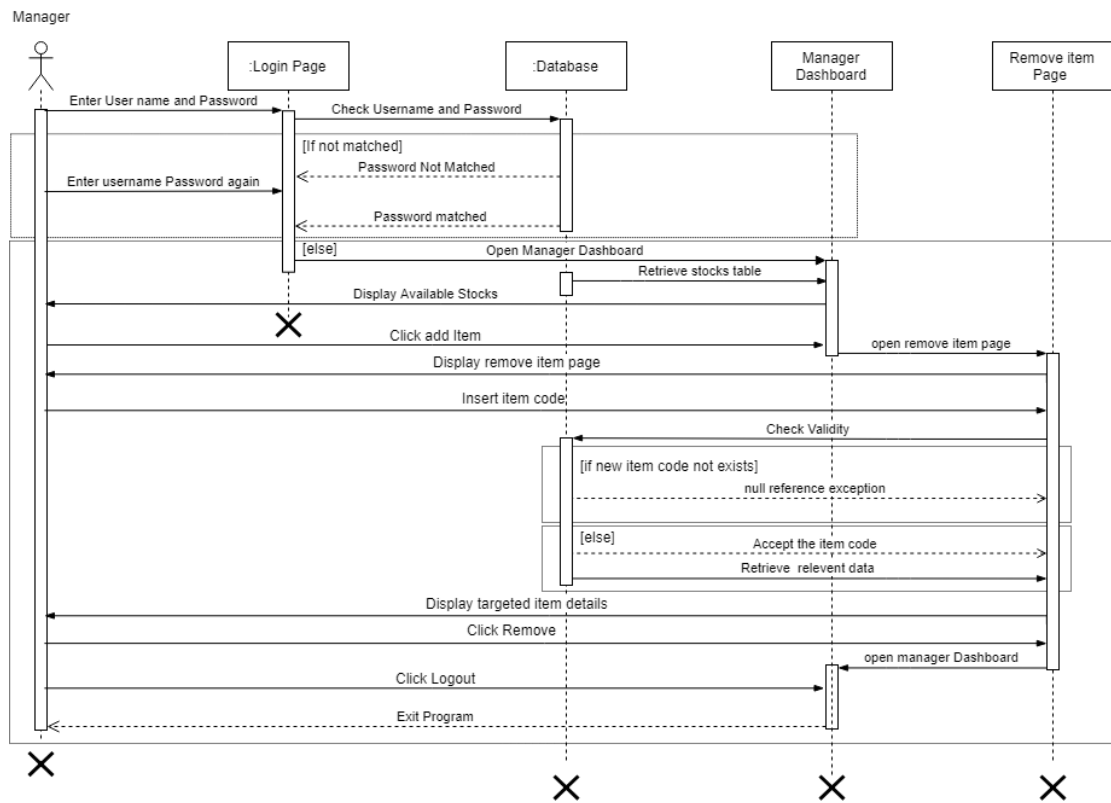
15 Cashiers' Daily Report

2.4.3 Manager Adding Items



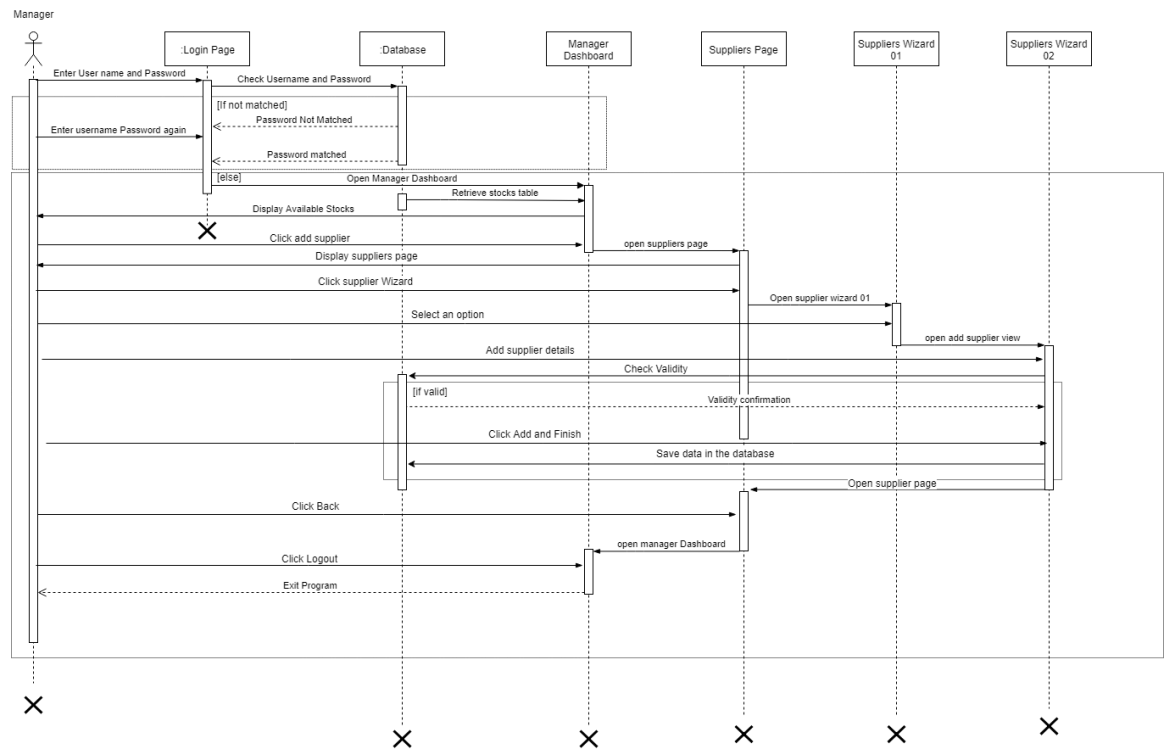
16 Managers' Adding Items

2.4.4 Manager Removing Items



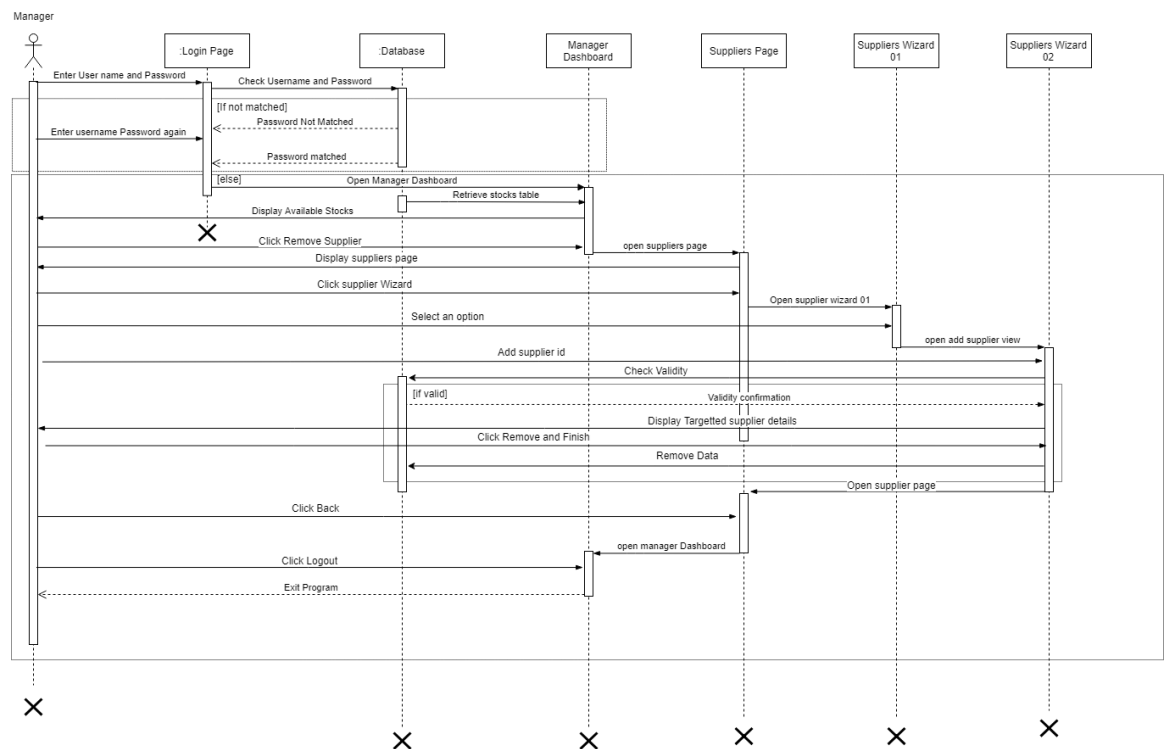
17 *Managers' Removing Items*

2.4.5 Manager Adding Suppliers



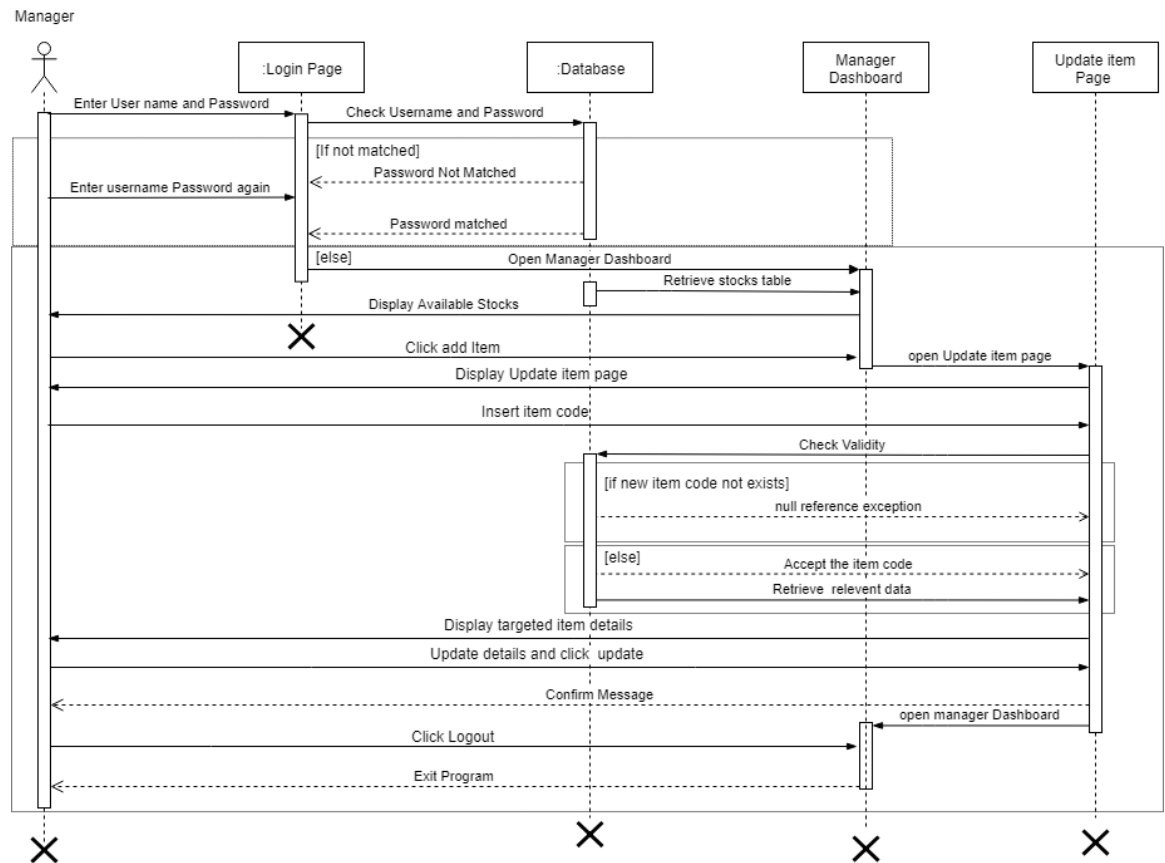
18 Managers' Adding Suppliers

2.4.6 Manager Removing Suppliers



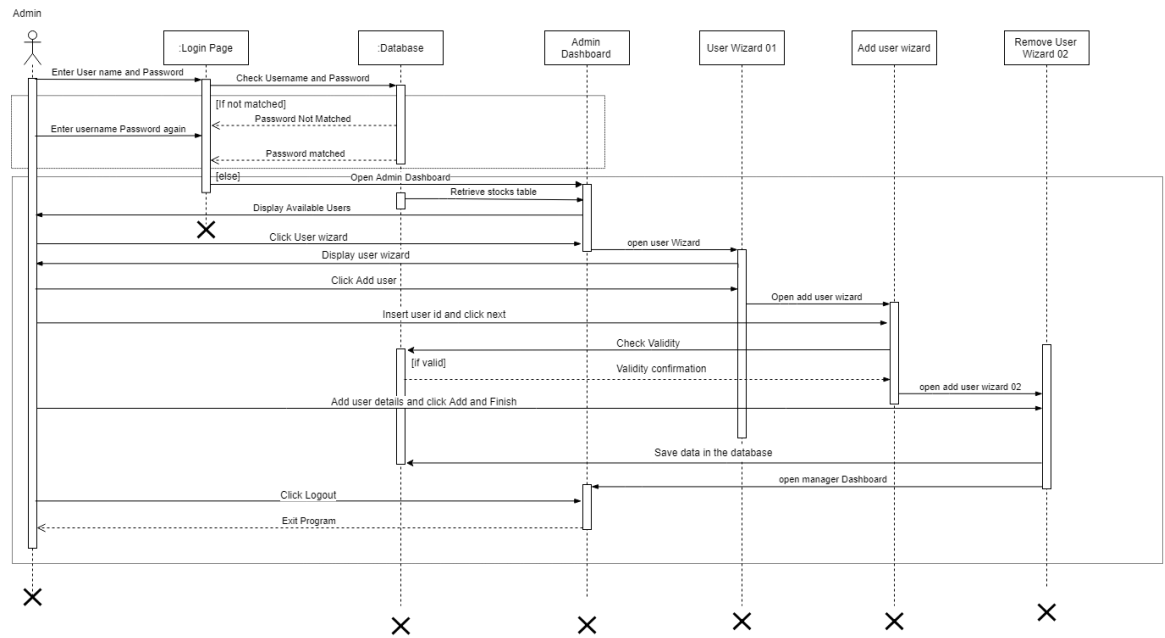
19 Managers' Removing Suppliers

2.4.7 Manager Update Items



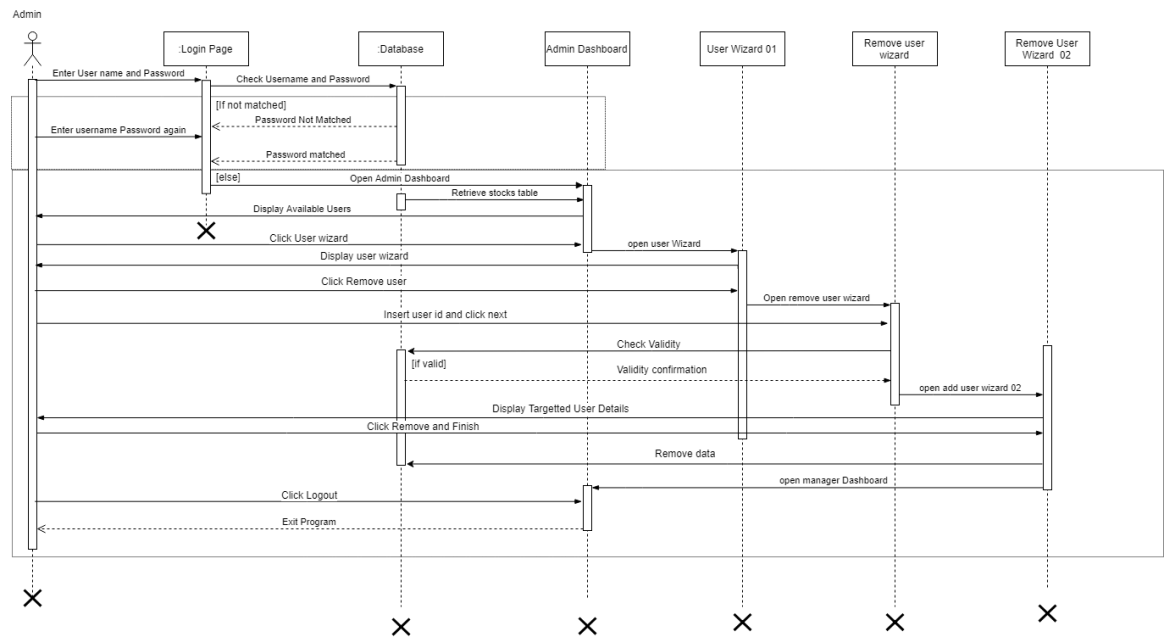
20 Managers' Items Updating

2.4.8 Admin Add Users



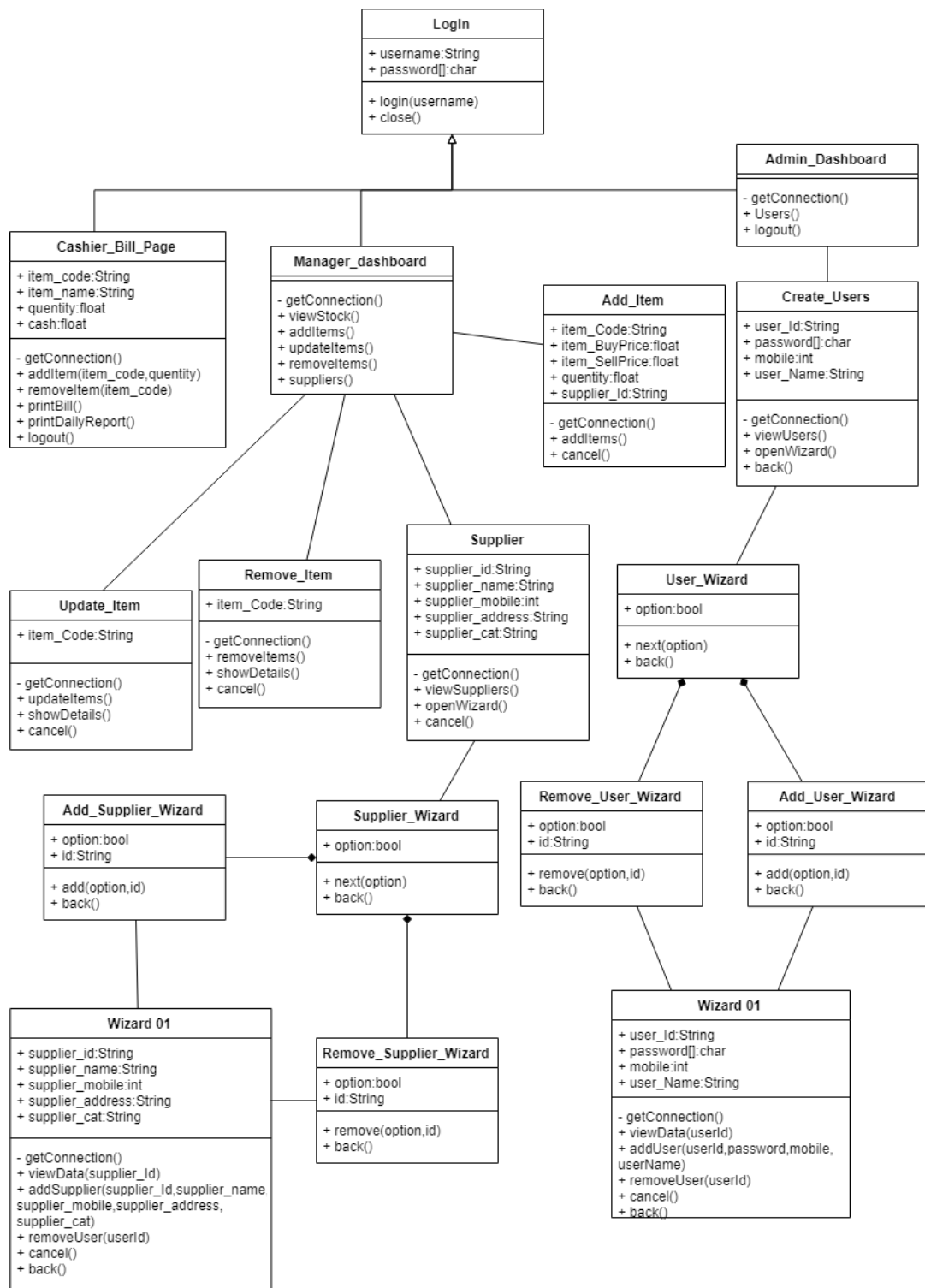
21 Admins' Adding Users

2.4.9 Admin Remove Users



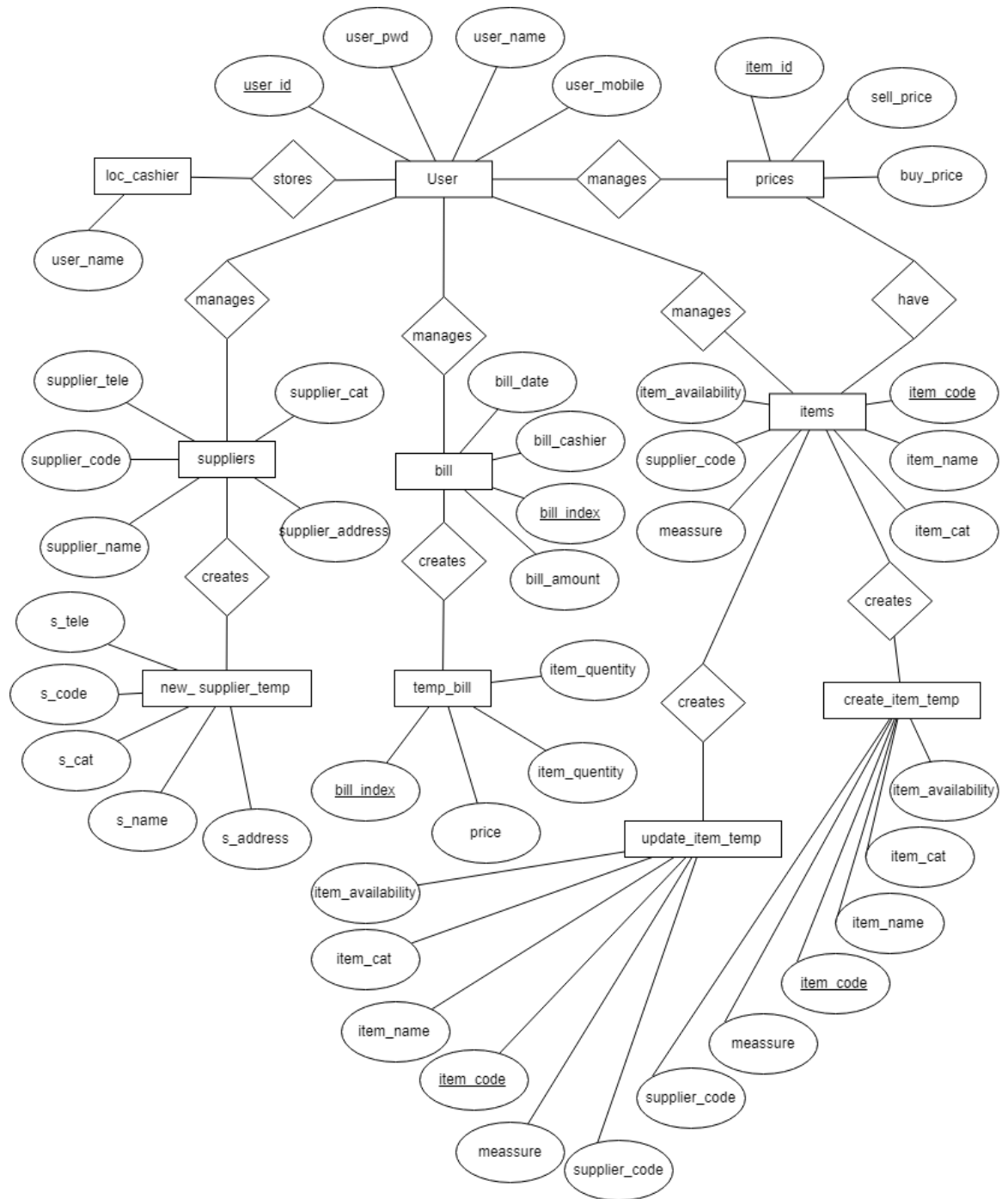
22 Admins' Removing Users

2.5 Class Diagram



23 Class Diagram for Coop Inventory Management System

2.6 ER Diagram



24 ERD for Coop Inventory Management System

2.7 Software Requirement Specification

2.7.1. Functional Requirements

| <i>ID</i> | <i>Description</i> |
|--------------------|--|
| <i>Application</i> | |
| 1 | Shall be able to register users |
| 2 | Shall be able to hold registered user details |
| 3 | Shall be able to authenticate users |
| 4 | Shall be able to hold inventory details |
| 5 | Shall be able to hold items details in inventory |
| 6 | Shall be able to hold supplier details |
| 7 | Shall be able to calculate the Income |
| 8 | Shall be able to engage with hardware devices |
| 9 | Should not interrupt the sequence of the transaction |
| 10 | One time, One transaction |
| <i>Admin</i> | |
| 11 | Shall be able to create new user accounts |
| 12 | Shall be able to update user details |
| 13 | Shall be able to delete users |
| 14 | Shall be able to change passwords |
| 15 | Shall be able to view users |
| <i>Manager</i> | |
| 16 | Shall be able to view stock details |
| 17 | Shall be able to store inventory details |
| 18 | Shall be able to update inventory details |
| 19 | Shall be able to store items details in inventory |
| 20 | Shall be able to update items details |
| 21 | Shall be able to generate reports |
| 22 | Shall be able to add new suppliers |
| 23 | Shall be able to remove suppliers |
| 24 | Shall be able to update supplier details |
| <i>Cashier</i> | |
| 25 | Shall be able to record transactions |

| | |
|----|---|
| 26 | Shall be able to print bill |
| 27 | Shall be able to use calculator |
| 28 | Shall be able to delete an item from the bill |
| 29 | Shall be able to get the daily report |

2.7.2 Non-Functional Requirements

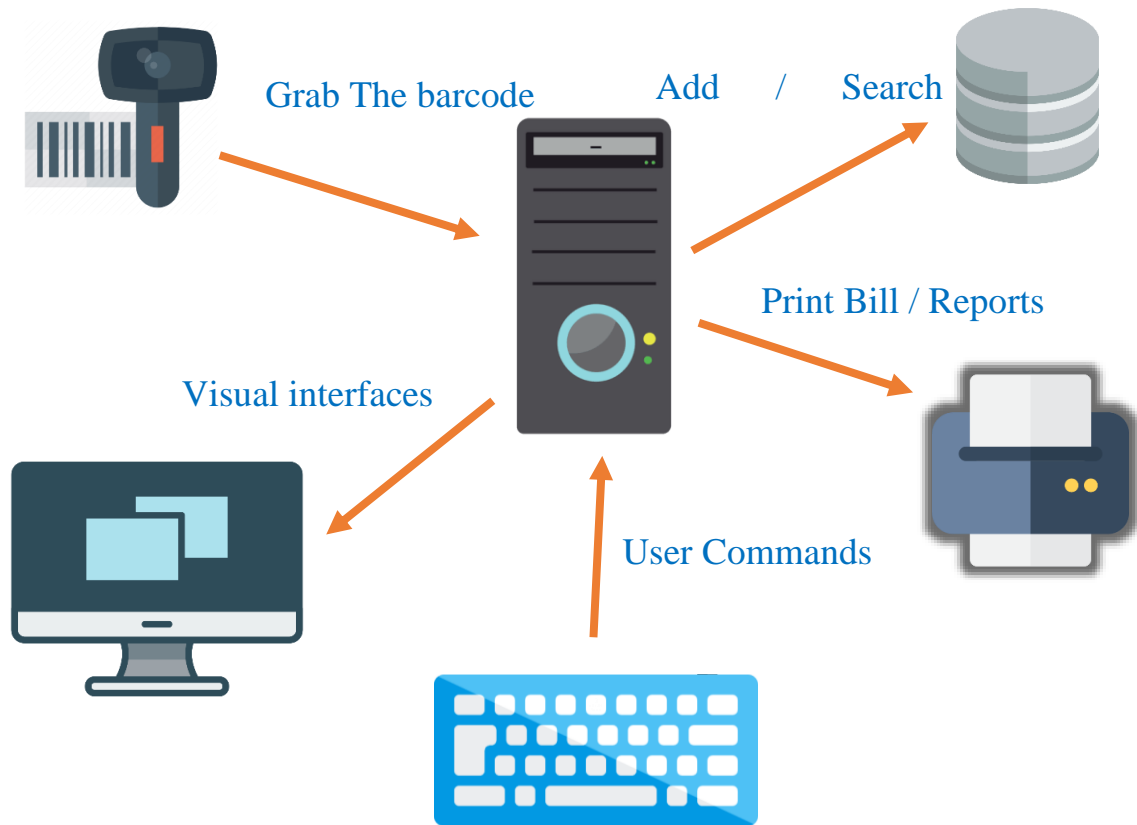
| <i>ID</i> | <i>Description</i> |
|------------------------------------|---|
| <i>Product Requirements</i> | |
| 1 | System should execute without any error |
| 2 | System should execute without any delay |
| 3 | System should quickly accessible by users |
| 4 | System should be easy to use by all the users without reading extensive number of manuals |
| 5 | System should be easy to use by non-experienced users |
| 6 | System should provide graphical user interface |
| 8 | System should be user Friendly |
| 8 | System should be intuitive and simple in the way it displays all relevant data and relationships |
| 9 | System should display menus as can be easily navigate by the users with buttons that are easy to understand |
| 10 | System should not lag when workers using it |
| 11 | System should update the database successfully every time the user requests such process |
| 12 | System should provide all the available functions to the user in every time that the system is turned on |
| <i>Organizational Requirements</i> | |
| 13 | System should support to create reports as wish |
| 14 | System should support to manage the inventory more efficient |
| 15 | System should reduce the implementation cost |
| 16 | System should have low maintenance cost |
| 17 | System should have minimum configuration |
| 18 | System should adaptable even if additional plugins or modules are added at a later point |
| 19 | System should more portable as data can be exported to the manager |
| 20 | Database should not be easily extractable |
| 21 | System should easy to understand for users |
| 22 | Reports generated by the system should be easily understandable |
| 23 | All the Reports must have same theme |

| <i>External Requirements</i> | |
|------------------------------|---|
| 24 | System should protect users' privacy |
| 25 | System should support to Hardware APIs |
| 26 | System should not delete data without any user request |
| 27 | System should give permissions to take actions to authorized users only |

Chapter 3: Proposed System Design

3.1 Architecture Design

Following architecture diagram id for hardware components



25 Architecture design for Coop Inventory Management System

3.2 Proposed System Interfaces

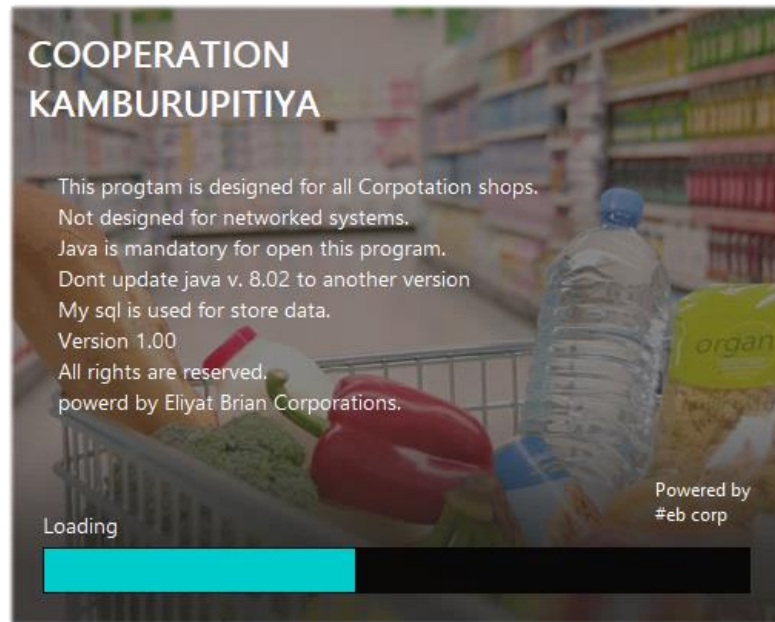


Figure 26 Splash Screen

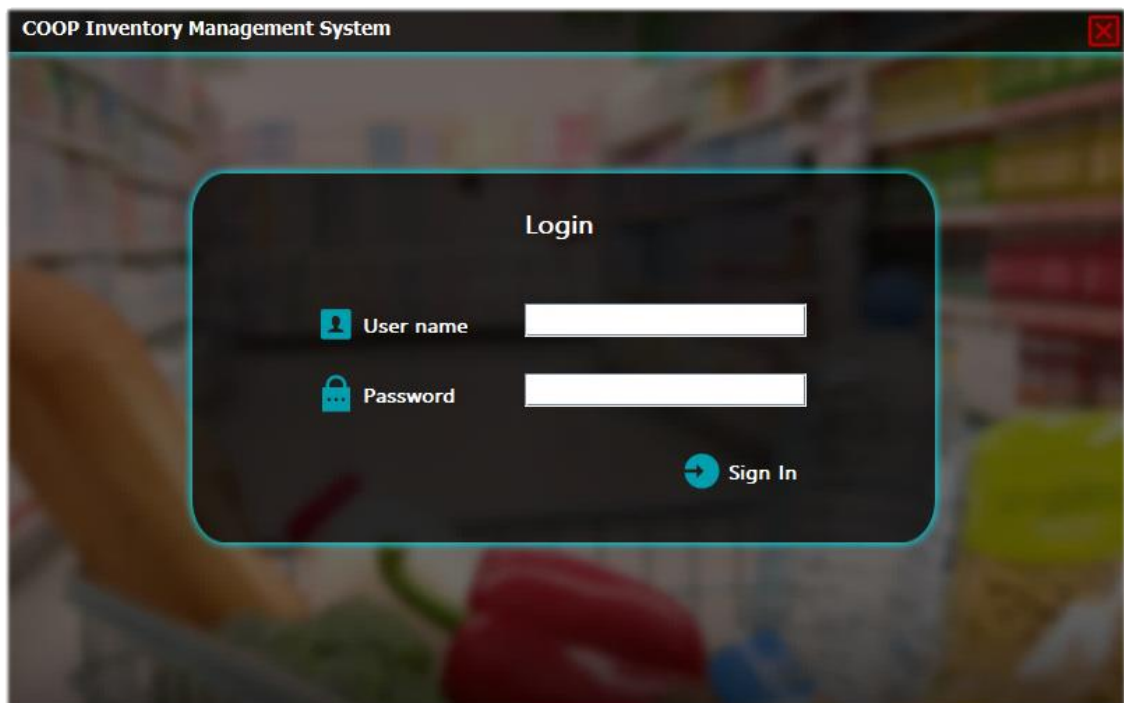


Figure 27 Login Page

Add Items

Item Code

Item Name

Buying Price Selling Price No of Units

Category Supplier code

Confirm and generate Invoice

Figure 28 Add items

Mini Coop City - Suppliers

Supplier Wizard

Back

| S_ID | S_name | S_address | S_contact | Category |
|--------|-------------|---------------|-------------|-----------|
| dddd | dineth | NY | 12345678... | Beverages |
| 2222 | | | | |
| sup005 | weeraketiya | aaaaaaaa... | 352131352 | gshfdg |
| 999 | test1 | test addre... | 98765432... | test cat1 |

Figure 289 Suppliers

| <div> <div>Stock details</div> <div>Add Items</div> <div>Update Stocks</div> <div>Remove Item</div> <div>Suppliers</div> <div>Log Out</div> </div> | | Stock Availability | | | |
|--|--------------------------------|--------------------|--------------|------------|--|
| Item Code | Item Name | Item Category | Availability | Unit Price | |
| 200 | Atlas Butter Gel Blue Ball ... | Pen | 2 | 220 | |
| 444 | Munchee Tikiri Marie 200g | Biscuits | 2 | 220 | |
| 555 | Chemifix Kids Glue 50g | Glue | 1 | 125 | |
| ft001 | Final test | Test | 10 | 50 | |
| 479601285... | Glucrol (glycerin) 60ml | Medical | 14 | 220 | |
| 479221010... | Atlas 40 pages single rule... | book | 21 | 220 | |
| 333 | cake Little liom | food | 5 | 220 | |
| 520 | noodles | food | 28 | 220 | |
| 888 | phone | mobile | 3 | 220 | |
| 772 | Laptop | PC | 4 | 220 | |
| 1200 | key board | PC | 33 | 220 | |
| 465 | aaaa | qq | 20 | 250 | |
| 564 | wert | vv | 12 | 220 | |
| 5646405 | Antimatter 180 99.99% ... | Materials | 23 | 1,750 | |
| 1044389 | LogBook 8pages | Maths | 10 | 10 | |
| 103 | blah blah blah | fruit | 17 | 65 | |
| 890111704... | zerosratVT spacer | Medical | 2 | 1,100 | |
| 951 | fdgsdfgl | safkasjl | 3 | 150 | |
| 753 | sdfd | rtfghrt | 1 | 95 | |
| 351 | Dialog | Mobile | 95 | 100 | |
| 759 | sdfs | SDJFKLJ | 4 | 89 | |
| coron | wuhan | Virus | 28 | 25 | |
| 3596 | KKK | QQQQ | 5 | 98 | |

Figure 30 View Stocks

| <div> <div>Billing</div> <div>Daily Report (f1)</div> <div>Logout (f12)</div> </div> | | Checkout Portal | | | | | | | | | | | | | | | | | | | |
|--|-----------|---|------------|---|-------|--|--|--|--|-------|-----------|-----------|------------|-----|-------|--|--|--|--|--|--|
| <div> <div>Total amount :</div> <div>Cash :</div> <div>Balance :</div> </div> | | <div> <div>Item code</div> <div>Quantity</div> </div> | | <table> <tr> <th>Index</th><th>Item code</th><th>Item name</th><th>Unit Price</th><th>QTY</th><th>Total</th></tr> <tr><td colspan="6"></td></tr> </table> | | | | | | Index | Item code | Item name | Unit Price | QTY | Total | | | | | | |
| Index | Item code | Item name | Unit Price | QTY | Total | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |

Figure 31 Billing Portal

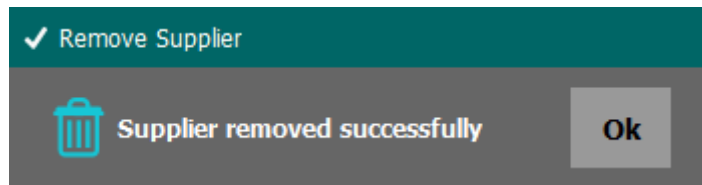


Figure 32 Alerts

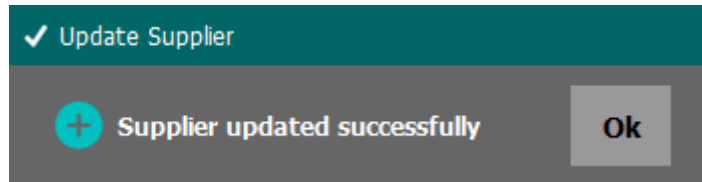


Figure 33 Alerts

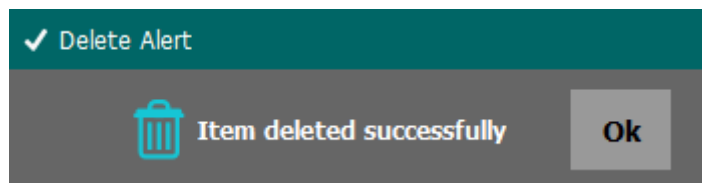


Figure 34 Alerts

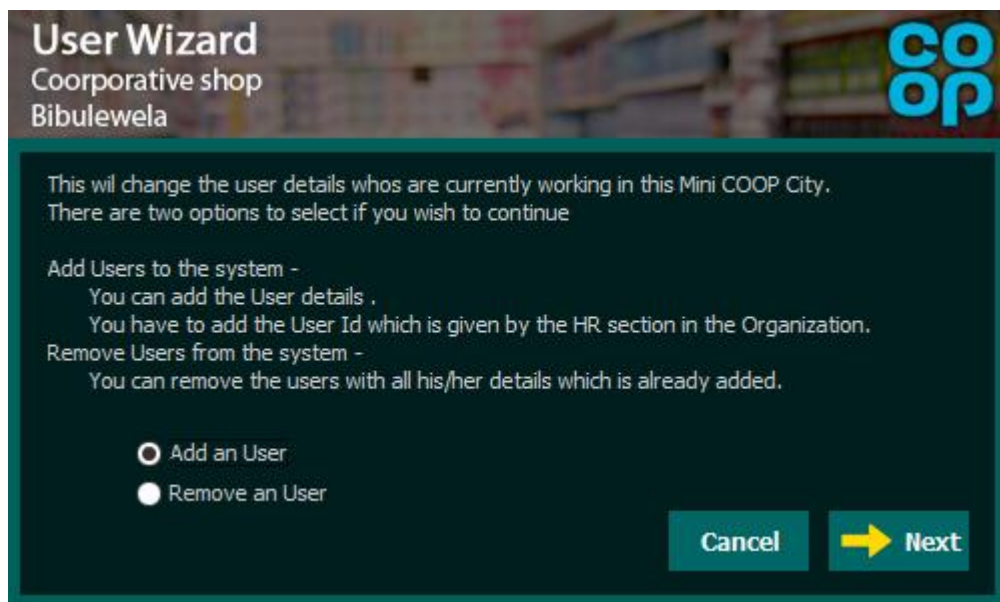
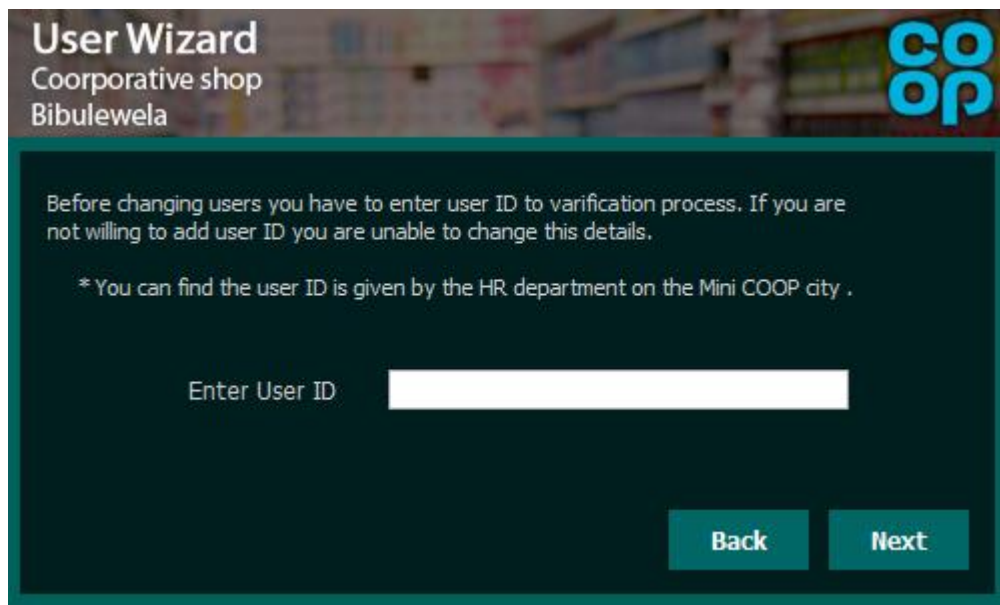


Figure 295 User Wizard 01



User Wizard
Cooperative shop
Bibulewela

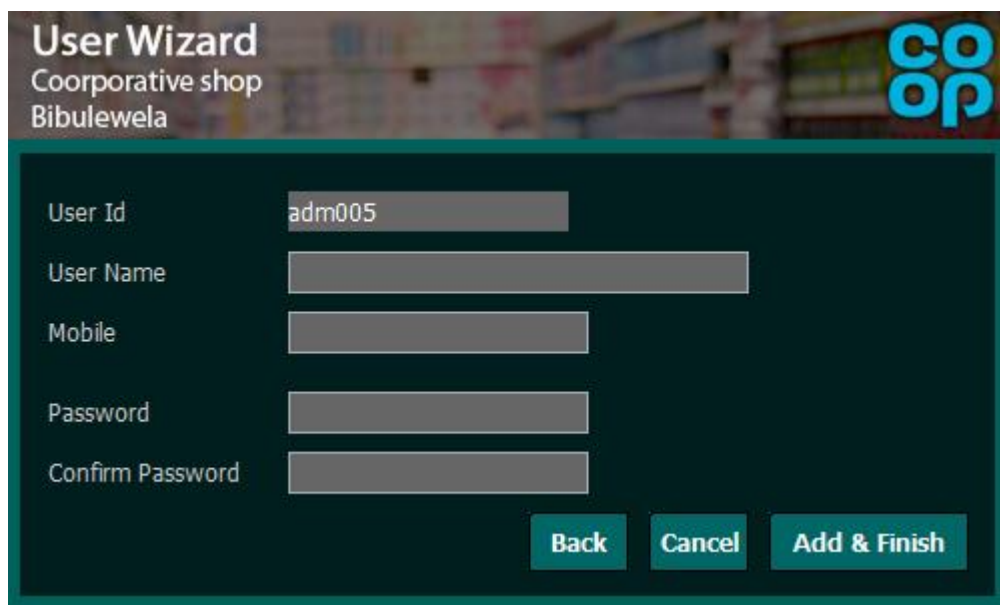
Before changing users you have to enter user ID to varification process. If you are not willing to add user ID you are unable to change this details.

* You can find the user ID is given by the HR department on the Mini COOP city .

Enter User ID

Back **Next**

Figure 36 User Wizard 02



User Wizard
Cooperative shop
Bibulewela

User Id

User Name

Mobile


Password

Confirm Password


Back **Cancel** **Add & Finish**

Figure 37 Add User Wizard

3.3 Report Designs



Mini CO-OP City
 Miscellaneous Service Co-operative Society
 Bibulewela,
 Kamburupitiya.
 041-2292296



Invoice

Thu May 07 12:37:52 IST 2020

Invoice No: 86

Cahier name: Sampath Sandaruwan

| Index | Item Code | Item Name | QTY | Price |
|-------|-----------|-----------|-----|-------|
| 1 | 520 | noodles | 5 | 1100 |
| 2 | 564 | wert | 8 | 1760 |


Total
Cash
Balance

2860.0
3000.0
140.0

Items are not exchangable after sale, For warrenty claims Invoice must be produced

Thank you. Come again!

Figure 38 Customer Bill



Mini CO-OP City
 Miscellaneous Service Co-operative Society
 Bibulewela,
 Kamburupitiya.
 041-2292296



Daily Report

Thu May 28 16:47:22 IST 2020

Report No: 20-05-28

Cahier name: Sampath Sandaruwan

| Index | Bill No | Cahier | Amount |
|-------------------------|---------|--------------------|------------------|
| 1 | 87 | Sampath Sandaruwan | 15770/= |
| 2 | 88 | Sampath Sandaruwan | 2325/= |
| 3 | 89 | Sampath Sandaruwan | 300/= |
| Daily Net Income | | | 18395.0/= |

Signature

Organization idenentity (Seal)

Bibulewela mini Coop city

Miscellaneous Service Co-operative society

041-2292296

Figure 39 Daily Report



Mini CO-OP City

Miscellaneous Service Co-operative Society
Bibulewela,
Kamburupitiya.
041-2292296



Stock Renew Order

Sun Mar 22 03:27:39 IST 2020

Report No: LS_20-03-22

Manager name: Dineth Amarasinghe

| Index | Item Code | Item Name | Availability | Unit | Supplier |
|-------|--------------|-------------------|--------------|------|-----------------|
| 1 | 890111704015 | zerosratVT spacer | 5 | unit | BreathFreeLanka |
| 2 | 753 | sdfd | 5 | kg | dfgdgb |
| 3 | 357 | sdf | 4 | kg | sdfs |
| 4 | 759 | sdfs | 4 | kg | SDFLKJSDL |
| 5 | ico001 | asda | 4 | unit | aple |
| 6 | 3596 | KKK | 5 | unit | GGGG |
| 7 | 3512 | sdpfoid | 4 | kg | asdasd |
| 8 | 123423 | asdasd | 3 | kg | fdgfg |
| 9 | item001 | itm6546 | 4 | kg | testsupp |
| 10 | 999 | itm999 | 5 | unit | sup99 |
| 11 | 65466 | titem | 5 | kg | testsupplier |
| 12 | 470 | uihki | 3 | cm | tyu |

Signature

Organization idenentity (Seal)

Bibulewela mini Coop city

Miscellaneous Service Co-operative society

041-2292296

Figure 40 Out of Stock report



Mini CO-OP City

Miscellaneous Service Co-operative Society
Bibulewela,
Kamburupitiya.
041-2292296



Purchase Note

Thu May 28 18:24:13 IST 2020

Report No: 20-05-28

Manager name: null

| Index | Item Code | Item Name | Q | U | C | Supplier | SP | BP |
|-------|-----------|--------------|----|------|---------|----------|-----|-----|
| 1 | Tst001 | Test Item 01 | 14 | unit | TestCat | ABC | 110 | 100 |
| 2 | 36522 | Sanitizer | 50 | unit | Safety | Reeborn | 325 | 310 |

Total expence: Rs.16900 /=-

Signature

Organization idenity (Seal)

Q: quentity

C: Item Category

SP: selling price

BP: byuing price

U: units

Bibulewela mini Coop city

Miscellaneous Service Co-operative society

041-2292296

Figure 41 Stocks Purchasing Report



Mini CO-OP City

Miscellaneous Service Co-operative Society
Bibulewela,
Kamburupitiya.
041-2292296



Stock update report

Thu May 28 19:39:13 IST 2020

Report No: 20-05-28

Manager name: null

| Index | Item Code | Quantity | Messurement | Supplier | Buying Price | Selling Price |
|-------|-----------|----------|-------------|----------|--------------|---------------|
| 1 | 753 | 10 | kg | dfgdgb | 95 | 59 |

Total expence: Rs.95.0 /=-

Signature

Organization idenentity (Seal)

Bibulewela mini Coop city

Miscellaneous Service Co-operative society

041-2292296

Figure 42 Update Stock Report

3.4 Test Plan for the System

3.4.1 Login page Test Cases

| Page name | Variables | Para | Action | Result | Output |
|-----------|--------------|----------|----------------|-----------------------|------------------------|
| Login | Username | null | Press tab | Alert message appears | Enter Username |
| | Password | null | Press Enter | | |
| | Username | Sample01 | Press tab | Alert message appears | Enter Password |
| | Password | null | Press Enter | | |
| | Username | Sample | Press tab | Alert message appears | Username is not valid |
| | Password | 123 | Press Enter | | |
| | Username | Adm001 | Press tab | Authentication Passed | Open Admin Page |
| | Password | 789 | Press Enter | | |
| Login | Username | csh001 | Press tab | Authentication Passed | Open Cashier Page |
| | Password | 456 | Press Enter | | |
| | Username | mgr001 | Press tab | Authentication Passed | Open Manager Page |
| | Password | 654 | Press Enter | | |
| | Close button | null | Click | System shutdown | force Close Program |

3.4.2 Admin Test Cases

| Page name | Variables | Para | Action | Result | Output |
|-----------|--------------|------|-------------------|---------------------|-------------------------|
| Admin | User wizard | null | Click | Start user wizard | appear a wizard |
| | User wizard | null | Double Click | Start user wizard | appear a wizard |
| | User wizard | null | Right Click Mouse | Start user wizard | appear a wizard |
| | User wizard | null | Middle | Start user wizard | appear a wizard |
| | User Table | null | null | null | View User data |
| | User Table | null | Click | focus selected data | Highlight user data row |
| | Logout | null | Click | Logging out | View Login Page |
| | Logout | null | Double Click | Logging out | View Login Page |
| | Logout | null | Right Click Mouse | Logging out | View Login Page |
| | Logout | null | Middle | Logging out | View Login Page |
| | Close button | null | Click | System shutdown | force Close Program |
| | Close button | null | Double Click | System shutdown | force Close Program |
| | Close button | null | Right Click Mouse | System shutdown | force Close Program |
| | Close button | null | Middle | System shutdown | force Close Program |

| Page name | Variables | Para | Action | Result | Output |
|----------------|---------------|--------------------------|--|--------------------|--------------------------------------|
| User Wizard 01 | Add a User | null | Click (Check) Press Space (Check) | Add user wizard | Select "Add a User" option |
| | Next | null | Click, Double Click Right Click, Mouse Middle | No Result | Disabled Next Button |
| | Next | Add a User checked | Click, Double Click, Right Click, Mouse Middle | Move to next page | Open "User Wizard 02" |
| | Next | Remove a user checked | | Move to next page | Open "User Wizard 02" |
| | Cancel | null | Click, Double Click, Right Click, Mouse Middle | Cancel the Wizard | Move to "Admin dash" |
| | Remove a User | null | Click (Check) | Remove user wizard | Select "Remove a User" option |
| | Remove a User | null | Press Space and Tab (Check) | Remove user wizard | Select "Remove a User" option |
| | null | null | Other inputs | no response | no output |
| | User ID | null | click next | Error Message | "Enter Supplier code" message appear |
| | User ID | null | click Back | Move to previous | Open "User Wizard 02" |
| User Wizard 02 | User ID | adm009 | click next | move to next | open user_wiz_add page |
| | User ID | adm09 (already exist id) | click next | Error Message | "User id must be unique" |

| Page name | Variables | Para | Action | Result | Output |
|-------------|------------------|-----------|------------------|--------------------|---------------------------------------|
| Add User | Username | null | Add and Finish | Error Message | "Password Is required" |
| | Mobile | null | | | |
| | Password | null | | | |
| | Confirm Password | null | | | |
| | Username | Sample01 | Add and Finish | Error Message | "Passwords are not same" |
| | Mobile | 112365974 | | | |
| | Password | 123 | | | |
| | Confirm Password | null | | | |
| | Username | Sample02 | Add and Finish | Add user record | View users with the newly created one |
| | Mobile | 123456798 | | | |
| | Password | 987654 | | | |
| | Confirm Password | 987654 | | | |
| | Username | null | Back | Move to Previous | Open User Wizard 02 |
| | Mobile | null | | | |
| | Password | null | | | |
| | Confirm Password | null | | | |
| | Username | Sample01 | Back | Move to Previous | Open User Wizard 02 |
| | Mobile | 112365974 | | | |
| | Password | 123 | | | |
| | Confirm Password | null | | | |
| | Username | null | Cancel | Move to homepage | Open User Admin Dashboard |
| | Mobile | null | | | |
| | Password | null | | | |
| | Confirm Password | null | | | |
| | Username | Sample01 | Cancel | Move to homepage | Open User Admin Dashboard |
| | Mobile | 112365974 | | | |
| | Password | 123 | | | |
| | Confirm Password | null | | | |
| Remove User | null | null | click and Finish | Remove user record | View user without removed user |
| | null | null | click Back | Move to previous | Open "User Wizard 02" |
| | null | adm009 | click Cancel | move to next | Open User Admin Dashboard |

3.4.3 Cashier Test Cases

| Page name | Variables | Parameters | Action | Result | Output | |
|-----------|-----------|---|-------------|------------------------|-----------------------------------|-------------------|
| Bill page | item code | 0009 (number not inserted to the system) | Press Enter | Error Message | "Invalid barcode entry" | Sequence order 01 |
| | item code | 200 (Added item code) | Press Enter | move to next step | Allow to add quantity | |
| | item code | Unable to bypass this input | | | | |
| | Quantity | 20 | Press Enter | Add item to bill | View item details in a row | Sequence order 02 |
| | Quantity | Minimum number is 1. No other symbols are allowed | | | | |
| | null | null | Press End | To end the bill | cursor moves to cash amount area | Sequence order 03 |
| | null | null | Press Enter | Finish the transaction | print bill and ready to next bill | Sequence order 04 |
| | null | null | Press F1 | print daily report | system will generate a report | Sequence order 05 |
| | null | null | Press F12 | Logout | Logout and display login page | |

- * Mouse functions are not allowed
- * User unable to bypass the sequence
- * No space to cancel the after adding first item to the bill

3.4.4 Manager Test Cases

| Page name | Variables | Parameters | Action | Result | Output |
|-----------|------------------------|--------------------------|------------------|-----------------------|-------------------------------|
| Add Items | | 1997(Already added item) | | | |
| | Item Code | | | | |
| | Item name | null | | | |
| | buying price | null | | | |
| | selling price | null | C,Rc,Db C,MMC | Activate the variable | Cursor moves to the object |
| | quantity | null | | | |
| | measure | null | | | |
| | category | null | | | |
| | supplier code | null | | | |
| | Add item to the stocks | null | | Error Message | "Item already Added" |
| | | 200200(New item code) | | | |
| | Item Code | | | | |
| | Item name | sample | | | |
| | buying price | 180 | | | |
| | selling price | 250 | C,Rc,Db C,MMC | Activate the variable | Cursor moves to the object |
| | quantity | 50 | | | |
| | measure | unit | | | |
| | category | food | | | |
| | supplier code | Nestle | | | |
| | Add item to the stocks | null | | Save Data | open dashboard and view items |

* Tab is allowed to move among parameterized variables

| | |
|----------------|--------------------|
| C,Rc,DbC,MMC : | Click |
| | Right Click |
| | Double Click |
| | Mouse middle Click |

| Page name | Variables | Parameters | Action | Result | Output |
|-------------------|---------------|------------|---------------|-----------------------|-------------------------------|
| Manager Dashboard | Stock Details | null | C,Rc,DbC, MMC | View Stock details | Manager Dashboard appears |
| | Add Items | null | C,Rc,DbC, MMC | Open Add Item | Add item Window appears |
| | Update Stocks | null | C,Rc,DbC, MMC | Open Update Stocks | Update stoc Window appears |
| | Remove Item | null | C,Rc,DbC, MMC | Open Remove Item | Remove item Window appears |
| | Suppliers | null | C,Rc,DbC, MMC | Open Suppliers window | Suppliers Page appears |
| | Logout | null | C,Rc,DbC, MMC | Logout | Logout and Login Page appears |

* Tab is not working for above variables

3.5 Proposed Software Engineering Methodology

We are following agile development methodology for this system development. We are supposed to replace the new system as soon as possible. Because in every circle in the agile process we are going through same process again. In this we can take several tests and debugging steps. Therefore, we can minimize errors.

When considering the hardware components, current hardware devices in the shop are not enough for this system. Because of that when customer buying the requirements there must be some issues. We have to consider that issues too. After we designed our system, because of some external forces customer requirements may change. That's why we use agile development methodology while building this system.

We hope we can build our product is very secure and robust using agile development process furthermore.

Conclusion

Our project used to calculate day to day transactions and manage the inventory of COOP shops. We have created user-friendly interfaces to this system. This project will convenience for employees of COOP shops and they can save their time after successfully completing this project. Still this is offline system, but we hope to improve this system to maintain through the internet and we hope to move this system into centralized server. Using that method any kind of person who has enough permission to enter this system can generate reports at home too except Bill.

As the developers we cant guranteed the managers decisions in 100% if he use our system. But we can assure this system generate correct summeries to take necessary decisions.

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Data Flow Diagramming by Example ASIN: B00VECCGLO