

# Software Engineering

## Semester Project

### Instructor:

Hafiz Muhammad Anzar Ahmad

### Submitted by:

**GROUP:** Stallions\_2

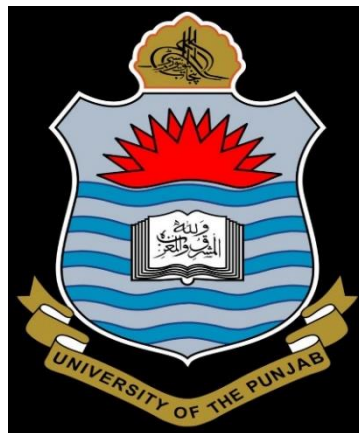
### **TEAM MEMBERS:**

Ameena Abdullah: BSEF19M032

Amna Azam: BSEF19M009

Mahreen Asama: BSEF19M030

**INSTITUTE:** Punjab University college of Information Technology



# SE-Project-Proposal

## Bakery Shop Management System

### Problem statement:

A community bakery needs a software solution to manage its day-to-day transactions of items. The fundamental processes of this project involve showroom (inventory and sales) management.

### Showroom management:

- Floor inventory:
  - Add new product details
  - Edit existing product details
  - Delete an existing product
  - View all details of product(s)
- Economic Order Quantity
- Depreciation (price reduction sale)
- Sales record:
  - Add new sales record
  - View all the sales details
- Invoice management
  - Sales price generation (Tax, Discount)
- Receipt generation
- Normal loss (defective items)
- Profit-loss calculation
- Returns

### Software architecture:

- Desktop application (multiuser)  
2 Users:
  - Products Manager as 'manager'
  - Sales Manager as 'seller'

### Team:

- Ameena Abdullah: frontend
- Mahreen Asama: backend
- Amna Azam: designing

## **SHALL STATEMENTS:**

### **FEATURE – 1 : LOG IN**

1. SYSTEM SHALL DISPLAY A DIALOGUE BOX FOR TAKING LOGIN CREDENTIALS (USER-ID AND PASSWORD).
2. USER SHALL INPUTS ALL CREDENTIALS IN DIALOGUE BOX AND CLICK “LOGIN” BUTTON.
3. SYSTEM SHALL CHECK FOR THE COMPLETENESS AND CORRECTNESS OF INPUT CREDENTIALS.
4. SYSTEM SHALL SHOW AN ERROR MESSAGE IN CASE OF INVALID CREDENTIALS AND PROMPT AGAIN FOR VALID ONES.
5. SYSTEM SHALL DISPLAY SPECIFIED USER INTERFACE FOR VALID CREDENTIALS.

### **FEATURE – 2 : CHANGE PASSWORD**

1. SYSTEM SHALL BE ABLE TO PROVIDE CHANGE PASSWORD FACILITY AT LOGIN SCREEN IN CASE USER FORGETS HIS PREVIOUS PASSWORD OR WANTS TO UPDATE PASSWORD.
2. USER SHALL CHANGE HIS/HER PASSWORD CHOOSING “CHANGE PASSWORD” OPTION USING MOUSE LEFT CLICK.
3. SYSTEM SHALL DISPLAY DIALOGUE BOX FOR USERNAME, ENTERING NEW PASSWORD AND CONFIRMING NEW PASSWORD.
4. USER SHALL ENTER NEW PASSWORD AND CONFIRM BY REENTERING IT.
5. SYSTEM SHALL VERIFY NEW PASSWORD.
6. SYSTEM SHALL UPDATE VERIFIED PASSWORD IN ITS RECORD.
7. SYSTEM SHALL DISPLAY MESSAGE ABOUT PASSWORD CHANGE.

### **FEATURE – 3 : ADD NEW ITEM/PRODUCT**

1. SYSTEM SHALL DISPLAY A MASTER MENU THAT PRESENTS ALL MANAGER FEATURES THAT APPLICATION PROVIDES.
2. USER SHALL ADD NEW ITEM BY CHOOSING “ADD ITEM” BUTTON IN MENU BAR.
3. SYSTEM SHALL DISPLAY A DIALOG BOX FOR TAKING INPUTS ABOUT NEW ITEM.
4. USER SHALL INPUT ATTRIBUTES OF THE ITEM IN THE DIALOGUE BOX AND CLICK “OK” BUTTON.
5. SYSTEM SHALL CHECKS FOR THE COMPLETENESS AND CORRECTNESS OF INPUT DATA.
6. SYSTEM SHALL PROMPT FOR VERIFICATION.
7. USER SHALL VERIFY IF HE/SHE WANTS TO FINALIZE ENTRY.
8. SYSTEM SHALL RECORD NEW ITEM INFORMATION IN ITEMS DATA.
9. SYSTEM SHALL DISPLAY RECORDED ITEM INFORMATION IN A NEW DISPLAY WITH EXISTING ITEMS IN RECORD.

### **FEATURE – 4 : UPDATE AN EXISTING ITEM DETAILS**

1. SYSTEM SHALL DISPLAY A MASTER MENU THAT PRESENTS ALL MANAGER FEATURES THAT APPLICATION PROVIDES.
2. USER SHALL UPDATE ITEM DETAILS BY CHOOSING “UPDATE ITEM” BUTTON IN MENU BAR.
3. SYSTEM SHALL DISPLAY A DIALOG BOX FOR UPDATING DETAILS OF THE ITEM.

4. SYSTEM SHALL PROVIDE A DROP DOWN LIST OF EXISTING ITEMS IN PRODUCT NAME BAR.
5. USER SHALL SELECT ITEM OR SEARCH ITEM FROM THE LIST.
6. USER SHALL ENTER UPDATED ATTRIBUTES OF THE ITEM IN THE DIALOGUE BOX AND CLICK "OK".
7. SYSTEM SHALL CHECKS FOR THE COMPLETENESS AND CORRECTNESS OF INPUT DATA.
8. SYSTEM SHALL PROMPT FOR VERIFICATION.
9. USER SHALL VERIFY IF HE/SHE WANTS TO FINALIZE ITEM DETAILS.
10. SYSTEM SHALL RECORD THE UPDATED INFORMATION OF THE ITEM.
11. SYSTEM SHALL DISPLAY UPDATED RECORDED OF ITEM IN A NEW DISPLAY WITH EXISTING ITEMS IN RECORD.

#### **FEATURE – 5 : DELETE ITEM**

1. SYSTEM SHALL DISPLAY A MASTER MENUE THAT PRESENTS ALL MANAGER FEATURES THAT APPLICATION PROVIDES.
2. USER SHALL CHOOSE "DELETE ITEM" BUTTON FROM MENU BAR USING MOUSE LEFT CLICK.
3. SYSTEM SHALL PROVIDE A DROP DOWN LIST OF EXISTING ITEMS.
4. USER SHALL SELECT PARTICULAR ITEM OR CAN SEARCH ITEM FROM THE LIST.
5. USER SHALL CLICK "DELETE" BUTTON TO DELETE THE SELECTED ITEM FROM THE LIST.
6. SYSTEM SHALL PROMPT FOR VERIFICATION.
7. USER SHALL VERIFY IF HE/SHE WANTS TO FINALIZE THE DELETION OF ITEM.
8. SYSTEM SHALL DELETE ITEM FROM ITS RECORD.
9. USER SHALL BE INFORMED ABOUT NON-EXISTANCE OF THAT ITEM THROUGH MESSAGE.
10. SYSTEM SHALL DISPLAY UPDATED LIST OF ITEMS.

#### **FEATURE – 6 : VIEW ITEM(s)**

1. SYSTEM SHALL PROVIDE FACILITY TO VIEW RECORD OF A PARTICULAR ITEM OR ALL ITEMS.
2. USER SHALL CHOOSE "VIEW ITEMS" OPTION FROM MENU BAR USING LEFT MOUSE CLICK.
3. SYSTEM SHALL PROVIDE DROP DEWN MENU CONTAINING LIST OF ALL ITEMS.
4. USER SHALL SELECT OR SEARCH ITEM FROM THE LIST.
5. USER SHALL CHOOSE "ALL" OPTION FROM DROP DOWN MENU IN ORDER TO VIEW WHOLE LIST.
6. SYSTEM SHALL DISPLAY THE WHOLE RECORD OF THAT PARTICULAR ITEM OR ALL ITEMS ACCORDINGLY.

#### **FEATURE – 7 : EOQ WILL BE IMPLEMENTED**

1. SYSTEM SHALL BE ABLE TO ASSESS EOQ OVER A GIVEN/DEFINED PERIOD OF TIME.
2. SYSTEM SHALL OBSERVE THE LEVEL OF STOCK OF A PARTICULAR ITEM.
3. SYSTEM SHALL HAVE THE FACILITY TO ASSIGN A SUITABLE EOQ TO A PARTICULAR ITEM.
4. SYSTEM SHALL CALCULATE LEVEL OF DECREASING STOCK AS PER EOQ.
5. SYSTEM SHALL PROVIDE SUITABLE ALARM/NOTIFICATION ON EVENT OF LOW LEVEL OF ITEM STOCK.
6. SYSTEM SHALL PREVENT FURTHER SALE/OUT OF THE LOW-LEVEL STOCK ITEM.

#### **FEATURE – 8 : DEPRICIATION EFFECT IMPLEMENTED**

1. SYSTEM SHALL BE ABLE TO ACCESS EXPIRE DATE AND LEVEL OF STOCK OF A PARTICULAR ITEM.
2. SYSTEM SHALL PROVIDE SUITABLE ALARM/NOTIFICATIONS ON EVENT OF ITEM EXPIREY DATE.
3. SYSTEM SHALL CALL THIS EVENT WHEN THERE IS A GIVEN/DEFINED PERIOD BETWEEN ITEM MANUFACTURE DATE AND EXPIREY DATE.
4. SYSTEM SHALL PROVIDE SUITABLE SUGGESTION ABOUT PRICE REDUCTION SALE OF THE ITEM WHICH HAS CLOSE EXPIREY DATE AND HIGH LEVEL OF STOCK.
5. USER SHALL UPDATE PRICES OF SUCH ITEMS USING “UPDATE ITEM” BUTTON IF HE/SHE WANTS.

#### **FEATURE – 9 : SOLD ITEMS RECORD**

1. SYSTEM SHALL DISPLAY A MASTER MENUE THAT PRESENTS ALL SELLER FEATURES THAT APPLICATION PROVIDES.
2. USER SHALL CHOOSE “SALE ITEM” OPTION FROM MENU USING MOUSE LEFT CLICK.
3. SYSTEM SHALL DISPLAY A DIALOGUE BOX TO TAKE INPUTS ABOUT ITEM TO BE SALED.
4. USER SHALL PROVIDE THE REQUIRED INPUTS.
5. SYSTEM SHALL CHECK FOR THE COMPLETENESS AND CORRECTNESS OF INPUT DATA.
6. SYSTEM SHALL PROMPT FOR VARIFICATION.
7. USER SHALL PROVIDE VERIFICATION.
8. SYSTEM SHALL KEEP SALES RECORD AND DATE OF SALE OF SOLD ITEMS ACCORDINGLY.
9. SYSTEM SHALL AUTOMATICALLY PUSH THE DATA OF SOLD ITEMS TO INVOICE.

#### **FEATURE – 10 : VIEW SALES RECORD/HISTORY**

1. SYSTEM SHALL BE ABLE TO KEEP RECORD OF SALES HISTORY AND SHOW IT WHEN REQUIRED.
2. USER SHALL CHOOSE “VIEW HISTORY” OPTION FROM MENU.
3. SYSTEM SHALL DISPLAY A DIALOGUE BOX TO TAKE DURATION INPUTS IN DATES FORM.
4. USER SHALL INPUT ‘FROM DATE’ AND ‘TO DATE’.
5. SYSTEM SHALL DISPLAY SALES RECORD OF ITEMS BETWEEN THOSE DATES (INCLUSIVE).

#### **FEATURE – 11 : INVOICE MANAGMENT (TAX & DISCOUNT)**

1. SYSTEM SHALL GENERATE INVOICE SIDE BY SIDE AS SELLER SELECTS AND VERIFY SALED ITEMS.
2. SYSTEM SHALL BE ABLE TO DISPLAY THE GENERATED INVOICE TO USER ANY TIME.
3. SYSTEM SHALL BE ABLE TO PICK INVOICE NECESSARY INPUTS (ISSUE DATE, INVOICE NUM ETC.)
4. SYSTEM SHALL BE ABLE TO DYNAMICALLY PERFORM PRODUCTS SALES CALCULATION.
5. USER SHALL CHOOSE “GENERATE INVOICE” OPTION FROM MENU USING LEFT MOUSE CLICK.
6. SYSTEM SHALL DISPLAY A DIALOGUE BOX FOR TAKING INPUTS ABOUT TAX, DISCOUNT ETC.
7. USER SHALL PROVIDE REQUIRED INPUTS.
8. SYSTEM SHALL CHECK FOR THE COMPLETENESS AND CORRECTNESS OF INPUT DATA.
9. SYSTEM SHALL COMPUTE TOTAL AMOUNT TO BE PAYED.
10. SYSTEM SHALL ENTER WHOLE INVOICE DATA IN ITS RECORD.

#### **FEATURE – 12 : RECEIPT GENERATION**

1. SYSTEM SHALL PROVIDE FACILITY TO GENERATE RECEIPT OF A PARTICULAR INVOICE.
2. USER SHALL CHOOSE “GENERTE RECEIPT” OPTION FROM MENU.
3. SYSTEM SHALL BE ABLE TO AUTO FILL RECEIPT DETAILS FOR A PARTICULAR INVOICE NUMBER.
4. SYSTEM SHALL BE ABLE TO DISPLAY GENERATED RECEIPT TO USER FOR VERIFICATION.
5. USER SHALL VERIFY THE RECEIPT DETAILS.
6. SYSTEM SHALL ENTER THE RECEIPT DETAILS IN ITS RECORD.

#### **FEATURE – 13 : NORMAL LOSS**

1. SYSTEM SHALL BE ABLE TO MANAGE NORMAL LOSS OF AN ITEM AND KEEP IT IN RECORD.
2. USER SHALL CHOOSE “DEFECTIVE ITEMS” OPTION FROM MENU.
3. SYSTEM SHALL DISPLAY A DIALOGUE BOX TO TAKE INPUTS ABOUT ITEM AND ITS QUANTITY WHICH IS USELESS NOW.
4. USER SHALL PROVIDE REQUIRED INPUTS.
5. SYSTEM SHALL CHECK FOR COMPLETENESS AND CORRECTNESS OF INPUT DATA.
6. SYSTEM SHALL PROMPT FOR VERIFICATION.
7. USER SHALL VERIFY IF HE/SHE WANTS TO CONFIRM NORMAL LOSS FROM THAT ITEM.
8. SYSTEM SHALL UPDATE DATA OF THE PARTICULAR ITEM IN ITS RECORD (THE ITEM IS STOCKED OUT BUT NOT INCLUDED IN SOLD ITEMS).

#### **FEATURE – 14 : PROFIT LOSS COMPUTATION**

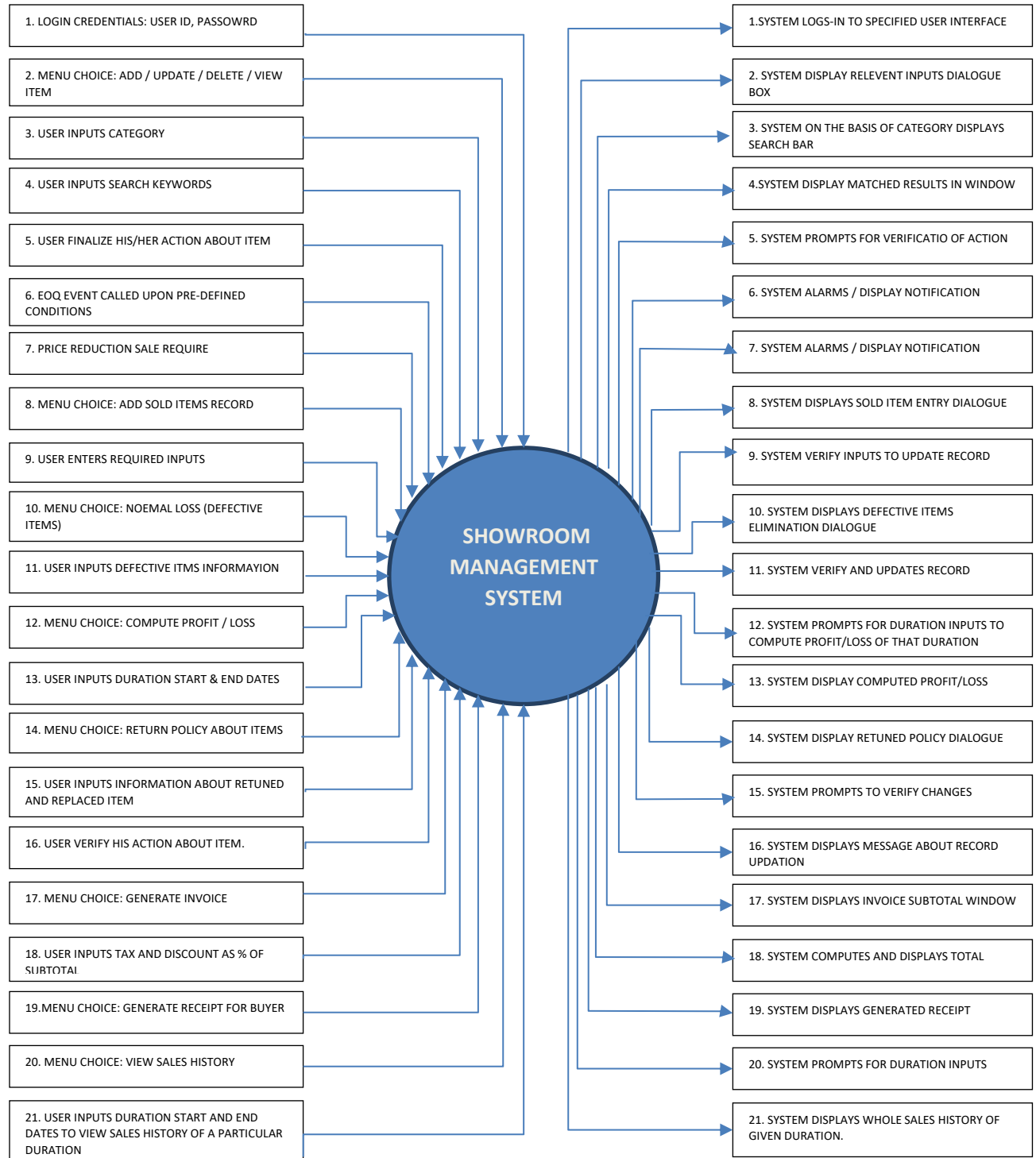
1. SYSTEM SHALL BE ABLE TO CALCULATE PROFIT/LOSS AS PER REQUIREMENT.
2. USER SHALL SELECT “COMPUTE PROFIT/LOSS” OPTION USING MOUSE LEFT CLICK.
3. SYSTEM SHALL DISPLAY A DIALOGUE BOX TO TAKE THAT FROM WHICH DATE TO WHICH DATE USER WANTS TO COMPUTE PROFIT/LOSS.
4. USER SHALL INPUT “FROM DATE” AND “TO DATE” IN DIALOGUE BOX.
5. SYSTEM SHALL COMPUTE PROFIT/LOSS FROM SOLD ITEMS RECORD HISTORY USING ACTUAL PRICES AND SOLD PRICES OF ALL ITEMS.
6. SYSTEM SHALL DISPLAY COMPUTED PROFIT/LOSS (+ve/-ve) VALUE.

#### **FEATURE – 15 : RETURN POLICY**

1. SYSTEM SHALL PROVIDE FACILITY TO RETURN AND REPLACE A SOLD ITEM WITH OTHER ONE.
2. USER SHALL SELECT “RETURN ITEM” OPTION FROM MENU USING MOUSE LEFT CLICK.
3. SYSTEM SHALL DISPLAY A DIALOGUE BOX FOR RETURNED AND REPLACED ITEM.
4. SYSTEM SHALL PROVIDE A DROP DOWN MENU CONTAIN REPLACED OF SAME CATEGORY AND SAME PRICE AS RETURNED ITEM.
5. USER SHALL PROVIDE REQUIRED INPUTS ABOUT RETURNED AND REPLACED PRODUCT.
6. SYSTEM SHALL PROMPT FOR VARIFIVATION.
7. USER SHALL PROVIDE VERIFICATION.
8. SYSTEM SHALL UPDATE ITEMS SALES RECORD AND NOTIFY THROUGH SUITABLE MESSAGE.

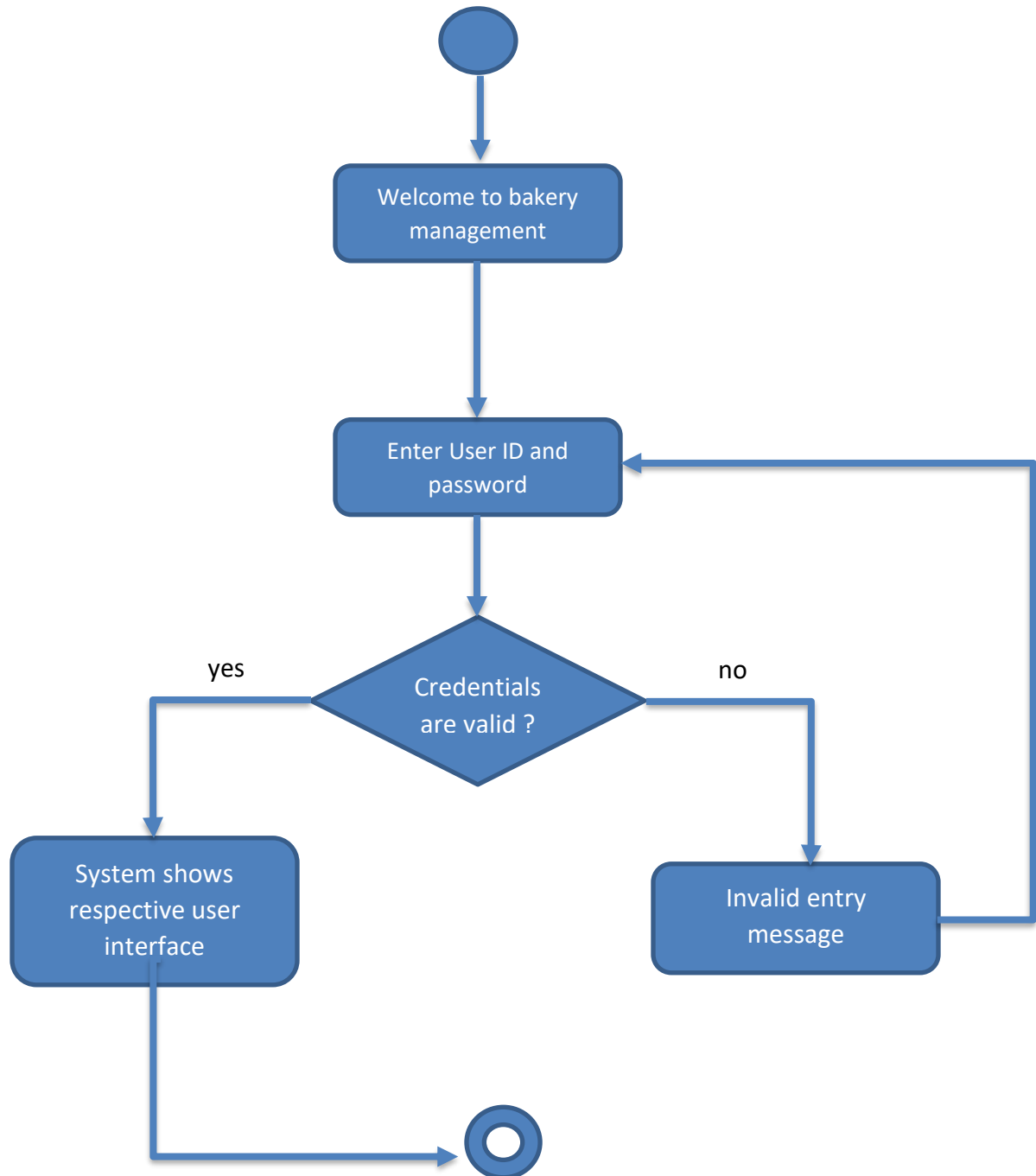
# DFA (DATA FLOW ANALYSIS)

## DFD-LEVEL-0



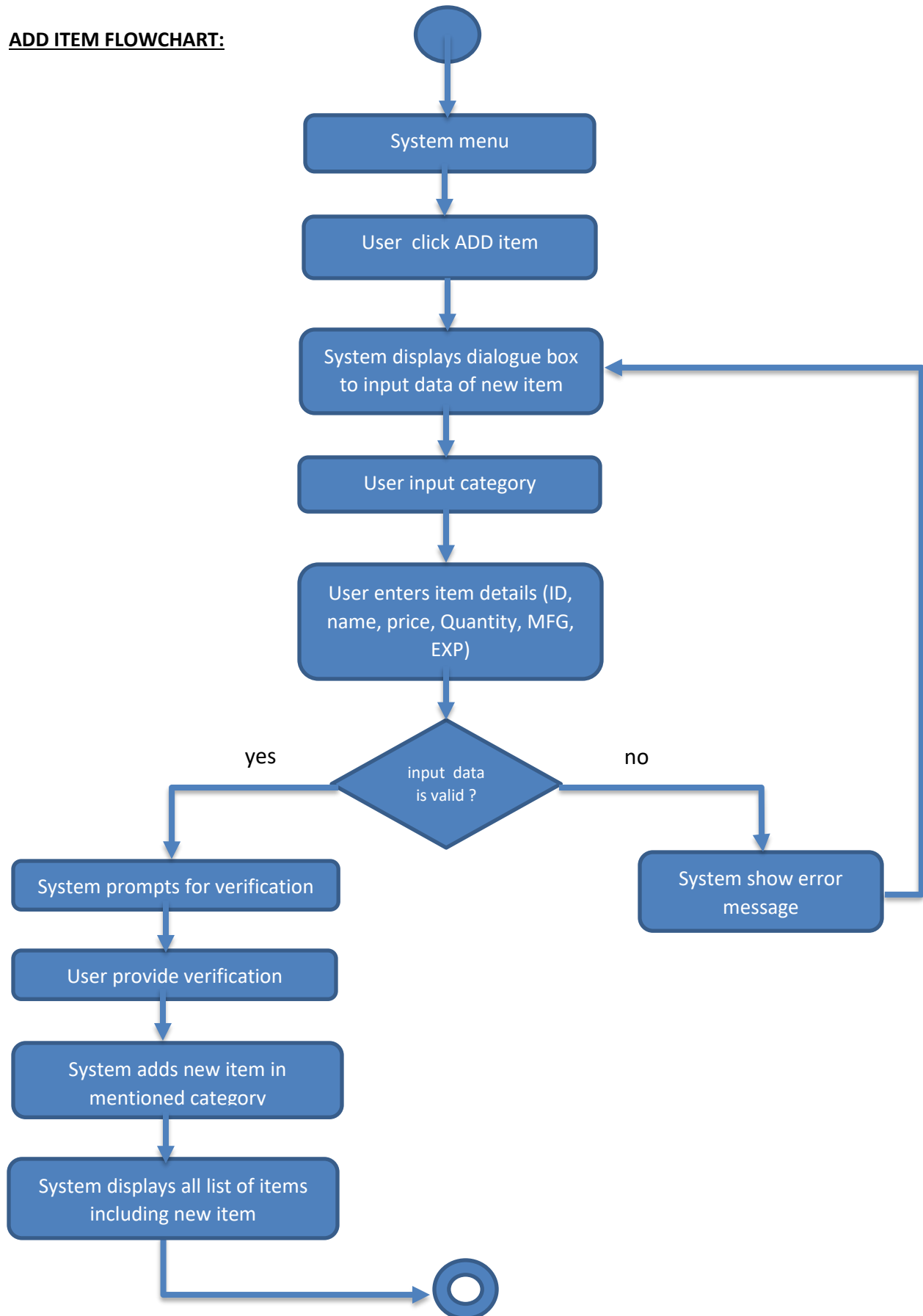
**DFD-LEVEL-1**

**LOGIN FLOWCHART:**

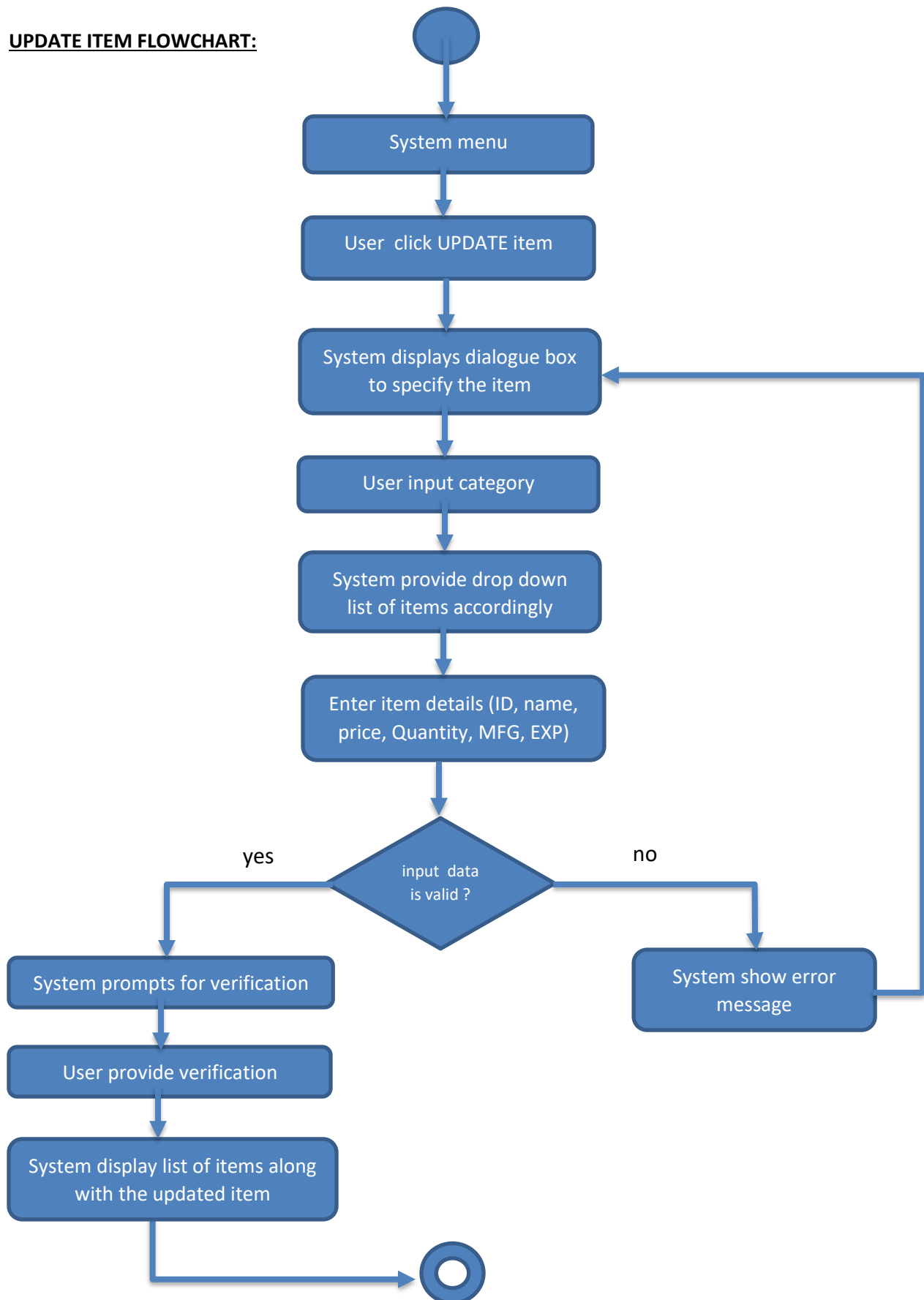




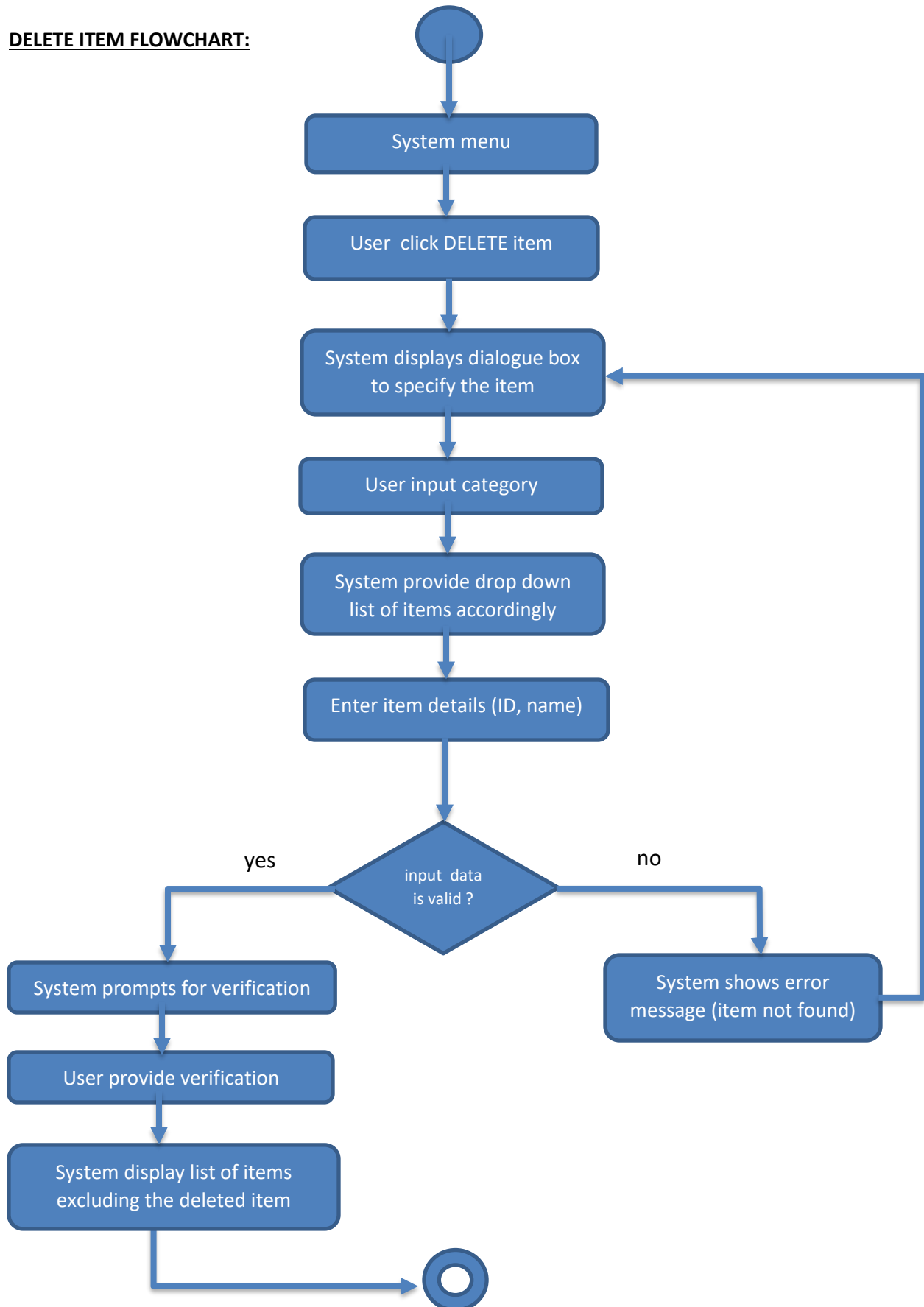
**ADD ITEM FLOWCHART:**



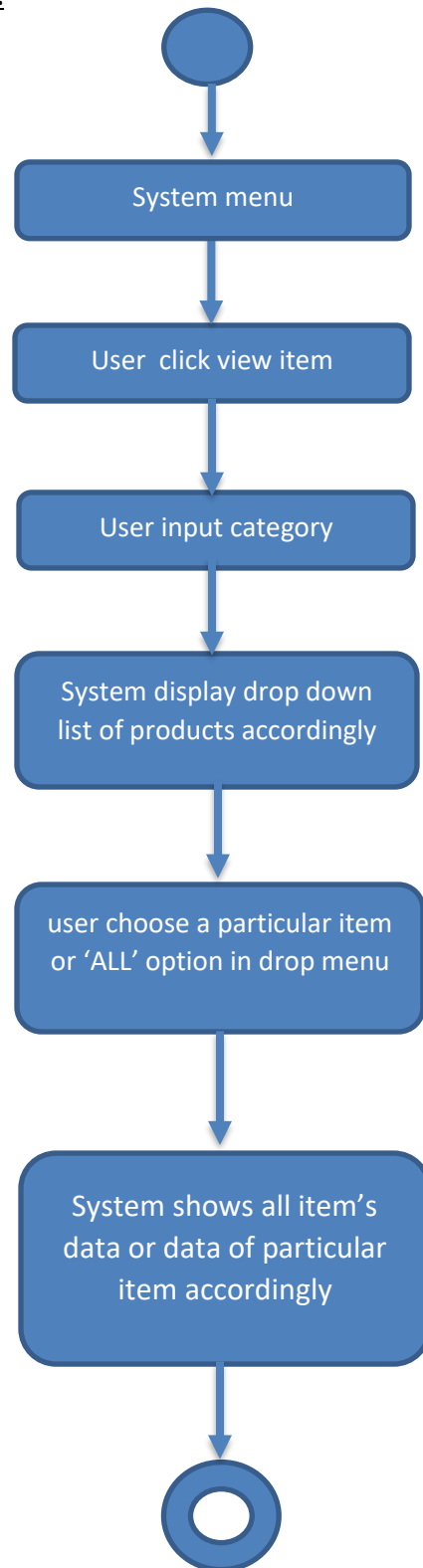
**UPDATE ITEM FLOWCHART:**



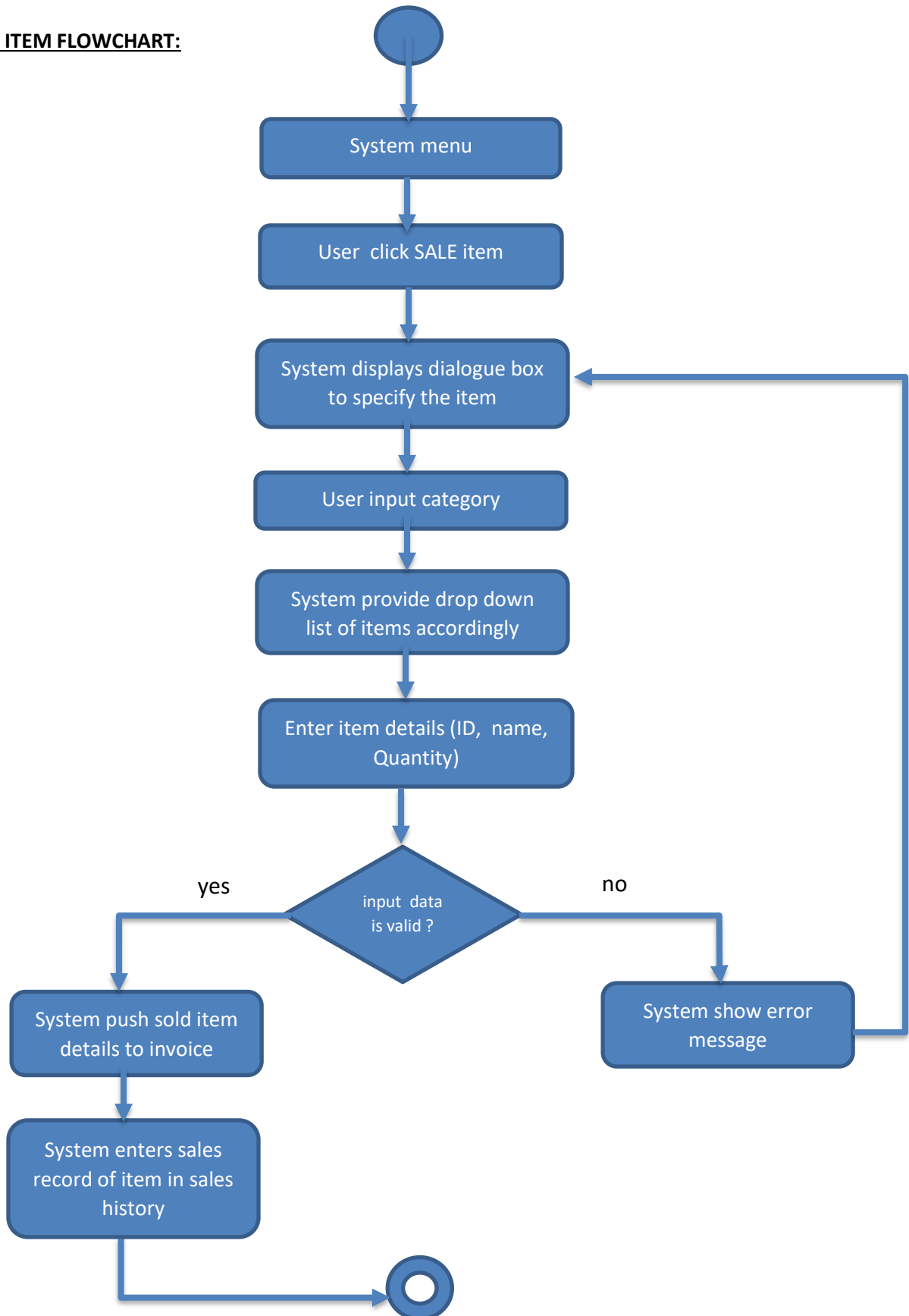
**DELETE ITEM FLOWCHART:**



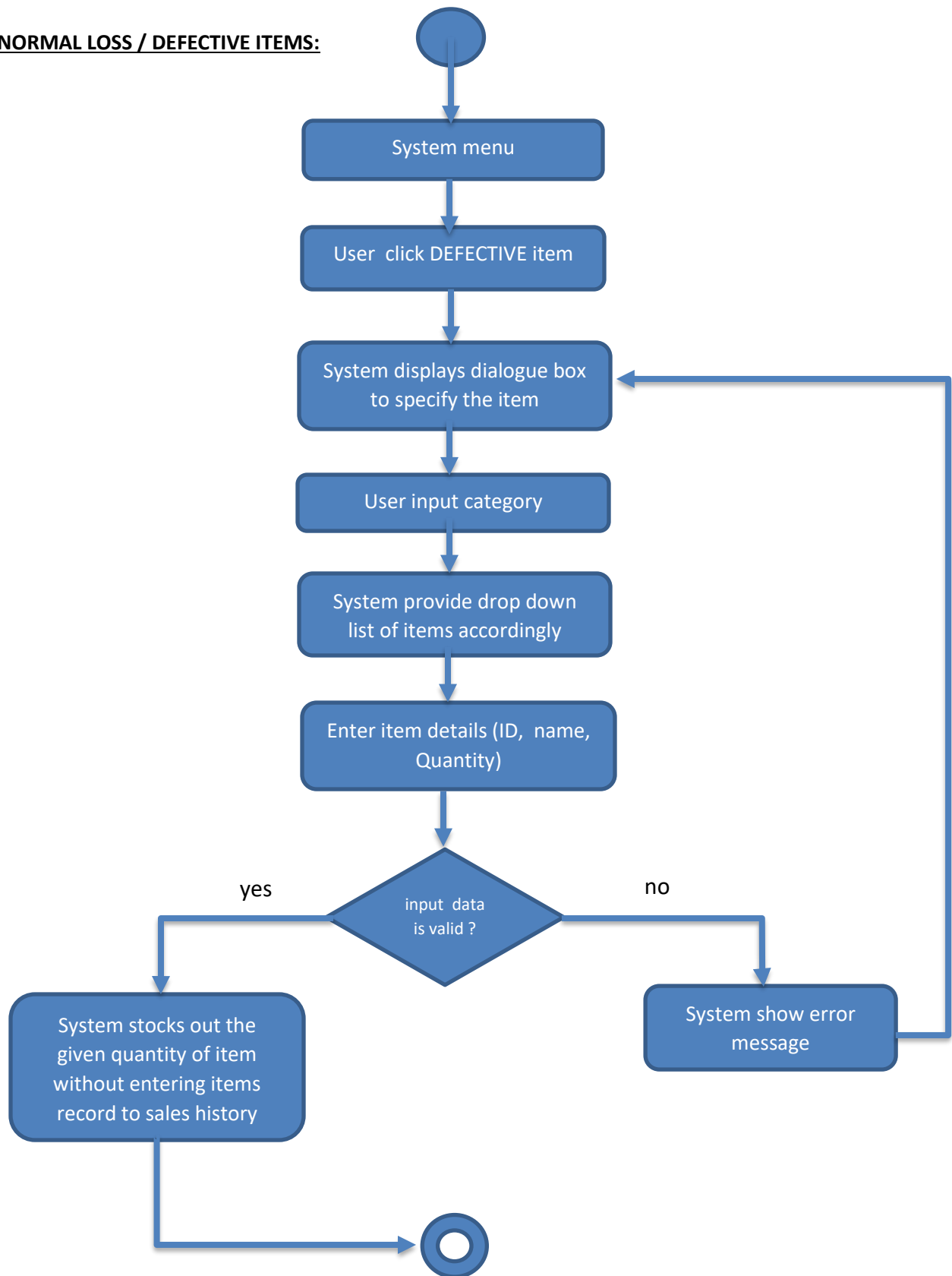
**VIEW ITEM DETAILS FLOWCHART:**



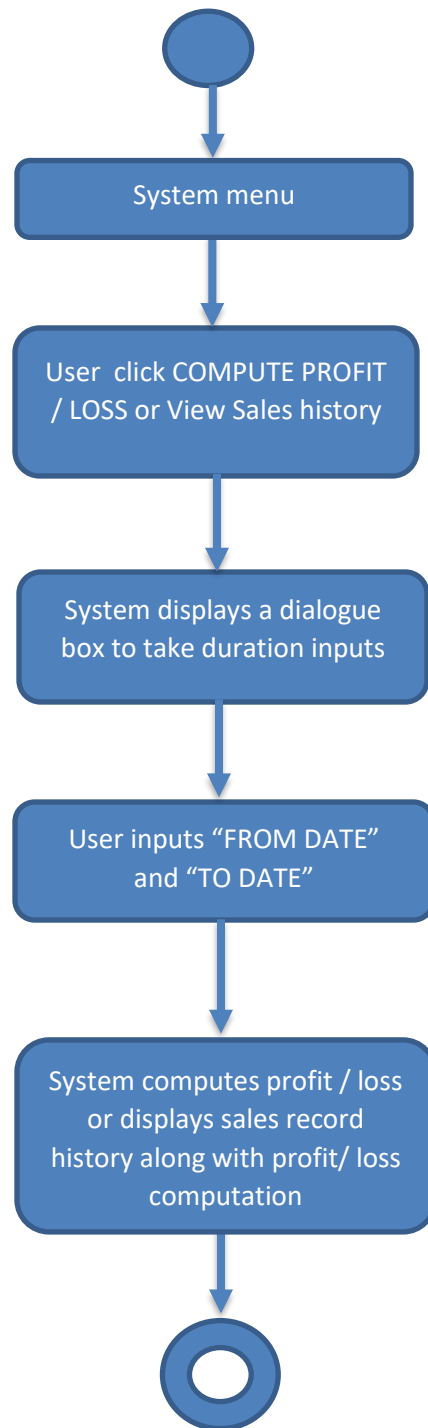
**SALE ITEM FLOWCHART:**



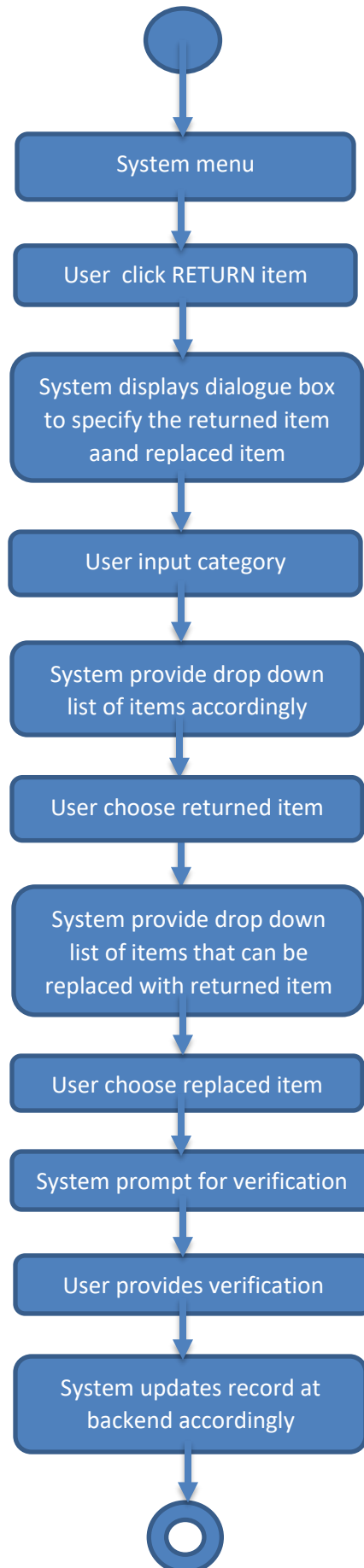
**NORMAL LOSS / DEFECTIVE ITEMS:**



**COMPUTE PROFIT / LOSS && VIEW SALES HISTORY FLOWCHART:**



**RETURN ITEM FLOWCHART:**





## USER INTERFACES



WELCOME TO BAKERY MANAGEMENT  
SYSTEM

SIGN IN




Logged In

MANAGER

SELLER

Bakery Managment system

Login Account



Enter username


Enter password

login

Cancel

Change password

Reset your pasword?



Enter Username

Previous Password


Enter New Password

Confirm password

Change pasword

Cancel

PRODUCT MANAGER

 Logged in as a Manager

[Log out](#)

Add Item

Delete Item

Update Item

View Item

### BAKERY ITEMS

Cakes	Biscuits	Juices
Butter	Rus	Breads
Pastries	Sandwich	

Product Manager

[Add Item](#)

[Log out](#)

Category

Name

Price

Quantity

MFG

EXP

Ok

Cancel

Product Manager — □ ×

[Add Item](#) [Log out](#)

Category

Name

Price

Quantity

MFG

EXP

Confirmation

Do you really want to add this item?

Yes No

Product Manager — □ ×

[Delete Item](#) [Log out](#)

Category

Name

Product Manager

Log out

Edit product

Category

Name

Enter item

Change Price

Update

Cancel

Product Manager

VIEW STOCK


Q search item

Log out

Name	Quantity	Price	MFG	EXP
Cake	10	200	11-02-2021	14-02-2021
Pastries	10	200	11-02-2021	14-02-2021
Juice	10	200	11-02-2021	14-02-2021
Biscuits	10	200	11-02-2021	14-02-2021
Bread	10	200	11-02-2021	14-02-2021
Butter	10	200	11-02-2021	14-02-2021
Sandwich	10	200	11-02-2021	14-02-2021

Back

SALE MANAGER

 Logged in as a Seller

[Log out](#)

Sale Item

Compute profit/loss

Return Item

Defective Item

[Sale History](#)

[Invoice gen.](#)

[Receipt gen.](#)

BAKERY ITEMS

CakesBiscuits

SandwichJuices

ButterRus

BreadsPastries

Sale Manager

[Log out](#)

Sale Item

Category

Select item

Quantity

Price

Automated Price

Ok

Cancel

Sale Manager

Profit/Loss [Log out](#)

From date

To date

Ok Cancel

Sale Manager

Profit/Loss [Log out](#)

From date 01-0

To date 01-0

Profit/ Loss= -40 PKR

Ok Cancel

Sale Manager

Return Product

[Log out](#)

Category

Select item

Return Item

Automated filled

Replace Item

Select item

Ok

Cancel

Sale Manager

Defective Items

[Log out](#)

Category

Enter item

Name

Enter item type

Quantity

Stock out

Cancel



Sale Manager

Log out

Defective Items

Category

Cake

Name

Cake

Quantity

3

Defected Items Stocked Out successfully!

Stock out

Cancel

Sale Manager

Log out

Invoice

Billed To:

Seller123

Order Date:

DD-MM-YYY

Order Summary

Item	Quantity	Price	Total
Item 1	1	\$223	\$223
Item 2	1	\$200	\$200
Item 3	1	\$200	\$200
Item 4	2	\$200	\$400

Sub Total:

\$1023

Discount:

\$120

Grand Total:

\$903

Back

Sale Manager

View History

[Log out](#)

From date

To date

View

Cancel

Back

Sale Manager

History Record

Name	Quantity	Sale_Price	Sale_date
Cake	10	200	11-02-2021
Pastries	10	200	11-02-2021
Juice	10	200	12-02-2021
Biscuits	10	200	12-02-2021
Bread	10	200	12-02-2021
Butter	10	200	12-02-2021
Sandwich	10	200	13-02-2021

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