



UNIVERSITI TEKNIKAL MALAYSIA MELAKA

FAKULTI TEKNOLOGI MAKLUMAT DAN KOMUNIKASI

WORKSHOP 1

REPORT

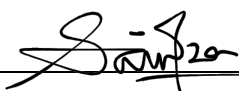
Name : NUR FATHEHAH BINTI MOHD ARIS

Matric Number : B032210139

Program : BITD

Project Title : COFFEE SHOP MANAGEMENT SYSTEM

Supervisor Name : GS. TS. DR. SAFIZA SUHANA BINTI KAMAL BAHARIN

Supervisor Signature : 

Evaluator Name : PROFESOR MADYA TS. DR. NURUL AKMAR BINTI EMRAN

EXECUTIVE SUMMARY

The objective of this project is to develop and implement a comprehensive coffee shop management system to address issues related to delayed and erroneous order fulfillment, inaccurate and incomplete data, and timeconsuming manual processes. The system aims to streamline operations, improve efficiency, and enhance the overall customer experience. The scope of the project includes the development of modules such as login, management, ordering, payment, inventory management, admin, employee, and customer modules. These modules will cater to the needs of admin, employees, and customers, providing them with the necessary tools and functionalities to manage and interact with the coffee shop efficiently. The coffee shop management system is significant as it will improve the efficiency and accuracy of operations, provide valuable insights for decision-making, save costs, enhance the customer experience, and give the coffee shop a competitive advantage in the market.

TABLE OF CONTENTS

	PAGE
EXECUTIVE SUMMARY	i
TABLE OF CONTENTS	ii
LIST OF TABLES	iv
LIST OF FIGURES	v
CHAPTER 1: INTRODUCTION.....	1
1.1 Introduction	1
1.2 Problem Statement	1
1.3 Objective (s) of the project.....	1
1.4 Scope	2
1.4.1 Module to be developed	2
1.4.2 Target User	2
1.5 Project Significance.....	3
1.6 Gantt Chart of Project Activities.....	3
CHAPTER 2: ANALYSIS OF PROBLEM.....	4
2.1 Problem Decomposition Description	4
2.2 Structured Chart	5
CHAPTER 3: DESIGN	6

3.1	Flowchart.....	6
	Main Login.....	6
3.2	ERD.....	16
3.3	Data Dictionary	17
3.4	Interface Design	20
CHAPTER 4: IMPLEMENTATION		35
4.1	Naming Convention	35
4.2	Function.....	36
4.3	Selection.....	36
4.4	Control.....	37
4.5	Pointer	37
4.6	Error Handling.....	38
CHAPTER 5: CONCLUSION.....		39
5.1	Constraints.....	39
5.2	Future Improvements	39
REFERENCES.....		40

LIST OF TABLES**AGE**

Table 3.1 Admin	17
Table 3.2 Employee	17
Table 3.3 Customer.....	18
Table 3.4 Orders.....	18
Table 3.5 Menu	19
Table 3.6 Payment	19

LIST OF FIGURES

AGE

Figure 1.1 Gantt Chart	3
Figure 2.1 Structured Chart.....	5
Figure 3.1 Main Login	6
Figure 3.2 Admin Menu.....	7
Figure 3.3 Manage Admin Details Menu	8
Figure 3.4 Manage Employee Details Menu	9
Figure 3.5 Manage Customer Details Menu	10
Figure 3.6 Manage Menu Details Menu	11
Figure 3.7 Customer Menu	12
Figure 3.8 Login And Place Order Menu	13
Figure 3.9 Customer Menu	14
Figure 3.10 Employee Menu.....	15
Figure 3.11 Entity Relationship Diagram	16
Figure 3.12 Main Login Menu.....	20
Figure 3.13 Login Admin	20
Figure 3.14 Admin Menu.....	20

Figure 3.15 Manage Admin Details Menu	21
Figure 3.16 Profile Admin Menu	21
Figure 3.17 Register Admin Menu	21
Figure 3.18 Update Admin Menu	22
Figure 3.19 Delete Admin Menu	22
Figure 3.20 List Admin Menu	23
Figure 3.21 Manage Employee Menu.....	23
Figure 3.22 Register Employee Menu	24
Figure 3.23 Update Employee Menu	24
Figure 3.24 Delete Employee Menu	25
Figure 3.25 List Employee Menu	25
Figure 3.26 Manage Customer Menu	25
Figure 3.27 Profile Customer Menu	26
Figure 3.28 List Customer Menu	26
Figure 3.29 Delete Customer Menu	26
Figure 3.30 Manage Menu Drink.....	27
Figure 3.31 Add Drink Menu.....	27
Figure 3.32 Update Drink Menu	28
Figure 3.33 Delete Drink Menu	28
Figure 3.34 View Drink Menu.....	29
Figure 3.35 View Payment Details Menu.....	29

Figure 3.36 Employee Login Menu	29
Figure 3.37 Employee Menu.....	30
Figure 3.38 Profile Employee Menu.....	30
Figure 3.39 View Customer Orders Menu.....	31
Figure 3.40 Customer Menu	31
Figure 3.41 Register Customer Menu	31
Figure 3.42 View Menu Drink as Customer.....	32
Figure 3.43 Place Order Menu.....	32
Figure 3.44 Customer Payment Menu	33
Figure 3.45 Payment Receipt.....	33
Figure 3.46 Update Customer Menu.....	34
Figure 4.1 Naming Convention.....	35
Figure 4.2 Function	36
Figure 4.3 Selection	36
Figure 4.4 Control.....	37
Figure 4.5 Pointer.....	37
Figure 4.6 Error Handling.....	38

CHAPTER 1: INTRODUCTION

1.1 Introduction

Coffee shops are more than simply places to get a quick cup in today's fast-paced world. There are also community hubs, workplaces, and social hubs. Coffee shop owners must manage their operations efficiently while maintaining the highest standards of customer service considering of the increasing demand for efficiency and convenience. My project's goal is to develop a thorough coffee shop management system in order to handle these issues. This solution will improve inventory management, streamline the ordering process, and offer insightful data to help with decision-making. The solution will help coffee shop owners save time and money by automating manual operations and reducing errors, that ultimately improves profitability and customer satisfaction.

1.2 Problem Statement

- Delayed and error in order fulfillment
- Data about coffee shop are not accurate and incomplete.
- Manual sales and customer management processes can be time-consuming and prone to errors.

1.3 Objective (s) of the project

This project embarks on the following objectives:

- a. To develop and design a more efficient food ordering system to replace the manual ordering process.
- b. To effectively manage payments and maintain profit to keep track on salaries, operating costs, and cost of products sold.
- c. To develop a sales and customer management system that automates sales processes, enhances customer relationship management, and provides actionable insights to improve sales performance and customer satisfaction.

1.4 Scope

1.4.1 Module to be developed

Login module

Allows users (admin, employees and customers) to log in to the system with their credentials.

Ordering module

Allows customers to place orders, view menu items, and choose quantity.

Payment module

Handles payment processing, including integration with payment gateways for secure transactions.

Admin Module

Admin can manage as user management, access control, and system configuration.

Employee Module

Allows employees to view orders assigned to them

Customer Module

Allows customers to create accounts, manage their profiles, and place order

1.4.2 Target User

Admin

Responsible for managing menu, employee, customer.

Employee

Employees will use the system to take and manage orders

Customer

Customers will interact with the system to place orders online, view menu items and prices and make payment.

1.5 Project Significance

1. The system will increase the coffee shop's overall efficiency by automating and improving tasks including order fulfilment, inventory management, and sales tracking. Better customer satisfaction, a decrease in mistakes, and quicker service will result from this.
2. The system can help the coffee shop save costs associated with labor, inventory management, and order processing. It can also help in reducing food waste by optimizing inventory levels and reducing overstocking.
3. The system will ensure that data about the coffee shop, including inventory levels, sales data, and customer information, are accurate and up-to-date.

1.6 Gantt Chart of Project Activities

Activity	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Discussion of title with supervisor															
Submission and evaluation of proposal															
Problem solution and design analysis															
First stage implementation (30% - 40% project completion)															
Second stage implementation (50% - 70% project completion)															
Third stage implementation (80% - 100% project completion)															
Project testing															
Generate report															
Finishing report															
Final presentation and project submission															

Figure 1.1 Gantt Chart

CHAPTER 2: ANALYSIS OF PROBLEM

2.1 Problem Decomposition Description

- Identify the root causes of delays and errors in order fulfillment, such as inefficient processes, lack of communication, or inventory issues.
- Develop a data management system to ensure that all data about the coffee shop, including inventory, sales, and customer information, are accurate and up-to-date.
- Develop automated systems for sales and customer management, such as online ordering

2.2 Structured Chart

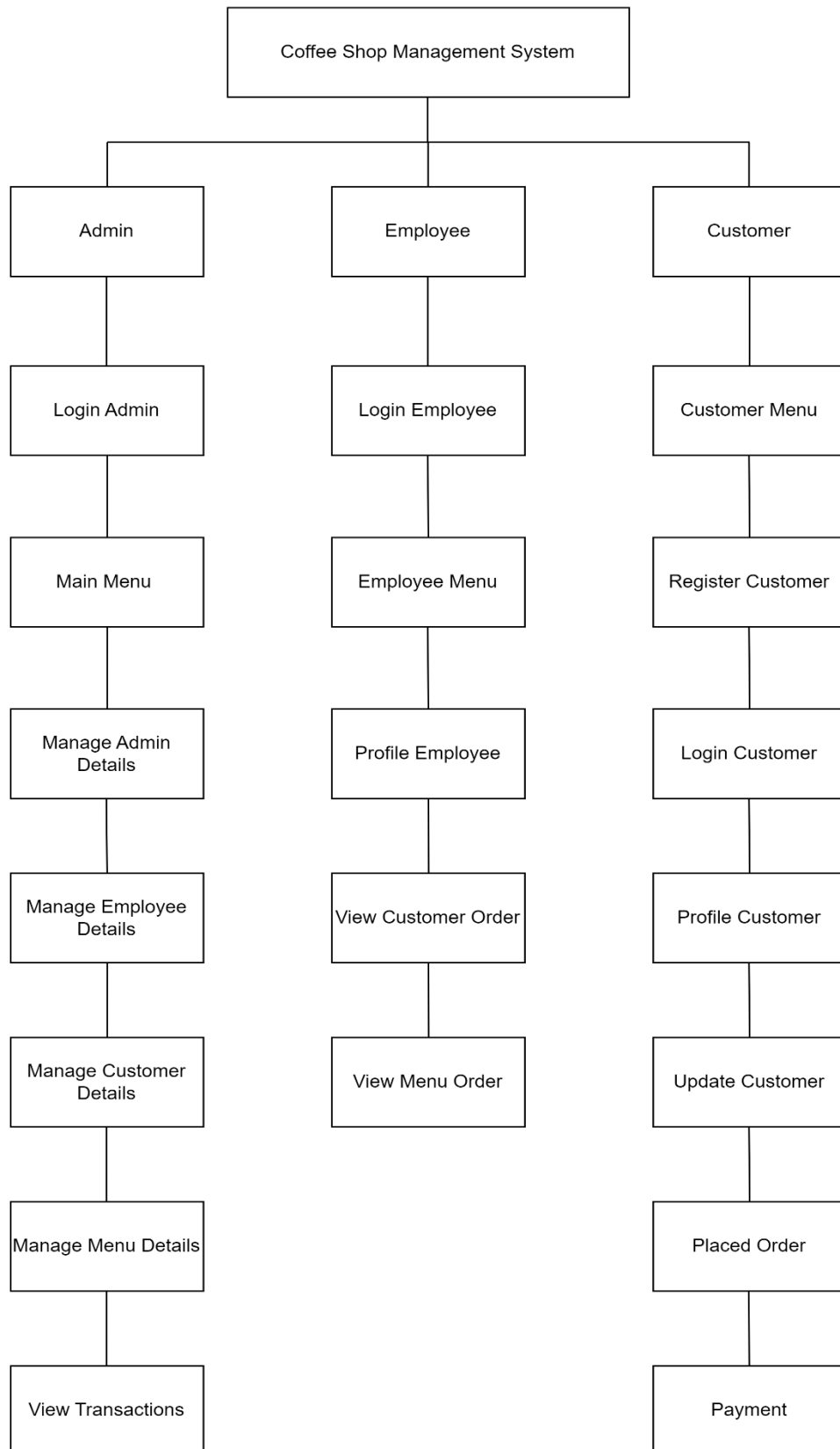


Figure 2.1 Structured Chart

CHAPTER 3: DESIGN

3.1 Flowchart

Main Login

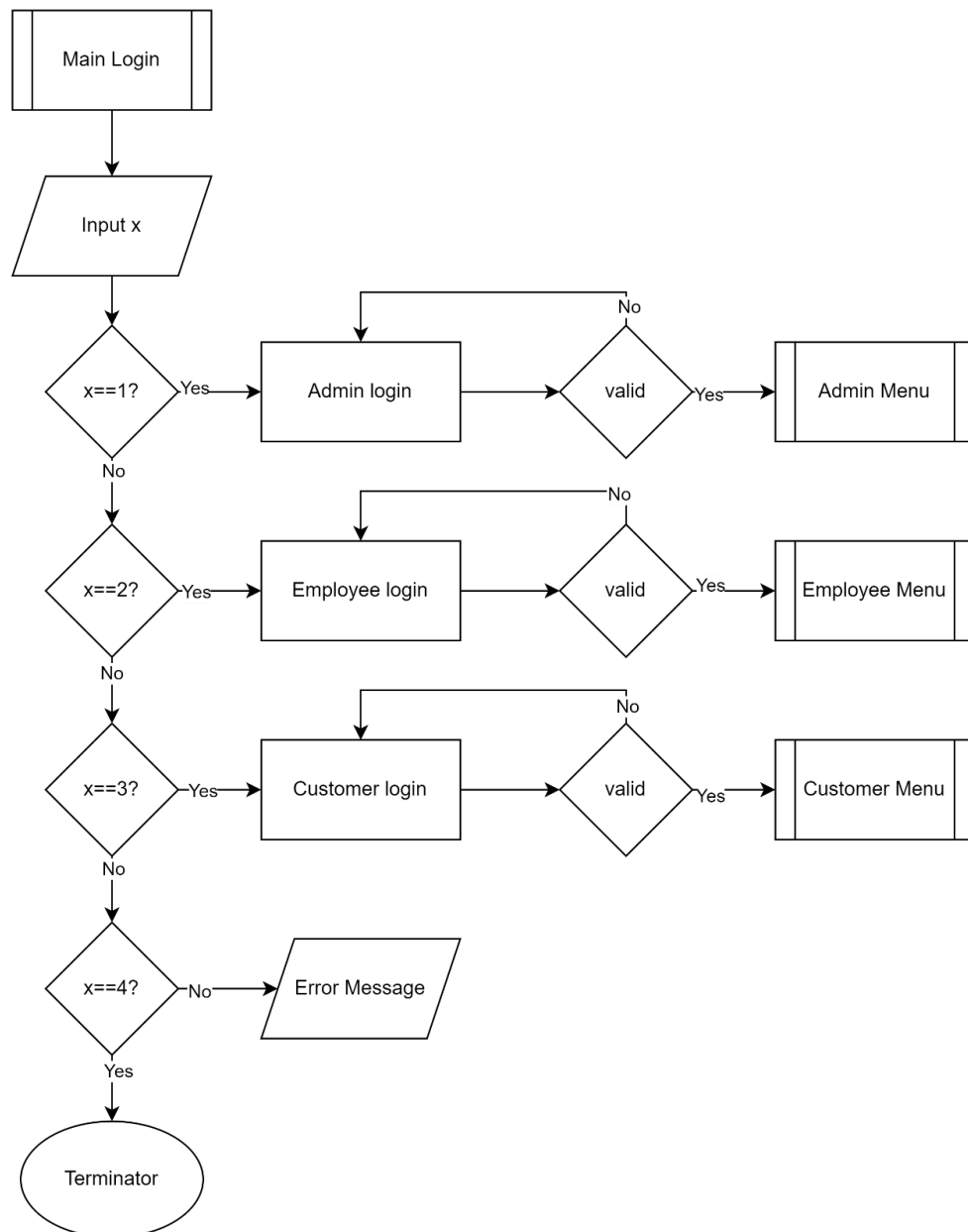


Figure 3.1 Main Login

Admin Menu

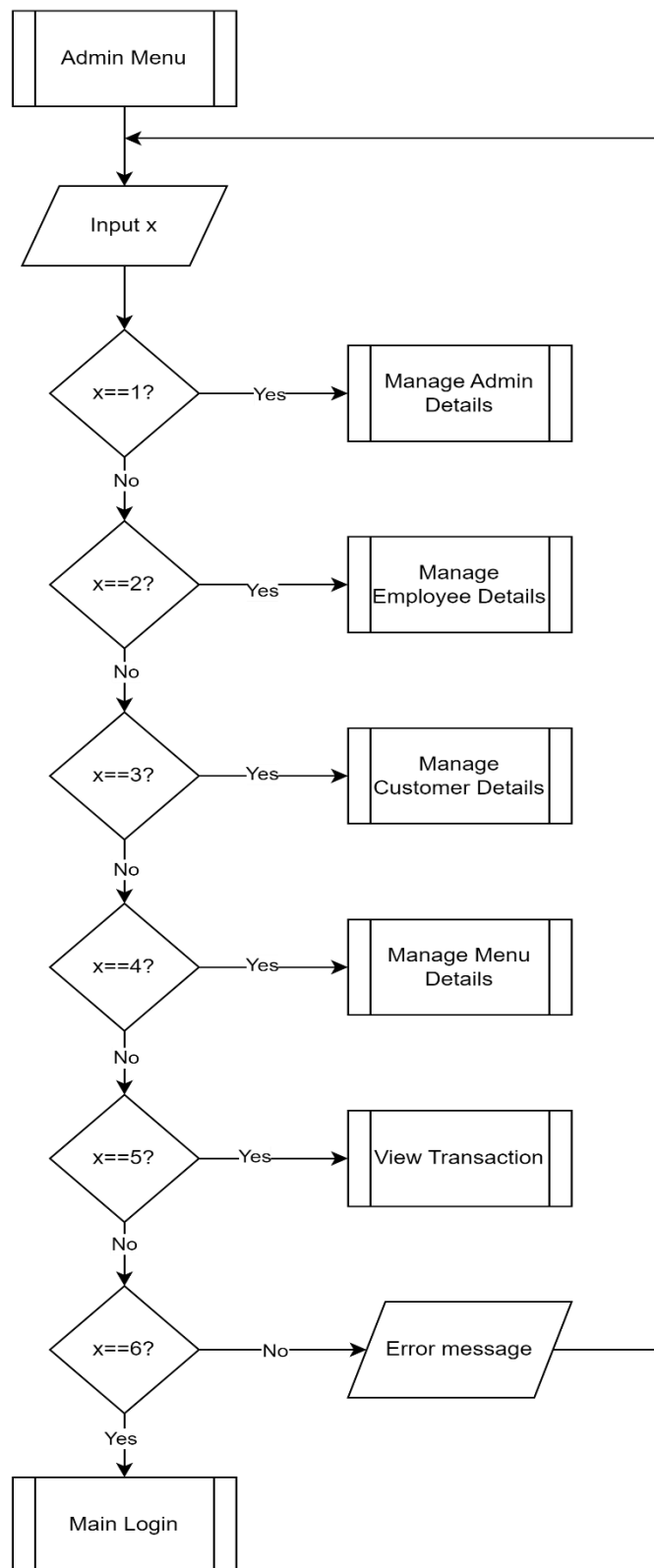
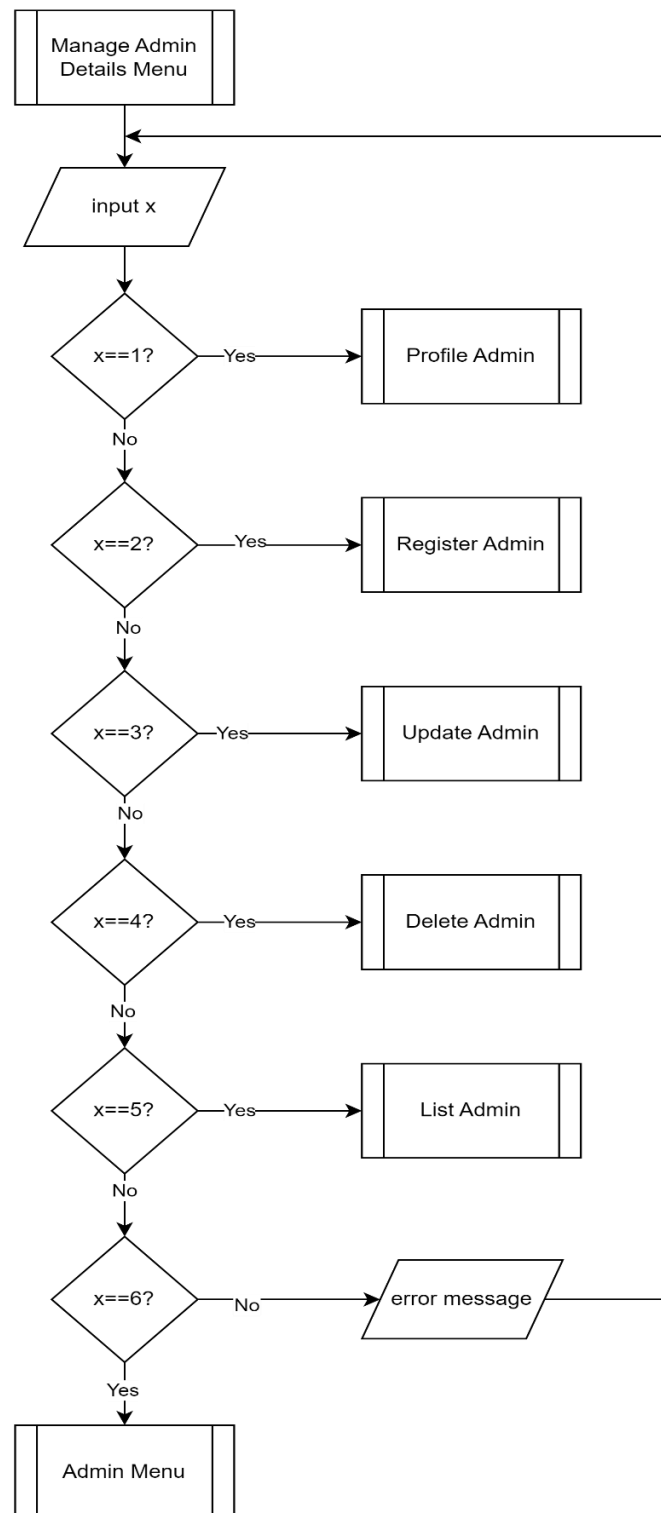
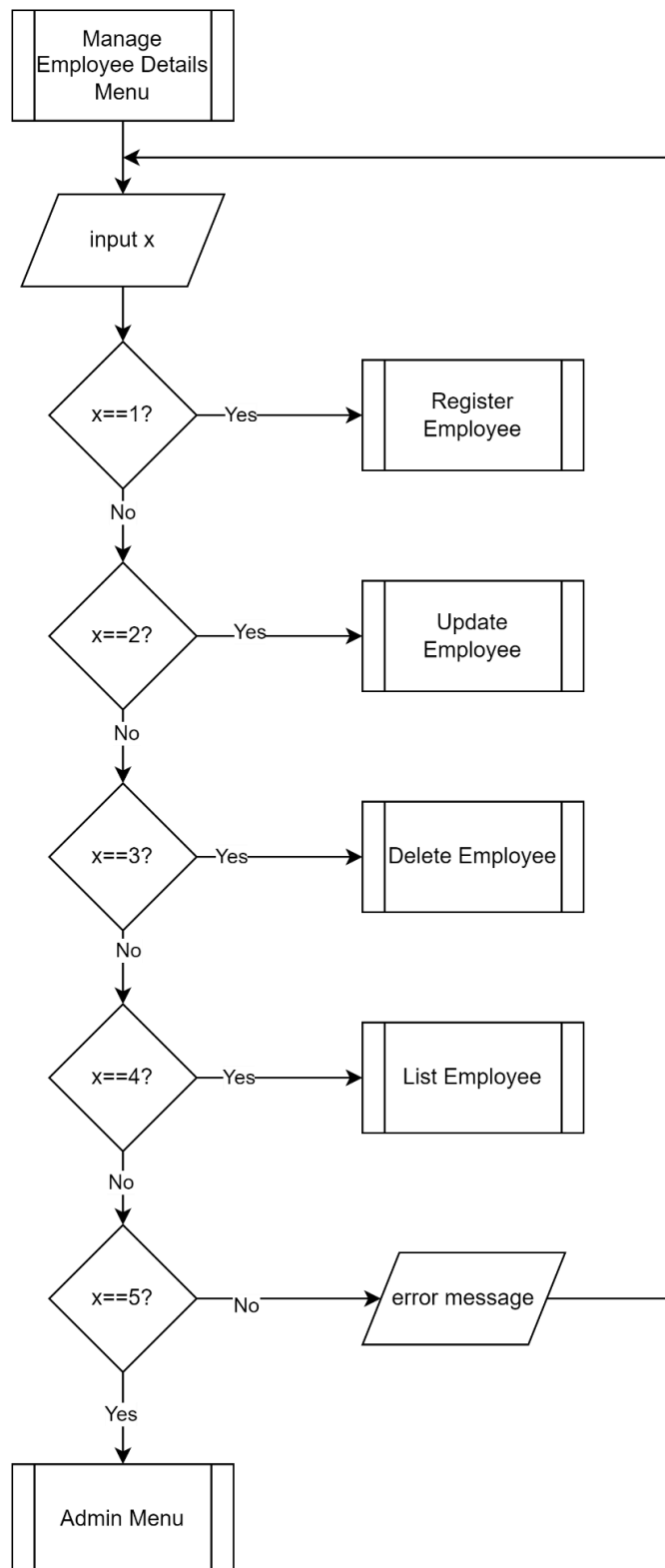


Figure 3.2 Admin Menu

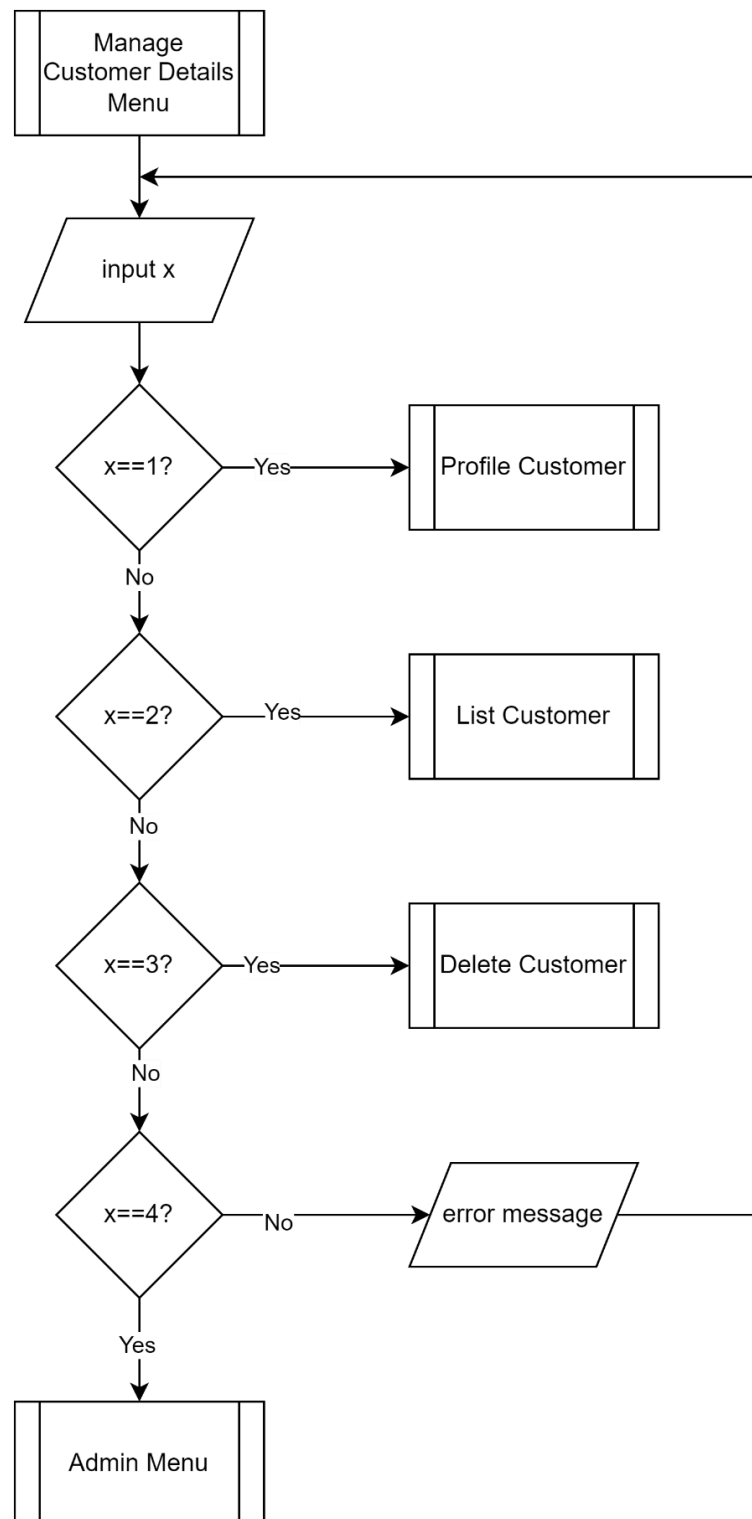
Manage Admin Details Menu

**Figure 3.3 Manage Admin Details Menu**

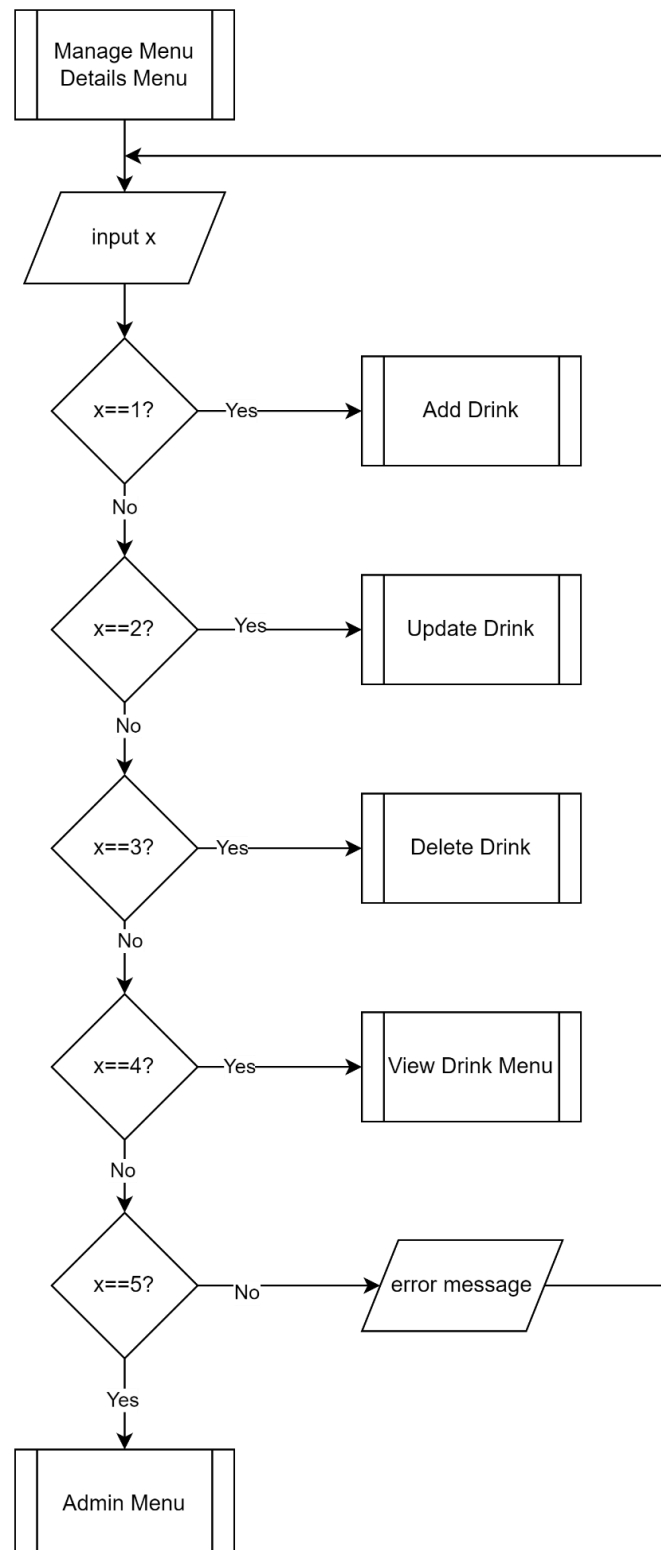
Manage Employee Details Menu

**Figure 3.4 Manage Employee Details Menu**

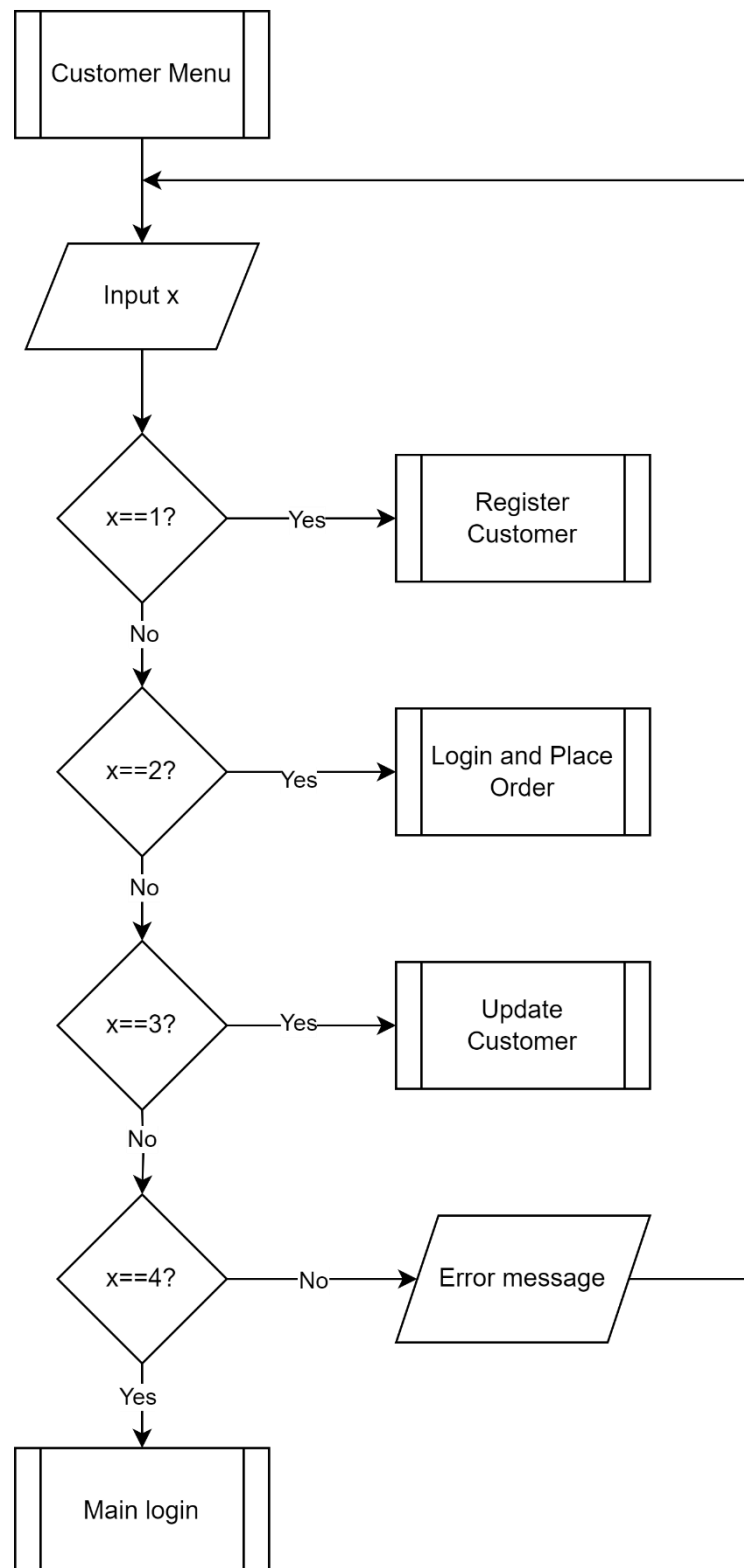
Manage Customer Details Menu

**Figure 3.5 Manage Customer Details Menu**

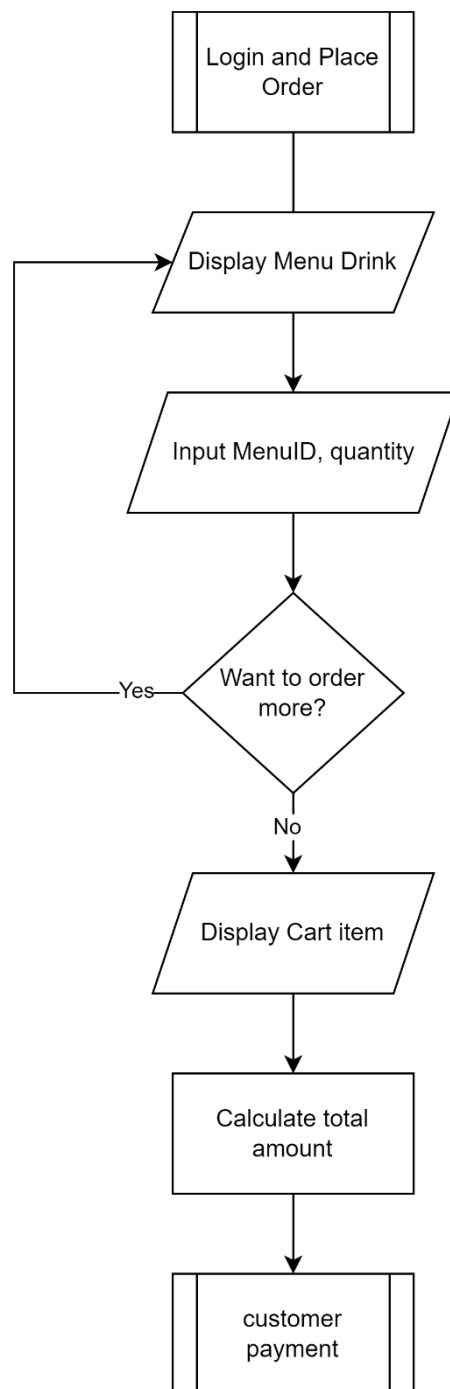
Manage Menu Details Menu

**Figure 3.6 Manage Menu Details Menu**

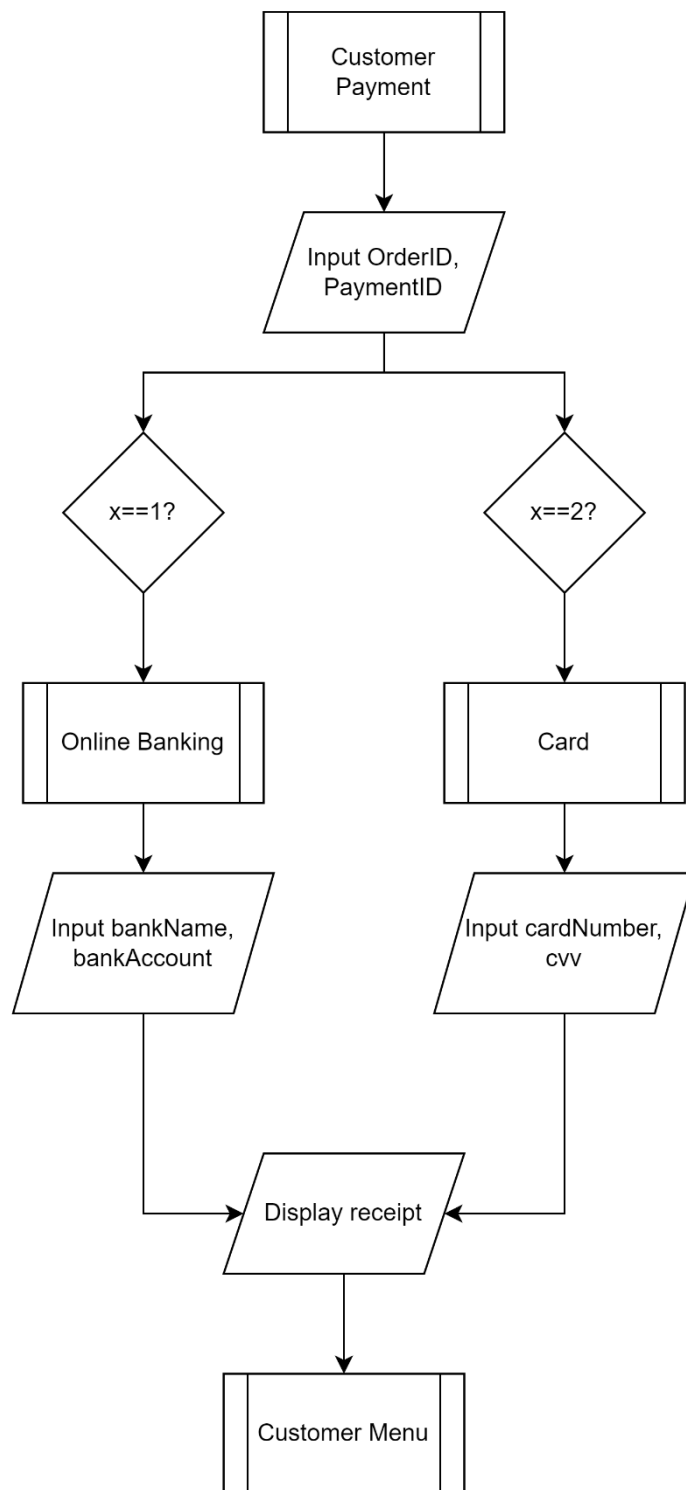
Customer Menu

**Figure 3.7 Customer Menu**

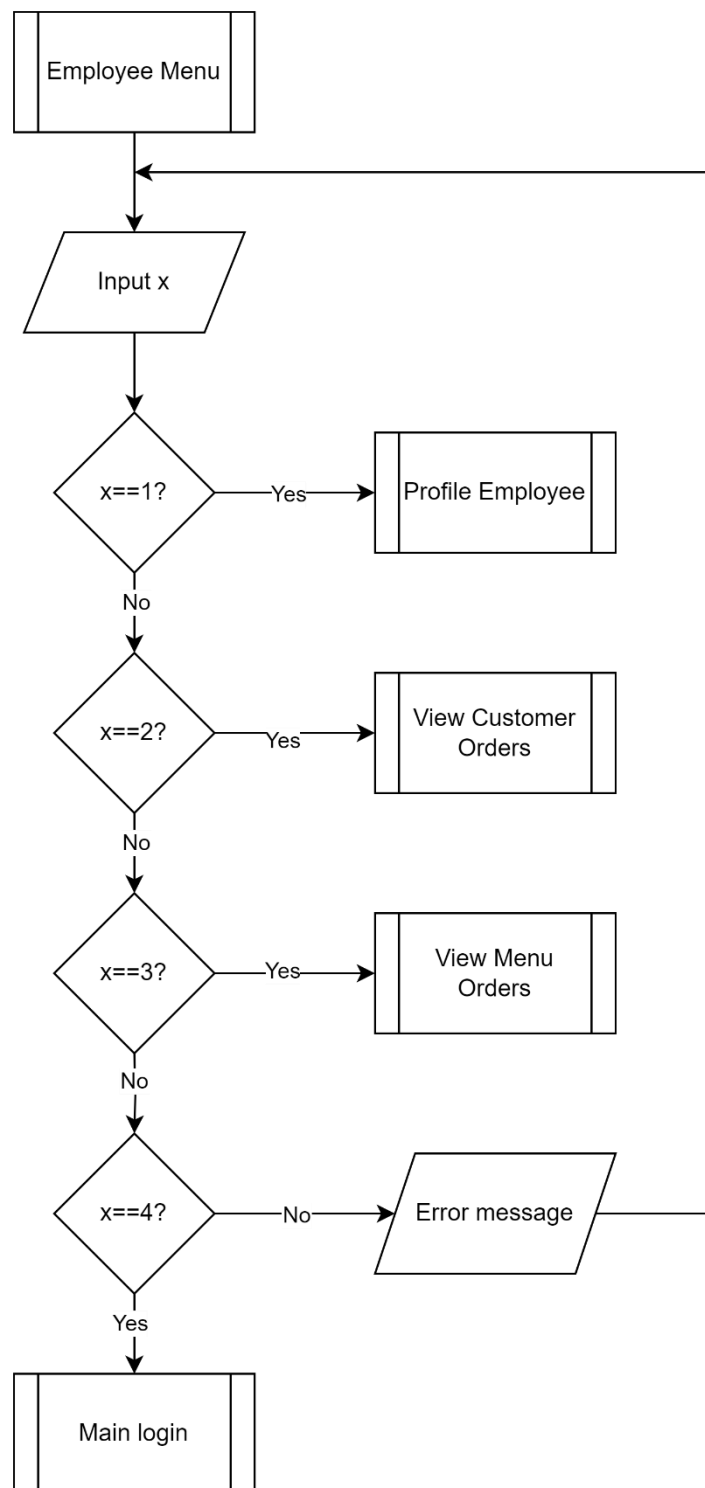
Login and Place Order Menu

**Figure 3.8 Login And Place Order Menu**

Customer Payment Menu

**Figure 3.9 Customer Menu**

Employee Menu

**Figure 3.10 Employee Menu**

3.2 ERD

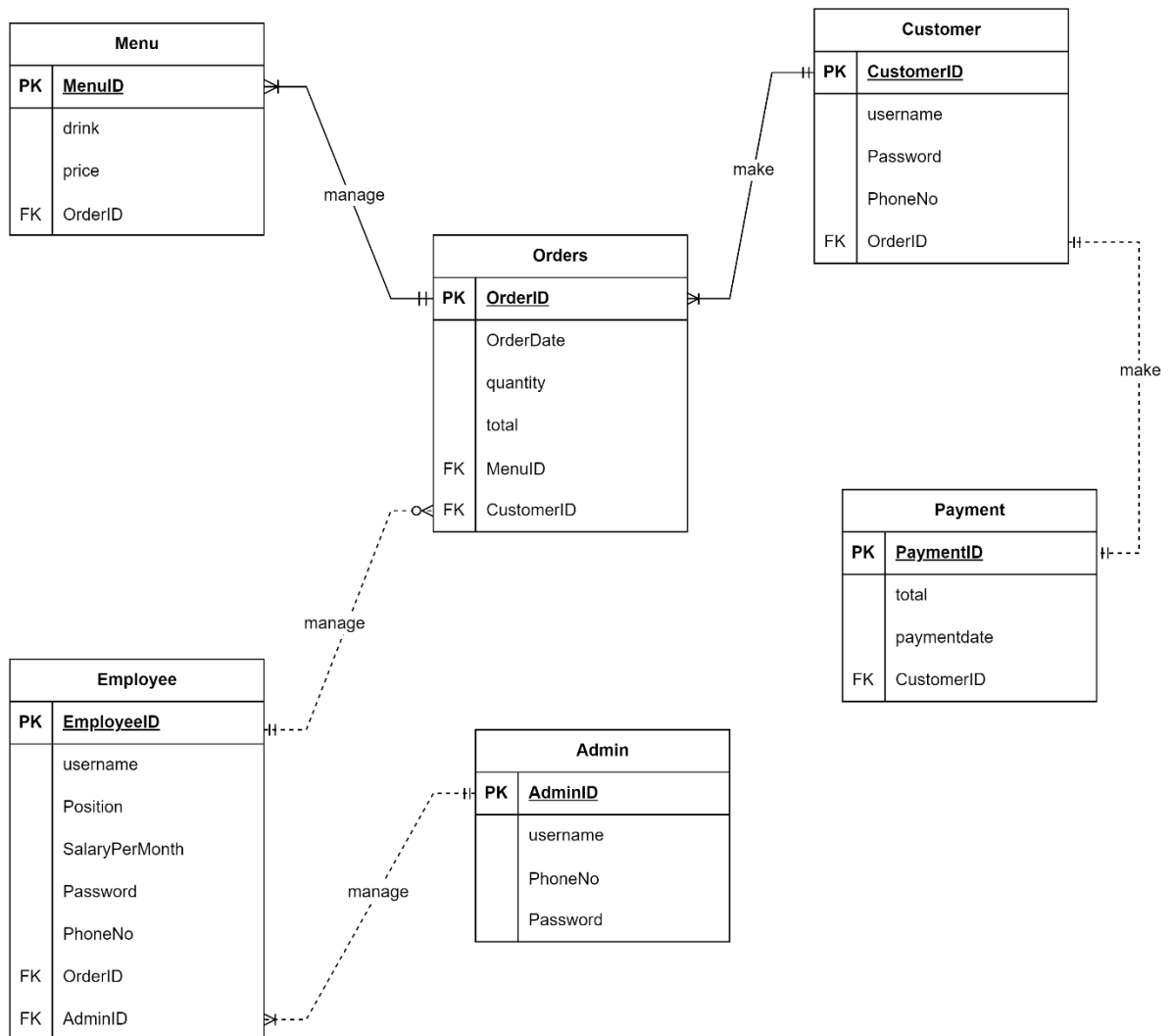


Figure 3.11 Entity Relationship Diagram

3.3 Data Dictionary

Table 3.1 Admin

Attribute Name	Contents	Data Type and Size	Format	Not Null	Unique	PK or FK	FK References Table
AdminID	Admin ID	int (11)	auto_increment		Yes	PK	
username	Admin Name	varchar(50)		Yes			
PhoneNo	Admin Phone Number	varchar(50)		Yes			
Password	Admin Password	varchar(50)		Yes			

Table 3.2 Employee

Attribute Name	Contents	Data Type and Size	Format	Not Null	Unique	PK or FK	FK References Table
EmployeeID	Employee ID	Int (11)	auto_increment		Yes	PK	
username	Employee Name	varchar (50)		Yes			
Position	Employee Position	varchar (20)		Yes			
SalaryPerMonth	Employee Salary Per Month	Decimal (10, 2)		Yes			
Password	Employee Password	varchar (50)		Yes			
PhoneNo	Employee Phone No	varchar (50)		Yes			
OrderID	Order ID	int (11)			Yes	FK	orders
AdminID	Admin ID	int (11)			Yes	FK	admin

Table 3.3 Customer

Attribute Name	Contents	Data Typeand Size	Format	Not Null	Unique	PK or FK	FK References Table
CustomerID	Customer ID	int(11)	auto_increment		Yes	PK	
username	Customer Name	varchar (50)		Yes			
PhoneNo	Customer Phone Number	varchar (50)		Yes			
Password	Customer Password	varchar (50)		Yes			
OrderID	Order ID	varchar (50)			Yes	FK	orders

Table 3.4 Orders

Attribute Name	Contents	Data Typeand Size	Format	Not Null	Unique	PK or FK	FK References Table
OrderID	Order ID	int (11)	auto_increment		Yes	PK	
OrderDate	Order Date	date		Yes			
quantity	quantity	int (11)		Yes			
total	Total Price	Decimal (10,2)		Yes			
MenuID	Menu ID	int (11)			Yes	FK	Menu
CustomerID	Customer ID	int (11)			Yes	FK	Customer

Table 3.5 Menu

Attribute Name	Contents	Data Type and Size	Format	Not Null	Unique	PK or FK	FK References Table
MenuID	Menu ID	int (11)	auto_increment		Yes	PK	
drink	Drink Name	varchar (100)		Yes			
price	Menu Price	decimal (10, 2)		Yes			
OrderID	Order ID	int (11)			Yes	FK	orders

Table 3.6 Payment

Attribute Name	Contents	Data Type and Size	Format	Not Null	Unique	PK or FK	FK References Table
PaymentID	Payment ID	int (11)	auto_increment		Yes	PK	
total	total	Decimal (10,2)		Yes			
paymentdate	payment date	date		Yes			
CustomerID	Customer ID	int (11)			Yes	FK	customer

3.4 Interface Design

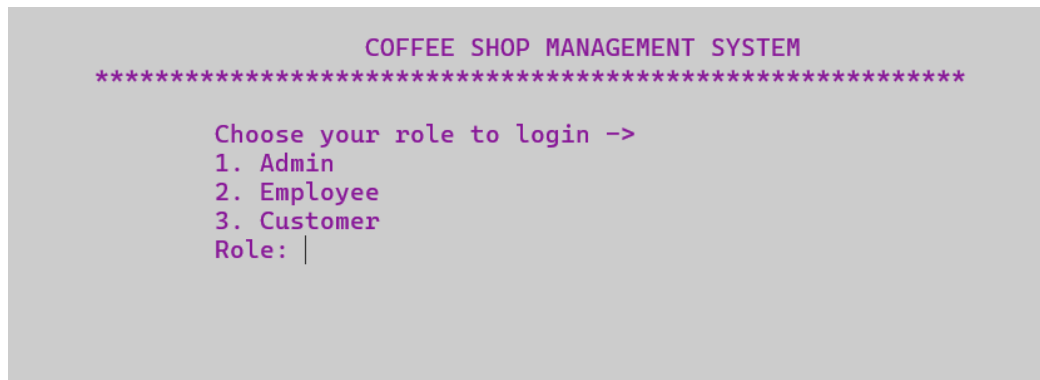


Figure 3.12 Main Login Menu

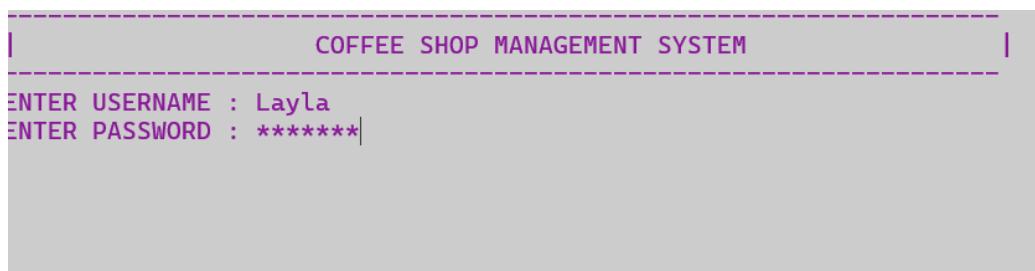


Figure 3.13 Login Admin

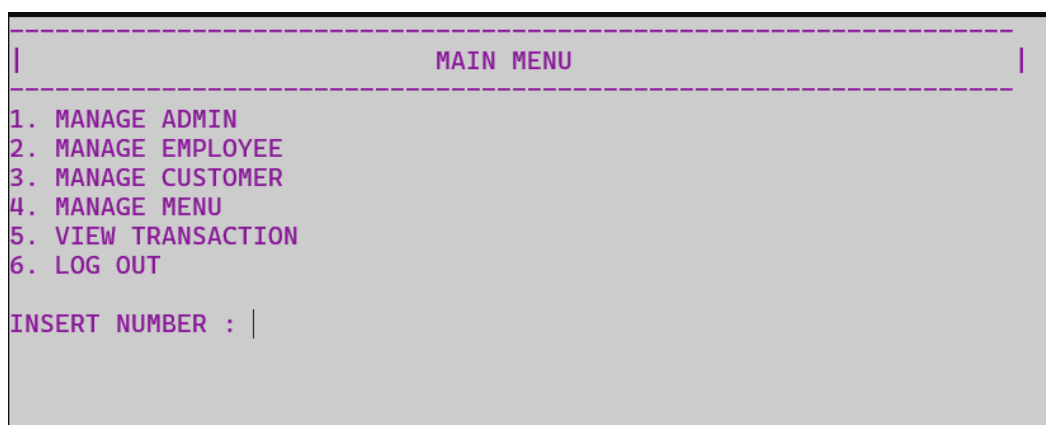


Figure 3.14 Admin Menu

```
|-----|
|                                     |
|                                     |
|-----|
| 1. PROFILE ADMIN                   |
| 2. REGISTER ADMIN                 |
| 3. UPDATE ADMIN                   |
| 4. DELETE ADMIN                   |
| 5. LIST ADMIN                     |
| 6. BACK                           |
|                                     |
| INSERT NUMBER : |
```

Figure 3.15 Manage Admin Details Menu

```
|-----|
|                                     |
|-----|
| ADMIN                             |
|-----|
| Insert Username : Layla           |
|                                     |
| Admin ID: 1                       |
| Username: Layla                   |
| PhoneNo: 0199593729              |
| Press 'E' to return to MANAGE ADMIN MENU: |
```

Figure 3.16 Profile Admin Menu

```
|-----|
|                                     |
|-----|
| ADMIN REGISTRATION                 |
|-----|
| Admin Username : Ahmad            |
| PhoneNo : 0182938574              |
| Password : adminpass1             |
|                                     |
| Successfully added to database.    |
| Press 'E' to return to MANAGE ADMIN MENU: |
```

Figure 3.17 Register Admin Menu

```
| UPDATE ADMIN
-----
Insert Admin Username : Layla

Username : Layla

1. USERNAME.
2. PASSWORD
3. BACK

CHOOSE OPTION (1-3) : 1
-----
USERNAME.: Alisha
Update Successful!
Do you want to update anything else? (Y/N): y
1. USERNAME.
2. PASSWORD
3. BACK

CHOOSE OPTION (1-3) : |
```

Figure 3.18 Update Admin Menu

```
| DELETE ADMIN
-----
Insert Username : Alisha

Admin ID: 1
Username: Alisha
PhoneNo: 0199593729
Delete Successful!
-----
Press 'E' to return to MANAGE ADMIN MENU: |
```

Figure 3.19 Delete Admin Menu

LIST OF ADMINS		
Admin ID	Username	PhoneNo
2	Syaf	017362718
5	Ahmad	0182938574
Press 'E' to return to MANAGE ADMIN MENU :		

Figure 3.20 List Admin Menu

MANAGE EMPLOYEE	
1. REGISTER EMPLOYEE	
2. UPDATE EMPLOYEE	
3. DELETE EMPLOYEE	
4. LIST EMPLOYEE	
5. BACK	
INSERT NUMBER :	

Figure 3.21 Manage Employee Menu

```
|-----|
|                               EMPLOYEE  REGISTRATION                               |
|-----|
Employee Username : Aminah
Position. : barista
SalaryPerMonth : 1500
Password : emp123
Phone No. : 0197872622

Successfully added to database.
Press 'E' to return to MANAGE EMPLOYEE MENU: |
```

Figure 3.22 Register Employee Menu

```
|-----|
|                               UPDATE EMPLOYEE                               |
|-----|
Insert Employee Username : Aminah

Name : Aminah
Position : barista
SalaryPerMonth : 1500.00
Phone No. : 0197872622

1. NAME.
2. POSITION.
3. SALARYPERMONTH.
4. PHONE NO.
5. PASSWORD
6. BACK

CHOOSE OPTION (1-6) : 1
|-----|
NAME.: Sarah
Update Successful!
Do you want to update anything else? (Y/N): y
```

Figure 3.23 Update Employee Menu


```

|-----|
|                                     DELETE EMPLOYEE                                     |
|-----|
Insert Employee Username : Ali

Username : Ali
Position : barista
SalaryPerMonth : 2000.00
Phone No : 018261282
Delete Successful!
|-----|
Press 'E' to return MANAGE EMPLOYEE MENU: |

```

Figure 3.24 Delete Employee Menu

```

|-----|
|                                     LIST EMPLOYEE                                     |
|-----|
EmployeeID      username      Position      SalaryPerMonth      PhoneNo
      2             Abu        cashier         1500.00           019726263
      4             Sarah       barista         1500.00           0197872622
Press 'E' to return to MANAGE EMPLOYEE MENU: |

```

Figure 3.25 List Employee Menu

```

|-----|
|                                     MANAGE CUSTOMER                                    |
|-----|
1. PROFILE CUSTOMER
2. LIST CUSTOMER
3. DELETE CUSTOMER
4. BACK

INSERT NUMBER : |

```

Figure 3.26 Manage Customer Menu

```
|-----|
|                                CUSTOMER                                |
|-----|
Insert Customer Username : Teah

Customer ID : 1
username : Teah
Phone No. : 0199590828
Press 'E' to return to MANAGE CUSTOMER MENU: |
```

Figure 3.27 Profile Customer Menu

```
|-----|
|                                LIST CUSTOMER                            |
|-----|
CustomerID      username      PhoneNo
      1           Teah         0199590828
      2           haziq        019626171

Press 'E to return to MANAGE CUSTOMER MENU: |
```

Figure 3.28 List Customer Menu

```
|-----|
|                                DELETE CUSTOMER                          |
|-----|
Insert Customer Username : Haziq

Username : haziq
Phone No. : 019626171
Delete Successful!

Press 'E' to return to MANAGE CUSTOMER MENU: |
```

Figure 3.29 Delete Customer Menu

```
| DRINK MENU
|
1. ADD DRINK
2. UPDATE DRINK
3. DELETE DRINK
4. VIEW DRINK
5. BACK
INSERT NUMBER : |
```

Figure 3.30 Manage Menu Drink

```
| ADD MENU
|
Drink :Chocolate Frappe
Price : 10

Successfully added to the database.
Press 'E' to return to MANAGE MENU: |
```

Figure 3.31 Add Drink Menu

```

|-----|
|                                     |
|                                     |
|-----|
Current Menu:
Menu ID      Drink      Price
101          Espresso   3.50
102          Latte      4.00
103          Cappuccino  4.50
104          Americano  3.00
105          Mocha      4.75
106          Macchiato   5.00
107          Flat White  3.75
108          Cold Brew   4.25
109          Iced Latte  4.75
110          Chai Latte  3.50
111          Chocolate Frappe 10.00
|-----|

Choose the Menu ID to update: 107

Drink : Flat White
Price : 3.75

1. DRINK
2. PRICE
3. BACK

CHOOSE OPTION (1-3) : 1
|-----|
DRINK: Iced Coffee

```

Figure 3.32 Update Drink Menu

```

|-----|
|                                     |
|-----|
Menu ID      Drink      Price
101          Espresso   3.50
102          Latte      4.00
103          Cappuccino  4.50
104          Americano  3.00
105          Mocha      4.75
106          Macchiato   5.00
107          Iced Coffee  7.00
108          Cold Brew   4.25
109          Iced Latte  4.75
110          Chai Latte  3.50
111          Chocolate Frappe 10.00
Insert Menu ID to delete: 111
Delete Successful!
|-----|
Press 'E' to return to MANAGE MENU: |

```

Figure 3.33 Delete Drink Menu

VIEW MENU		
Menu ID	Drink	Price
101	Espresso	3.50
102	Latte	4.00
103	Cappuccino	4.50
104	Americano	3.00
105	Mocha	4.75
106	Macchiato	5.00
107	Iced Coffee	7.00
108	Cold Brew	4.25
109	Iced Latte	4.75
110	Chai Latte	3.50

Press 'E' to return to MANAGE MENU: |

Figure 3.34 View Drink Menu

PAYMENT DETAILS			
PaymentID	CustomerID	total	paymentdate
19	1	7.00	2024-06-20
20	1	7.50	2024-06-20
22	1	7.00	2024-06-20

Press 'E' to return to MAIN MENU: |

Figure 3.35 View Payment Details Menu

COFFEE SHOP MANAGEMENT SYSTEM	
ENTER USERNAME :	Abu
ENTER PASSWORD :	*****

Figure 3.36 Employee Login Menu

```
|-----|  
|                EMPLOYEE MENU                |  
|-----|  
1. View Employee Profile  
2. View Customer Orders  
3. Logout  
|-----|  
Choose an option: |
```

Figure 3.37 Employee Menu

```
|-----|  
|                PROFILE EMPLOYEE              |  
|-----|  
Insert Employee Username : Abu  
  
Employee ID: 2  
Name : Abu  
Position : cashier  
SalaryPerMonth : 1500.00  
Phone No. : 019726263  
Press 'E' to return to EMPLOYEE MENU: |
```

Figure 3.38 Profile Employee Menu

CUSTOMERS ORDERS					
OrderID	MenuID	quantity	Total	OrderDate	CustomerID
26	101	2024-06-20	2	7.00	1
27	110	2024-06-20	2	7.00	1
30	101	2024-06-20	1	3.50	1
31	102	2024-06-20	1	4.00	1
32	109	2024-06-20	1	4.75	1
33	110	2024-06-20	1	3.50	1
34	108	2024-06-20	1	4.25	1
36	101	2024-06-20	2	7.00	1
37	109	2024-06-20	2	9.50	1
38	108	2024-06-20	2	8.50	1

Press 'E to return to EMPLOYEE MENU: |

Figure 3.39 View Customer Orders Menu

CUSTOMER MENU	
1. REGISTER CUSTOMER 2. LOGIN & PLACE ORDER 3. UPDATE CUSTOMER 4. BACK	
INSERT NUMBER :	

Figure 3.40 Customer Menu

CUSTOMER REGISTRATION	
Customer Username : Emma Password : cust123 Phone No : 0177282617 Successfully added in database. Press 'E' to return CUSTOMER MENU:	

Figure 3.41 Register Customer Menu

VIEW MENU		
Menu ID	Drink	Price
101	Espresso	3.50
102	Latte	4.00
103	Cappuccino	4.50
104	Americano	3.00
105	Mocha	4.75
106	Macchiato	5.00
107	Iced Coffee	7.00
108	Cold Brew	4.25
109	Iced Latte	4.75
110	Chai Latte	3.50

Enter the ID of the item you want to add to the cart: |

Figure 3.42 View Menu Drink as Customer

```

Item added to the cart successfully!
Do you want to add more items to the cart? (1/0): 0

-----CART ITEM DETAILS-----
Menu ID: 101
Drink Item: Espresso
Price: RM 3.5
Quantity: 1
Total Price: RM 3.5
Enter the customer username: Emma

Order Placed Successfully!
Total Price: RM 3.5
Press any key to continue . . . |

```

Figure 3.43 Place Order Menu


```
-----
SELECT YOUR PAYMENT TYPE
-----

=====
[1] ONLINE BANKING

[2] CARD

=====
Please Enter Your Choice (1/2): 1

Enter your Bank Name: Bank Islam

Enter your Bank Account: 12345678|
```

Figure 3.44 Customer Payment Menu

```
----- RECEIPT -----

Username:          Emma
CustomerID:        31
Total Payment:     RM 3.5

-----

YOUR PAYMENT IS SUCCESSFUL!!!
[1] Order again
[2] Back to Menu

Please Enter Your Choice (1/2): |
```

Figure 3.45 Payment Receipt

UPDATE CUSTOMER	
Enter your Username : Emma Enter your Password : cust123 Authentication successful!	
Username : Emma Phone No. : 0177282617	
1. USERNAME 2. PHONE NO. 3. PASSWORD 4. BACK	
CHOOSE OPTION (1-4) : 1	
USERNAME: Lily Update Successful! Do you want to update anything else? (Y/N): y	

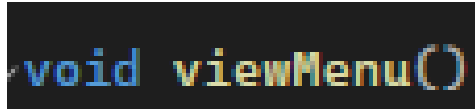
Figure 3.46 Update Customer Menu

CHAPTER 4: IMPLEMENTATION

4.1 Naming Convention

In the provided code, the following naming conventions are used:

1. Function:



```
void viewMenu()
```

Figure 4.1 Naming Convention

CamelCase with a lowercase starting letter, representing a function to display the menu.

2. Variables:

- choose: Lowercase, representing a character for user choice.
- qstate: Lowercase, representing a variable related to the state of a MySQL query.
- conn: Lowercase, representing a variable related to a MySQL connection.
- res: Lowercase, representing a variable for storing MySQL query results.
- row: Lowercase, representing a variable for storing a row of MySQL query result.

3. Constants/Strings:

- Strings like "select * from menu": All uppercase with underscores separating words.

4.2 Function

```
//MANAGE MENU
void manageAdminMenu(); //DONE
void manageEmployeeMenu(); //DONE
void manageCustomerMenu(); //DONE
void manageMenu(); //DONE
```

Figure 4.2 Function

The function displays a menu with options for managing admins, employees, and customers, as well as an option to exit. It prompts the user to enter a choice corresponding to the menu options. A switch statement is used to handle the user's choice. This structure allows for a clear and organized way to navigate through different management tasks within the system, making it easy for the administrative user to manage various aspects of the application.

4.3 Selection

```
if (option == 1) {
    placeorder();
    // Loop will continue, allowing the user to make a
    continue;
}
else if (option == 2) {
    // Call your customerMenu function here
    customerMenu();
    break;
}
else {
    cout << "Invalid choice. Please select a valid opt
    continue;
}
```

Figure 4.3 Selection

The given code snippet represents a selection of programming techniques known as conditional branching or decision-making. It utilizes an "if-else" structure to determine the course of action based on the value of the variable "choice":

4.4 Control

```
int cartChoice;
do {
    // Input order details
    cout << endl;
    cout << "\n";
    cout << "Enter the ID of the item you want to add to the cart: ";
    cin >> MenuID;
    cout << "Enter the quantity: ";
    cin >> quantity;

    // Add item to cart
    CartItem cartItem = { MenuID, quantity };
    cart.push_back(cartItem);

    cout << "\nItem added to the cart successfully!" << endl;

    // Ask if the customer wants to add more items to the cart
    cout << "\nDo you want to add more items to the cart? (1 for yes, 0 for no): ";
    cin >> cartChoice;
} while (cartChoice == 1);
```

Figure 4.4 Control

The provided code contains control flow structures, including loops and conditional statements. Here's an overview of the control flow in the **placeorder()** functions:

placeorder() Function:

do-while Loop:

- A do-while loop is used to allow the user to input multiple items into the cart.
- The loop continues as long as **cartChoice** is equal to 1.

4.5 Pointer

Pointer is mean pointing variable for example as below.

```
string retrieve_menu_query = "SELECT * FROM menu WHERE MenuID = '" + cartItem.MenuID + "'";
const char* q = retrieve_menu_query.c_str();
qstate = mysql_query(conn, q);
```

Figure 4.5 Pointer

As we can see 'const char' is datatype and it point using asterisk symbol (*) to 'q' letter as variable. And we can see that 'q' is assigned to take the place for 'const char'. Pointer is useful for simple the long words in code.

4.6 Error Handling

This is the ERROR HANDLING about the login system where user entered the wrong password it will prompt attempt either to try again or no after that it will exit the system. This also consist function login(). In this case, we use if-else statement to differentiate the legit password and wrong password between console and system. IF the users entered true password, then it will pass to next step, ELSE it will return to the attempts.

```
string checkUser_query = "SELECT CustomerID from customer where username='" + username + "' AND Password = '" + Password + "'";
const char* cu = checkUser_query.c_str();
qstate = mysql_query(conn, cu);

if (!qstate)
{
    res = mysql_store_result(conn);
    if (res->row_count == 1)
    {
        while (row = mysql_fetch_row(res))
        {
            username = row[0];
            placeorder();
        }
    }
    else
    {
        char c;
        cout << "\nInvalid username or password. Want to try again? (y/n): ";
        cin >> c;
        if (c == 'y' || c == 'Y')
            loginCustomer();
        else
            logout();
    }
}
else
    cout << " Query Execution Problem!" << mysql_errno(conn) << endl;
```

Figure 4.6 Error Handling

CHAPTER 5: CONCLUSION

5.1 Constraints

There are some constraints in the system which is the customer and shop need an active internet connection and shop must have a server to make the database work more efficient. Besides, the password is not secured which is password are not include the special character, upper case and lower case.

5.2 Future Improvements

There is some suggestion that can be done in this system. Firstly, it would be better if the system can calculate total order for specific that prepared the order will be collected if the customer had already paid for the services. Second suggestion is that Coffee Shop Management System have a better interface design which is more user-friendly approach. This system is only a demo version where it still in the development phase. Next, this system can be improved by providing a print section so that each customer can have a copy of the order and the total amount along with a receipt complete payment.

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