

**CAFE MANAGEMENT SYSTEM
FOR GULUZ CAFE**

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in partial fulfillment of the requirements for the degree of
Bachelor of Information Management

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STUDENT DECLARATION

This is to certify that I have completed the Summer Project entitled “Cafe Management System” under the guidance of “Mr. Teksan Gharti Magar” in partial fulfillment of the requirements for the degree of **Bachelor of Information Management** at Faculty of Management, Tribhuvan University. This is my original work and I have not submitted it earlier elsewhere.

Date: June, 2024

Signature:

Name: Jubisha Prajapati

CERTIFICATE FROM THE SUPERVISOR

This is to certify that the summer project entitled “Cafe Management System” for “Guluz Cafe” is an academic work done by “Jubisha Prajapati” submitted in the partial fulfillment of the requirements for the degree of **Bachelor of Information Management** at Faculty of Management, Tribhuvan University under my guidance and supervision. To the best of my knowledge, the information presented by her in the summer project report has not been submitted earlier.

Signature of the supervisor

Name: Mr. Teksan Gharti Magar

Designation: Supervisor

Date: June, 2024

ACKNOWLEDGEMENT

It is my proud privilege to release the feelings of my gratitude to several people who helped me directly or indirectly to complete this summer project. I would like to extend my heartfelt gratitude to my project supervisor “Mr. Teksan Gharti Magar” for his constant support and guidance throughout the course of this project. His insightful feedback and valuable suggestions were crucial in shaping the structure and content of the project.

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Lastly, I would like to thank my family for their support and encouragement throughout the project process. Their encouragement and belief in my abilities have been a source of motivation and inspiration. I am also grateful to my friends whose valuable feedback helped me to enhance the quality of the report. The outcome and success of this project required a lot of guidance and assistance from many people, and I am extremely fortunate to have got this all through the completion of my project.

Jubisha Prajapati

EXECUTIVE SUMMARY

“Cafe Management System”, a desktop- based application designed for cafe owners encompasses a range of features which aims to optimize cafe operations and streamline the processes for “Guluz Cafe”, a small cafe located in Chhauni, Nepal. This project aims to gain knowledge about how the cafe is currently operating the various activities and how the same activity can be done efficiently using the system. The Cafe Management System functions as a comprehensive system by providing user-friendly interface for owners to manage billing, employee details, customers details, provide a systematic approach to registering food items ordered by the customers and gain insightful sales reporting.

The methodology and procedures followed in the development of this project involved a comprehensive data collection process. Data was gathered through personal interviews, observations, and internet research. With the help of these methods, the collected information provided insights into problems and helped to develop an overall system. Since the cafe’s inspection, it has been primarily operating using manual methods, which have led to various operational hurdles.

To address the multifaceted challenges faced by cafe owners, this project is focused on achieving a set of specific objectives which is by introducing a robust Java-based application. The primary objective is to develop a centralized system that effectively manages the cafe-related operations. To meet those objectives, functional and non-functional requirements were analyzed. Similarly, feasibility studies were conducted, and system testing was done. Moreover, different graphical and visual representations like ER diagram, activity diagram, class diagram, sequence diagram were employed to facilitate the integration of this project.

In conclusion, this report summarized the findings and proposes recommendations to enhance the system for better user compatibility. The Cafe Management System, developed for Guluz Cafe, represents an innovative and comprehensive solution designed to transform the operational landscape of the cafe. By automating order management, billing processes, and record-keeping, it enhances efficiency and reduces errors, aligning with the cafe’s mission.

TABLE OF CONTENTS

<i>TITLE PAGE</i>	<i>i</i>
<i>STUDENT DECLARATION</i>	<i>ii</i>
<i>CERTIFICATE FROM THE SUPERVISOR</i>	<i>iii</i>
<i>ACKNOWLEDGEMENT</i>	<i>iv</i>
<i>EXECUTIVE SUMMARY</i>	<i>v</i>
<i>TABLE OF CONTENTS</i>	<i>vi</i>
<i>LIST OF FIGURES</i>	<i>viii</i>
<i>LIST OF TABLES</i>	<i>ix</i>
<i>ABBREVIATIONS</i>	<i>x</i>
CHAPTER I: INTRODUCTION	1
1.1 Background	1
1.2 Introduction to Organization	1
1.3 Current Situation of the Organization	1
1.4 Problem identification	1
1.5 Objectives	1
1.6 Methodology	2
1.6.1 Project Framework	2
1.6.2 Data and information	2
1.6.3 Tools Used	3
CHAPTER II: TASK AND ACTIVITIES PERFORMED	4
2.1 Analysis of tasks, activities, problems, and issues	4
2.1.1 Analysis of Tasks	4
2.1.3 Analysis of Problems	4
2.2 Analysis of Possible Solution	4
2.3 Requirement Analysis	4
2.3.1 Functional Requirement	4
2.3.2 Non-functional Requirement	6
2.4 Feasibility Study	7
2.4.1 Technical Feasibility	7
2.4.2 Economic Feasibility	7
2.4.3 Operational Feasibility	7
2.4.4 Schedule Feasibility	7
2.5 System Design and Development	8

2.5.1 Class Diagram	9
2.5. Entity-Relationship Diagram.....	10
2.5.3 Activity Diagram.....	11
2.5.4 Sequence Diagram.....	12
2.5.5 System Architecture	13
2.7 System Implementation.....	14
2.7.1 Development Methodology.....	14
2.7.2 Module Description.....	15
2.8 System Testing	16
2.9 Findings.....	25
CHAPTER III: DISCUSSION AND CONCLUSIONS	26
3.1 Discussion	26
3.2 Conclusion.....	26
3.3 Recommendations	26
REFERENCES	27
APPENDICES	a

LIST OF FIGURES

Figure 2.1: Use Case Diagram	5
Figure 2.2: Gantt Chart.....	8
Figure 2.3: Class Diagram.....	9
Figure 2.4: ER Diagram	10
Figure 2.5: Activity Diagram	11
Figure 2.6: Sequence Diagram	12
Figure 2.7: System Architecture.....	13
Figure 2.8: Waterfall model	15

LIST OF TABLES

Table 2.1: Use Case Diagram Description	6
Table 2.2: Gantt Chart Description	8
Table 2.3: Class Diagram Description	9
Table 2.4: ER Diagram Description	10
Table 2.5: Activity Diagram Description	11
Table 2.6: Sequence Diagram Description.....	13
Table 2.7: System Architecture Description	13
Table 2.8: Test case of Login Description	17
Table 2.9: Test case of Login	17
Table 2.10: Test Case Change Password Description.....	18
Table 2.11: Test case of Change Password	19
Table 2.12: Test Case Customer Module Description.....	21
Table 2.13: Test case of Customer Module.....	21
Table 2.14: Test Case Employee Module Description	22
Table 2.15: Test case of Employee Module	23
Table 2.16: Test Case Reports Module Description.....	24
Table 2.17: Test case of Reports Module	25

ABBREVIATIONS

BIM	Bachelor of Information Management
ERD	Entity Relationship Diagram
GUI	Graphical User Interface
IDE	Integrated Development Environment
JDBC	Java Database Connectivity
MySQL	My Structured Query Language
SDLC	Software Development Life Cycle
UI	User Interface
UML	Unified Modeling Language
UNIX	Uniplexed Information Computing System
XAMPP	Cross-Platform, Apache, MySQL, PHP and Perl

CHAPTER I: INTRODUCTION

1.1 Background

This report is a research-based documentation on the topic “Cafe Management System”. Cafe Management System is a desktop application designed to enable the efficient management of the cafe. This system is equipped with functionality that allows for the monitoring and tracking of sales transactions, invoice capabilities, and maintenance of regular customer and employee’s information. Cafe Management System provides a user-friendly interface for managing food orders and billing features. This system is developed to set up a detailed summary of orders placed with details of the order, credit sales and billing system.

1.2 Introduction to Organization

Guluz Cafe is a small cafe located at Chhauni Hospital Marg, Chhauni-15, Kathmandu, Nepal. It is a charming establishment born out of the passion for food and hospitality and a dream shared by two friends, ‘Bishal Prajapati’ and ‘Shreejal Shrestha’. Established in the year 2023, this cozy cafe is more than just a place to try a variety of delicious food but it's a hub for fostering connections, creativity, and spending quality time with friends and family. At present, Guluz cafe accommodates a total of four staffs. One chef, two waiters and one cleaner. Guluz cafe provides a comprehensive list of services to its valued customers including dine-in services, delivery services and takeaway services. The cafe’s main aim is to provide hygienic food items and a hub for individuals seeking a cozy environment to socialize, work, or simply unwind.

1.3 Current Situation of the Organization

At present, Guluz Cafe relies on the use of Excel as a means of recording the employees’ and customers’ information. Currently, there is no mechanism for monitoring the aggregate daily sales and storing the debtor’s data which is time consuming and ineffective for the owners to handle all the order history. Moreover, the calculation of the ordered food items is done manually. The issuance of the bill is limited to the customers who explicitly request this document. Hence, due payments and creating bills for payments may therefore require additional resources, such as paper, and may also potentially result in errors.

1.4 Problem identification

The major problems identified in the organization are:

- The lack of a proficient billing system poses a hindrance to effectively monitoring the sales.
- The reliance on manual record- keeping poses a significant risk of losing important information including customer information, sales details, employee details and order history.

1.5 Objectives

The main objectives of the “Cafe Management System” are:

- To provide a desktop-based software system for managing orders and bills.
- To provide easy access to customer management, employee management and sales reports.

1.6 Methodology

There are various methods and procedures which have been used to obtain the required information about the organization and its problems. Qualitative methods have been used to collect the data and to understand concepts.

1.6.1 Project Framework

The overall project is divided into three segments. They are:

- a) Introduction
- b) Analysis of Tasks and activities performed
- c) Discussion and conclusion

a. Introduction

The first section “Introduction” consists of the concise overview of the organization and its present circumstances. This segment provides insights into the challenges confronting the organization and the software solutions that can be employed to address these issues. This section presents not only the objective of the report but also the related issues as well as the tools and techniques employed in the creation of the project.

b. Analysis of the tasks and activities performed

The second section “Tasks and Activities” consists of a comprehensive account of all analytical procedures executed. The data and information collected are processed and analyzed and given a software solution aimed at solving the issues encountered by the organization.

c. Discussion and Conclusion

The third section “Discussion and Conclusion” consists of the conclusions that have been derived from the overall analysis to fulfill the predetermined objectives. Moreover, the report comprises of recommendations and valuable suggestions to enhance the functionality of the system.

1.6.2 Data and information

The data and information for this report were collected using two methods. They are:

- a) Primary data collection method
- b) Secondary data collection method

a. Primary data collection method

Primary methods of data collection such as interview and observation were used for evaluation and gathering of the required information for the development of the software. The interview was conducted to gather insights directly from owners and employees. Additionally, observation techniques were utilized to observe and analyze user behaviors and workflows.

- **Interview:** The research employed a direct face-to-face interaction interview method to gather the information from the owners and staff of the organization to gain valuable firsthand information and feedback. This involved initiating personal visits to meet the concerned parties and a few inquiries were made about the organization's founding, personnel count, daily operations, etc.

- **Observation:** The activities on the organization's premises were observed and analyzed accordingly to study the working mechanism and to identify the problems. After my careful observation during my visit to the cafe , I encountered that the owners and employees were manually placing orders and making bills.

b. Secondary data collection method

The secondary method of data collection involved data collection from published or unpublished sources. Secondary data collection methods such as media sources were used to gather additional information for the development of the software.

- **Media sources:** Online platforms like Instagram and Facebook helped in gathering more information about the cafe. Relevant information, opinions, and data related to current events, trends, or public sentiment about the cafe were collected from media sources.

1.6.3 Tools Used

The different tools and languages used for the software development are:

- Frontend: Java Swing GUI framework
- Backend: Java
- Database: MySQL
- Server implementation: XAMPP
- IDE: NetBeans
- Diagrams: draw.io
- Report Designing: JasperReports

Java served as the core programming language, providing the backbone for building the project's backend logic. NetBeans has been used to facilitate the coding process, offering a user-friendly platform for project development, testing, and debugging. MySQL, integrated with Java through JDBC, is used for the database management of the system enabling effective data storage and retrieval. JasperReports has been used for the creation of visually appealing reports. Swing, a Java GUI toolkit, has been used to create interactive user interfaces for the project. Similarly, draw.io tool is used for diagramming.

CHAPTER II: TASK AND ACTIVITIES PERFORMED

2.1 Analysis of tasks, activities, problems, and issues

2.1.1 Analysis of Tasks

The purpose of the visit to the organization was to collect requirements. Upon the completion of the requirement gathering, a crucial understanding entailed the systematic partitioning and construction of a functional framework. The visit to the organization facilitated an examination of diverse elements of the organization and provided insights into the difficulties that may be addressed through the implementation of software development.

2.1.3 Analysis of Problems

Root cause problem analysis has been carried out to analyze the problem. While a problem may have multiple effects that manifest as a variety of complications, a root cause analysis focuses on identifying why these issues first occurred (indeed, n.d.).

Employee management with Excel is difficult as the business grows. Monitoring daily sales is challenging due to the inefficient billing system. Moreover, creditors and sales information are manually recorded in a register which could be prone to errors.

2.2 Analysis of Possible Solution

Possible solutions to the known problems of the organization can be as follows:

- To develop a system that keeps records of the customer and their orders.
- To develop a system that has billing features.
- To develop a system capable of storing sales reports and tracking sales credits.

2.3 Requirement Analysis

Requirement analysis for a cafe management system involved gathering and analyzing the needs and objectives of the cafe owners to ensure that the system meets their expectations. This process began with identifying owners and understanding their roles and requirements. Through interviews and observations, key functionalities, and features such as order management and reporting capabilities were identified. Once the requirements were gathered, they were divided into functional and non-functional requirements and documented in a detailed manner, typically using techniques and diagrams such as use case diagram, class, diagram, sequence diagrams etc.

2.3.1 Functional Requirement

The Functional Requirement of the “Cafe Management System” is a description of the services that the software must offer. It describes the software system or its components. It defines who will be allowed to create, modify, search, and delete the data in the system. Functional Requirements are also called Functional Specification (GURU99, 2008).

In this system, the following functional requirements can be specified:

Login: The admin can log in to the system.

Change Password: The admin can change their login password.

Manage Products: The admin can add, delete, update and search product records.

Manage Customers: The admin can add, delete, update and search customer records.

Manage Employees: The admin can add, delete, update and search employee's records.

Manage Bills: The admin can generate, view, and print bills.

View Report: The admin can view the overall sales report and sales graph.

Sales: The admin can view sales and payment status through date, customer name or paid and unpaid status.

Logout: Admin can log out from the system.

2.3.2.1 Use Case Diagram

Use case diagrams is used to identify the interactions between the system and its actors.

The functional requirements are presented through a use case diagram in figure 2.1.

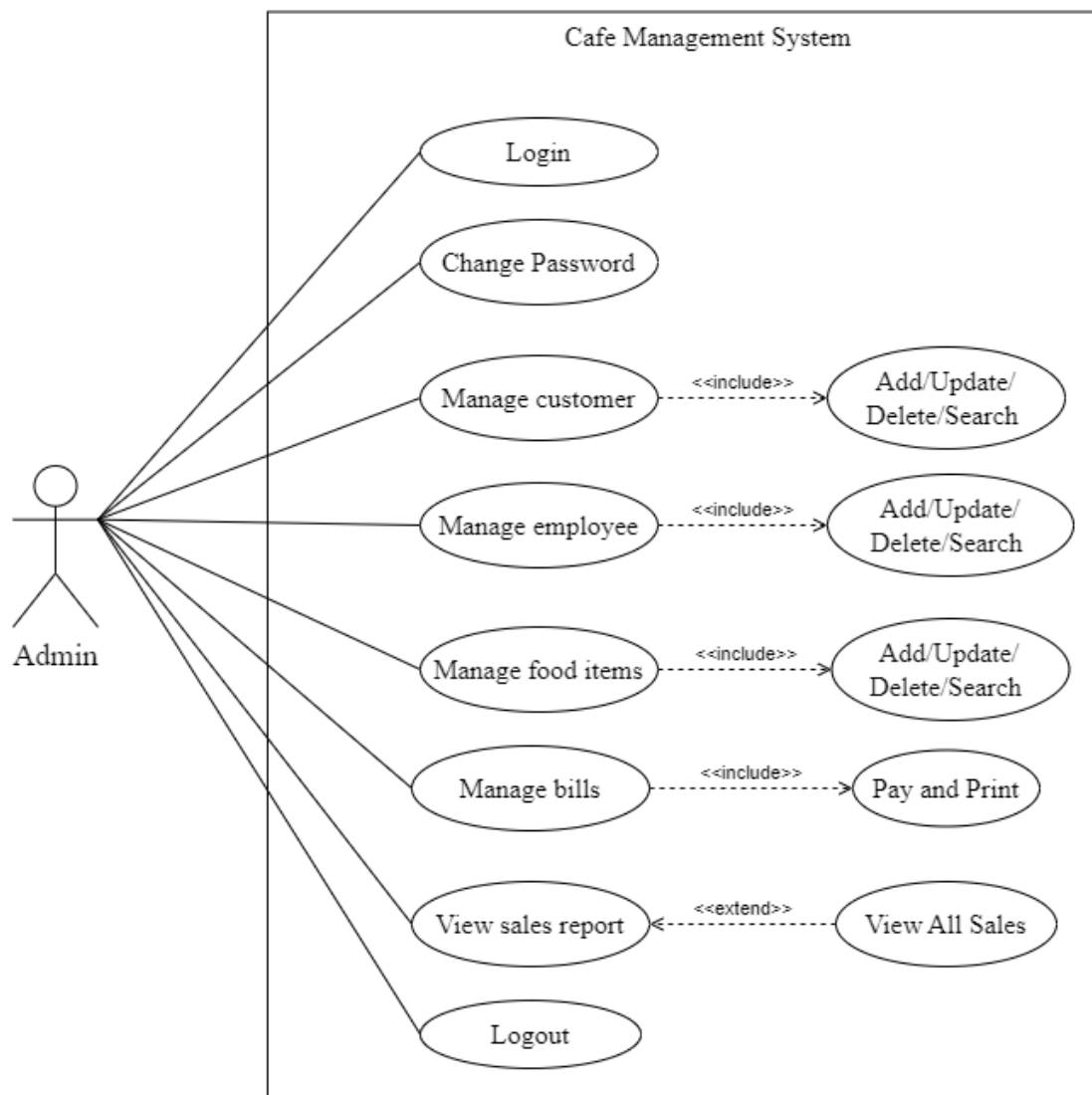


Figure 2.1: Use Case Diagram

Table 2.1: *Use Case Diagram Description*

Actors	Admin
Description	Admin can login to the system with username and password. Admin can manage all the information about customers, products, and employees. Admin can generate, view, and print the bills, Admin can view invoice and sales report.
Data	Data includes customer information, employee information, food items details, order and sales detail.
Stimulus	The command can be issued by the admin.
Response	For the stimulus instance provided above, the system may respond as showing the details.
Comments	Admin needs their respective passwords to have access to the information.

2.3.2 Non-functional Requirement

Non-functional requirements for the “Cafe Management System” encompasses various aspects that contribute to its overall performance, usability, security, and scalability. These requirements dictate the system’s responsiveness, ensuring that tasks such as generating bills and processing orders are completed efficiently to maintain smooth operations in the cafe.

The non- functional requirements of the system are specified below:

Usability: The system is user- friendly and easy to use and understand. A person with limited computer knowledge can easily use this system.

Reliability: The system is available when required and the failure rate of the database is extremely low. The information can only be stored if it is verified by the system and any attempt to store improper data will not be allowed.

Security: The software is secured as only authorized persons can access the system which safeguards sensitive customer and employee details.

Performance: The system operates its intended functions in a small amount of time.

Accuracy: The implementation of features like billing system reduces the likelihood of human errors in data entry and calculation and provides accurate data.

2.4 Feasibility Study

Feasibility study is an important stage of cafe management system as it is the feasibility analysis or the measure of the software product in terms of how much beneficial product development will be for the organization in practical point of view (geeksforgeeks, 2008).

Cafe Management System's feasibility was analyzed from technical, economic, schedule and operational points of view. From a technical perspective, it evaluates the available technology and infrastructure to support the system's implementation. Economic feasibility analyzes the costs involved in developing and maintaining the system compared to the potential benefits, such as revenue generation. Operational feasibility assesses how well the system aligns with the cafe's workflow and processes, considering factors like user acceptance. Finally, scheduling feasibility examines the time and resources required to complete the project within the desired timeframe.

2.4.1 Technical Feasibility

The software is developed using java programming which itself is platform independent. So, this software can run on any platform like Windows, Linux, UNIX, or Mac. Similarly, Cafe management system's technical feasibility is ensured by using modern software development tools and applications such as NetBeans and XAMPP which are easily available. By utilizing these technologies, this system can access for further enhancement of the software and is well-equipped to meet the needs of its users.

2.4.2 Economic Feasibility

Economic feasibility states whether a system is within the financial constraints or not. All the resources that are needed to develop this project were available and no further expenses were required. So, the project is economically feasible. The overall cost to develop this project is very low. Hence, it can be implemented and operated within the constraints of the organization's financial resources and goals.

2.4.3 Operational Feasibility

Operation feasibility is the willingness and ability of the management and users to operate use and support a proposed system. The system working is quite easy to use and learn due to its simple interface. Any person with basic computing knowledge can easily use this system. Hence, the operation is quite feasible.

2.4.4 Schedule Feasibility

Schedule feasibility is the measure of whether a proposed project or system can be completed within the specified time. There was pretty much sufficient time to carry out each activity of this project efficiently and effectively, so this project is feasible to build in terms of schedule. Also, there is a possibility of updating or maintaining this system from time to time without any hassle, under given time constraints.

The Gantt chart of this system is shown in figure 2.2.

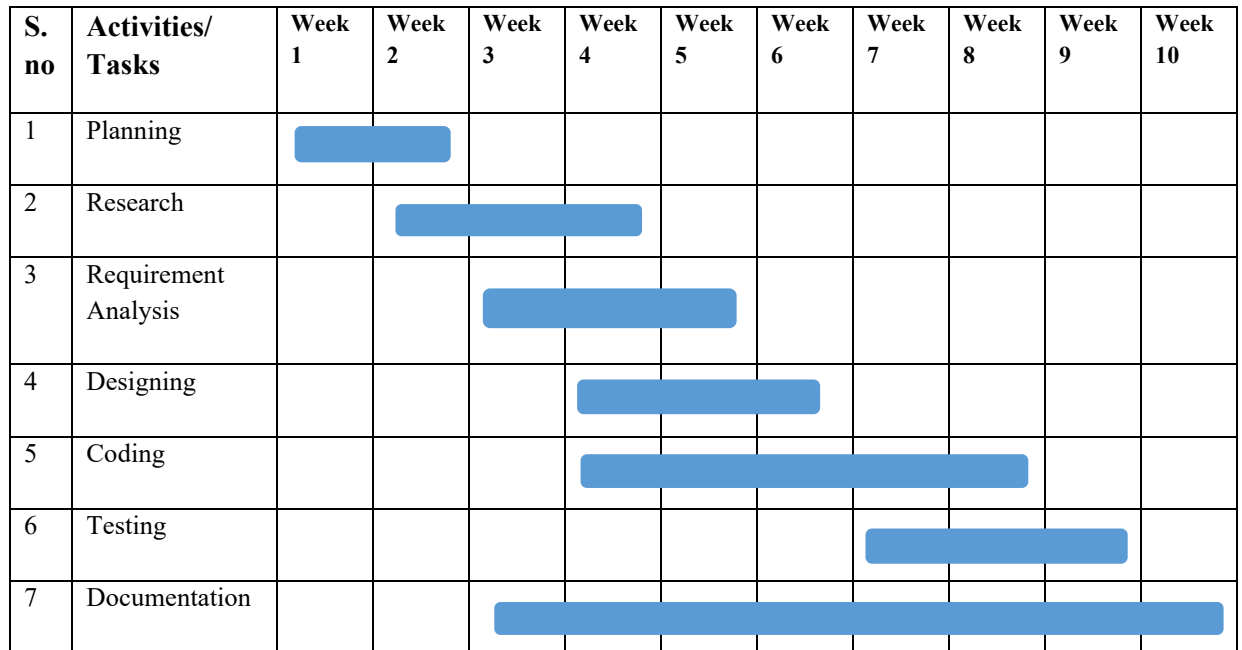


Figure 2.2: Gantt Chart

Table 2.2: Gantt Chart Description

Gantt Chart Description
<p>The figure 2.2 shows a Gantt chart where the project's objectives were planned in weeks 1 and 2, followed by research requirements analysis occurred from weeks 2 to 4, focusing on gathering information, analyzing user needs, and identifying technical specifications. Weeks 4 to 6 were dedicated to designing architectural structures, user interfaces, and database schemas. Coding took place from weeks 4 to 8, followed by testing for bugs and errors from weeks 7 to 9. Weeks 3 to 10 were reserved for documentation, including report writing, consulting with mentors, and making necessary corrections.</p>

2.5 System Design and Development

System design plays a crucial role in the software development process as it serves as the blueprint for building a successful software system. Without a clear design plan, a system may not function as intended, leading to performance issues and downtime. By creating a detailed plan and design, it helped me to minimize risks, reduce development time and costs, and lay the foundation for future enhancements and expansions.

Some of the system models and designs I have prepared for this project are given in the following page:

2.5.1 Class Diagram

Class diagram has been used to represent the structure and relationship of classes in the system. The class diagram of Cafe Management System is shown in figure 2.3.

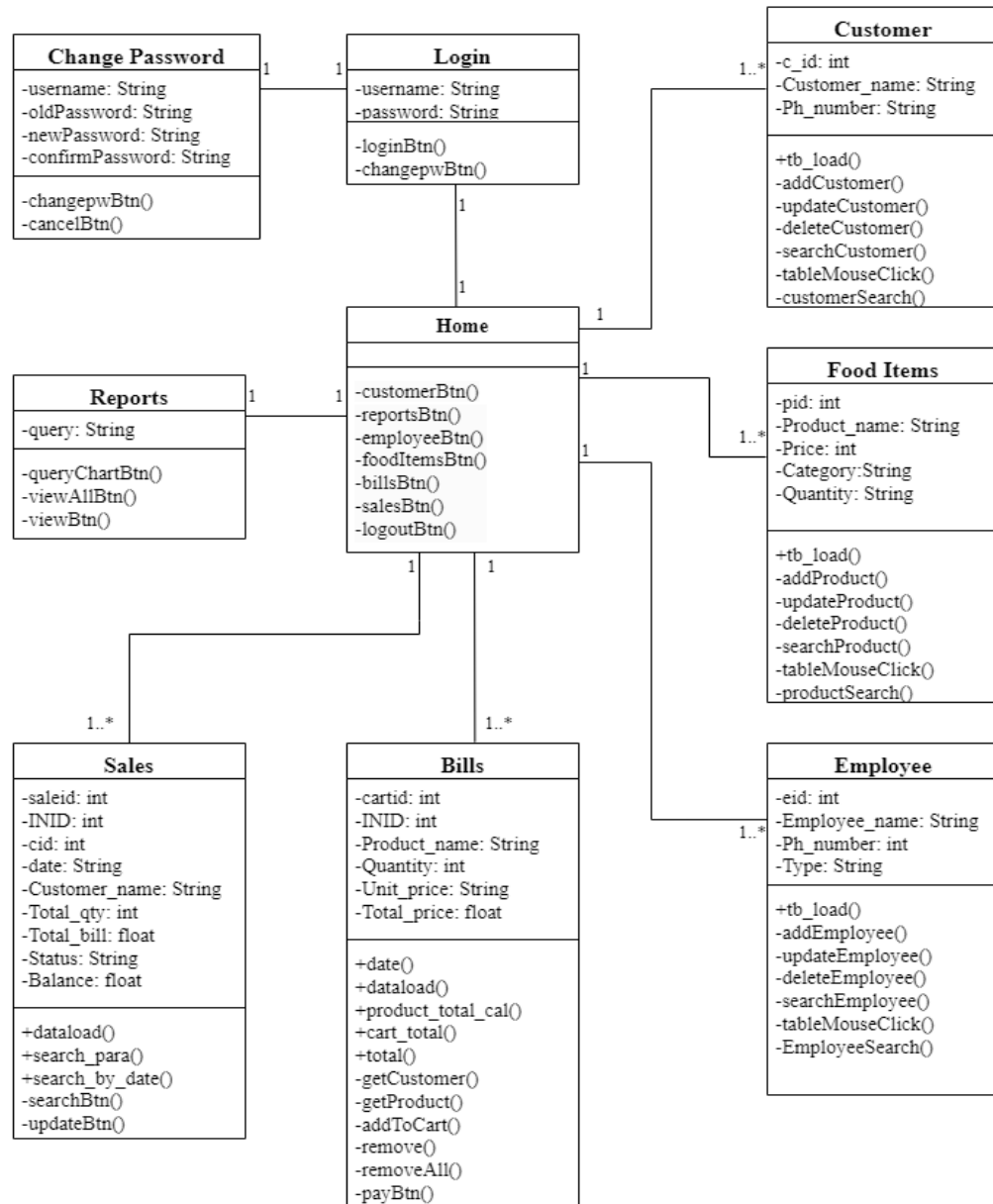


Figure 2.3: Class Diagram

Table 2.3: Class Diagram Description

Class Diagram Description
In the figure 2.3, there are 9 classes where the admin plays a vital role in the entire operation process in this system. Different association indicate different relations such as 1-1 means one to one and 1-1..* means one to many relationships. There are several methods and variables defined under each class that perform specific tasks. The admin can access other components such as customer, employee, food items, bills and reports from the home dashboard.

2.5. Entity-Relationship Diagram

ER diagram for the cafe management system serves as a visual representation of the system's database structure, depicting entities such as customers, orders, menu items, and the relationships between them. It provides a clear overview of how different entities interact within the system.

The ER-Diagram of the system is shown in figure 2.4.

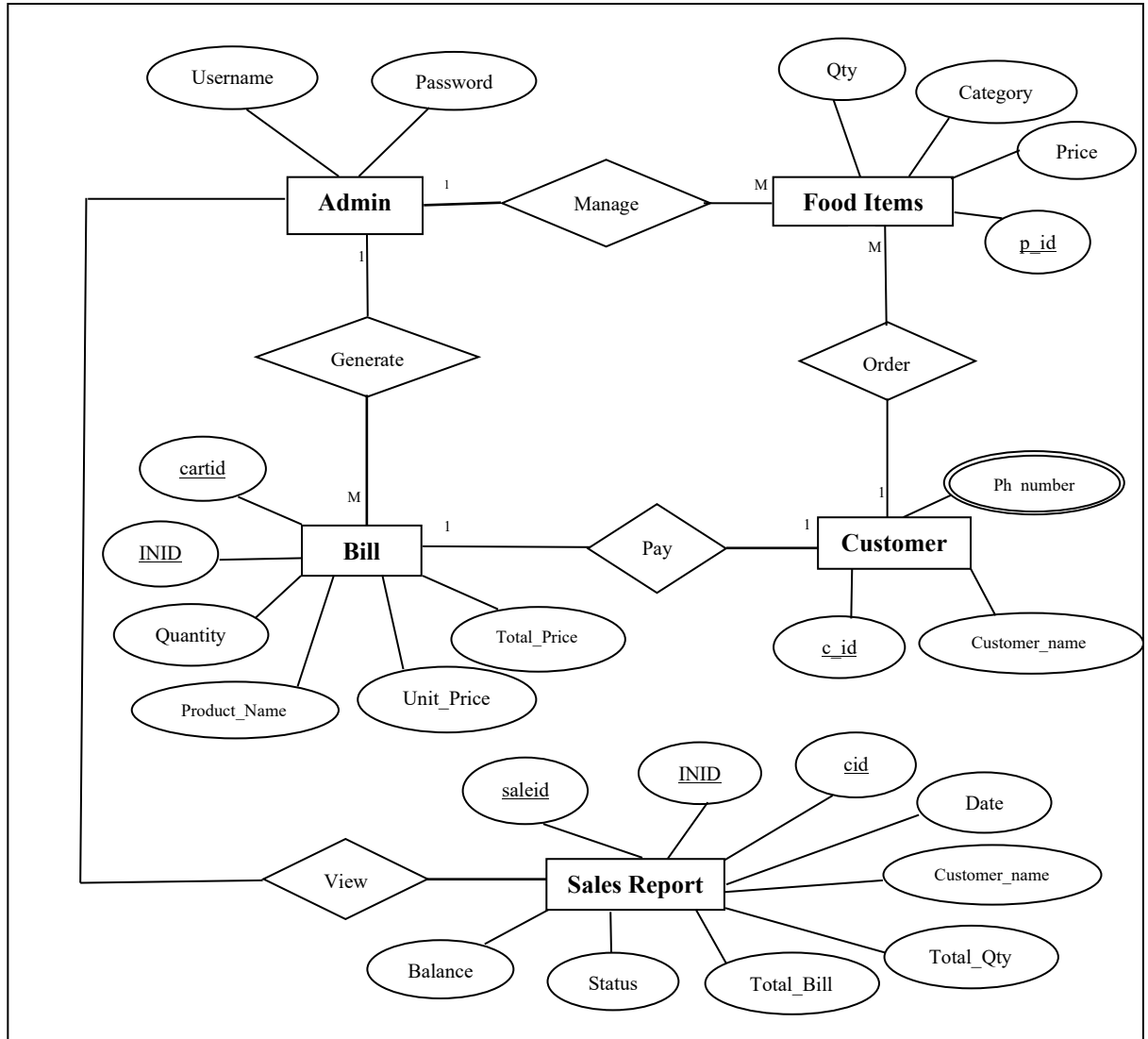


Figure 2.4: ER Diagram

Table 2.4: ER Diagram Description

ERD Description
In the figure 2.4, shows a ER- Diagram in Chen notation where there are 5 entities, they are: Admin, Bill, Customer, Sales Report and Food Items. The diamond shows what relation is between the two entities. Similarly, 1 and M shows one-to-one, one-to-many, many-to-one, or many-to-many relationships between the entities. It shows that admin can manage the food items, view sale report, and generate the bill. Similarly, one customer can order many food items and pay the bill.

2.5.3 Activity Diagram

An activity diagram for the cafe management system provides a visual representation of the workflow and activities involved in various processes within the system. It illustrates the sequence of actions, decision points, and interactions between different components and the admin.

The flow of activities or actions within the Cafe Management System is shown in figure 2.5 using an activity diagram.

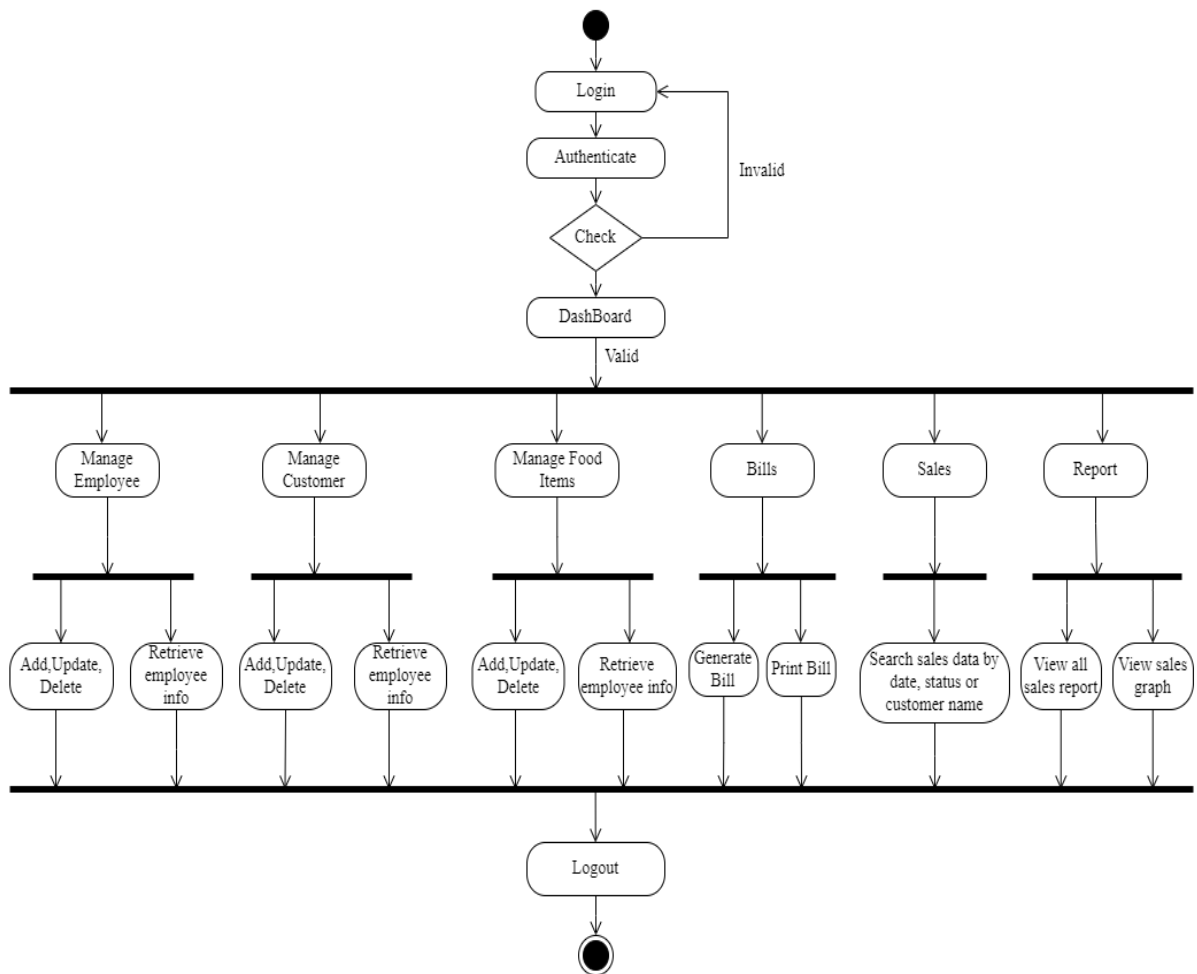


Figure 2.5: Activity Diagram

Table 2.5: Activity Diagram Description

Activity Diagram Description
In the figure 2.5, the admin must enter login information, if the information is correct then only it is redirected to the dashboard where he can perform several operations. If the information is incorrect then he will be redirected to the login page. After the admin has logged into the system, he can manage customer, food items and employee information. He can also view the sales reports and sales graph. He can generate and print bills. Later he can logout of the system.

2.5.4 Sequence Diagram

The sequence diagram for the cafe management system illustrates the flow of interactions and messages between various components during the execution of specific tasks within the system. This diagram provides a detailed depiction of the sequence of events and the order in which they occur and how different parts of the system collaborate to fulfill admin requests, such as placing an order, processing payments, etc.

The figure 2.6 sequence diagram is created to represent the flow of messages in the system.

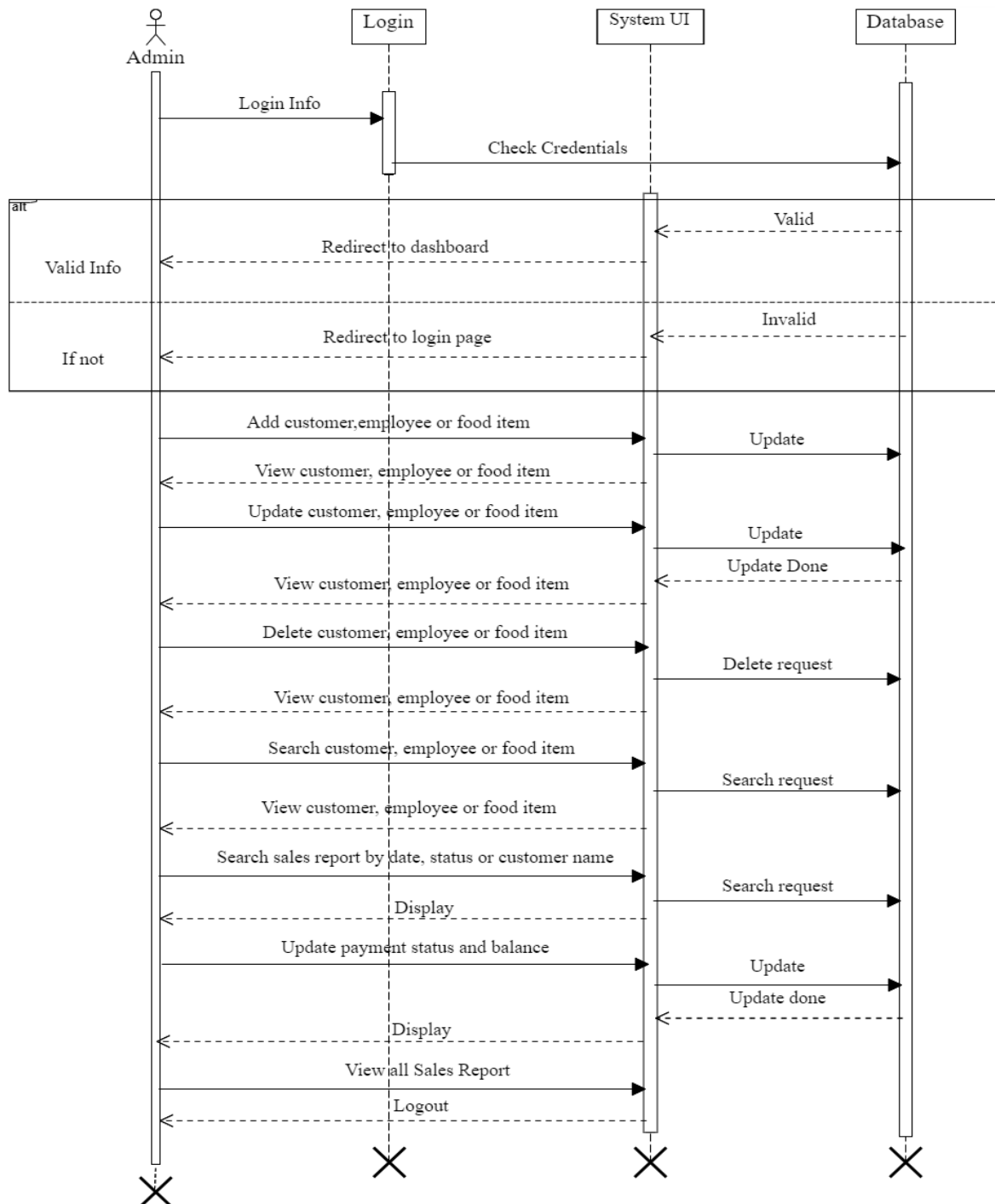


Figure 2.6: Sequence Diagram

Table 2.6: Sequence Diagram Description

Sequence Diagram Description
According to the figure 2.6, the admin must first login into the system. Then the authentication is checked. If the login credential is valid then the admin enters the dashboard and if the login fails then the admin needs to provide correct username and password. The admin can add, update, delete and search the food items, employees, and customers. Similarly, the admin can view the sales report, update the payment status, make bills and logout of the system.

2.5.5 System Architecture

System architecture design of cafe management system is essential in ensuring efficient and secure operation within the cafe. This architecture is intended to address various needs of the administrator by providing an organized system for handling essential elements such as customer information, employee details, product details and sales data. It depicts the underlying structure and components responsible for managing the entire system's functionality.

The block diagram of the system is shown in figure 2.7.

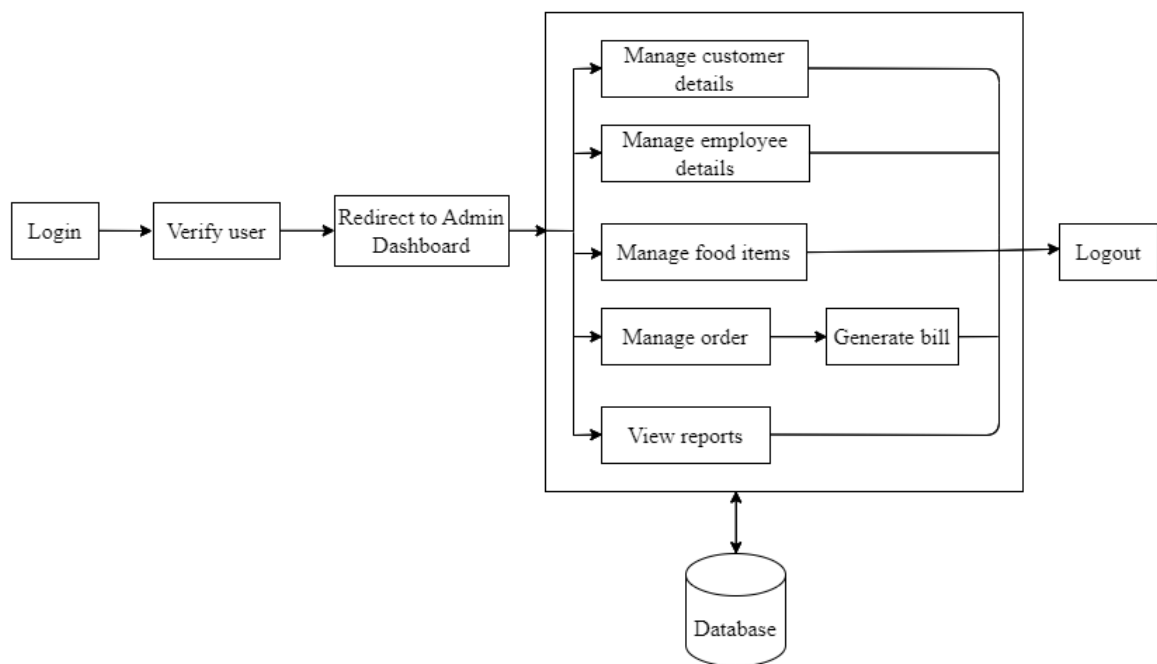


Figure 2.7: System Architecture

Table 2.7: System Architecture Description

System Architecture Description
The figure 2.7 showcases an architecture with a centralized admin panel that serves as the command center for overseeing various aspects of the cafe's operation. The architecture includes a security layer to restrict access to unauthorized personnel. The admin panel interfaces with the database to store and retrieve critical data such as customer information, employee details, menu items and sales record. It connects with modules responsible for generating bills, viewing sales report. The admin can then logout of the system.

2.7 System Implementation

The implementation of cafe management system involved several key steps to ensure its successful development and functionality. Initially, the system requirements were analyzed to determine the specific needs such as customer and employee data management, bill generation and sales tracking. Once the requirements were defined, the system design phase began where the architecture and database schema were planned and created. Subsequently, the system components including admin panel interface and backend modules for data management and processing were developed. Throughout the implementation process, testing was conducted to identify and rectify any bugs or issues. Finally, after thorough testing, the cafe management system will be deployed into production.

2.7.1 Development Methodology

Waterfall methodology has been used in this project development which allows for a linear and phased approach to project management. The entire SDLC is divided into distinct phases, with each phase being completed before the next one begins.

I followed the following steps to complete the project using waterfall method:

1. **Requirements Analysis:** Firstly, I gathered the requirements from the cafe owners which involved understanding the needs of the cafe, including functionalities such as order management, inventory tracking and billing.
2. **System Design:** Based on the requirements gathered, the system architecture was designed and the database schema, user interfaces, and other components of the cafe management system were defined.
3. **Development:** With the design specifications in hand, the required code for the various modules and functionalities were written. This included developing features for managing orders, employee information, and generating reports.
4. **Testing:** Once the implementation was complete, thorough tests of the system were done to identify and fix any defects or errors. This included unit testing and integration testing to ensure that the system functions as intended and meets the specified requirements.
5. **Deployment:** After successful testing, deploy the system to the production environment. Install the software, configure it according to the cafe's needs, and ensure that it is ready for use. (which has not been implemented in the organization)
6. **Maintenance:** Following deployment, provide ongoing support and maintenance for the cafe management system. This includes addressing any issues or bugs that arise and releasing updates as needed. (which has not been implemented in the organization)

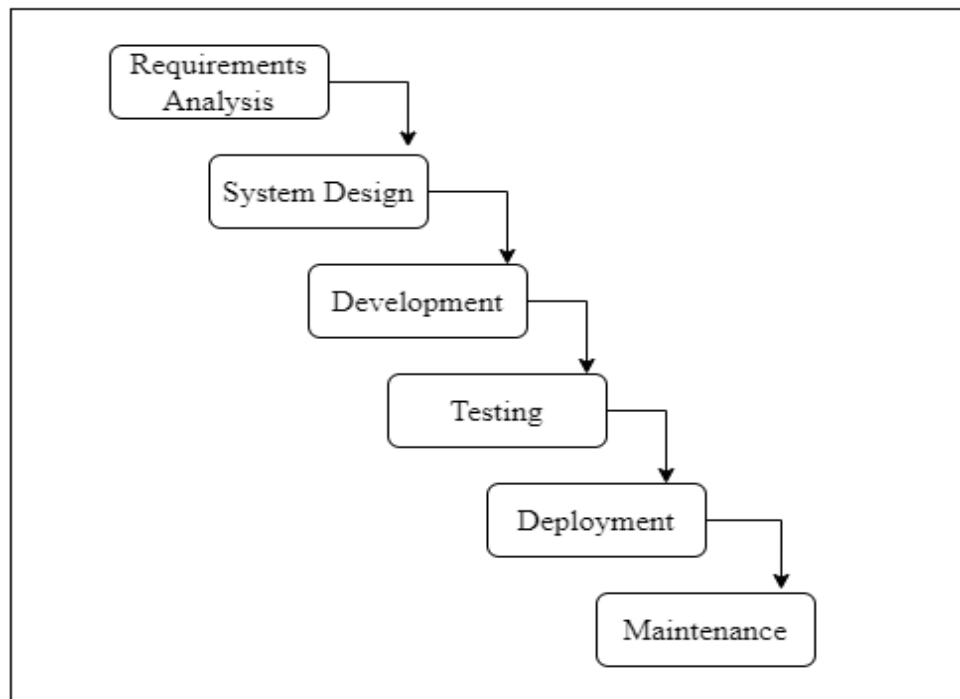


Figure 2.8: Waterfall model

2.7.2 Module Description

A module description provides a detailed overview of a specific component or segment within a software application. It outlines the purpose, functionality, features, and interactions of that particular module.

The modules of Cafe Management System are:

Module 1: Login

This module facilitates secure access to the cafe management system for authorized admin.

- **User Authentication:** Allows admin to securely log in using login credentials (username and password).
- **Password Management:** Enables user to change password and maintain account security.

Upon successful authentication, admin is directed to the dashboard granting access to relevant features and functionalities.

Module 2: Change password

This module allows authorized admin to update their login passwords securely.

Module 3: Home

The Home Dashboard serves as the central hub for the admin panel, providing quick access to essential functionalities. It displays a welcome back quote with the cafe's logo.

Module 4: Customers

This module focuses on managing customer-related information. A form is displayed where the admin inputs the customer information (Customer name and phone number) and can click 'save' button to add given data to database, 'update' button to update the information, 'search' button to search for required data and 'delete' button to delete a specific data.

Module 5: Food Items

The Food Items Information module enables admins to manage the cafe's menu, including food and beverage items, pricing, and categorization. It allows admin to add, edit, search, or delete menu items, specifying details such as name, price, quantity availability and category.

Module 6: Employee

This module focuses on managing employee-related information. A form is displayed where the admin inputs the employee information (Employee name, phone number, address, email and type) and can click 'save' button to add given data to database, 'update' button to update the information, 'search' button to search for required data and 'delete' button to delete a specific data.

Module 7: Bills

This module handles the process of generating invoices and managing payments for orders placed within the cafe management system. It calculates the total cost of orders, including discounts. It provides a feature to generate and print the bill including itemized lists and total amounts due.

Module 8: Sales

It displays all the sales which includes sale id, invoice id, customer id, date, customer name, total quantity, total bill, status, and balance. Admin can use the customer's name, the date, or payment status to look for sales data.

Module 9: Report

This module allows admin to view all the sales data by clicking on 'View All Sales' button which they can later subsequently download, save to their device, or print if necessary. The admin can also view the sales graph by clicking on 'Sales Graph' button which displays a query chart.

2.8 System Testing

System Testing has been carried out to identify any flaws in the integrated components of the system and to guarantee that the system complies with the specified requirements and operates as expected by the users (testsigma, n.d.).

Some of the test case of the system that are generated are shown below:

Table 2.8: *Test case of Login Description*

Project Name: Cafe Management System
Test case type: Functional Testing
Module: Login Module
Severity: Critical
Pre-condition: The login page must be displayed
Post- condition: The system should behave properly without any issues
Summary: To check the functionality of the login module

Table 2.9: *Test case of Login*

Test Case ID	Test Scenario	Test Steps	Test Data	Expected Result	Actual Result	Status
TC_LM_VALID1	Login using valid credentials	1.Go to login page 2.Enter the details as present in test data 3.Click on login	Username: "admin" Password: "admin123"	The login should be successful and redirected to dashboard	Admin is redirected to dashboard	Pass
TC_LM_INVALID 2	Login using invalid username and invalid password	1.Go to login page 2.Enter the details as present in test data 3. Click on login	Username: "cafe" Password: "cafe123"	The message should be displayed as "Invalid username or password"	Error message is shown and admin is redirected to login page	Pass
TC_LM_INVALID 3	Login using valid username and invalid password	1.Go to login page 2.Enter the details as present in test data 3.Click on login	Username: "admin" Password: "cafe123"	The message should be displayed as "Invalid username or password"	Error message is shown and admin is redirected to login page	Pass

TC_LM_INVALID 4	Login using invalid username and valid password	1.Go to login page 2.Enter the details as present in test data 3.Click on login	Username: "cafe" Password: "admin123"	The message should be displayed as "Invalid username or password"	Error message is shown and admin is redirected to login page	Pass
TC_LM_INVALID 5	Login using no username and no password	1.Go to login page 2.Enter the details as present in test data 3.Click on login	Username: Password:	The message should be displayed as "Enter username and password"	Error message is shown and admin is redirected to login page	Pass

Table 2.10: *Test Case Change Password Description*

Project Name: Cafe Management System
Test case type: Functional Testing
Module: Change password Module
Severity: Critical
Pre-condition: The login page must be displayed
Post- condition: The system should behave properly without any issues
Summary: To check the functionality of the change password module

Table 2.11: *Test case of Change Password*

Test Case ID	Test Scenario	Test Steps	Test Data	Expected Result	Actual Result	Status
TC_CP_VALID1	Changing login password	1.Go to login page 2.Click change password button 3.Enter the details as present in test data 4.Click on change password button	User Name: "admin" Old Password: "admin123" New Password: "cafe123" Confirm Password: "cafe123"	Show message "Your password has been changed successfully" and redirected to login page.	Admin is redirected to login page	Pass
TC_CP_VALID2	Check response when cancel button is clicked	1.Go to login page 2.Click change password button 3.Click on cancel button	-	Admin should be redirected to login page	Admin is redirected to login page	Pass
TC_CP_INVALID3	Changing password when new and confirm password do not match	1.Go to login page 2.Click change password button 3.Enter the details as present in test data 4.Click on change password button	User Name: "admin" Old Password: "admin123" New Password: "cafe123" Confirm Password: "test"	Show message "New password and confirm password do not match. Please enter again."	Error message is shown and admin is redirected to change password page	Pass
TC_CP_INVALID4	Check response when invalid	1.Go to login page 2.Click change	User Name: "user"	Show message "User not found."	Error message is shown and admin is redirected	Pass

	username is entered	password button 3.Enter the details as present in test data 4.Click on change password button	Old Password: "admin123" New Password: "cafe123" Confirm Password: "cafe123"		to change password page	
TC_CP_INVALID5	Check response when invalid old password is entered	1.Go to login page 2.Click change password button 3.Enter the details as present in test data 4.Click on change password button	User Name: "user" Old Password: "test" New Password: "cafe123" Confirm Password: "cafe123"	Show message "Incorrect old password. Please try again."	Error message is shown and admin is redirected to change password page	Pass
TC_CP_INVALID6	Check response when none of the fields are entered	1.Go to login page 2.Click change password button 3.Enter the details as present in test data 4.Click on change password button	User Name: Old Password: New Password: Confirm Password:	Show message "Fill up all the fields."	Error message is shown and admin is redirected to change password page	Pass

Table 2.12: *Test Case Customer Module Description*

Project Name: Cafe Management System
Test case type: Functional Testing
Module: Customer Module
Pre-condition: The site must be up and running
Post- condition: The system should behave properly without any issues
Summary: To check the functionality of the customer module

Table 2.13: *Test case of Customer Module*

Test Case ID	Test Scenario	Test Steps	Test Data	Expected Result	Actual Result	Status
TC_CM_VALID1	Adding new customer information	1.Go to login page 2. Enter correct login credentials 3.Go to customer module 4.Enter the details as present in test data 5.Click on save button	Name: "Shyam Rai" Phone Number: "9863541201"	Data should be added and displayed in the table	Data are added and displayed in the table	Pass
TC_CM_VALID2	Updating customer information	1.Go to login page 2. Enter correct login credentials 3.Go to customer module 4.Select data to be updated 5.Enter the details as present in test data 6.Click on update button	Name: "Mohan Thapa" Phone Number: "9863541201"	Data should be updated and displayed in the table	Data are updated and displayed in the table	Pass
TC_CM_VALID3	Deleting customer information	1.Go to login page 2.Enter correct login credentials	-	Data should be deleted and removed	Data are deleted and removed	Pass

		3.Go to customer module 4.Select data to be deleted 5.Click on delete button		from the table	from table	
TC_CM_INVALID4	Check response when invalid phone number is entered	1.Go to login page 2.Enter correct login credentials 3.Go to customer module 4.Enter the details as present in test data 5.Click on save button	Name: "Shyam" Phone Number: "986"	Show message "Invalid Phone number."	Message shown	Pass
TC_CM_INVALID5	Check response when none of the fields are entered	1.Go to login page 2.Enter correct login credentials 3.Go to customer module 4.Enter the details as present in test data 5.Click on save button	-	Show message "Fill up all the fields."	Message shown	Pass

Table 2.14: Test Case Employee Module Description

Project Name: Cafe Management System
Test case type: Functional Testing
Module: Employee Module
Pre-condition: The site must be up and running
Post- condition: The system should behave properly without any issues
Summary: To check the functionality of the Employee module

Table 2.15: *Test case of Employee Module*

Test Case ID	Test Scenario	Test Steps	Test Data	Expected Result	Actual Result	Status
TC_EM_VALID1	Adding a new employee information	1.Go to login page 2.Enter correct login credentials 3.Go to employee module 4.Enter the details as present in test data 5.Click on save button	Name: “Ruby Lama” Phone Number: “9863541201” Address: “Kalimati” Email:“ruby@gmail.com” Type: “Full time”	Data should be added and displayed in the table	Data are added and displayed in the table	Pass
TC_EM_VALID2	Updating employee information	1.Go to login page 2. Enter correct login credentials 3.Go to employee module 4.Select data to be updated 5.Enter the details as present in test data 6.Click on update button	Name: “Ruby Lama” Phone Number: “9863541201” Address: “Thamel” Email:“ruby@gmail.com” Type: “Part time”	Data should be updated and displayed in the table	Data are updated and displayed in the table	Pass
TC_EM_VALID3	Deleting employee information	1.Go to login page 2. Enter correct login credentials 3.Go to employee module 4.Select data to be deleted	-	Data should be deleted and removed from the table	Data is deleted and removed from the table	Pass

		5.Enter the details as present in test data 6.Click on delete button				
TC_EM_INVALID4	Check response when invalid phone number is entered	1.Go to login page 2.Enter correct login credentials 3.Go to employee module 4.Enter the details as present in test data 5.Click on save button	Name: “Ruby Lama” Phone Number: “1234” Address: “Kalimati” Email: “ruby@gmail.com” Type: “Full time”	Show message “Invalid Phone number.”	Message shown	Pass
TC_EM_INVALID5	Check response when none of the fields are entered	1.Go to login page 2.Enter correct login credentials 3.Go to employee module 4.Enter the details as present in test data 5.Click on save button	Name: Phone Number: Email: Type:	Show message “Fill up all the fields.”	Message shown	Pass

Table 2.16:Test Case Reports Module Description

Project Name: Cafe Management System
Test case type: Functional Testing
Module: Reports Module
Pre-condition: The site must be up and running
Post- condition: The system should behave properly without any issues
Summary: To check the functionality of the Reports module

Table 2.17: *Test case of Reports Module*

Test Steps	Test Scenario	Test Steps	Test Data	Expected Result	Actual Result	Status
TC_RM_VALID1	Searching data by invoice number	1.Go to login page 2.Enter correct login credentials 3.Go to Reports module 4. Enter the details as present in test data 5.Click on view button	Search by invoice no.: 2	Data of the particular invoice number should be displayed in report viewer	Report viewer is displayed	Pass
TC_RM_VALID2	Viewing sales graph	1.Go to login page 2.Enter correct login credentials 3.Go to Reports module 4.Click on Sales Graph button	-	Sales graph should be displayed	Sales graph is displayed	Pass
TC_RM_VALID3	Viewing all sales report	1.Go to login page 2.Enter correct login credentials 3.Go to Reports module 4.Click on View All Sales button	-	All sales data should be displayed in report viewer	Report viewer is displayed	Pass

2.9 Findings

This project involved conducting a thorough analysis of the organization's problems. The possible solutions were analyzed, and some ideas were implemented to overcome those problems. As a solution to the problems, this software is designed and developed. The findings include: problems, solutions, and ways to turn the solutions ideas into a real-time solution i.e. this system and its features. In the middle of the system's development, in-depth study was done, and necessary resources were acquired to assist the development's success and continued advancement.

CHAPTER III: DISCUSSION AND CONCLUSIONS

3.1 Discussion

The discussion section of the report highlights the key findings and insights gained through the implementation of the system. Following things were discussed:

- Present situation of the organization.
- Identification of the problems and implementation of the solution.
- The advantages of using software.
- How the software can help make their work efficient.
- Comparison of the old method and the new software.

3.2 Conclusion

In conclusion, through meticulous planning, analysis, and divine efforts, the “Cafe Management System” has been successfully designed and implemented as a comprehensive solution that addresses the diverse needs and challenges of the cafe. The system's user-friendly interface, robust functionality, and seamless integration enables streamline operations, manage orders, track sales, and enhance the overall performance of the cafe.

This summer project has helped me gain profound understanding of the significance of integrating technology to enhance efficiency in business operations. It helped me to learn about the different factors that is required for the development of the application. Hence, this project helped to improve skills, increase understanding of several programming languages, and increased capacity to operate in a real-world setting.

3.3 Recommendations

Although there are numerous benefits of this system and the tremendous value it will add to customer-user satisfaction, several additional features can be incorporated to enrich the user experience and improve operational efficiency.

Firstly, implementing a customer loyalty program can incentivize repeat business by offering rewards or discounts based on purchase history. Moreover, integrating a reservation system could streamline table management and enable customers to book tables in advance, especially during peak hours. With this feature you can alert the staff with reservations updates, seated tables, and customers' seating preferences (BIM POS, n.d.). Finally, including analytics and reporting tools can provide valuable insights into sales trends, customer preferences, and operational performance, empowering cafe owners to make data-driven decisions and optimize business strategies.

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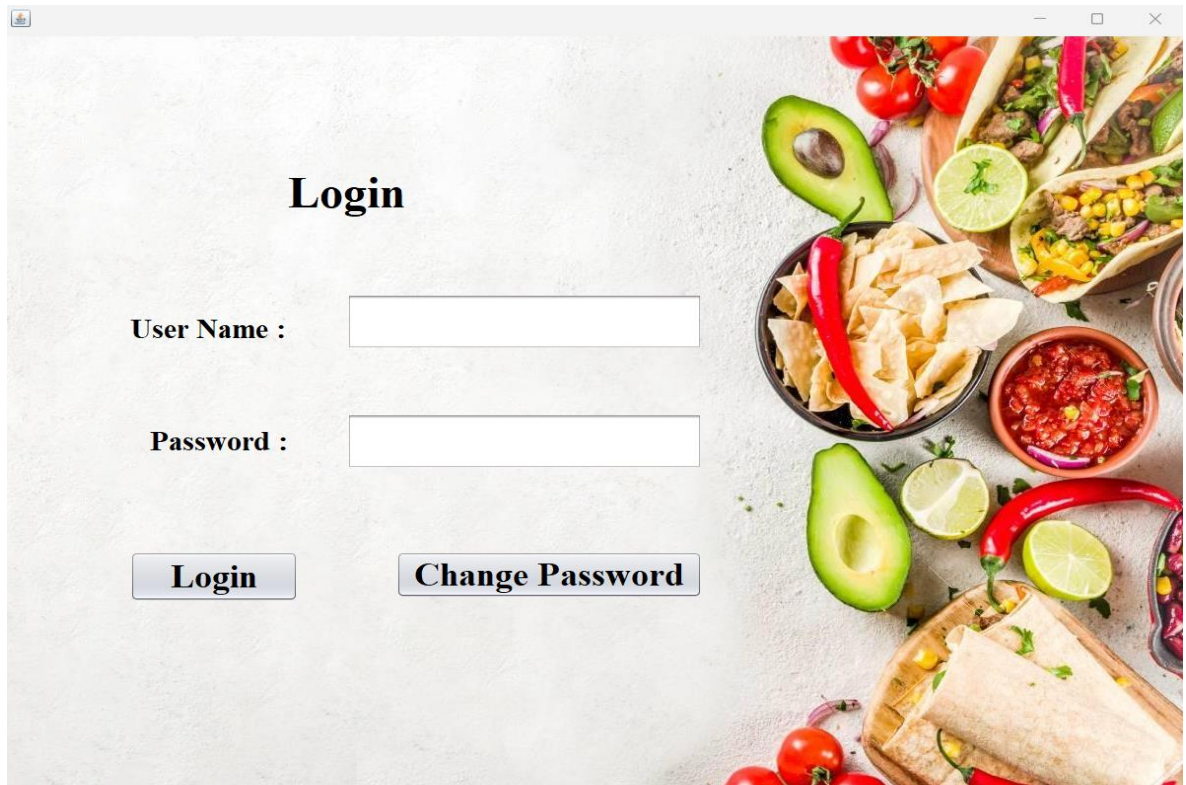
APPENDICES

Some questions used during interview are listed below:

1. When was the organization established?
2. Who are the owners of the organization?
3. What are your core products and services?
4. Who are Guluz cafe's primary customers?
5. Does your organization operate manually, or does it use a computerized system?
6. Do you have any challenges in managing your current operation of the cafe? What improvement would you like to make?
7. How have you been storing your employee and customers information?
8. How have you been tracking paid and unpaid transactions?
9. How have you been recording your daily sales and sales report?
10. How do you handle billing and accounting? Do you use any accounting tools?
11. Is a software or website preferable for your work?
12. What problems would you like software to solve?
13. What are your expectations of a software application for your business?

Few screenshots of the application

Login

A screenshot of a web application window titled "Login". The window has a light gray background with a decorative image of Mexican food (tacos, chips, avocado, tomatoes) on the right side. The title "Login" is centered at the top in a bold, black, serif font. Below the title, there are two input fields: "User Name :" and "Password :". Each label is followed by a white rectangular input box with a thin gray border. Below the input fields, there are two buttons: "Login" and "Change Password". Both buttons are rectangular with a light gray background and a thin gray border, containing text in a bold, black, serif font. The window has standard OS window controls (minimize, maximize, close) in the top right corner.

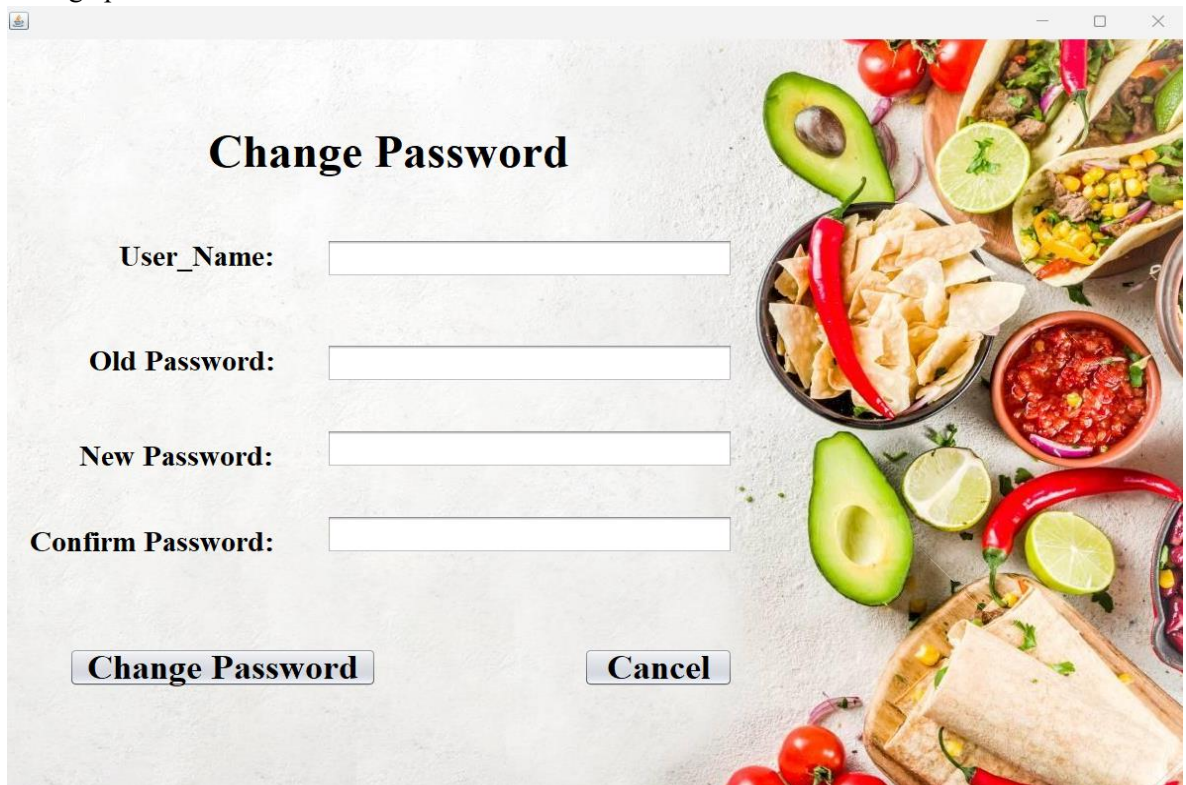
Login

User Name :

Password :

Login **Change Password**

Change password

A screenshot of a web application window titled "Change Password". The window has a light gray background with the same decorative image of Mexican food as the Login window. The title "Change Password" is centered at the top in a bold, black, serif font. Below the title, there are four input fields: "User_Name:", "Old Password:", "New Password:", and "Confirm Password:". Each label is followed by a white rectangular input box with a thin gray border. Below the input fields, there are two buttons: "Change Password" and "Cancel". Both buttons are rectangular with a light gray background and a thin gray border, containing text in a bold, black, serif font. The window has standard OS window controls (minimize, maximize, close) in the top right corner.

Change Password

User_Name:

Old Password:

New Password:

Confirm Password:

Change Password **Cancel**

Dashboard



Customer



Food items

WELCOME TO "GULUZ" CAFE

Home

Customers

Food Items

Employee

Bills

Sales

Reports

Logout

Product Information

Search ID:

Items Name:

Price:

Category:

Quantity:

Save

Search

Update

Delete

Search :

ID	Product_Name	Price	Category	Quantity
2	Peach Ice Tea	130	Cold drinks	20
3	Chips Chilly	220	Regular	50
4	French Toast	150	Breakfast	30

Employee

WELCOME TO "GULUZ" CAFE

Home

Customers

Food Items

Employee

Bills

Sales

Reports

Logout

Employee Information

Search ID:

Name:

Ph.Number:

Address:

Email:

Type:

Save

Search

Update

Delete

Search :

ID	Employee_Name	Ph_Number	Address	Email	Type
1	Niraj Tamang	9841203602	Kalinati	niraj@gmail....	Full time

d

Bills

WELCOME TO "GULUZ" CAFE

Home

Customers

Food Items

Employee

Bills

Sales

Reports

Logout

INVOICE NO : 15Date: 2024-05-30

Customer : PremProduct : Chips ChillyQty : 2Unit Price : 220Total Price : 440.0

INID	Product_Name	Qty	Unit Price	Total Price
15	Chips Chilly	2	220	440.0

Paid Amount : 440Total Amount : 440.0

Total Qty : 2.0Balance/Due : 0.0

Pay & Print

Add orderRemoveRemove All

Sales

WELCOME TO "GULUZ" CAFE

Home

Customers

Food Items

Employee

Bills

Sales

Reports

Logout

From:To:Search

Customer Name :Status : UnPaid

id:Status Update: UnPaidBle Update:Update

SaleID	INID	CID	Date	Customer_Name	Total Qty	Total Bill	Status	Balance
1	2	1	2024-02-21	Ruby Rana	2	260.0	Paid	0.0
2	3	2	2024-05-02	Saroj Lama	4	880.0	Paid	0.0
3	4	1	2024-07-13	Ruby Rana	1	250.0	Paid	0.0
4	5	1	2024-09-04	Ruby Rana	8	1200.0	Paid	0.0
5	6	2	2024-10-09	Saroj Lama	3	660.0	Paid	0.0
6	8	2	2024-11-14	Saroj Lama	5	1250.0	Paid	0.0
7	8	2	2024-11-14	Saroj Lama	7	1750.0	Paid	0.0
8	9	2	2024-11-14	Saroj Lama	3	660.0	Paid	0.0
9	11	2	2024-05-28	Kumari	3	660.0	Paid	0.0
10	12	5	2024-05-29	jubi	2	300.0	Paid	0.0
11	13	2	2024-05-29	Kumari	2	300.0	Paid	0.0
12	14	0	2024-05-29	Ruby Shrestha	2	300.0	Paid	0.0

Refresh

Reports

