



R.M.D. ENGINEERING COLLEGE

(An Autonomous Institution)

R.S.M Nagar, Kavaraipettai, Gummidipoondi Taluk, Thiruvallur District, Tamil Nadu- 601206

Affiliated to Anna University, Chennai / Approved by AICTE, New Delhi/Accredited by NAAC

An ISO 9001:2015 Certified Institution / All the Eligible UG Programs are accredited by NBA, New Delhi



DEPARTMENT OF INFORMATION TECHNOLOGY

21IT413 INTERNSHIP

RETRO COFFEE SHOP

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20IT401 SOFTWARE ENGINEERING LABORATORY OBJECTIVES:

- ☐ To understand the software engineering methodologies for project development.
- ☐ To gain knowledge about open source tools for Computer Aided Software Engineering.
- ☐ To develop an efficient software using case tools.

SOFTWARE REQUIRED:

Open source Tools: Star UML / UMLGraph / Topcased

Prepare the following documents for each experiment and develop the software using softwareengineering methodology.

1. Problem Analysis and Project Planning -Thorough study of the problem – Identify Projectscope, Objectives and Infrastructure.

2. Software Requirement Analysis - Describe the individual Phases/modules of the project andIdentify deliverables.

3. Data Modelling - Use work products – data dictionary, use case diagrams and activitydiagrams, build and test class diagrams, sequence diagrams and add interface to classdiagrams.

4. Software Development and Debugging – implement the design by coding

5. Software Testing - Prepare test plan, perform validation testing, coverage analysis,memoryleaks, develop test case hierarchy, Site check and site monitor.

INDEX

SL.NO	NAME OF THE EXPERIMENT
	RETRO COFFEE SHOP
1	Problem Analysis 1(a)Problem Statement 1(b)Project Planning
2	Software Requirement Analysis
3	Modeling 3(a)Design 3(b)Data Dictionary
4	Implementation
5	Testing - Test Cases
6	Documentation

Ex.No 1(a)**PROBLEM ANALYSIS****Problem Statement**

- *Order entry for customers snacks and beverages purchase afterreceiving order from them.
- * Generate bill receipts with items wise cost plus tax applicable.
- *Generate customer reward points - 10 points for every 100 dollarsspent.
- * Daily sales report generation, stocks report generation, employeewages management, and inventory management.
- * Data setup configuration - items, cost, tax, etc.

Analysis

A Coffee Shop Management System (CMS) is a software solution designed to help coffee shops and cafes manage their day-to-day operations more efficiently and effectively. The CMS provides a centralized platform for managing customer orders, inventory, sales, and employee data, streamlining processes, and reducing errors and costs associated with manual record- keeping.

With the CMS, coffeeshop owners and managers can easily track sales, manage inventory levels, and monitor employee performance, all in real-time. The CMS also provides customer relationship management features, allowing coffee shops to track customer preferences, generate rewards points,and improve overall customer satisfaction. By implementing a CMS, coffee shops can improve their operations, reduce costs, and enhance their customer experience, ultimately leading to increased revenue and growth.

The Coffee Shop Management System is a standalone application that will be used by coffee shops to manage their daily operations. It will be integrated with the Point of Sale (POS) system to ensure accurate billing and inventory management.

- * The system must be easy to use and operate.
- * The system must be available 24/7 and must have high availability.
- * The system must be secure and protect user data.
- * The system must be scalable to accommodate multiple coffee shops.

Feasibility study

Technical feasibility

The Retro Coffee Shop Management System (CMS) runs with a minimum system resources:

- Web server
- UML
- PHP
- HTML/CSS

Above said system resources are available as open source. Hence it is feasible to develop CMS in this environment.

Operational feasibility

As the system has HTML based GUI no special skill set is required for working with the system, hence it is operationally feasible.

Economic feasibility

As the CMS requires minimum system resources, hence it is economically feasible.

Ex.No 1(b)

PROJECT PLANNING

1. Overview

The system shall allow the customers to place their order for snacks and beverages. The system shall allow the barista to view the orders and prepare the items for the customer.

The system shall allow the cashier to complete the order and print a receipt.

The system shall calculate the total cost of the items ordered, including taxes. The system shall allow the cashier to print a receipt for the customer.

The system shall calculate the reward points earned by the customer based on their purchases.

The system shall update the customer's reward points balance.

2. Goals and Scope

Goal : To automate the Coffee Shop Management System with the following functional goals:

1. Order entry for customers snacks and beverages purchase after receiving order from them.
2. Generate bill receipts with items wise cost plus tax applicable.

3. Generate customer reward points - 10 points for every 100 dollars spent.
4. Daily sales report generation, stocks report generation, employee wages management, and inventory management.
5. Data setup configuration - items, cost, tax, etc.

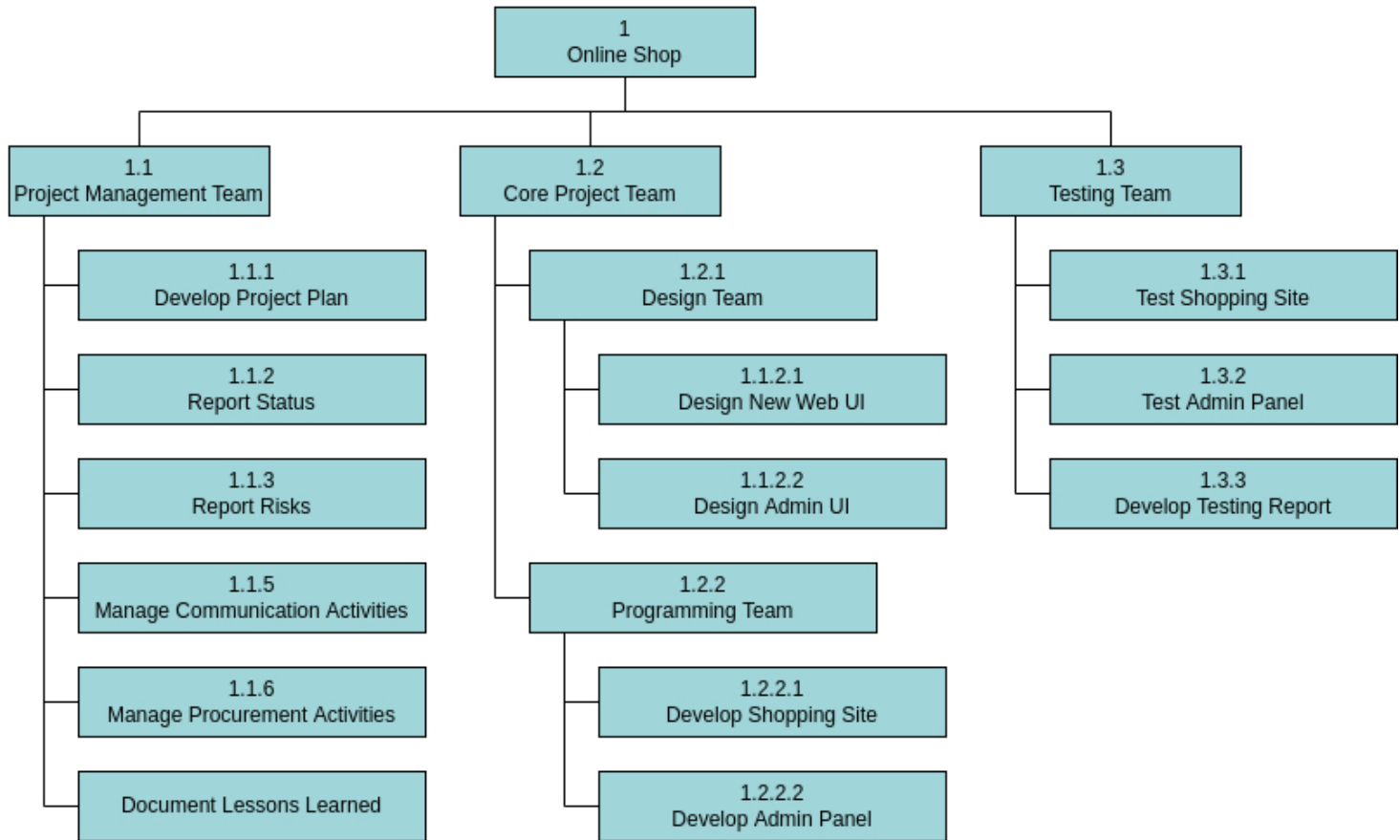
Scope: The Coffee Shop Management System (CMS) has several scope opportunities that can be explored after the initial release. Some of these include:

1. Integration with social media platforms to promote the coffee shop and attract more customers.
2. Online ordering and payment features to facilitate contactless transactions.
3. Integration with third-party loyalty programs to enhance customer rewards.
4. Advanced reporting features to provide insights into sales patterns and customer behavior.

These enhancements will help the coffee shop stay competitive, improve customer satisfaction, and increase revenue.

1. Schedule and Budget

Work Breakdown Structure



Schedule and Milestones

Milestones	Description	Milestone Criteria	Planned week
M0	Problem Analysis		1 st week
		Problem statement, Analysis, Feasibility Study	
M1	Project Planning		2 nd week
		Scope and concept described	
M2	Requirement Analysis		2 nd and 3 rd week

		Draft SRS, Design Specification, Test Plan, Requirement Analysis (Final)	
M3	Study of UML Notations		3 rd week
		Architecture reviewed and stable	
M4	Modeling		4 th week
		Software Design, Data Dictionary	

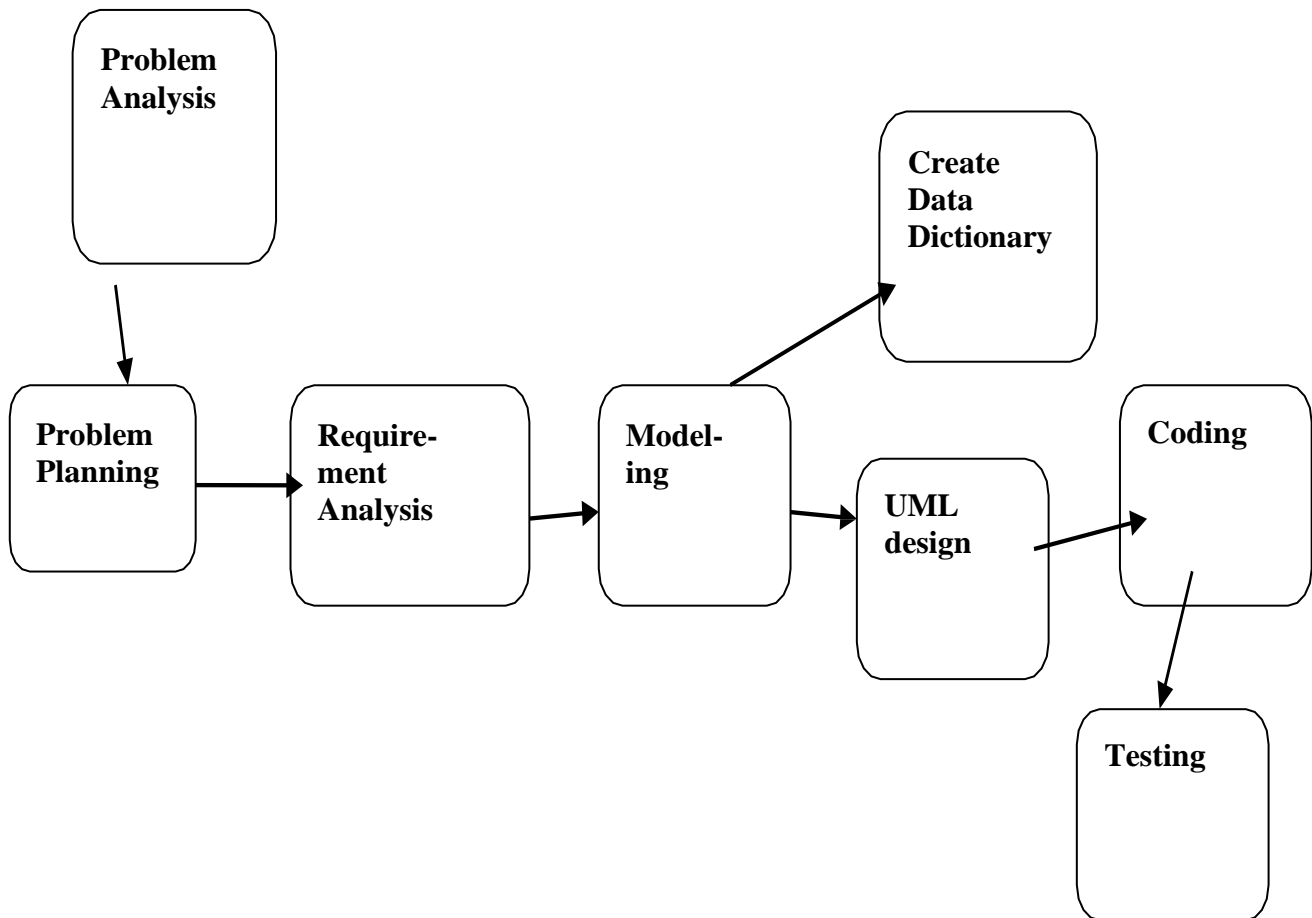
Milestones	Description	Milestone Criteria	Planned week
M5	Implementation		5 th week
		Coding of functionality, Debugging, System TestPlan.	
M6	Testing		6 th week
		Database & System Integration, Acceptance Testing	
M7	Documentation		7 th week
		User Manual	

Budget

Category	Budget for Period in kUS\$					
	M0-M1	M1-M2	M2-M3	M3-M4	M4-M5	M5-M6
Human Resources (internal)						
Human Resources (external)						
Purchases (COTS)						
Equipment						
Premises						
Tools						
Travel costs						
Training						
Review activities						
Other						
Total	1	1	2	5	2	1
Total cumulated	1	2	4	9	11	12

For a detailed list of costs of all resources see <document> [x].

Development Process



Risk Management

Unexpected Holidays, Non availability of computer resources, Absence of Human Resource are the identified risks for not meeting the deadlines. Additional efforts need to put in by the human resources to complete the work within the deadline by the way of working after working hours.

Delivery Plan

Ident.	Deliverable	Planned Date	Receiver
D1	Analysis and Feasibility Report	1 st week	Client
D2	Project Plan	2 nd week	Client
D3	SRS	3 rd week	Client
D4	Design	4 th week	Client
D5	Test Plan	5 th week	Client
D6	Code	6 th week	Client
D7	Test Report	6 th week	Client

Ex.No.2**SOFTWARE REQUIREMENT ANALYSIS****Software Requirement Specification (SRS)****1. Introduction**

A Coffee Shop Management System (CMS) is a software solution designed to help coffee shops and cafes manage their day-to-day operations more efficiently and effectively. The CMS provides a centralized platform for managing customer orders, inventory, sales, and employee data, streamlining processes, and reducing errors and costs associated with manual record-keeping. With the CMS, coffee shop owners and managers can easily track sales, manage inventory levels, and monitor employee performance, all in real-time. The CMS also provides customer relationship management features, allowing coffee shops to track customer preferences, generate rewards points, and improve overall customer satisfaction. By implementing a CMS, coffee shops can improve their operations, reduce costs, and enhance their customer experience, ultimately leading to increased revenue and growth.

Purpose of the requirements document

The purpose of this document is to specify the requirements for the Coffee Shop Management System. It will serve as a reference for the developers and stakeholders during the design, development, and testing phases of the project.

The Coffee Shop Management System is an application that allows coffee shops to manage their daily operations. It includes features such as order entry, generating bill receipts, customer reward points, sales and stock reports, employee wage management, inventory management, and data setup configuration.

Scope of the product

The scope of the CMS (Coffee Shop Management System) is to provide an efficient and user-friendly software application for coffee shop owners to manage their daily business operations. The system aims to streamline the processes of ordering, billing, and inventory management, while also providing various reports and analytics to help owners make informed decisions.

Definitions, acronyms and abbreviations

- PHP- Hypertext
Preprocessor
- SQL- Structured Query
Language
- GUI- Graphical User
Interface
- CMS – Coffee Shop Management System
- POS- Point of sale

References

- IEEE Std 830-1998 IEEE Recommended Practice for Software Requirements Specifications.

1.5. Overview of the remainder of the document

The document is organized into the following sections:

- * General Description: Provides an overview of the product, including its perspective, functions, user characteristics, constraints, assumptions, and dependencies.
- *Specific Requirements: Specifies the functional, non-functional, and interface requirements.
- *Appendices: Includes additional information related to the product.

2. General description

Product perspective

The Coffee Shop Management System is a standalone application that will be used by coffee shops to manage their daily operations. It will be integrated with the Point of Sale (POS) system to ensure accurate billing and inventory management.

Product functions

The Coffee Shop Management System will provide the following functions:

- * Order entry for customers snacks and beverages purchase after receiving order from them.
- * Generate bill receipts with items wise cost plus tax applicable.
- * Generate customer reward points - 10 points for every 100 dollars spent.

- * Daily sales report generation, stocks report generation, employee wages management, and inventory management.
- * Data setup configuration - items, cost, tax, etc.

User characteristics

The system will be used by the following types of users:

- * Admin: responsible for managing the system and configuring its settings
- * Cashier/Manager: responsible for managing the cash register and overseeing the daily operations of the coffee shop
- * Barista: responsible for preparing and serving the beverages and snacks to the customers
- * Customer: responsible for placing orders and paying for their purchases

General constraints

- * The system must be easy to use and operate.
- * The system must be available 24/7 and must have high availability.
- * The system must be secure and protect user data.
- * The system must be scalable to accommodate multiple coffee shops

Assumptions and dependencies

- * The system assumes that the coffee shop has a POS system in place.
- * The system depends on the availability and reliability of the internet connection.

3. Specific requirements

Functional Requirements:

This section describes in detail all the functional requirements.

(It shows what the system can do)

Order Entry:

The system shall allow the customers to place their order for snacks and beverages.

The system shall allow the barista to view the orders and prepare the items for the customer.

The system shall allow the cashier to complete the order and print a receipt.

Generate Bill Receipts:

The system shall calculate the total cost of the items ordered, including taxes.

The system shall allow the cashier to print a receipt for the customer.

Generate Customer Reward Points:

The system shall calculate the reward points earned by the customer based on their purchases.

The system shall update the customer's reward points balance.

Daily Sales and Stock Reports:

The system shall generate daily sales reports, including the total revenue and the number of items sold.

The system shall generate stock reports, including the stock

Non- Functional Requirements

Performance:

The system should have a response time of 2 seconds or less for all operations.

The system should be able to handle at least 100 orders simultaneously.

Security:

The system should have a login feature for admin and cashier/manager.

The system should encrypt all sensitive data.

Usability:

The system should have an intuitive and easy-to-use interface.

The system should have help documentation for all features.

Scalability:

The system should be scalable to support multiple coffee shops.

Availability: The system should be available to users at all times during regular business hours.

Reliability: The system should be reliable and able to handle a high volume of transactions without any performance issues or downtime.

Hardware and software requirements

Hardware Interfaces

- ☐ Processor: Pentium or
- ☐ Higher.RAM: 312MB or
- Higher.

3.3..2. Software Interfaces

- ☐ Operating System: Unix, Linux, Mac, Windows
- ☐ etc..Development tool: PHP : Hypertext
- ☐ Preprocessor Data Base: MySQL

3.4 External Interfaces

User Interfaces

The user-interface of the system shall be designed as shown in the user-interface prototypes.

4. Appendices

5. Index

Result: Thus the Software Requirement Specification Document for Retro Coffee Shop ManagementSystem has been completed.

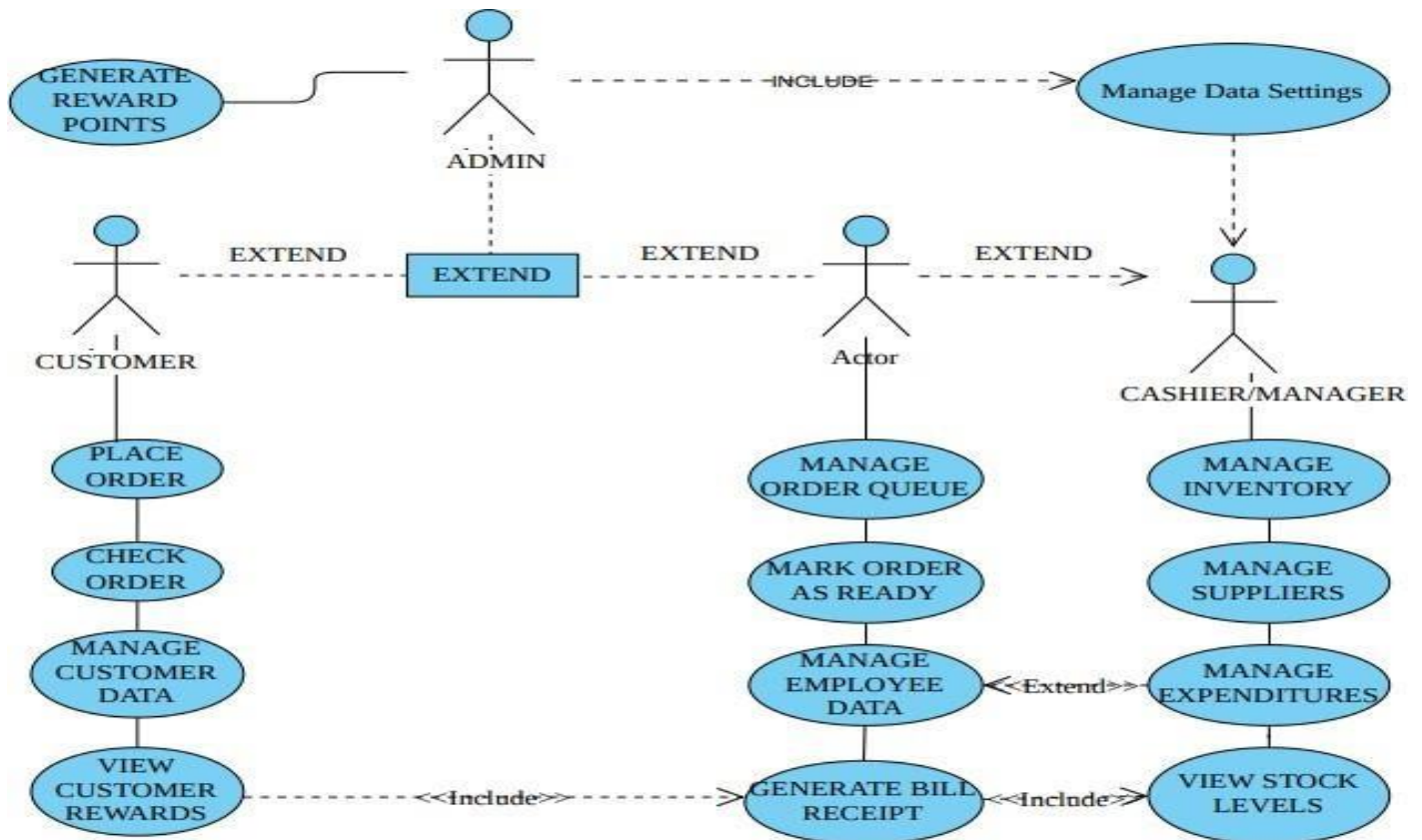
Ex.No. 3

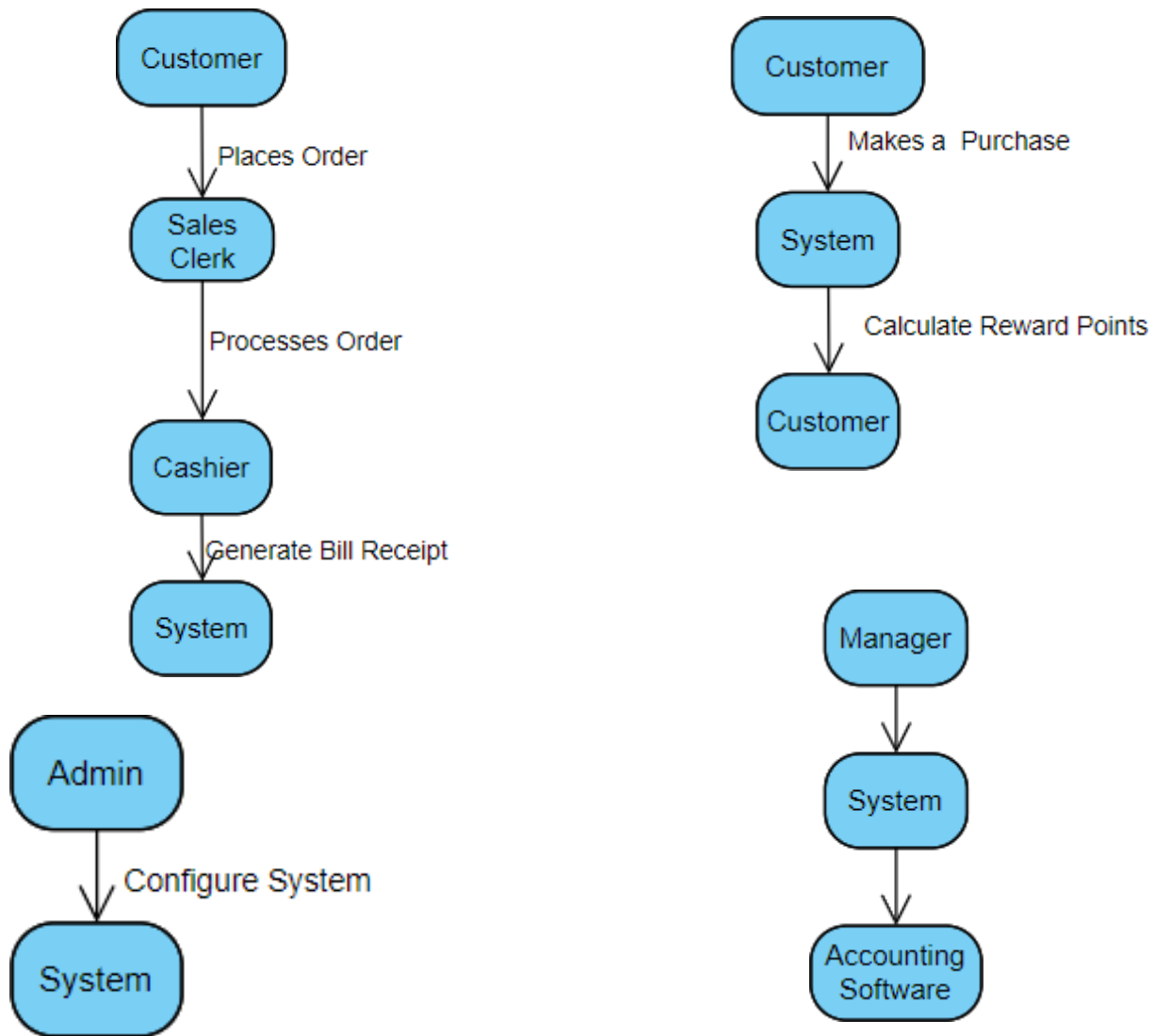
MODELING

(i) Design model –UML diagrams

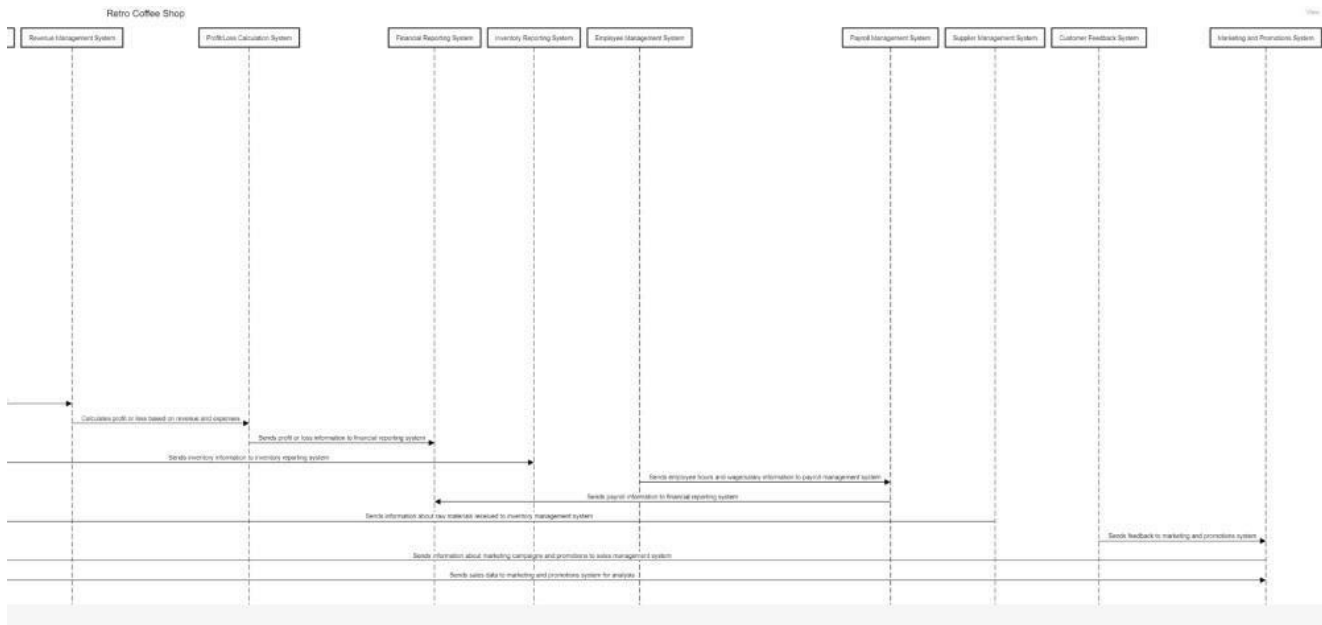
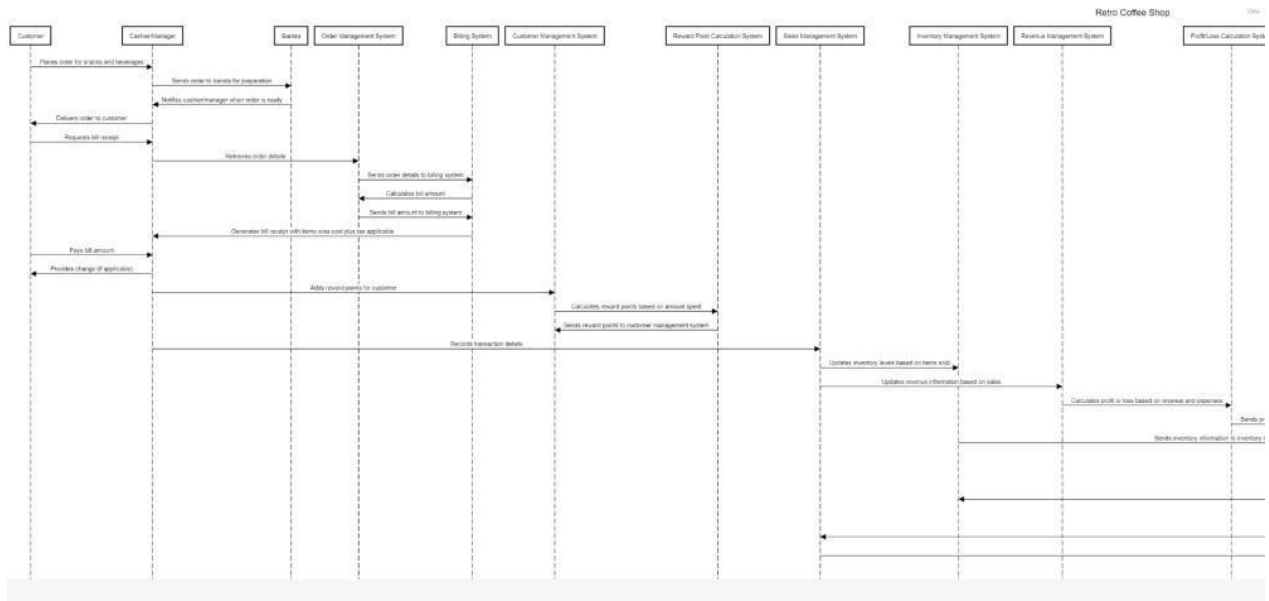
Use case diagram

Step 1: start Paradigm Template->Create-> Use Case Diagram

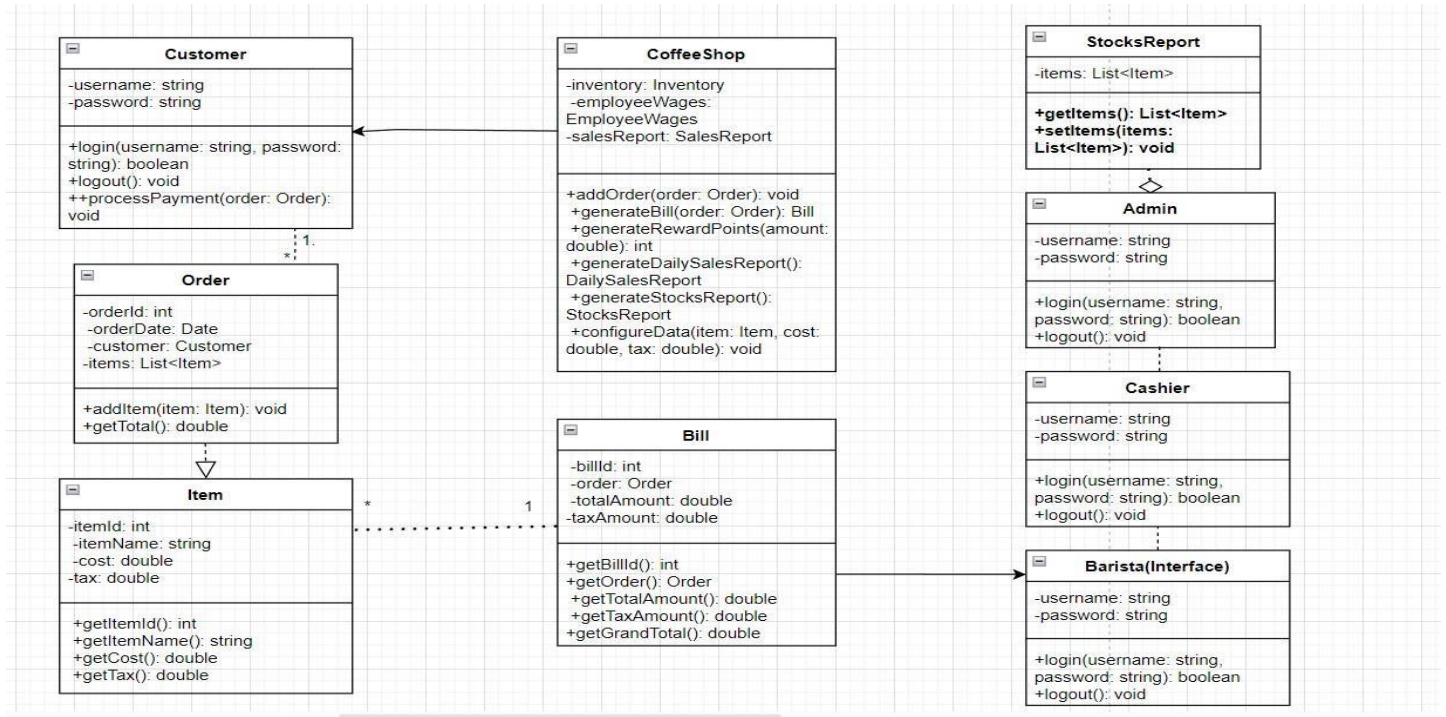


Activity Diagram for Customer, Admin and Manager

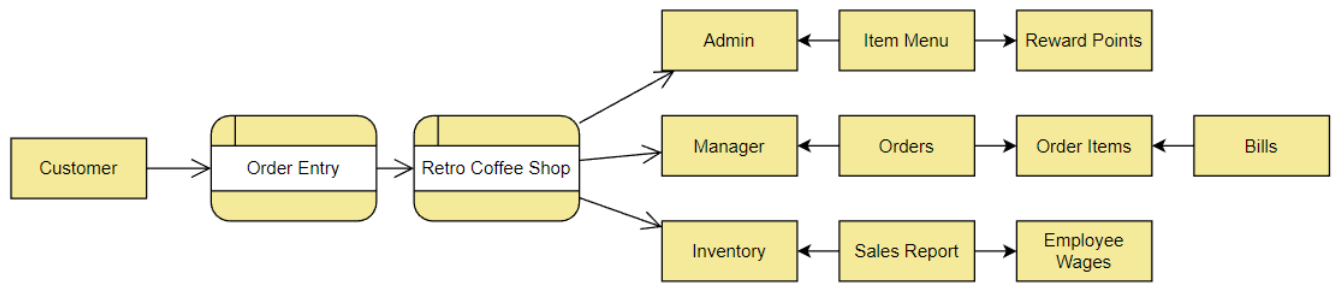
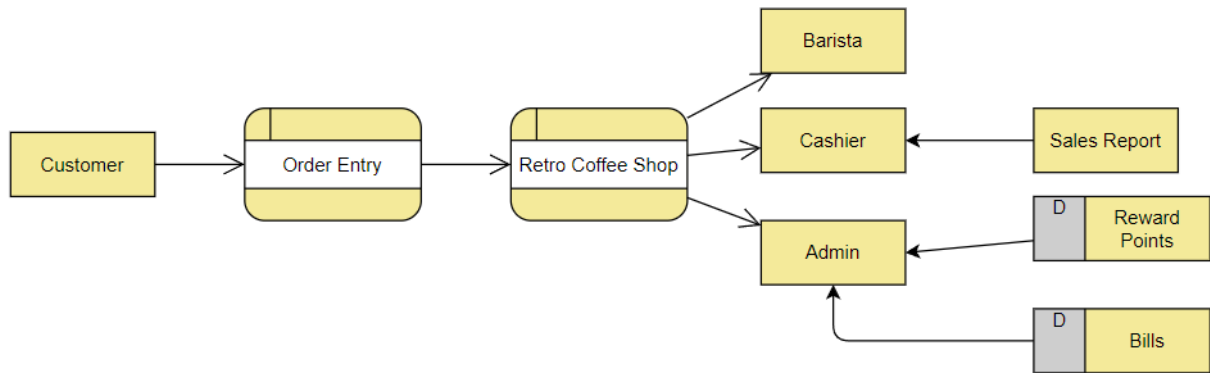
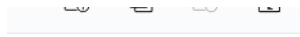
Sequence diagram for CMS

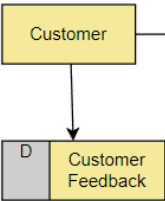


Class Diagram



Data Flow Diagram:





Ex.No.3 (b) DATA DICTIONARY**Item Details**

S.No	Name	Alias Name	Where Used/How Used	Supplementary Data	
				Data Type	Limitations
1	Item name	Title	Select	string	Up to 20 char
2	Price	-Price	Pay	integer	Up to 3 digits

User Details

S.No	Name	Alias Name	Where Used/How Used	Supplementary Data	
				Data Type	Limitations
1	User name	-	Membershi p,Borrow, Display	string	Up to 20 char
2	Reward number	-	Membership	integer	Up to 16 digits
3	Address	-	Membership	string	Up to 20 char
4	Email ID	-	Membership	string	Up to 10 digits
5	Credit cardno	-	Membership	integer	Up to 16 digit

Ex.No.4 IMPLEMENTATION**Login use case:**

lms.html

<html>

<head>

<title>

Library Management System

</title>

<body>

<form action="" value="post">

username:<input

type="text">

password:<input

type="text">

<input type="button" value="submit">

</form>

</body>

</html>

lms.jsp

<% @ page language="java" import="java.sql.*"%>

<% @ page import="java.io.*"%>

<% @ page import="java.util.*"%>

<% @ page import="java.sql.connection"%>

<% @ page import="java.sql.drivemanager"%>

<% @ page import="java.sql.*"%>

<% @ page import="java.sql.SQLException"%>

<% string username,password;

string

username="",password="";

```
username=request.getParameter("username");  
password=request.getParameter("password");  
Connection con=null;  
try  
{
```

```
Class.forName("com.mysql.jdbc.Driver");
con=DriverManager.getConnection("jdbc:mysql://localhost:3306/db1","root","
root");try
{
String sql="INSERT user VALUES(?,?)";
PreparedStatement
prest=con.prepareStatement(sql);
prest.setString(1,username);
prest.setString(2,password);
int count=prest.executeUpdate();
con.close();
}
catch(SQLException s)
{
System.out.println("SQL statement is not executed!");
}
}
catch(Exception
e){
e.printStackTrace(
);
}
%>
```

OUTPUT

The image displays two screenshots of a web application named "Retro Coffee Shop".

Top Screenshot (Dashboard): The browser address bar shows `localhost/Billing_Cafe_System/index.php?page=home`. The application header is blue with the title "Retro Coffee Shop" and a user profile "admin". A left sidebar contains a menu with the following items: Dashboard, Orders, Take Orders, Master List (with sub-items Categories and Products), Report (with sub-item Sales Report), Systems, and Users. The main content area has a light gray background with a white box at the top containing the text "Welcome back admin".

Bottom Screenshot (Login Page): The browser address bar shows `localhost/Billing_Cafe_System/login.php`. The page has a dark gray background. In the center, there is a white box titled "Retro Coffee Shop" containing a login form. The form has two input fields: "Username" with the value "admin" and "Password" with masked characters "*****". Below the fields is a blue "Login" button.

The image displays two screenshots of the 'Simple Cafe Billing System' web application.

Top Screenshot: Sales Report

The interface shows a sidebar with navigation options: Dashboard, Orders, Take Orders, Master List, Categories, Products, Report, Sales Report (selected), Systems, and Users. The main content area displays a 'Month' dropdown set to 'May 2023'. Below this is a table with the following data:

#	Date	Invoice	Order Number	Amount
1	May 05, 2023	375435083730	1	880.00
Total				880.00

A green 'Print' button is located below the table.

Bottom Screenshot: Payment Modal

The interface shows the 'Order List' and 'Products' sections. The 'Order List' displays two items: Cappuccino (290.00) and Cafe Mocha (150.00). The 'Total' is 880.00. A 'Pay' modal is open, showing the following fields:

- Amount Payable: 880.00
- Amount Tendered: 1,000
- Change: 120.00

The modal includes 'Pay' and 'Cancel' buttons. The background shows a grid of product buttons: Cafe Latte, Cafe Mocha, Espresso, Red Bull, Tequila, and Turkish Coffee.

Simple Cafe Billing System

admin

Order List

Order No. 1

QTY	Order	Amount	
3	Cafe Latte (200.00)	600.00	
2	Cappuccino (290.00)	580.00	

Total 1,180.00

Products

Category

All

Beverages

Bread

Coffee

Cafe Latte

Cafe Mocha

Cappuccino

Espresso

Turkish Coffee

Pay

Pay later

Simple Cafe Billing System

admin

Dashboard

Orders

Take Orders

Master List

Categories

Products

Report

Sales Report

Systems

Users

List of Orders

+ New

Show 10 entries

Search:

#	Date	Invoice	Order Number	Amount	Status	Action
1	May 05, 2023	375435083730	1	880.00	Paid	Edit View Delete
2	May 05, 2023	N/A	1	1,180.00	Unpaid	Edit View Delete

Showing 1 to 2 of 2 entries

Previous 1 Next

The screenshot shows a web application interface with a print dialog open. The print dialog is titled "Print" and shows "Total: 1 sheet of paper". It includes options for "Printer" (AnyDesk Printer), "Copies" (1), "Layout" (Portrait), and "Pages" (All). The "Print" button is highlighted in blue.

The web application displays an "Order Report as of May, 2023". The report includes a table with the following data:

#	Date	Invoice	Order Number	Amount
1	May 05, 2023	375435083730	1	880.00
Total				880.00

The report also shows a summary table with the following data:

Order Number	Amount
1	880.00
Total	880.00

The web application interface includes a top navigation bar with the text "admin" and a sidebar with various icons. The bottom status bar shows the temperature (88°F), weather (Rain), and the date/time (6:29 PM 5/5/2023).

Ex.No 5**TESTING****Test cases:**

Name	Requirement	Description	Input	Expected o/p	Actual o/p
Login	Username & password should be entered	Used to verify if actor is the authorized person or not	User, name, password	Valid msg	Valid msg
Login	Username & password should be entered	Used to verify if actor is the authorized person or not	User, name, password	Invalid msg	Invalid msg
Select a coffee, beverage or snacks	user details or item details should be entered	Store the user details & customer purchase details	Name, email_id (Or) item name, item id, price, tax	Valid msg	Valid msg
Data Configuration	Check the database of customers with their items	Used to configure CMS data	Admin username, password	Valid msg	Valid msg
Tax	Cumulate the tax to an item	Used when an item is purchased	Percentage of tax	Valid msg	Valid msg
Rewards	Used to return the book before due date	Accumulate 10 rewards points for every 100 Rs purchase	Item id, name, Payment details	Valid msg	Valid msg