Online Mess Management System

A project submitted to

UKA TARSADIA UNIVERSITY

in partial fulfillment of the requirements for the degree of

Bachelor of Science

in

Information Technology

for

5 Years Integrated M.Sc.(IT)

By

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Bardoli – 394350
January 2023

CERTIFICATE

This is to certify that **Patel Anvi A. (202006100110081) and Desai Yash A. (202006100110086)** has submitted project entitled "**Mess Management System"**as the partial fulfillment for the award of the degree of Bachelor of Science in Information Technology for5 Years Integrated M.Sc. (IT) in 2022 – 2023.

Date: 27-01-2023

Place: Uka Tarsadia University

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Guide

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Programme Coordinator,

External Examiner

UKA TARSADIA university

Babu Madhav Institute of Information Technology,

Uka Tarsadia University,

Bardoli – 394350

Table of Contents

List of Figures

List of Tables

1. INTRODUCTION

1.1 Problem Definition:

There are many institutions/Universities which provides facility of hostels for students who live far from their institutes. Hostel facilities includes Dining Hall, Wi-Fi, Playing Room, Reading Room, RO Water Supply etc for students living in hostel. Dining Hall facility particularly is known as Mess where students come together to eat their meals. Hostellers needs to physically go in the mess to check menu every-time. It may also happen in case of hostellers that sometimes delicious menu is prepared and students rush into mess all together due to which they need to wait in queue for hours and hours which is very time consuming for students. When menu is not as good many students avoid going in mess and it may happen that food gets wasted in large quantity, because manually menu quantity is prepared based on attendance of the students present in the hostel on that particular day.

Managing records of the students who attended mess manually is very difficult for administration of the mess. Same facility of lunch is provided to day-scholars/teachers/ guests who come to visit university/hostel and pay per plate accordingly. Managing these outsiders, providing security to all the users, managing meals, and managing payments which has been made per plate to ensure efficient utilization of resource and monitoring inventory is timing consuming as well as possibly inaccurate at the administrative end.

1.2 Project Objective:

The purpose of developing software application is to atomize the hostel mess functionality and provide both the users and the admin a smart platform to interact with each other. This platform will provide facility at administrative end to add itinerary of meals and at others end to view and book upcoming meals. Other users of the system except admin have facility to select the time slot which will help to avoid rush. With the help of the system meals will be prepared based on booked plates rather than attendance taken in the hostel which will help in minimal wastage of food.

It will provide administrators with real-time data on meal attendance, consumption trends, and inventory levels, helping them plan and budget effectively. By automating payment procedures, the mess management system will ensure accurate and timely financial transactions. Overall, the system aims to improve user satisfaction, reduce administrative burdens and foster a seamless dining experience within the institution.

1.3 Project Scope:

The Mess Management System will look forward in managing meal plans, handle online payments and managing records digitally. Key features of the system are user registration, booking meal, payment processing and feedback mechanism. There will be four users of the system namely Admin, Mess Handler, Hostellers, Guests. This system is intended only for one campus having boys as well as girls' hostel. Students shall book their meals daily. Guests shall book lunch meal they need to grab.

1.4 Initial Requirement Document:

Title of the project	Hostel Mess Management System
Stakeholders involved in capturing requirements	Mess Handler, Hostel Warden, Hostel Manager
Techniques used for requirement capturing	Interviewing, Brainstorming
Name of the persons along with designations	--
Date	11th July, 2023
Version	1.0
Users of the system	Admin, Food Supplier, Hostellers, Visitors

Consolidated list of initial requirements:

1. The system shall be able to generate login ID and password for the admin.
2. The admin shall be able to register Mess Handler, Hostellers for the system.
3. The admin shall be able to maintain all the details of the users of the system.
4. The admin shall provide username and password to other users of the system.
5. All the users shall login to the system with the help of provided username and password by the admin.
6. All the users shall be able to change password/forgot password once username and password provided by the admin.
7. Mess Handler shall view menu of meals to the system.
8. Mess Handler shall view total count of the booked meals as per the timing mentioned by the hostellers.
9. Admin shall maintain all the details of the meals.
10. Hostellers shall be able to book their meal as per their time convenience.
11. Hostellers shall book their slot for visiting mess and having meal during breakfast/dinner.
12. Hostellers/Guest shall be able to give feedback to the system.
13. Guest shall be able to register themselves to the system.
14. Guest shall book their meal only during lunch timing.

2. Overall Description:

2.1 Product Perspective/Environment Description

2.1.1 Hardware Interface/ Hardware Specification

Utilities	Needs
RAM	4 GB
Hard Disk	25 GB
Operating System	All versions of Android IOS
Display	1023 x 768

2.1.2 Software Interface/Software Specification

Type	Web-Based Application, Mobile-Based Application
Front-End	REACT JS, FLUTTER
Back-End	NODE JS, EXPRESS JS, MONGO DB
Operating System	All versions of Windows and Ubuntu
Tools	Postman , VS CODE, Android Studio

3. **System Specific Requirement:**

3.1 Functional Requirements:

3.1.1 Manage Login

3.1.2 Manage Mess Handler

3.1.3 Manage Hosteller

3.1.4 Manage Guest

3.1.5 Manage Menu

3.1.6 Manage Meal Bookings

3.1.7 Manage Payment

3.1.8 Generate Bill

3.1.9 Manage Report

Manage Login

RN	Description	Comments
FR1	System shall be able to authenticate Admin/Mess Handler/hostellers/guest using their email id as username and password.	Login_Page
FR2	System shall be able to generate new password if in case user forgets his old password.	ForgotPass_Page ChangePass_Page
FR3	System shall allow users of the system to logout from the system.	All pages after Login

Manage Mess Handler

RN	Description	Comments
FR1	This module shall be managed by Admin. Admin shall be able to register Mess Handler and edit his/her profile and shall be able to change password.	Mess Handler Registration_Page
FR2	The admin shall be able to: View/Search Mess Handler details.	Mess Handler Details Page

Manage Hostellers

RN	Description	Comments
FR1	This module shall be managed by Admin and Mess Handler. Admin shall be able to register Hostellers and edit his/her profile and shall be able to change password.	Hosteller Registration Page
FR2	The Mess Handler shall be able to: View/Search Hosteller's details.	Hosteller Details Page

Manage Guest

RN	Description	Comments
FR1	This module shall be managed by Admin, Mess Handler, and Guests. Guest shall be able to register himself and edit his/her profile.	Guest Registration Page
FR2	The Admin/Mess Handler shall be able to: View/Search guest's details.	Guest Details Page

Manage Menu

RN	Description	Comments
FR1	Admin shall be able to manage the menu details. Admin shall be able to perform following operations like (after login): Add Menu Details View/Search Menu Details Active/De active Menu Details Update Menu Details	Menu Details Page
FR2	System shall be able to display menu to the Hostellers/Guests.	Home Page of Hosteller/Guest
FR3	Mess Handler shall be able to view/search menu details managed by admin.	Menu Details Page

Manage Meal Booking

RN	Description	Comments
FR1	System shall be able to generate meal booking details to all the user of the system.	Home page of the Hosteller /Guest
FR2	Guests shall be able to book their meal on the day they want to grab meal.	Add Booking Page
FR3	System shall be able to generate QR code for scanning to maintain the attendance record at the mess.	QR scanner generator
FR4	Mess Handler shall be able to view total number of meals booked.	Booked Meals Details
FR5	Hostellers shall be able to book meal day before the meal you want to grab.	Add Booking Page
FR6	Hostellers shall be able to book their meals as per their convenience.	Add Booking Page

Manage Payment

RN	Description	Comments
FR1	After the generation of bill, the guests shall be able to make payment using one of the online payment gateways (compulsory in online order).	Payment Gateway Page

Generate Bill

RN	Description	Comments
FR1	After the confirmation of order placed by the guests the system shall be able to generate bill with all the necessary details of the Guests.	Guest Booking Page

Manage Reports

RN	Description	Comments
FR1	The system should be able to generate reports like: i. Day wise Booking Report ii. All Bookings Report iii. Hosteller/Guest Report	Admin Report Dashboard

Manage Feedback

RN	Description	Comments
FR1	Hostellers/Guests shall also be able to give feedback for the mess food.	Give Feedback Page
FR2	The feedback which is given by the Hostellers/Guests shall be able to be viewed by the Admin.	Admin Feedback Dashboard

3.2 Non-Functional Requirements:

RN	DESCRIPTION	COMMENTS
NFR1	The system shall be able to provide security to all the users of the system.	Security
NFR2	The system shall be easy to use as it shall provide easy navigation, interface, and notifications.	Usability
NFR3	The system shall be able to work on android as well as IOS operating system.	Compatibility
NFR4	The system shall help users to reacht their goals i.e., to book meals in very few steps.	Efficiency

4. System Design:

4.1 Database Design:

4.1.1 Database Schema:

1. tblUser (Userid[PK],U_mail, U_pass, U_role, U_status, contact)

   FD -> U_mail, U_pass, U_role, U_status, contact

2. tblHosteller (Hid[PK],Hfname, Hlname, Hemail, Hcontact, Room_No, Htype)

   FD -> Hfname, Hlname, Hemail, Hcontact, Room_No, Htype

3. tblGuest (Gid[PK], Gfname, Glname, Gcontact, Gemail)

   FD -> Gfname, Glname, Gcontact, Gemail

4. tblHandler (MHid[PK], Mhname, mhlname, mhcontact, mhemail)

   FD -> Mhname, mhlname, mhcontact, mhemail

5. tblMeals (Iid(PK, days, breakfast, lunch, dinner, price)

   FD -> days, breakfast, lunch, dinner, price

6. tblGorder (Orid[PK],Gid[FK], order_date, order_day, quantity, price)

   FD -> Gid[FK], order_date, order_day, quantity, price

7. tblHbook (Bookid[PK], Hid[FK], book_date, book_day, slot)

   FD -> Hid[FK], book_date, book_day, slot

8. tblbookedmeals(HbMid[PK],fname,contact,room_no,days,date,hostel_type,breakfast,lunch, dinner,breakfast_attendance,lunch_attendance,dinner_attendance)

   FD-> fname,contact,room_no,days,date,hostel_type,breakfast,lunch, dinner,breakfast_attendance,lunch_attendance,dinner_attendance

9. tblguestbookedmeals(GBMid[PK],fname,contact,days,date,time,lunch,lunch_attendance, quantity,amount)

   FD-> fname,contact,days,date,time,lunch,lunch_attendance,quantity,amount

4.1.2 Data Dictionary:

1. tblUser

SR No.	Field Name	Datatype	Size	Constraints	Description
1	User_id	int	-	Primary Key	Stores Id of particular user
2	U_mail	varchar	100	Not Null	Email of particular user
3	U_role	varchar	50	Not Null	Role of user
4	U_status	int	-	Not Null	Status code according to the role
5	U_pass	varchar	50	Not Null	Password of the user
6	U_contact	varchar	10	Not Null	Contact of the user

2. tblHosteller

SR No.	Field Name	Datatype	Size	Constraints	Description
1	Hid	int	-	Primary Key	Stores Id of hosteller
2	Hfname	varchar	20	Not Null	First name of hosteller
3	Hlname	varchar	10	Not Null	last name of hosteller
4	Hemail	varchar	255	Not Null, Unique	Email of the hosteller
5	Hcontact	varchar	50	Not Null	Contact No of hosteller
6	Room_no	varchar	20	Not Null	Room number of hosteller
7	Htype	varchar	255	Not Null	Name of Hostel

3. tblHandler

SR No.	Field Name	Datatype	Size	Constraints	Description
1	Mhid	int	-	Primary Key	Stores Id of Mess Handler
2	Mhname	varchar	100	Not Null	First Name of Mess Handler
3	Mhlname	varchar	50	Not Null	Last name of Mess Handler
4	Mhemail	varchar	255	Not Null	Email of Mess Handler
5	Mhcontact	varchar	50	Not Null	Contact No of Mess Handler

4. tblGuest

SR No.	Field Name	Datatype	Size	Constraints	Description
1	Gid	int	-	Primary Key	Stores Id of Guest
2	Gfname	varchar	100	Not Null	First Name of Guest
3	Glname	varchar	50	Not Null	Last name of Guest
4	Gemail	varchar	255	Not Null	Email of Guest
5	Gcontact	varchar	50	Not Null	Contact No of Guest

5. tblMeals

SR No.	Field Name	Datatype	Size	Constraints	Description
1	Iid	int	-	Primary Key	Stores Id of Item
2	Days	varchar	255	Not Null	Name of an item
3	Breakfast	varchar	255	Not Null	Items of breakfast
4	Lunch	varchar	255	Not Null	Items of lunch
5	Dinner	varchar	255	Not Null	Items of dinner
6	Price	varchar	255	Not Null	Stores price for lunch item

6. tblGorder

SR No.	Field Name	Datatype	Size	Constraints	Description
1	Orid	int	-	Primary Key	Stores Id of guest order
2	Gid	int	-	Foreign Key	Id of guest
3	Order_date	varchar	50	Not Null	Date of order
4	Order_day	varchar	-	Not Null	Day of order
5	quantity	Int	-	Not Null	Total no of plate order
6	price	Int	-	Not Null	Total amount paid

7. tblHbook

SR No.	Field Name	Datatype	Size	Constraints	Description
1	Bookid	int	-	Primary Key	Stores Id of Hosteller booking
2	Hid	int	-	Foreign Key	Id of hosteller
3	book_date	varchar	50	Not Null	Date of booking
4	book_day	varchar	-	Not Null	Day of booking
5	slot	Int	-	Not Null	Time slot booked

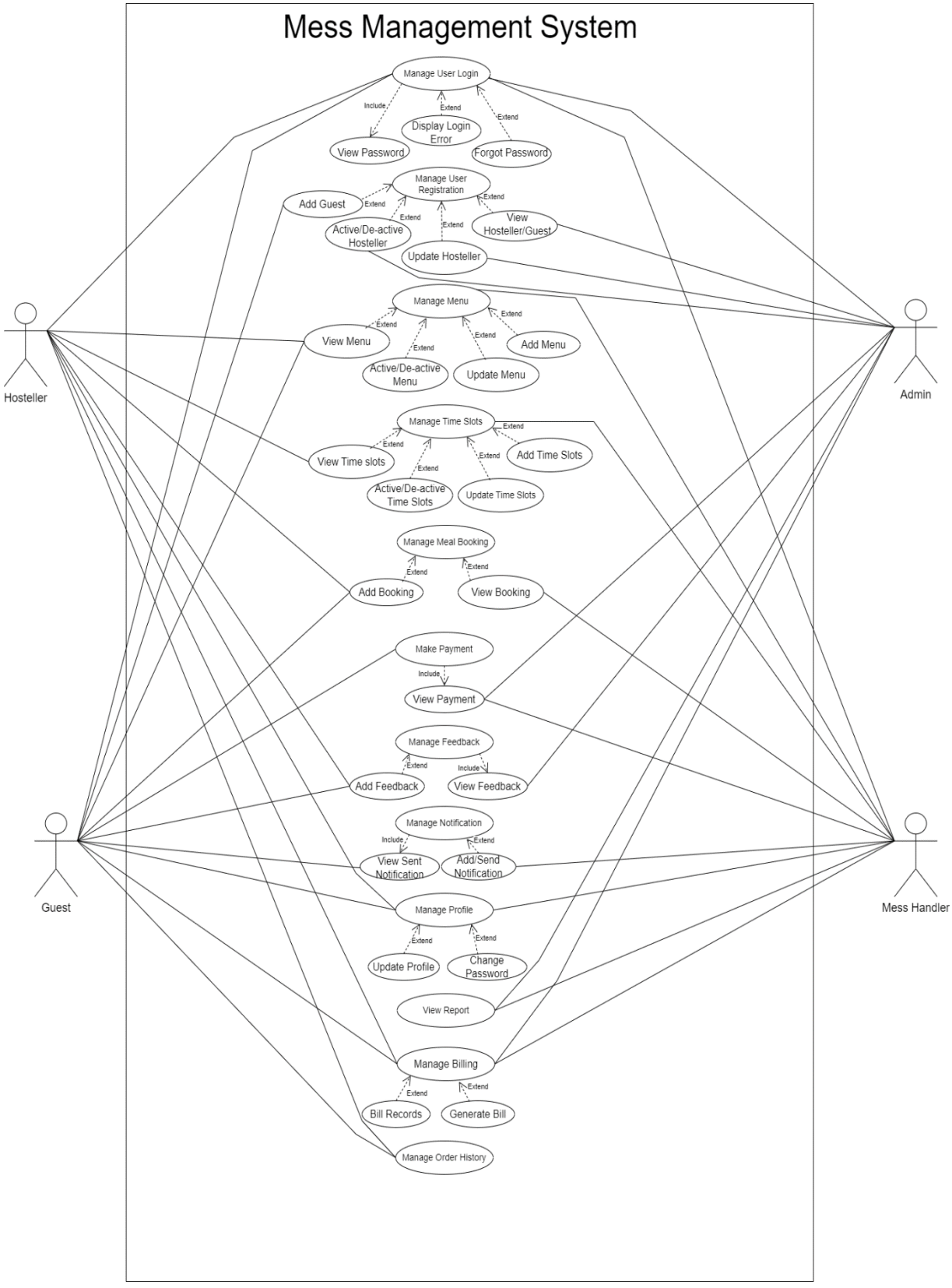
8. tblbookedmeals

SR No.	Field Name	Datatype	Size	Constraints	Description
1	Iid	int	-	Primary Key	Stores Id of Item
2	Fname	varchar	255	Not Null	Name of hosteller
3	contact	varchar	255	Not Null	Contact of hosteller
4	room	varchar	255	Not Null	Room Number of Hosteller
5	days	varchar	255	Not Null	Day of meal booked
6	date	varchar	255	Not Null	Date of meal booked
7	Hostel_type	varchar	255	Not Null	Type of hostel
8	Breakfast	varchar	255	Not Null	Breakfast booked status
9	Lunch	varchar	255	Not Null	Lunch booked status
10	DInner	varchar	255	Not Null	Dinner booked status
11	Breakfast_attendance	varchar	255	Not Null	Breakfast attendance status
12	Lunch_attendance	varchar	255	Not Null	Lunch Attendance status
13	Dinner_attendance	varchar	255	Not Null	Dinner attendance status

9. tblguestbookedmeals

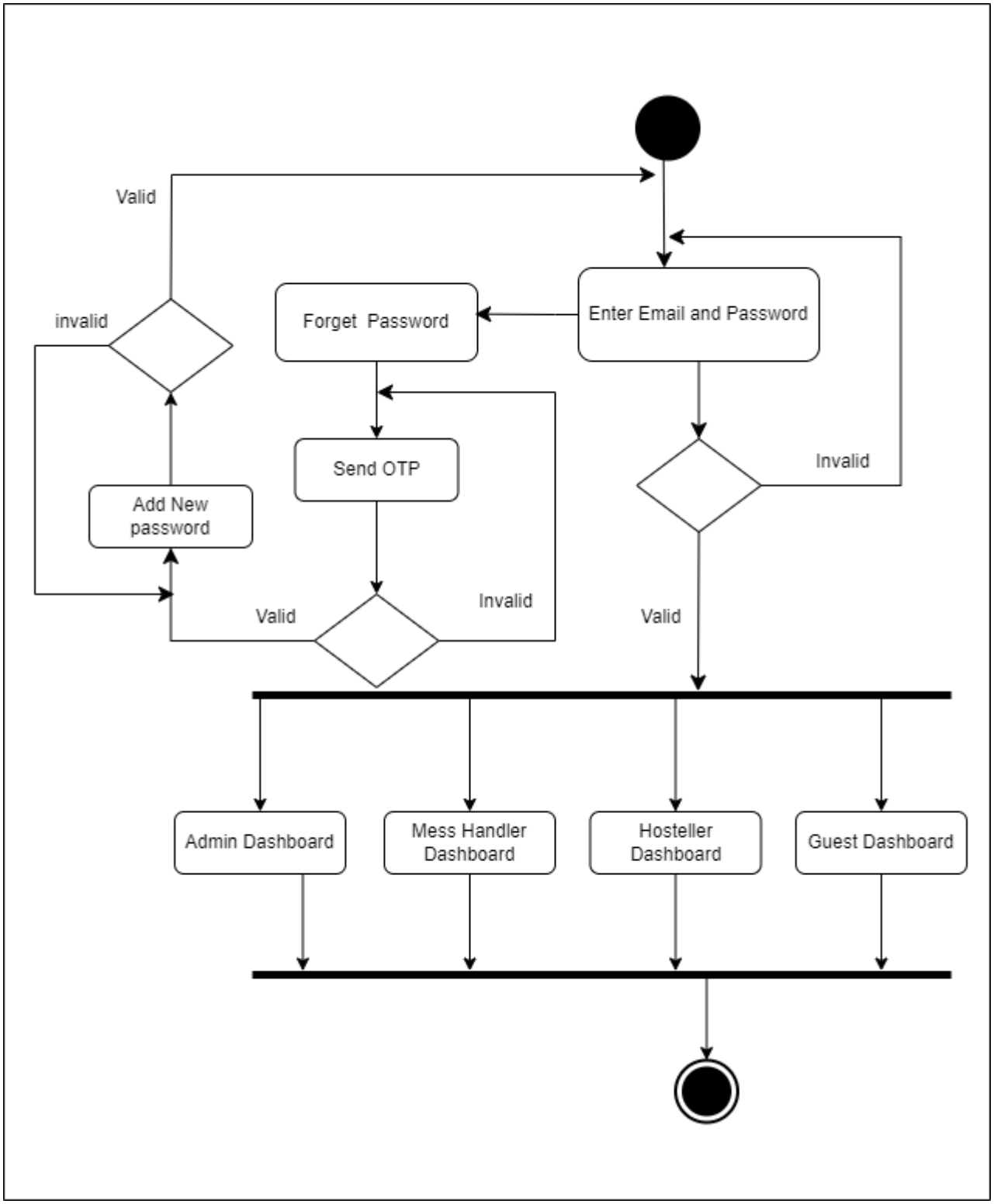
SR No.	Field Name	Datatype	Size	Constraints	Description
1	Iid	int	-	Primary Key	Stores Id of Item
2	Fname	varchar	255	Not Null	Name of guest
3	contact	varchar	255	Not Null	Contact of guest
5	days	varchar	255	Not Null	Day of meal booked
6	date	varchar	255	Not Null	Date of meal booked
9	Lunch	varchar	255	Not Null	Lunch booked status
10	Lunch_attendance	varchar	255	Not Null	Breakfast attendance status
11	Quantity	varchar	255	Not Null	Quantity of plate booked
12	Amount	varchar	255	Not Null	Total amount to be paid
13	time	varchar	255	Not Null	Time of booking

5.1 Use Case Diagram:

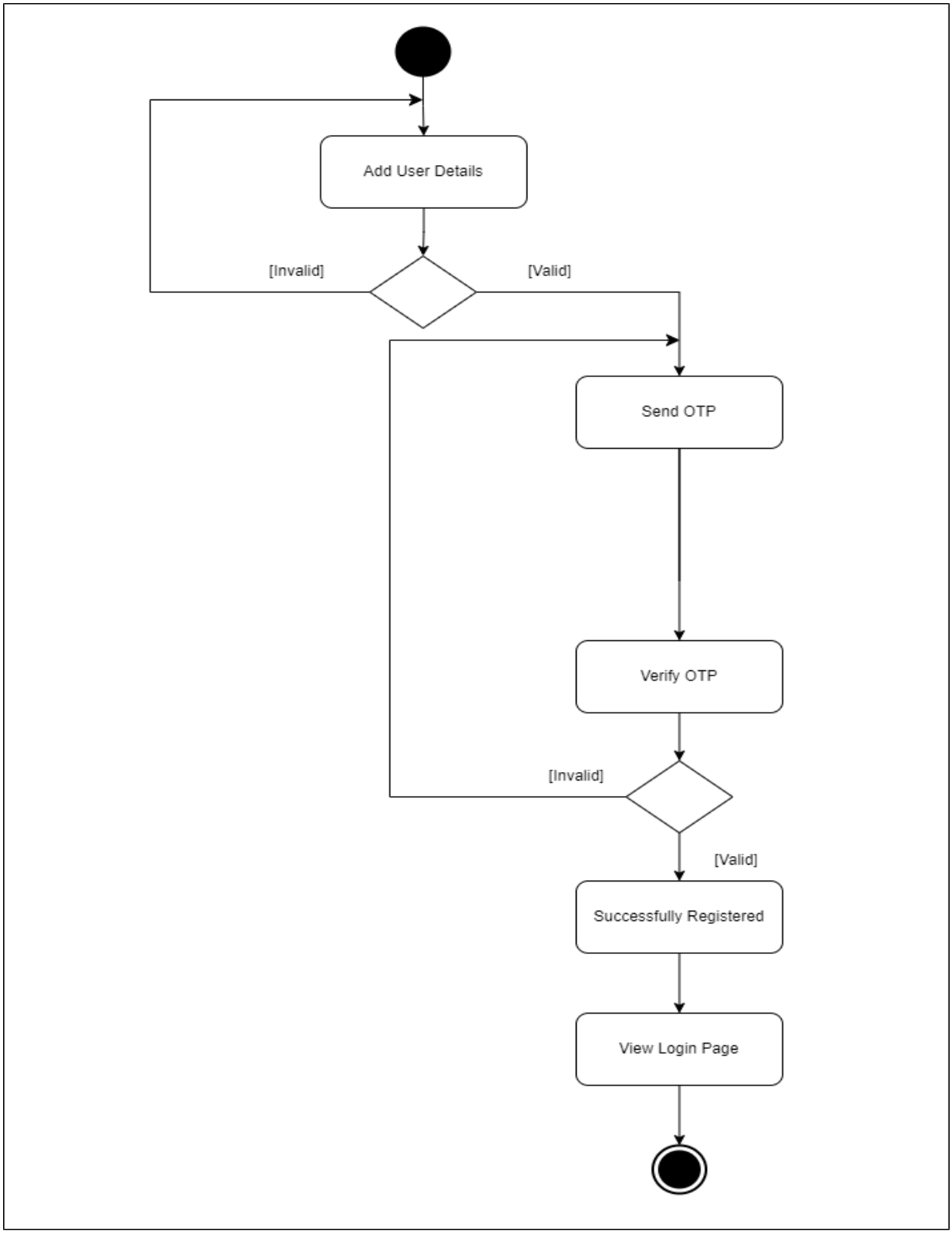


5.2 Activity Diagram

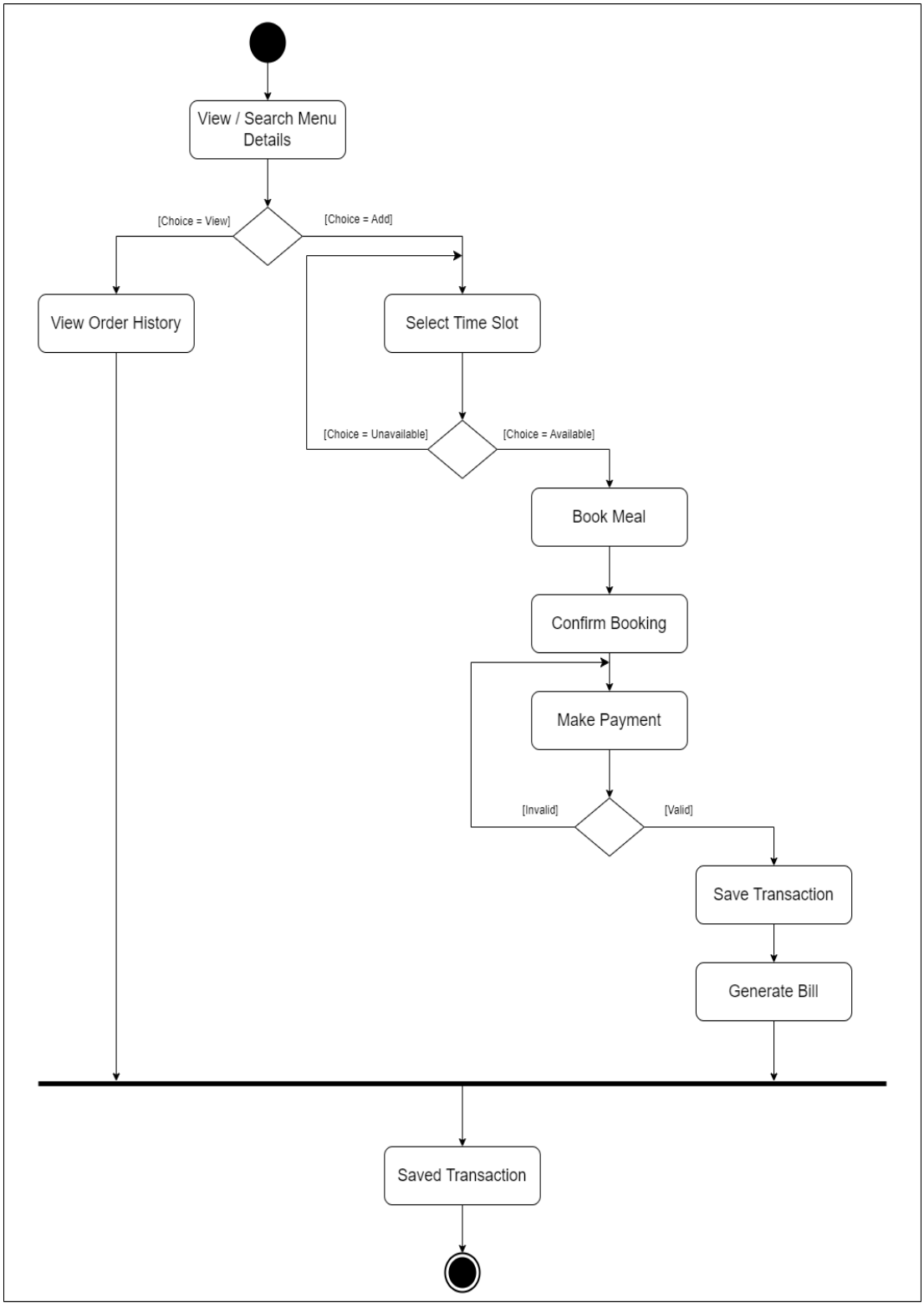
5.2.1 Activity Diagram for Login



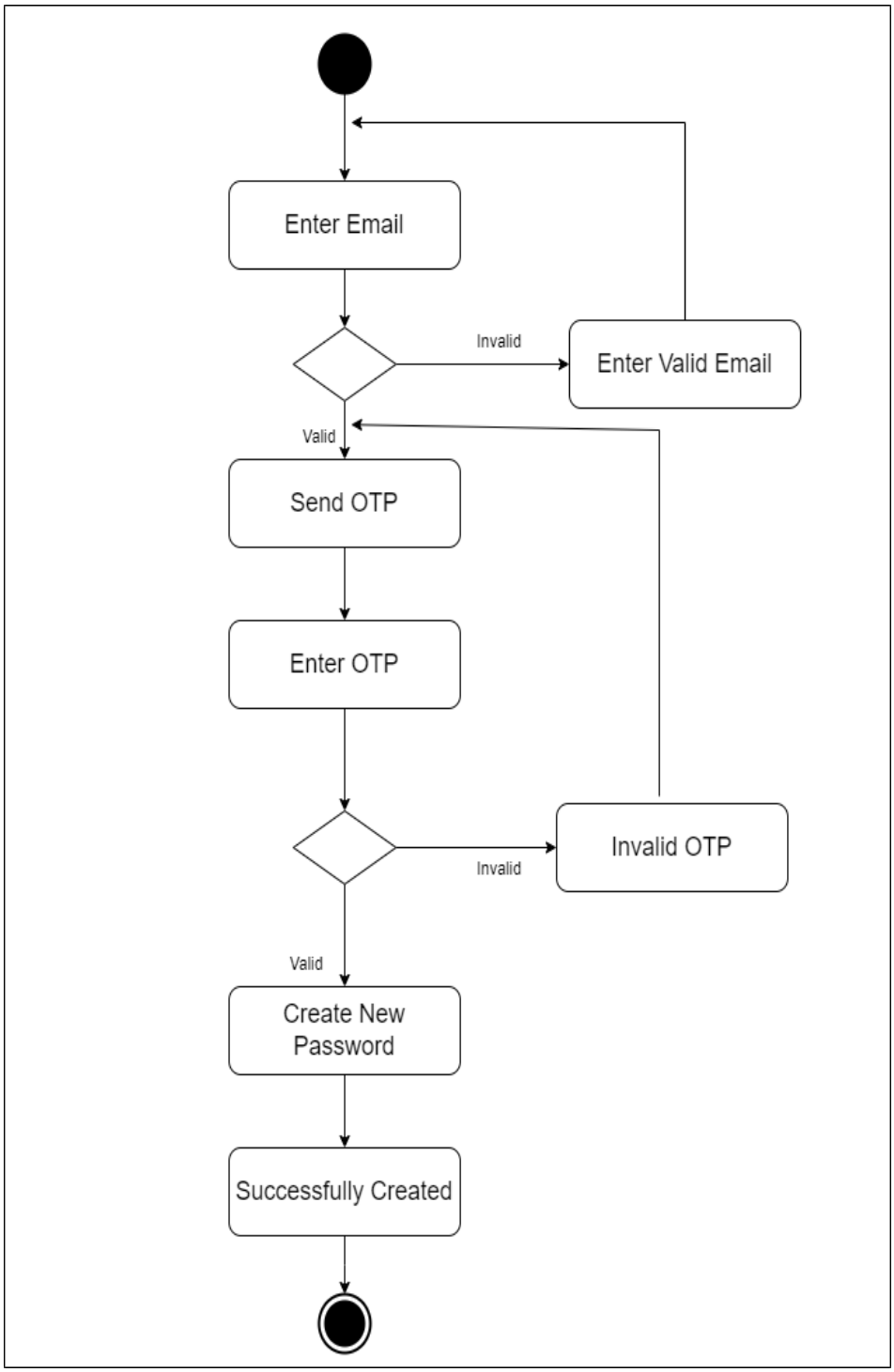
5.2.2 Activity Diagram for Registration:



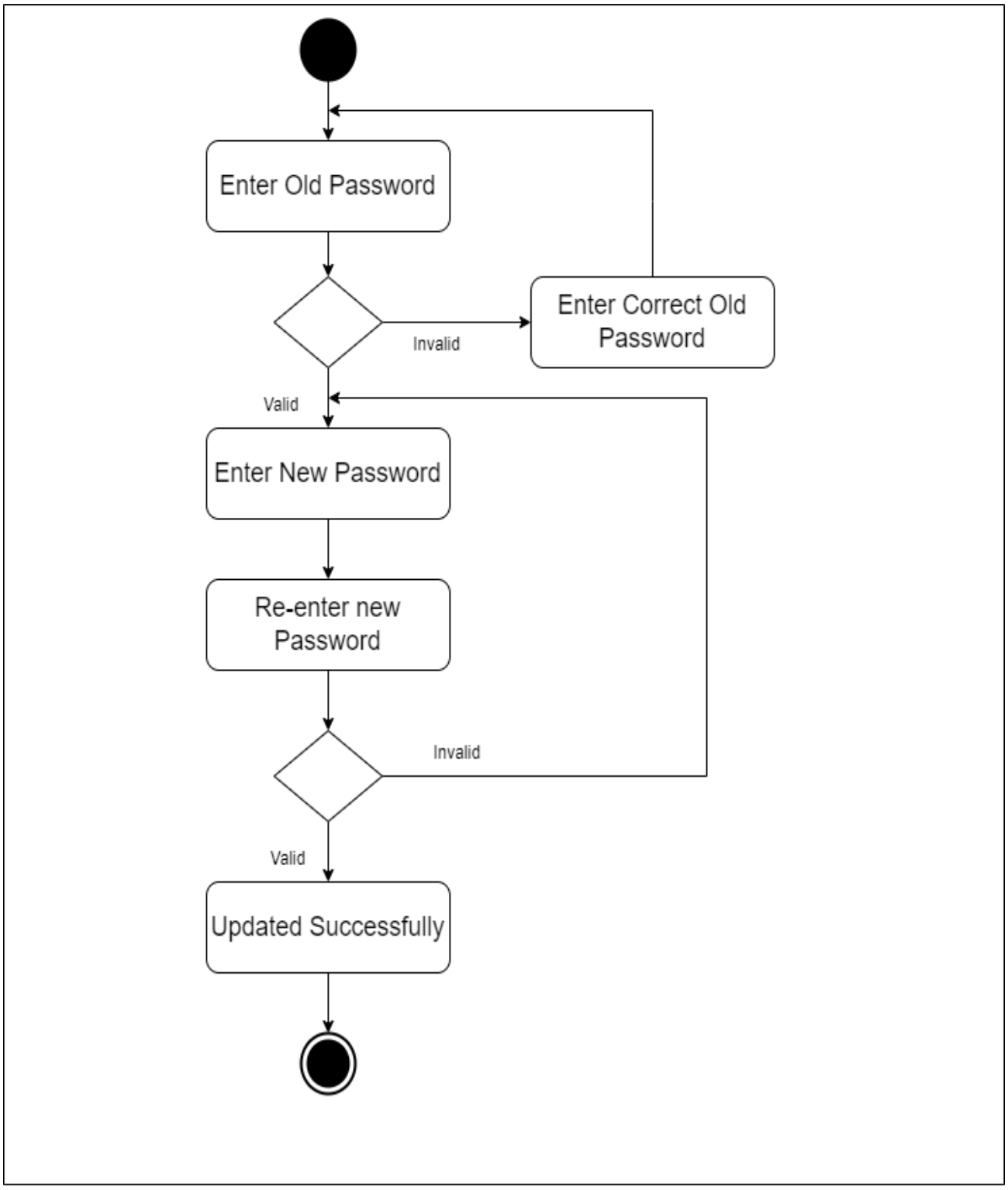
5.2.3 Activity Diagram for Meal Booking:



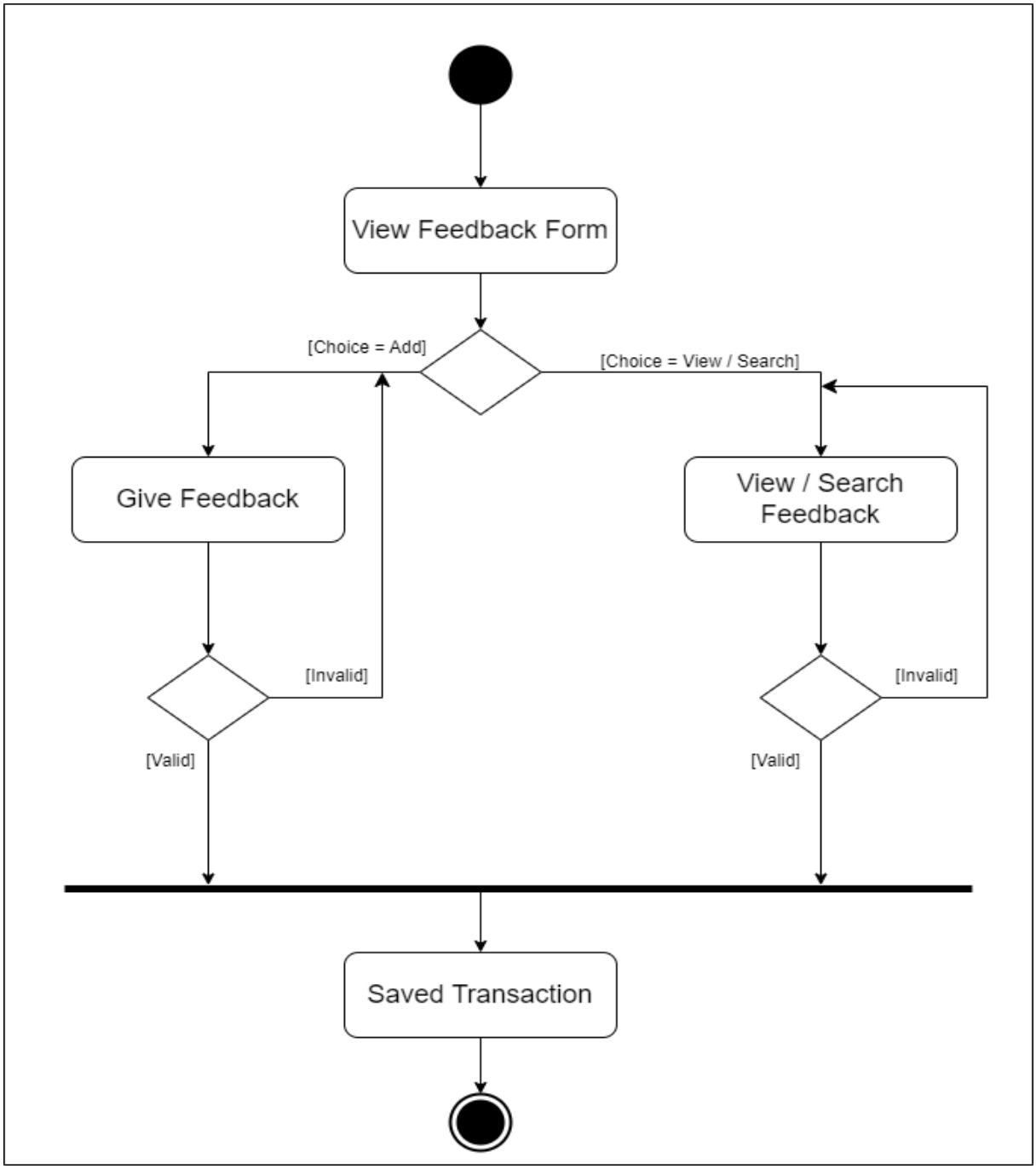
5.2.4 Activity Diagram for Forgot Password:



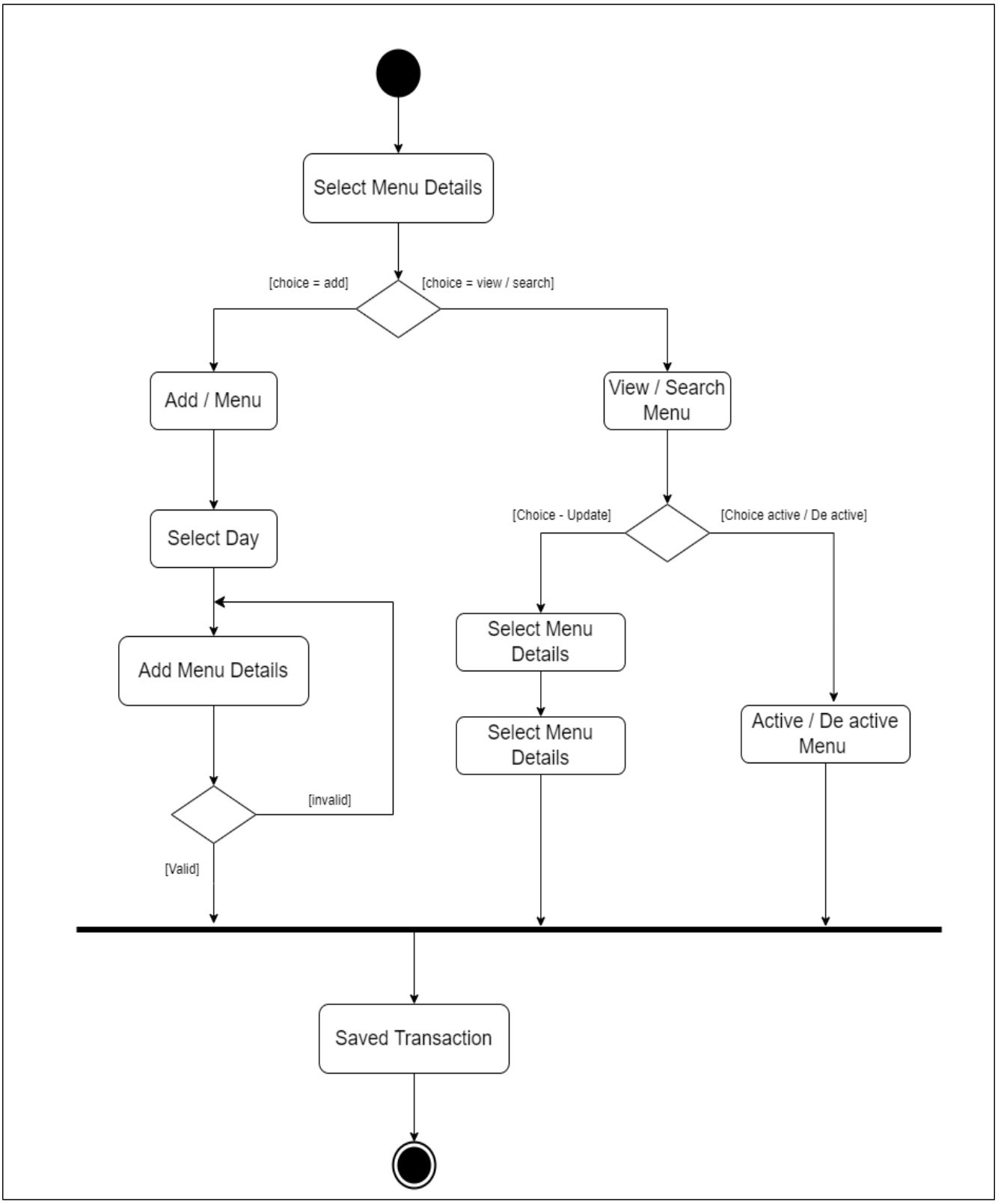
5.2.5 Activity Diagram for Change Password:



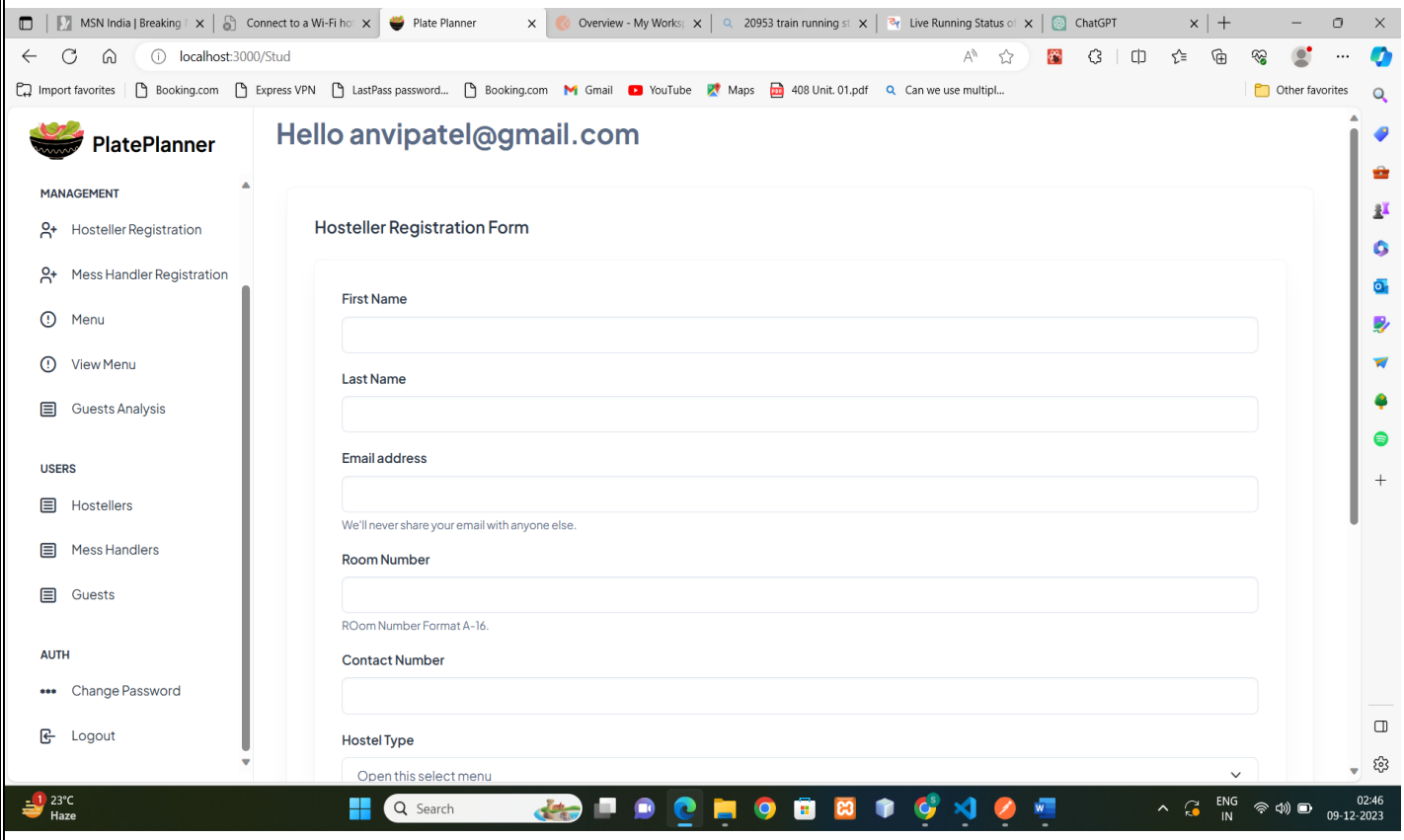
5.2.6 Activity Diagram for Feedback:

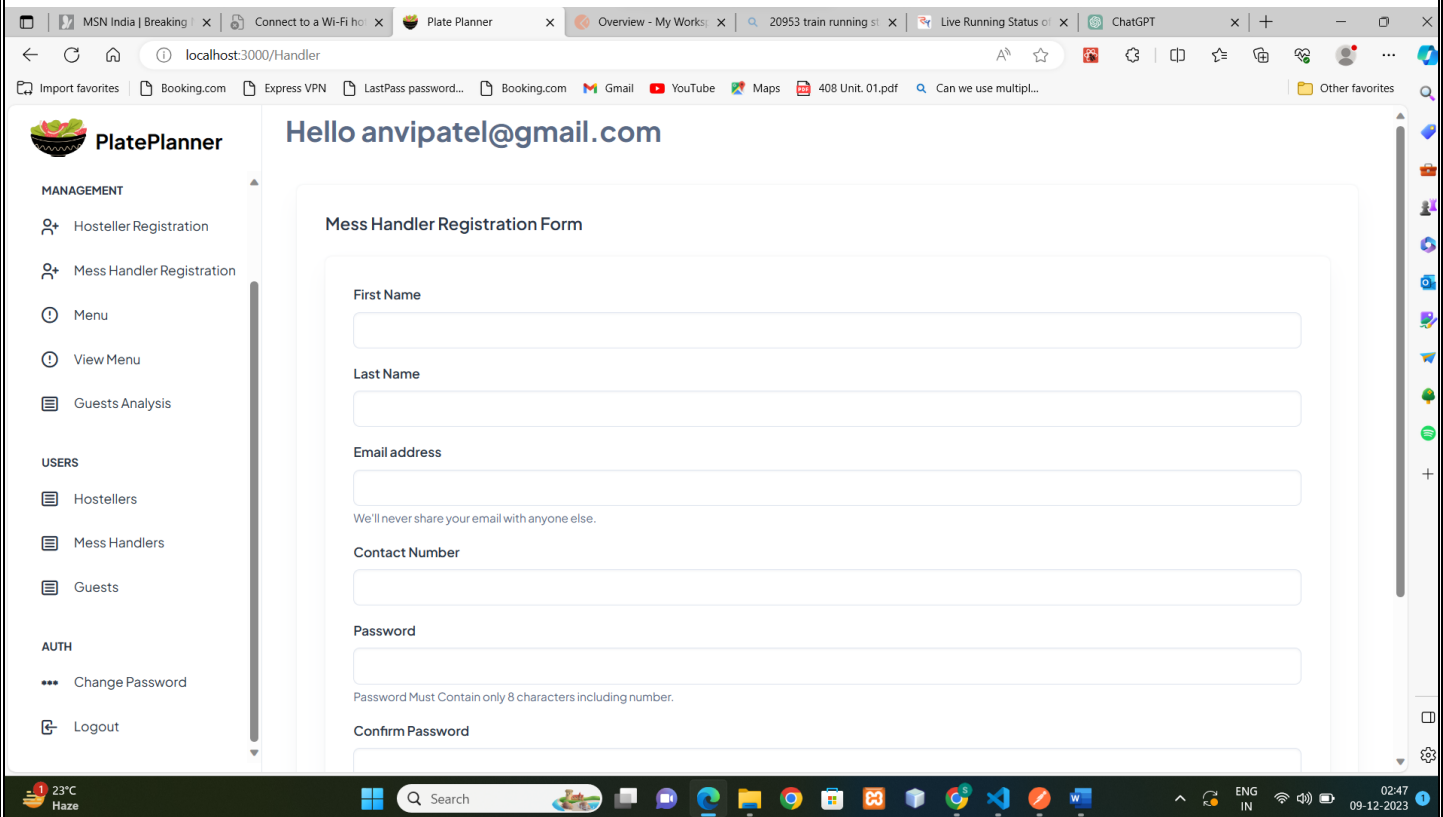


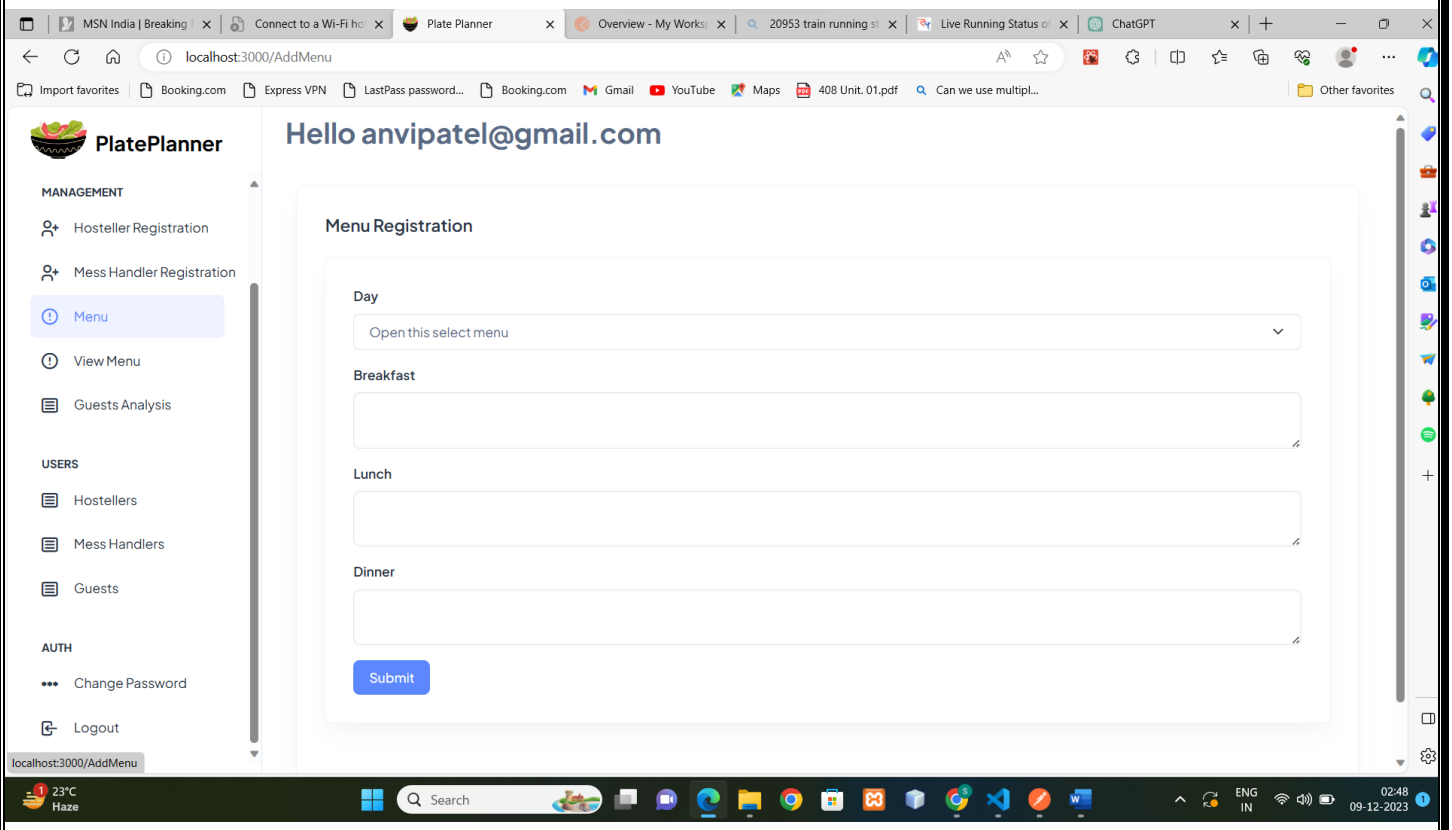
5.2.7 Activity Diagram for Manage Menu



6. Screenshots



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Dinner
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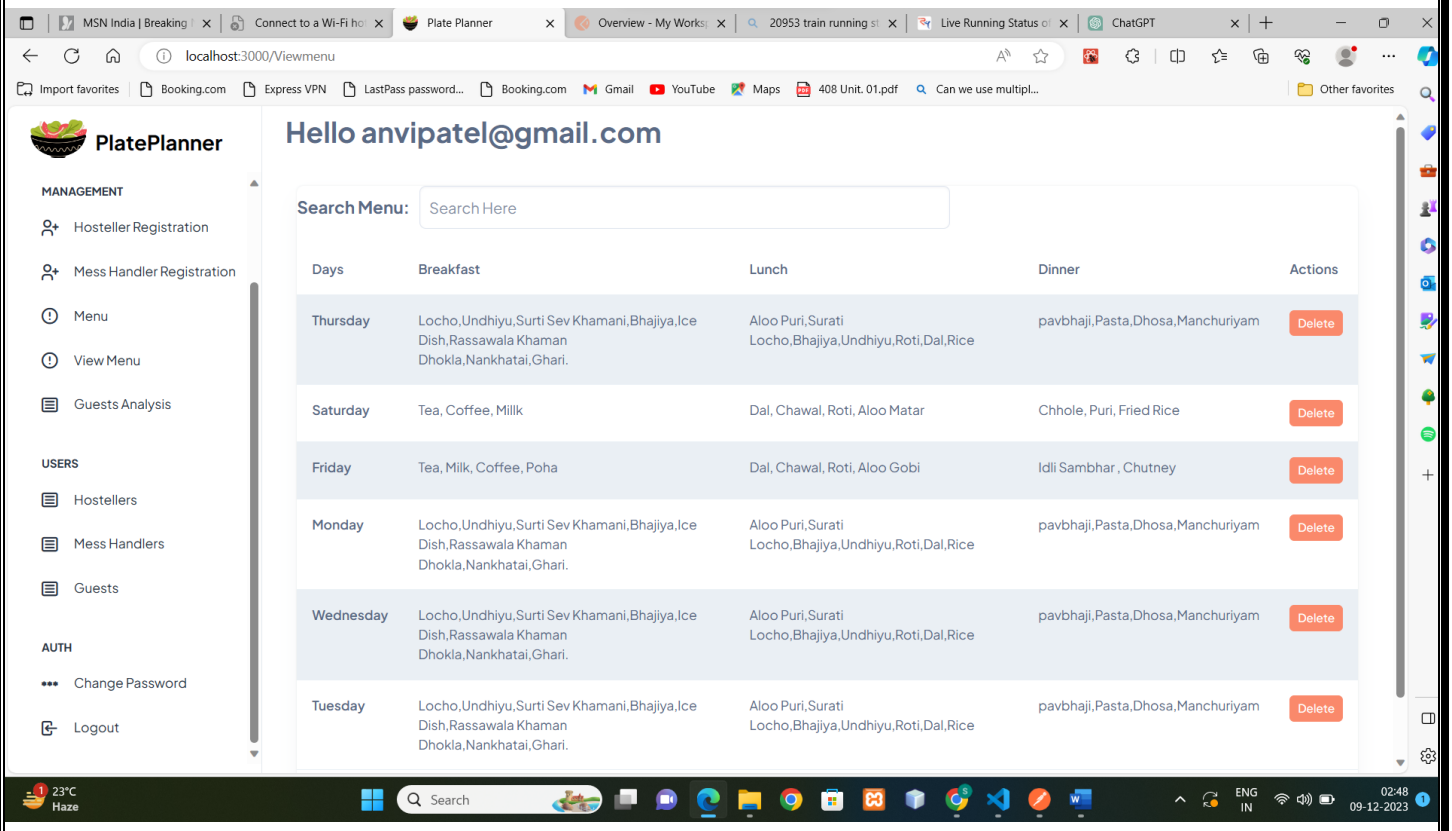
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Search Menu:
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Days
Breakfast
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Aloo Puri,Surati Locho,Bhajiya,Undhiyu,Roti,Dal,Rice
pavbhaji,Pasta,Dhosa,Manchuriyam
Delete
Saturday
Tea, Coffee, Millk
Dal, Chawal, Roti, Aloo Matar
Chhole, Puri, Fried Rice
Delete
Friday
Tea, Milk, Coffee, Poha
Dal, Chawal, Roti, Aloo Gobi
Idli Sambhar , Chutney
Delete
Monday
Locho,Undhiyu,Surti Sev Khamani,Bhajiya,Ice Dish,Rassawala Khaman Dhokla,Nankhatai,Ghari.
Aloo Puri,Surati Locho,Bhajiya,Undhiyu,Roti,Dal,Rice
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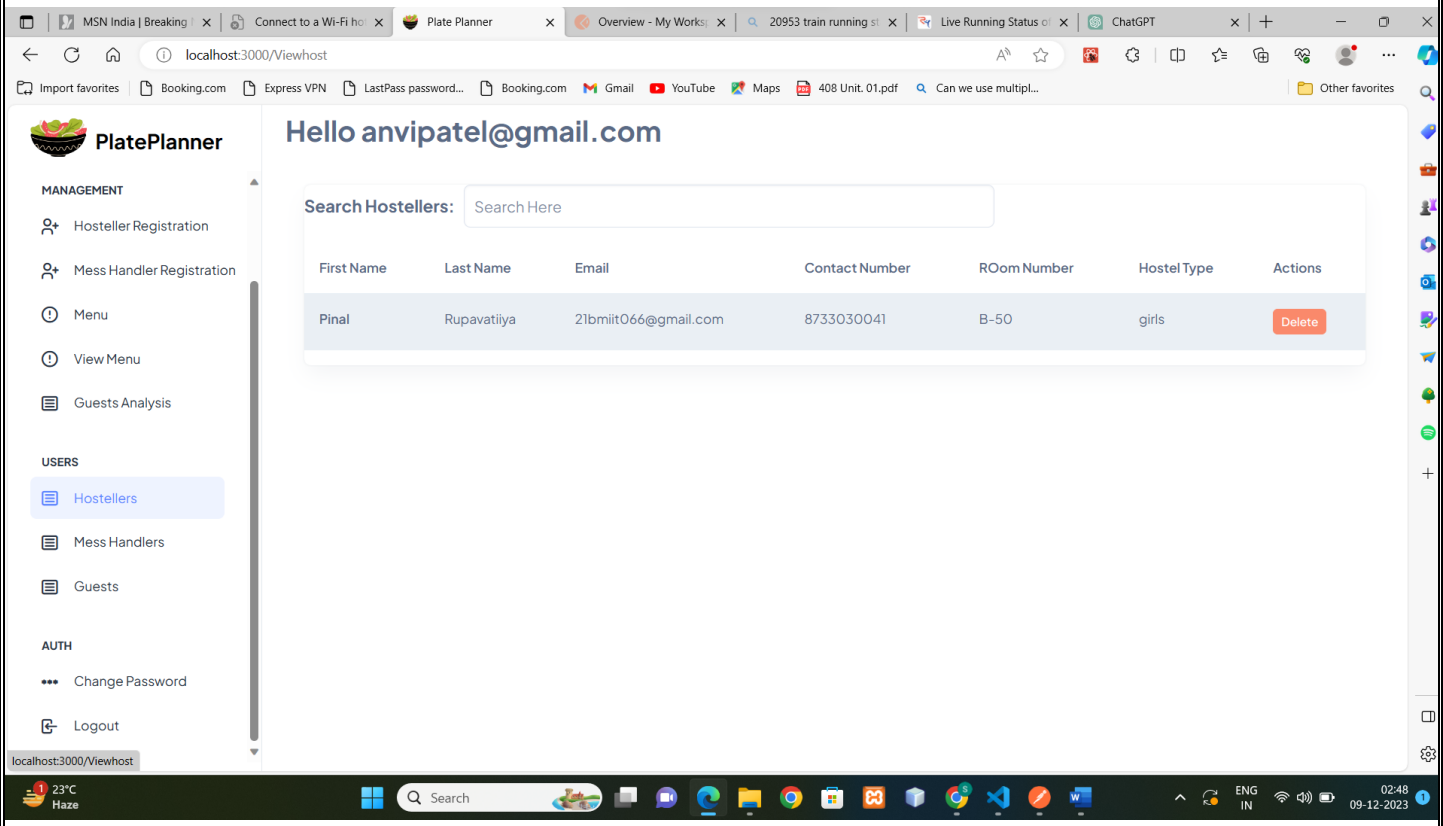
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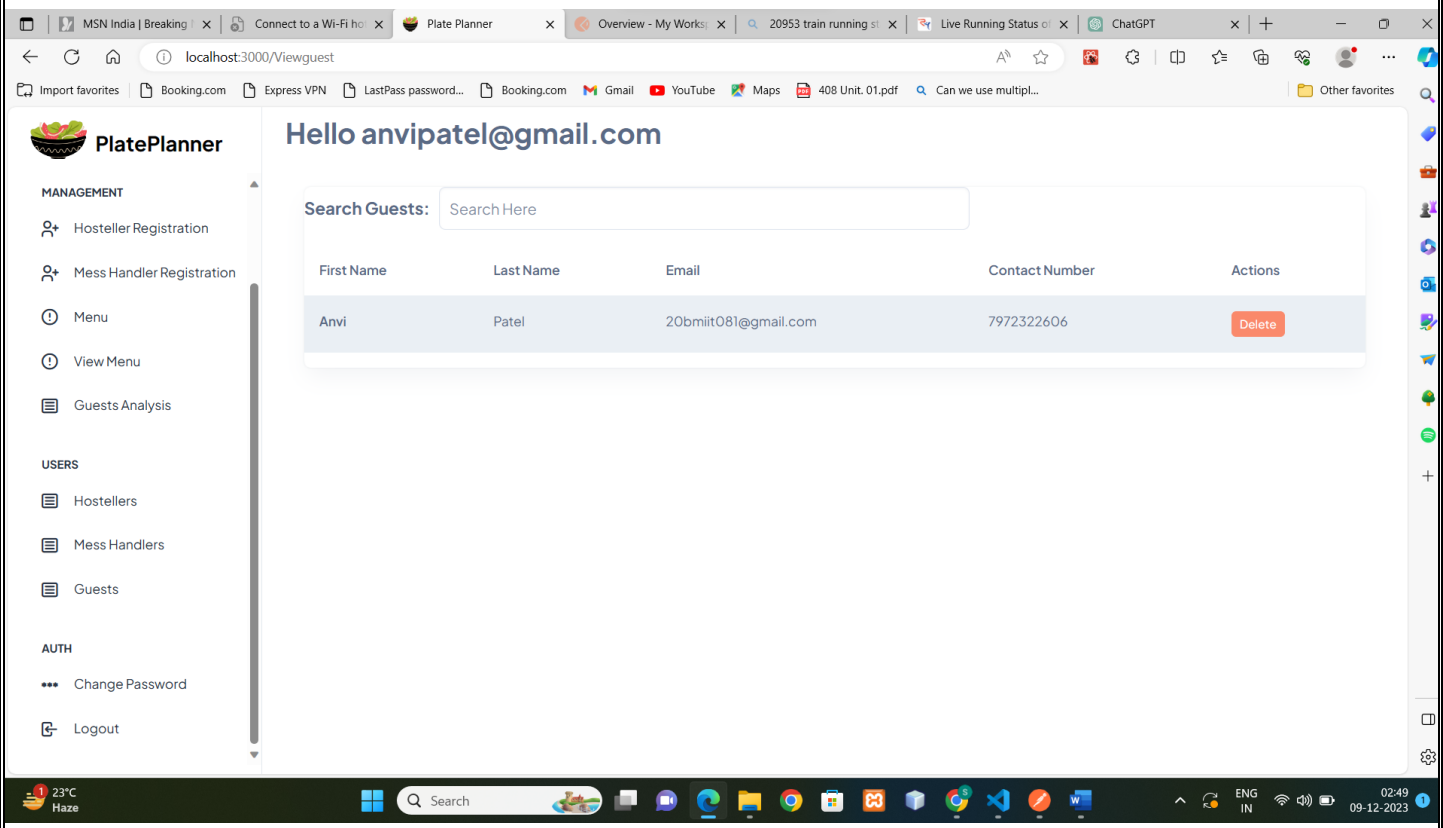
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Hosteller Registration
Mess Handler Registration
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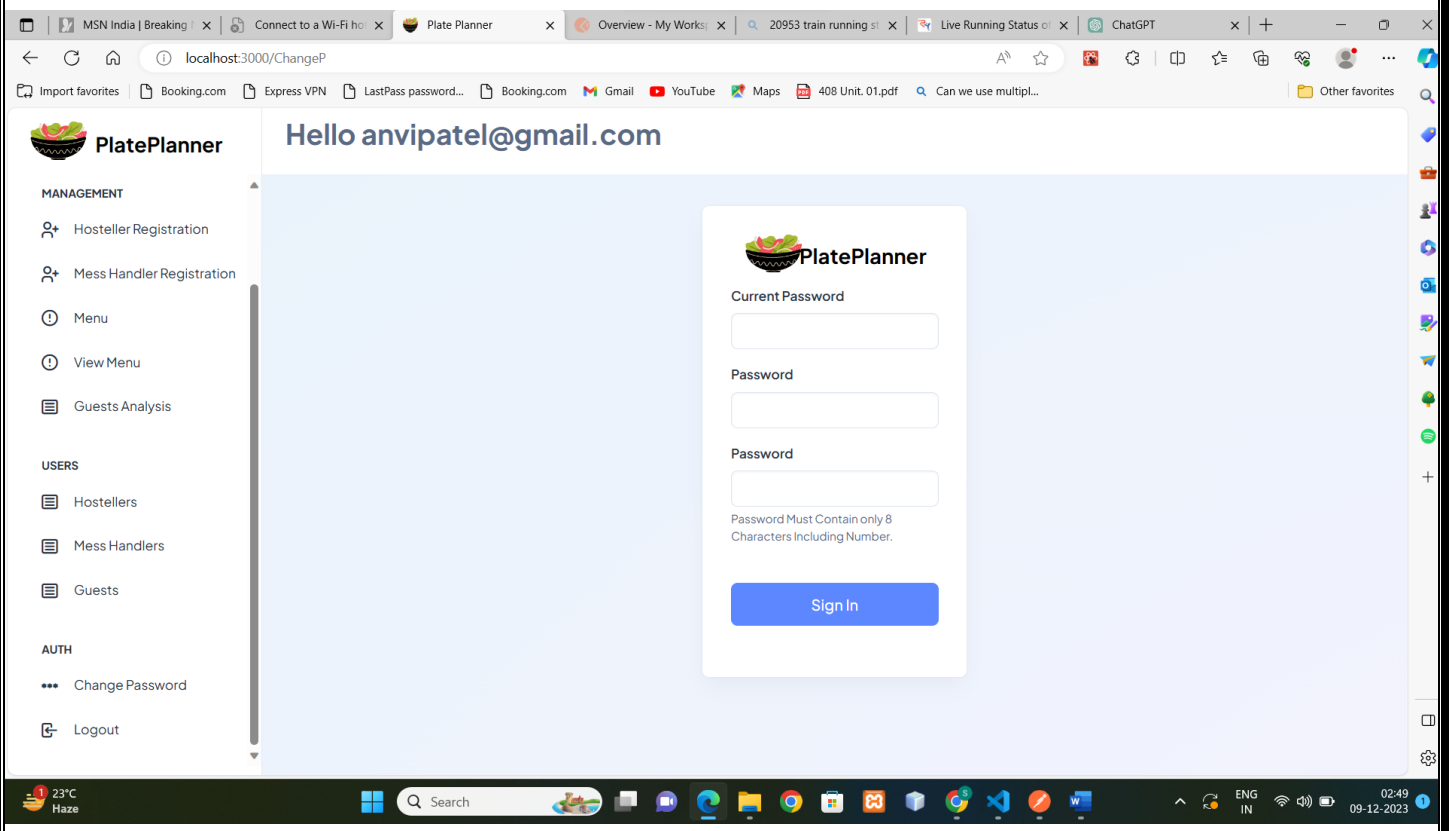
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Mess Handler Registration
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View Menu
Guests Analysis
USERS
Hostellers
Mess Handlers
Guests
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Logout
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Password
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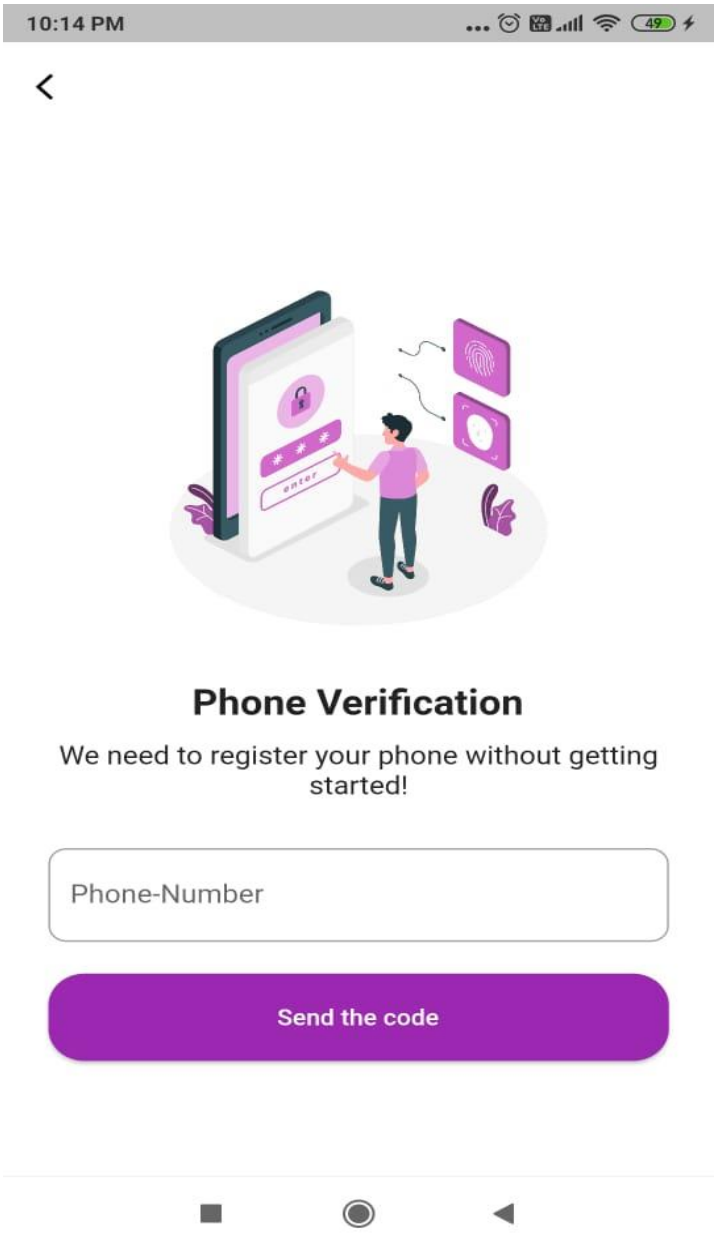
Search
ENG IN
02:49 09-12-2023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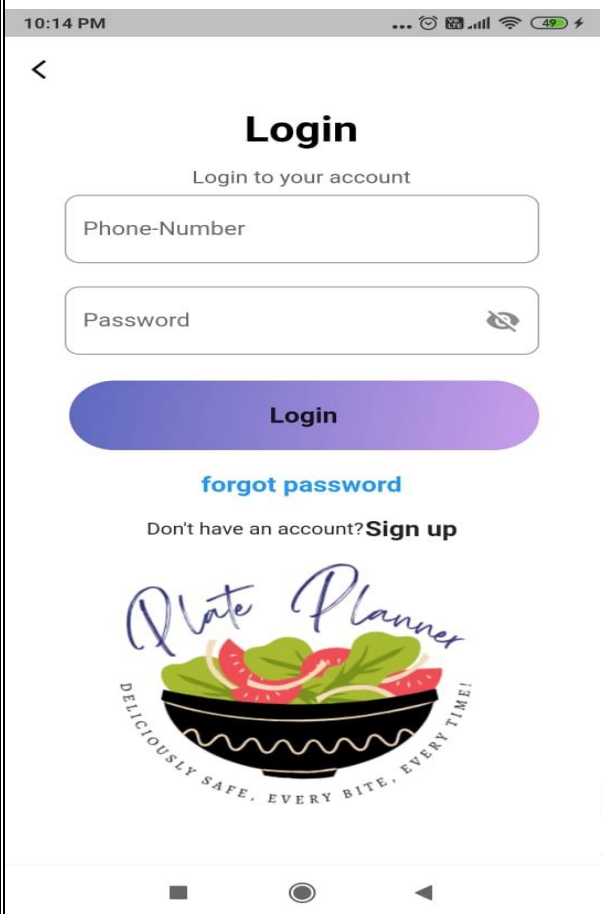
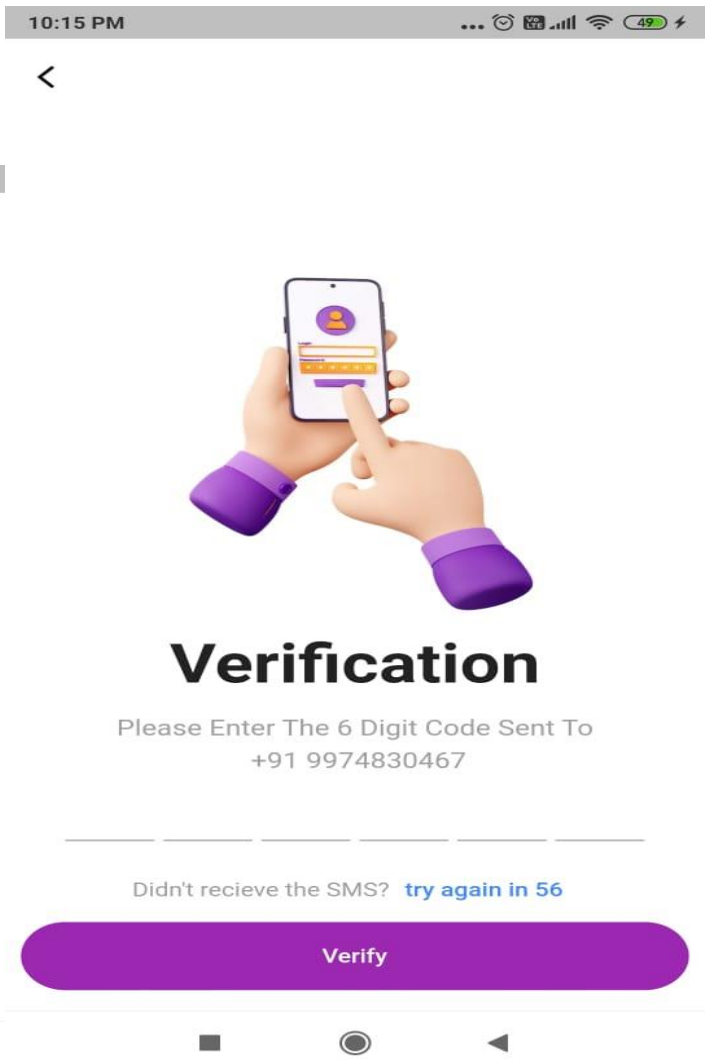
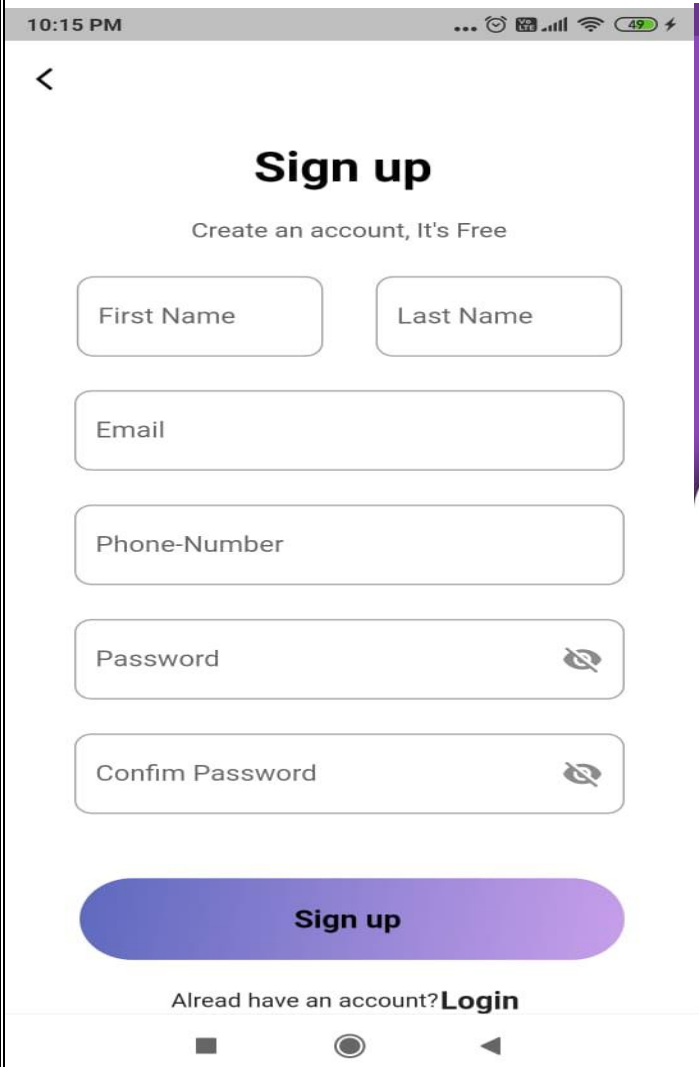
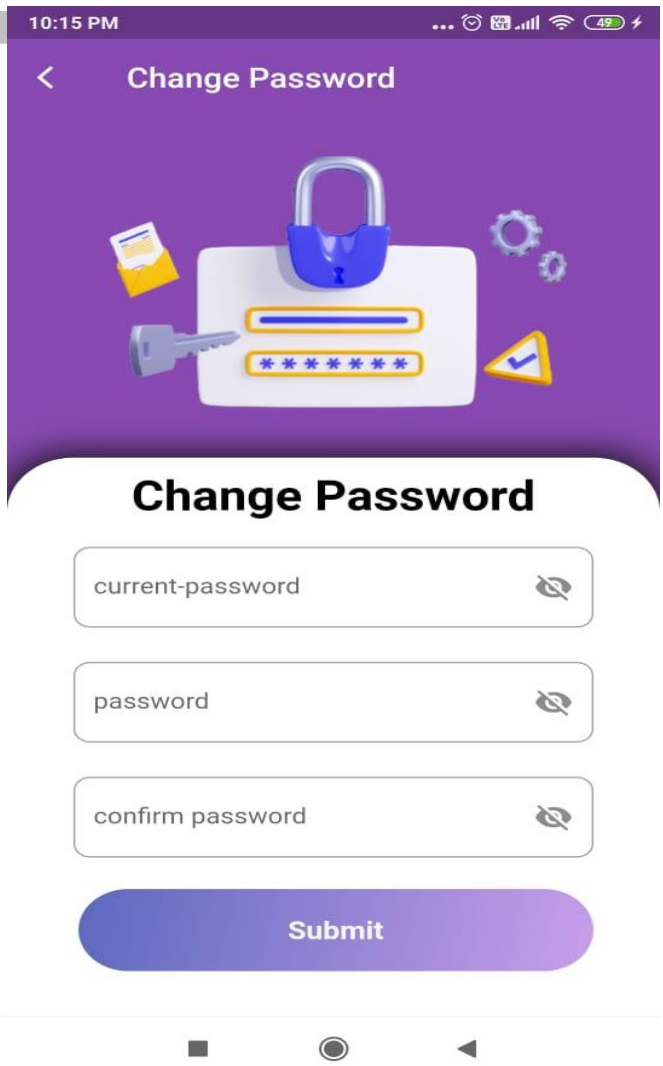
We need to register your phone without getting started!
Phone-Number
Send the code


10:14 PM
Login
Login to your account
Phone-Number
Password
Login
forgot password
Don't have an account?Sign up
Plate Planner
DELICIOUSLY SAFE, EVERY BITE, EVERY TIME!


10:15 PM
Verification
Please Enter The 6 Digit Code Sent To
+91 9974830467
Didn't recieve the SMS? try again in 56
Verify


10:15 PM
Sign up
Create an account, It's Free
First Name
Last Name
Email
Phone-Number
Password
Confim Password
Sign up
Alread have an account?Login


10:15 PM
Change Password
Change Password
current-password
password
confirm password
Submit

7. Test Cases:

7.1 Test case for hosteller registration:

SR No.	Test Description	Input Value	Expected Value	Actual Value	Result
1	Check if first name accepts number or not.	Yash123	Invalid	Invalid	Pass
2	Check contact number accepts char or not.	8388abc	Invalid	Invalid	Pass
3	Check contact number accepts empty value or not.	[Empty]	Invalid	Invalid	Pass
4	Check if email is in correct format or not.	abv@	Invalid	Invalid	Pass
5	Check password matches pattern or not.	abc@124	Invalid	Invalid	Pass
6	Check if room number matches or not.	b-193	Invalid	Invalid	Pass
7	Check if last name takes two or more names.	Anvi p	Invalid	Invalid	Pass

7.2 Change Password

SR No.	Test Description	Input Value	Expected Value	Actual Value	Result
1	Check if current password entered is in correct format or not.	Yash123	Valid	Valid	Pass
2	Check if password takes empty input or not.	[Empty]	Invalid	Invalid	Pass
3	Check if confirm password takes empty input or not.	[Empty]	Invalid	Invalid	Pass

7.3 Menu Registration

SR No.	Test Description	Input Value	Expected Value	Actual Value	Result
1	Check if breakfast field is empty or not.	[Empty]	Invalid	Invalid	Pass
2	Check if lunch field is empty or not.	[Empty]	Invalid	Invalid	Pass
3	Check if dinner field is empty or not.	[Empty]	Invalid	Invalid	Pass
4	Check if breakfast field takes number or not.	Pav6	Invalid	Invalid	Pass
5	Check if lunch field take one or more item.	Pav,Bhaji	Valid	Valid	Pass

8. Future Enhancement

Future enhancement includes development of software in such a way that it supports tracking of food delivery. It also provides facilities for delivering food to the students who have busy schedules. Students shall book their meal from anywhere at anytime and grab their meal as per their requirements.

Conclusion

In conclusion, enhancing a mess management system involves incorporating features that improve accessibility, security, and overall user experience. From mobile app integration and biometric authentication to automated menu planning and real-time inventory management, these enhancements aim to streamline operations, reduce inefficiencies, and cater to diverse user needs. The integration of technology, data analytics, and user feedback creates a more dynamic and responsive system, ensuring the effective management of resources, enhancing the dining experience, and contributing to the overall success of the mess management system. Regular updates and continuous improvements based on user feedback and technological advancements are crucial to adapt to changing needs and maintain the system's efficiency over time.

Bibliography

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2. Software Engineering A practitioner’s approach by Pressman