



Daffodil
International
University

Restaurant Table Reservation

By

Ratan Hazra
152-35-1131

Supervisor

Ms. Farzana Sadia
Lecturer (Senior Scale)

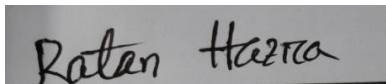
A thesis submitted in partial fulfillment of the requirement for the degree of
Bachelor of Science in Software Engineering

Department of Software Engineering
DAFFODIL INTERNATIONAL UNIVERSITY

Spring – 2019

DECLARATION

I hereby declare that I have taken this project under the supervision of **Ms. Farzana Sadia, Lecturer (Senior Scale), Department of Software Engineering, Daffodil International University**. I also declare that neither this thesis/project nor any part of this has been submitted elsewhere for award of any degree.



Ratan Hazra

ID: 152-35-1131

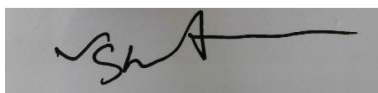
Batch : 17th

Department of Software Engineering

Faculty of Science & Information Technology

Daffodil International University

Certified by:



Ms. Farzana Sadia

Lecturer (Senior Scale)

Department of Software Engineering

Faculty of Science & Information Technology

Daffodil International University

Acknowledgement

In the name of Allah, the Most Merciful and the Most Beneficent. It is with the deepest senses gratitude of the almighty that gives strength and ability to complete this project successfully.

First of all, I would like to dedicate my sincere appreciation to my supervisor, Ms. Farzana Sadia lecturer (Senior Lecturer) at Daffodil International University for allowed taking me under her supervision. She have given me critics, encouragement, guidance, and valuable advices in order to complete this project. Without her continued support and interest, this project would not have been the same as presented here.

My fellow colleagues should also be recognized for her support and friendship. My deeply thanks also goes to others who have provided assistance at various occasions that invite whether direct or indirectly in the completion of my project. Last, but certainly not least, my special thanks also extends to my family for the continual encouragement and support.

Dedication

I hereby declare that the project work entitled “Restaurant Table Reservation” submitted to the Software Engineering department of Daffodil International University, is a record of an individual work done by me under the guidance of Ms. Farzana Sadia, Lecturer (Senior Scale) Of Software Engineering, Daffodil International University, and this project work is submitted in the partial fulfillment of the requirements for the award of the degree of Bachelor of Science in Software Engineering. The results embodied in this project have not been submitted to any other University or Institute for the award of any degree or diploma.

Abstract

This project is aimed to developing an online Blood Donation Information. The entire project has been developed keeping in view of the distributed client server computing technology, in mind. The project entitled “Blood Bank” is a web application. It is developed using PHP and MySQL. This project has tried to incorporate all the advanced features of PHP such as to fulfill the aim of the project. The application has been designed such that it encompasses the managerial as well as public functionalities. Among the managerial functionalities are the task performed by the various offices. The public features are exercised by the users and outsiders according to the permissions level availed to them.

Table of Contents

Restaurant Table Reservation	1
Chapter 1.....	1
Introduction.....	1
1.1. Project Overview	2
1.2. Project Purpose	2
1.2.1. Background.....	2
1.2.2. Benefits & Beneficiaries	2
1.2.3. Goals.....	2
1.3. Stakeholders.....	3
1.4. Proposed System Model (block diagram).....	3
1.5. Project Schedule.....	4
1.5.1. Gantt chart.....	4
1.5.2. Release Plan/Schedule	5
Chapter 2.....	6
Software Requirement Specification	6
2.1. Functional Requirements	7
2.1.1. Customer registration	7
2.1.2. Customer can book table.....	7
2.1.3. Customer can see table information	7
2.1.4. Customer can choose food menu.....	7
2.1.5. Bill will generate automatically by the system	7
2.1.6. Customer have to pay for confirm booking	8
2.1.7. Customer must get a confirmation E-Mail of booking	8
2.1.8. New restaurant registration	8
2.1.9. Restaurant authority can add their food menu	8
2.1.10. Restaurant authority can add table and chair	8
2.1.11. Restaurant authority can delete their menu item	9
2.1.12. Restaurant authority can accept or reject booking request.....	9
2.2. Data Requirements	9
2.3. Performance Requirements.....	9
2.3.1. Speed and Latency Requirements	9
2.3.2. Precision or Accuracy Requirements.....	9

2.3.3.	Capacity Requirements	10
2.4.	Dependability Requirements	10
2.4.1.	Reliability Requirements	10
2.4.2.	Availability Requirements	10
2.4.3.	Robustness or Fault-Tolerance Requirements.....	10
2.5.	Maintainability and Supportability Requirements	11
2.5.1.	Supportability Requirements.....	11
2.5.2.	Adaptability Requirements	11
2.5.3.	Scalability or Extensibility Requirements.....	11
2.6.	Security Requirements	11
2.6.1.	Access Requirements.....	12
2.6.2.	Integrity Requirements	12
2.6.3.	Privacy Requirements	12
2.7.	Usability and Human-Interaction Requirements.....	12
2.7.1.	Ease of Use Requirements	12
2.7.2.	Personalization and Internationalization Requirements.....	13
2.7.3.	Understandability and Politeness Requirements	13
2.7.4.	Accessibility Requirements.....	13
2.7.5.	User Documentation Requirements.....	13
2.7.6.	Training Requirements	13
2.8.	Look and Feel Requirements	13
2.8.1.	Appearance Requirements	13
2.8.2.	Style Requirements.....	14
2.9.	Operational and Environmental Requirements	14
2.10.	Legal Requirements.....	14
Chapter 3.....		15
System Analysis		15
3.1.	Use Case Diagram.....	16
3.2.	Use Case Description (for each use case).....	17
3.2.1.	Authentication.....	17
3.2.2.	Select location	17
3.2.3.	Select restaurant	17
3.2.4.	Book table	18

3.2.5.	Choose food	18
3.2.6.	Make payment.....	19
3.2.7.	Add food in menu.....	19
3.2.8.	Delete menu	19
3.2.9.	Add table.....	20
3.2.10.	Add chair	20
3.3.	Activity Diagram (for each use case)	21
3.3.1.	Authentication.....	21
3.3.2.	Select Location.....	21
3.3.3.	Select Restaurant.....	22
3.3.4.	Book Table.....	23
3.3.5.	Choose Food	24
3.3.6.	Make Payment.....	25
3.3.7.	Add Food in Menu	26
3.3.8.	Delete Menu	26
3.3.9.	Add Table	27
3.3.10.	Add Chair.....	27
3.4.	System Sequence Diagram (for each use case).....	28
3.4.1.	Authentication.....	28
3.4.2.	Select Location.....	28
3.4.3.	Select Restaurant.....	29
3.4.4.	Book Table.....	29
3.4.5.	Choose Food	30
3.4.6.	Make Payment.....	30
3.4.7.	Add Food in Menu	31
3.4.8.	Delete Menu	31
3.4.9.	Add Table	32
3.4.10.	Add Chair.....	32
Chapter 4.....		33
System Design Specification		33
4.1.	Class Responsibilities Collaboration (CRC) Cards.....	34
4.1.1.	Restaurant authority.....	34
4.1.2.	Customer.....	34

4.1.3.	Book table	34
4.1.4.	Chair information	35
4.1.5.	Table information	35
4.1.6.	Food menu	35
4.1.7.	Booking counter	35
4.2.	Class Diagram.....	36
4.3.	Database Design Diagram	37
4.4.	Development Tools & Technology	38
4.4.1.	User Interface Technology.....	38
4.4.2.	Implementation Tools & Platforms	38
Chapter 5.....		39
System Testing.....		39
5.1.	Testing Features	40
5.1.1.	Features to be tested	40
5.1.2.	Features not to be tested.....	40
5.2.	Testing Strategies	41
5.2.1.	Test Approach	41
5.2.2.	Pass/Fail Criteria	41
5.2.3.	Suspension and Resumption	41
5.2.4.	Testing Schedule	41
5.2.5.	Traceability Matrix.....	42
5.3.	Testing Environment (hardware/software requirements)	42
5.4.	Test Cases.....	43
Chapter 6.....		48
User Manual.....		48
6.1.	User Manual (For Restaurant)	49
6.2.	User Manual (For Customer).....	53
Chapter 7.....		58
Project Summary		58
7.1.	Github Link.....	59
7.2.	Critical Evolution.....	59
7.3.	Limitations.....	59
7.4.	Obstacles & Achievements.....	59

7.5. Future Scope 60

7.6. Future Scope 60

List of Figures

Figure 1 Proposed System Model.....	2
Figure 2 Gantt chart.....	3
Figure 3 Use Case Diagram.....	13
Figure 4 Activity Diagram for authentication.....	18
Figure 5 Activity Diagram for Select Location	18
Figure 6 Activity Diagram for Select Restaurant	19
Figure 7 Activity Diagram for Book Table	20
Figure 8 Activity Diagram for Choose Food.....	21
Figure 9 Activity Diagram for Payment.....	22
Figure 10 Activity Diagram for Add food in menu.....	23
Figure 11 Activity Diagram for Delete menu.....	23
Figure 12 Activity Diagram for Add table	24
Figure 13 Activity Diagram for Add chair	24
Figure 14 Sequence diagram for authentication	25
Figure 15 Sequence diagram for Select Location	25
Figure 16 Sequence diagram for Select Restaurant	26
Figure 17 Sequence diagram for Book Table	26
Figure 18 Sequence diagram for Choose Food	27
Figure 19 Sequence diagram for Add Food Menu	27
Figure 19 Sequence diagram for Make Payment	27
Figure 20 Sequence diagram for delete menu	28
Figure 21 Sequence diagram for Add Table	28
Figure 22 Sequence diagram for Add Chair	29
Figure 23 Class Diagram.....	32
Figure 24 Database Design Diagram.....	33
Figure 25 User manual of Register as restaurant	43
Figure 26 User manual of Table adding	44
Figure 27 User manual of Chair adding	45
Figure 28 User manual of Adding food menu	46
Figure 29 User manual of Select location.....	47
Figure 30 User manual of Select Restaurant.....	47
Figure 31 User manual of Provide Date And Time	48
Figure 32 User manual of Select Table.....	48
Figure 33 User manual of Select Chair.....	49
Figure 34 User manual of Select Food and Quantity	50
Figure 35 User manual of Send Book Table Request.....	51

Chapter 1

Introduction

1.1. Project Overview

A restaurant table booking system, by which customer can book a table and can order food menu for their meal, from any registered restaurant of this system.

For this system there are two types of user. First one is restaurant authority, at first they have to register to this system and have to provide their food menu and price for the menu.

And the second one is the customer for the restaurant. To book a table of a restaurant, customer must have to register at this system. To register this system customer have to provide their name, phone number and email. Then they will be able to choose a restaurant and select a table for the restaurant. They also have to choose the food menu from that restaurant's provide menu. They also have to provide the time when they want to come to take their meal. Then they have to pay the cost of the meal by BKash or Rocket or other payment method that the system accept. After payment customer will get a conformation E-Mail to his email.

1.2. Project Purpose

1.2.1. Background

There are many restaurant in our Dhaka city which are popular for their delicious foods. Sometimes this popularity makes a problem for their customers and that is, customers have to wait outside of restaurant because all of the table and chairs remain full. And our project will going to solve this problem.

1.2.2. Benefits & Beneficiaries

Basically this project will save people time. Because, in real case it happens that, when we go to a restaurant one hotel boy come and take order then they make the food or ready for us from a previously made food. In case of some food it take very large time. Now if people use this system they will be benefitted in some ways:

- Customer can save their time.
- Because of pre ordered menu, food will be quite fresh.
- Restaurant table reservation system will be automated.

1.2.3. Goals

My goal is to develop this project in web base. Because this is the only platform which can be accessible from all kind of device. So I am making a website first. Now a days peoples are not interesting in websites, they are more reliable with application. So in future I am thinking to make this project in application. And in that application I will add food delivery option. It will be help people in many ways. I thik this project will save a lot of times of people.

1.3. Stakeholders

There are two types of stakeholders in my 'Restaurant Table Reservation' system. The first stakeholder is:

- **Customer:** In this system customer can book a table by providing some information and paying the bill. For booking a table customer have to login into the system, then they have to choose a restaurant. After choosing a restaurant they have to select a table and the chair they want to book. Then they have to choose food menu from the menu and have to pay the bill. After that they will gate a conformation mail.

And the second one is:

- **Restaurant Authority:** In this system restaurant authority will manage the restaurant table, chair and food menu. At first they have to register in this system and then they will able to add table and chair as like as they have on their restaurant. They also able to add their food menu.

1.4. Proposed System Model (block diagram)

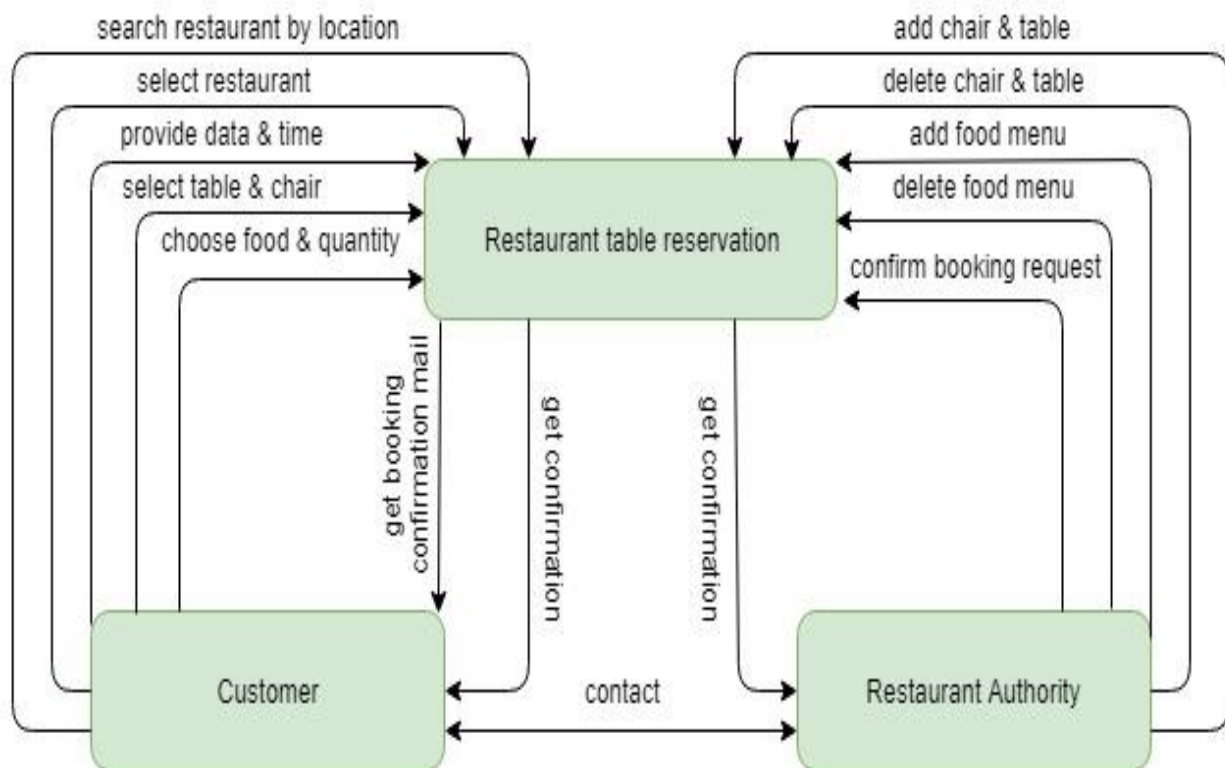


Figure 1: Proposed System Model

1.5. Project Schedule

1.5.1. Gantt chart

Activities		W 1	W 2	W 3	W 4	W 5	W 6	W 7	W 8	W 9	W 10	W 11	W 12	W 13	W 14	W 15	W 16
Planning	Ideas	█															
	Problem definition	█															
	Proposal planning	█	█														
Requirements	Requirement specification		█														
	Requirement analysis		█														
QA - 1	Quality assurance			█													
System design	Design Specification				█												
	Interface design				█												
	Database design					█	█	█	█								
Development	Development System modules					█	█	█	█								
	Integrate System Modules						█	█	█								
QA - 2	Test cases			█				█	█	█	█						
Testing	Unit testing										█	█					
	Blackbox testing												█	█	█		
Resolve Issues	Resolve issues found															█	
Release	Software release																█

Figure 2: Gantt chart

1.5.2. Release Plan/Schedule

Activities	Duration in week	Total week
Brainstorming	Week 1	1
Problem identification	Week 1, Week 2	2
Requirement specification	Week 2	1
Requirement analysis	Week 2	1
Design specification	Week 4	1
Interface design	Week 4	1
Database design	Week 5	1
Development System modules	Week 5, Week 6, Week 7, Week 8	4
Integrate System Modules	Week 6, Week 7, Week 8	3
Test case	Week 2, Week 7, Week 8, Week 9, Week 10	5
Unit testing	Week 11, Week 12	2
Black-box testing	Week 13, Week 14, Week 15	3
Resolve Issues	Week 15	1
Software release	Week 16	1

Chapter 2

Software Requirement Specification

2.1. Functional Requirements

2.1.1. Customer registration

Requirements-1	Customer registration
Description	To booking a table in this system, customer must have to be registered customer. Without registration customer just can view the restaurants with location. So customer must have to register. Making registration customer have to provide name, email, phone number, address and image (not mandatory).
Stakeholders	Customer

2.1.2. Customer can book table

Requirements-2	Customer can book table
Description	The main purpose of this system is “booking table”. To book a table customers have to fill a short form and have to choose food menu. The form will contain name, phone number, booking date and time. Then after paying the bill customers will able to send a booking request to the restaurant authority.
Stakeholders	Customer

2.1.3. Customer can see table information

Requirements-3	Customer can see table information
Description	For booking a table customer have to show table and chair information and the information will contain availability and non-availability of chairs and tables. If a chair is already booked then the customer cannot book that chair and if the chair is available then the customer will able to book that chair.
Stakeholders	Customer

2.1.4. Customer can choose food menu

Requirements-4	Customer can choose food menu
Description	For booking customer also have to choose food menu from the restaurant menu list. After menu list customer also have to give the quantity for the food.
Stakeholders	Customer

2.1.5. Bill will generate automatically by the system

Requirements-5	Bill will generate automatically by the system
Description	When customer choose food from the menu and give the quantity for the menu bill will automatically generated. And customer can see this bill that's why they can pay.
Stakeholders	Customer and Restaurant Authority

2.1.6. Customer have to pay for confirm booking

Requirements-6	Customer have to pay for confirm booking
Description	After giving all information for booking customer have to pay the bill for their chose food. They have send the money to the restaurant provided number. Then customer have to submit the booking request with the trx id. Without the trx id booking request will not be submitted.
Stakeholders	Customer

2.1.7. Customer must get a confirmation E-Mail of booking

Requirements-7	Customer must get a confirmation E-mail of booking
Description	After submitted booking request by the customer, restaurant authority will able to show the request. If restaurant authority approve the booking request then customer will get a conformation email. This email will contain booking date, time and bill information.
Stakeholders	Customer

2.1.8. New restaurant registration

Requirements-8	New restaurant registration
Description	If any restaurant want to join with this system then they have to register to this system. To register in this system they have to provide restaurant name, address, email, phone number, bkash number and image of their restaurant.
Stakeholders	Restaurant authority

2.1.9. Restaurant authority can add their food menu

Requirements-9	Restaurant authority can add their food menu
Description	After register a restaurant to this system restaurant authority will get a dashboard for their activity. From the dashboard, they will able to add their food menu. To add a new menu they have to provide some information about the food. They have to provide food name, food made with, price and picture of the food.
Stakeholders	Restaurant authority

2.1.10. Restaurant authority can add table and chair

Requirements-10	Restaurant authority can add table and chair
Description	From restaurant dashboard restaurant authority will able to add table and chair for their restaurant. First they have to add their table then they have to add chair for the table.
Stakeholders	Restaurant authority

2.1.11. Restaurant authority can delete their menu item

Requirements-11	Restaurant authority can delete their menu item
Description	After adding a new food in menu restaurant authority will able to delete it if they want.
Stakeholders	Restaurant authority

2.1.12. Restaurant authority can accept or reject booking request

Requirements-12	Restaurant authority can accept or reject booking request
Description	When customer will send a booking request restaurant authority will able to accept or reject the booking request (this is basically for payment verification).
Stakeholders	Restaurant authority

2.2. Data Requirements

For characterizing data requirements, we have to build the model. For our system most of information would be stacked from customer and restaurant authority. And for that reason we have to concentrate on some major point. For example:

- Types of entry of this system
- Capacity and resources for the data requirements
- Availability of data

2.3. Performance Requirements

2.3.1. Speed and Latency Requirements

Speed and latency requirements must be free from doubts while retrieving data from the server.

SLR-1	Booked table and chair information have to show fast
Description	If there occurred any latency for showing booked information of chair. It can be occurred a miss maintenance of table and chair. So it should be shown faster.
Stakeholders	Customer

2.3.2. Precision or Accuracy Requirements

The main think in this project is maintaining the table and chair properly. If it is not done properly then it will be a bad think. Because for this mistake different customers will book a table at the same time. Then it will be a make a big trouble.

PAR-1	Table information must be accurate
Description	When customers will book a table then they have to choose table and chair. If the information of table that shown by the system is incorrect then it will be a

	big trouble. Because, if one customer book the same table at the same date and time that is already booked by another customer then it will be a big problem.
Stakeholders	Customers

2.3.3. Capacity Requirements

In this system there will be many restaurant and lots of customer. So it is very simple that there will be lots of data basically lots of image. So the system have to able to handle a lots of data.

CR-1	Ability to handle lots of data
Description	The system will able to handle all the uploaded data.
Stakeholders	Customers

2.4. Dependability Requirements

2.4.1. Reliability Requirements

Reliability Requirements is usually defined as the probability that a product will operate without failure. The system also should reliable.

RAR-1	The system must be working with all required functions
Description	<ul style="list-style-type: none"> • Our system must be working all the time • The system must be updated regularly • The system must be provide accurate information in all cases.
Stakeholders	Customers and Restaurant authority

2.4.2. Availability Requirements

The system will have to available all the time.

RAR-1	The system must be available on 24 * 7
Description	<ul style="list-style-type: none"> • Our system must be available 24*
Stakeholders	Customer and restaurant authority

2.4.3. Robustness or Fault-Tolerance Requirements

Robustness or Fault-Tolerance Requirements defines that there will be no crush in a system. Now I will show my system's Robustness or Fault-Tolerance Requirements.

RFT-1	The system handles all user access without system errors
Description	In this system there are two types of user. This two types of user and many user will login the system together. This system have to able this user without any bug.
Stakeholders	N/A

2.5. Maintainability and Supportability Requirements

2.5.1. Supportability Requirements

Supportability requirements may have related to some extends. Like:

- Testability
- Extensibility
- Adaptability
- Maintainability
- Compatibility
- Configurability
- Serviceability
- Install ability

Our application meets all of the above requirements related to supportability.

2.5.2. Adaptability Requirements

This system has the adaptability to use in any environments. Because my project will be a web based project. For that my project will be accessible from any kind of browser of any kind of operating system.

2.5.3. Scalability or Extensibility Requirements

Ability of a computer system to accommodate additions to its capacity or capabilities. From a software point of view, it may include ability to support more network users, greater number of 'hits' from website visitors.

This system has extensibility requirements, such as: Server extend

2.6. Security Requirements

From security prospect, requirement document should also capture, product security requirements like compliance need, industry security best practices and any specific regulation to be followed from industry or deployment scenario. This document should also provide security definitions and quality gates, to ensure proper validation can be carried out.

- Signing to the system
- Getting access for the logged in user
- Handling tables and chairs
- Signing out from the system

While accessing to the system, each and every module must provide authentication mechanism.

2.6.1. Access Requirements

For accessing to our application system, there remains some authentication and authorization techniques. And every module of our system will provide it.

AR-1	System provide security mechanism
Description	In our system there are two types of user. And this two types of users has different of role. So that we have to provide them different access as their role. They will login from the same place but they will get different dashboard.
Stakeholders	Restaurant authority and Customer

2.6.2. Integrity Requirements

Integrity requirements is needed to ensure reliability and accuracy of the information. Reliability can be ensured by checking software functionality and accuracy can be ensure by checking that the data is modified by authorized person in authorized manner and by ensuring that handled data is complete and consistent. Implementation of security controls like hashing, data randomness strength (e.g. salt length) etc. should be captured as a part of security checklist.

2.6.3. Privacy Requirements

Privacy requirement is also very important for a software system. Personally identifiable information is information that we can use to identify you as an individual. Personally identifiable information includes name, address, telephone number and any other information that is connected with anyone personally.

So in case of my project Customer and restaurant authority should be personally identifiable. They both should pervade accurate information of their own.

2.7. Usability and Human-Interaction Requirements

2.7.1. Ease of Use Requirements

Ease of use means that, how easily user can understand your system. And in this case my system is very easy to understand for all types of user.

EUR-1	System must be understandable for the users
Description	This system is easy to use. And the system will have very cleared user panel for the both user.
Stakeholders	Customer and restaurant authority.

2.7.2. Personalization and Internationalization Requirements

This system is only for use between Dhaka city. The main goal of personalization is to deliver content and functionality that matches specific user needs or interests. I set up the system to identify users and deliver to them the content, experience, or functionality that matches their role.

2.7.3. Understandability and Politeness Requirements

It is already said that the application which we are going to develop, is understandable enough. The system provides hints to users whether any error occurred or wrong. By reading those errors users can be able to operate the system easily.

2.7.4. Accessibility Requirements

Accessibility requirements means the user accessibility for the system. In my project it is clearly defined. And if any visitor user visit the system his accessibility also clearly declared in this project.

2.7.5. User Documentation Requirements

Documentation are mainly two types. One is internal documentation which is generally written by the application engineers. It is prepared to make development life cycle easier for the system engineers or system analysts.

UDR-1	The system engineer documentation.
Description	To develop our application named smart citizen, safe journey, firstly we have make a system analysis team as well as documentation team.
Stakeholders	Software developers.

2.7.6. Training Requirements

It is very important to train our end user, so that they can easily use this system. If they can't understand the system and for that don't use the system. Then the system will be valueless. So we should be careful about training requirement. We can make some video that will be contain how to use this software and it will be helpful for training requirement. We also can appoint some volunteers, they will train up our customers.

2.8. Look and Feel Requirements

2.8.1. Appearance Requirements

Customer and restaurant authority must know which input fields are required and which are not. For that reason, we will use labels for all input fields. Input fields might be text type, radio, checkbox etc.

AR-1	There should be must require labels
Description	The mandatory field's label must be required labels sign
Stakeholders	Customer and restaurant authority

2.8.2. Style Requirements

It is necessary to use stylesheet to the system. In this system I used some bootstrap design.

SR-1	The appearance must be controllable using CSS file
Description	For php system stylesheet file are CSS.
Stakeholders	Software developer.

2.9. Operational and Environmental Requirements

Operational and environmental requirement refers to the capabilities, performance measurements, process, measurements of effectiveness, measurements of performance, measures of sustainability, measurements of technical performances etc.

2.10. Legal Requirements

It refers to the terms and conditions or privacy policy of any organizations. But this system is not under any organization so right now there will be no legal requirements.

Chapter 3

System Analysis

3.1. Use Case Diagram

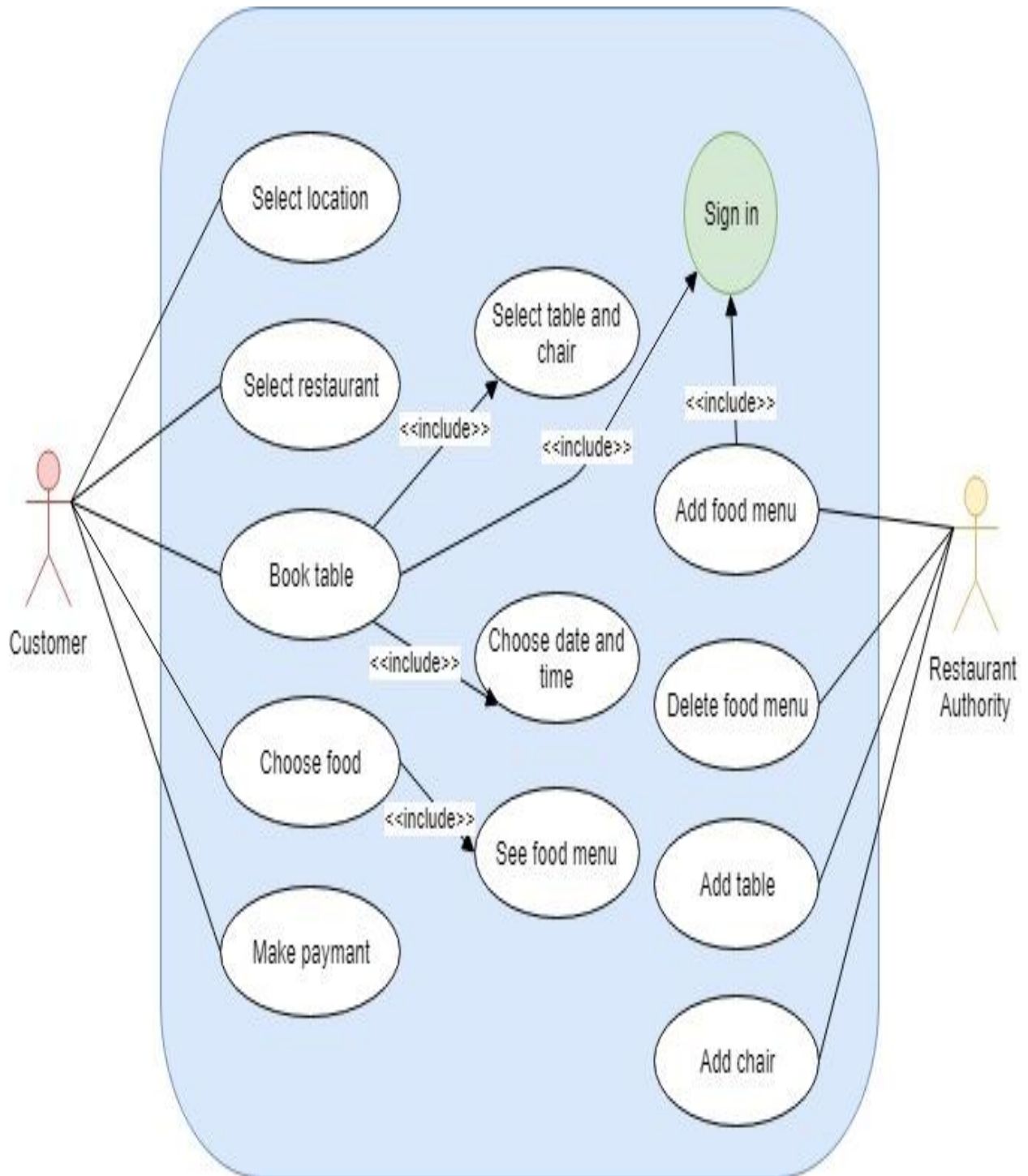


Figure 3: Use Case Diagram

3.2. Use Case Description (for each use case)

3.2.1. Authentication

Use case	Authentication	
Use case no.	01	
Goal	It will be the login or registration part for this system.	
Pre-condition	If have an account then login.	
	If not have an account then sign up.	
Primary actors	Customer	
Secondary actors	Restaurant authority	
Trigger	This will be text boxes and buttons	
Description / Main success	Step	Action
	1.	Enter the web site
	2.	Give user id and password
	3.	Or give required information to sign up
	4.	Logged in
Alternative flows	N/A	
Quality Requirement	N/A	

3.2.2. Select location

Use case	Select Location	
Use case no.	02	
Goal	It will be the restaurant location selection part of the system.	
Pre-condition	N/A	
Primary actors	Customer	
Secondary actors	Restaurant authority	
Trigger	This will be drop-down list.	
Description / Main success	Step	Action
	1.	Enter the web site
	2.	Go to location choice
	3.	Click on the drop-down box
Alternative flows	N/A	
Quality requirement	N/A	

3.2.3. Select restaurant

Use case	Select Restaurant	
Use case no.	03	
Goal	It will be the restaurant select option for the system	
Pre-condition	Step	Condition
	1.	Customer must have to logged in
	2.	Customer have to search restaurant according to location
Primary actors	Customer	
Secondary actors	N/A	
Trigger	This will be buttons	
Description / Main success	Step	Action
	1.	Visit the web site

	2.	Log in the system
	3.	Select restaurant location
	4.	Click Book now button
Alternative flows	N/A	
Quality requirement	N/A	

3.2.4. Book table

Use case	Book Table	
Use case no.	04	
Goal	It will be the table booking process for this system.	
Pre-condition	Customer must have to logged in	
Primary actors	Customer	
Secondary actors	Restaurant authority	
Trigger	This will be buttons and select items	
Description / Main success	Step	Action
	1.	Login the system
	2.	Select a hotel
	3.	Select a table
	4.	Set your arriving time
	5.	Select food from the provided food menu
	6.	Pay the bill
	7.	Get confirmation
Alternative flows	Step	Branching Action
	2.	Restaurant is closed for any problem
	5a.	Restaurant is out of one of the ordered menu
	5a1.	Selected menu item is only for dinner
Quality requirement	N/A	

3.2.5. Choose food

Use case	Choose Food	
Use case no.	05	
Goal	It will be Food selection part for the system	
Pre-condition	Customer must have to login	
Primary actors	Customer	
Secondary actors	Restaurant authority	
Trigger	This will be select list	
Description / Main success	Step	Action
	1.	Login the system
	2.	Click book button
	3.	Select foods the form the menu
	4.	Click submit button
Alternative flows	N/A	
Quality requirement	N/A	

3.2.6. Make payment

Use case	Make Payment	
Use case no.	06	
Goal	It will be the payment option for the system	
Pre-condition	User must have to login	
Primary actors	Customer	
Secondary actors	None	
Trigger	This will be text box	
Description / Main success	Step	Action
	1.	Login the system
	2.	Place an order
	3.	See the amount of bill
	4.	Make payment
	5.	Type trx id in the text box
	6.	Click confirm booking
Alternative flows	N/A	
Quality requirement	Step	Requirement
	2.	If customer do not pay the bill order will not be confirmed

3.2.7. Add food in menu

Use case	Add Food in Menu	
Use case no.	07	
Goal	It will be the menu adding option for restaurant authority	
Pre-condition	Restaurant authority must have to login	
Primary actors	Restaurant authority	
Secondary actors	None	
Trigger	This will be text boxes and buttons	
Description / Main success	Step	Action
	1.	Login the system
	2.	Click add menu button
	3.	Fill up the form for new menu
	4.	Click add button
Alternative flows	N/A	
Quality requirement	N/A	

3.2.8. Delete menu

Use case	Delete menu	
Use case no.	08	
Goal	It will be the menu delete option for restaurant authority	
Pre-condition	Restaurant authority must have to login	
Primary actors	Restaurant authority	
Secondary actors	None	
Trigger	This will be text boxes and buttons	
Description / Main success	Step	Action
	1.	Login the system
	2.	Click add menu list button

	3.	Click delete button from the right site of the menu
Alternative flows	N/A	
Quality requirement	N/A	

3.2.9. Add table

Use case	Add Table	
Use case no.	09	
Goal	It will be the chair adding option for restaurant authority	
Pre-condition	Restaurant authority must have to login	
Primary actors	Restaurant authority	
Secondary actors	None	
Trigger	This will be text boxes and buttons	
Description / Main success	Step	Action
	1.	Login the system
	2.	Click add table button
	3.	Enter table name (e.g.: TBL-1)
	4.	Click add button
Alternative flows	N/A	
Quality requirement	N/A	

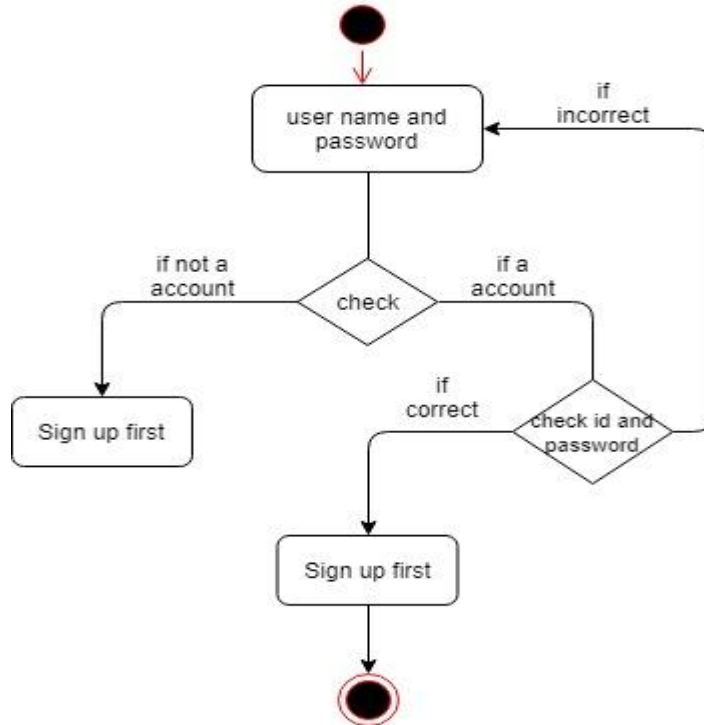
3.2.10.Add chair

Use case	Add Chair	
Use case no.	10	
Goal	It will be the chair adding option for restaurant authority	
Pre-condition	Restaurant authority must have to login	
Primary actors	Restaurant authority	
Secondary actors	None	
Trigger	This will be text boxes and buttons	
Description / Main success	Step	Action
	1.	Login the system
	2.	Click view table button
	3.	Click view chair button
	4.	Click add button
	5.	Click add chair button
Alternative flows	N/A	
Quality requirement	N/A	

3.3. Activity Diagram (for each use case)

3.3.1. Authentication

Figure 4: Activity Diagram for authentication



3.3.2. Select Location

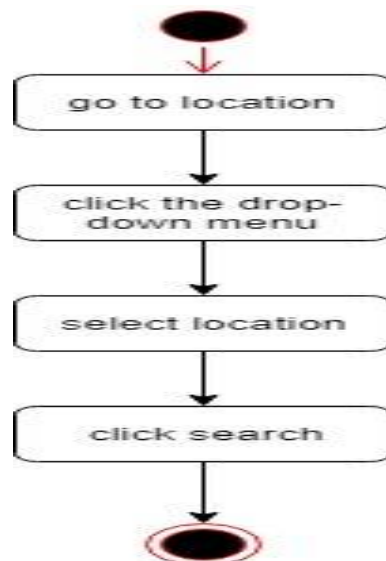


Figure 5: Activity Diagram for Select Location

3.3.3. Select Restaurant

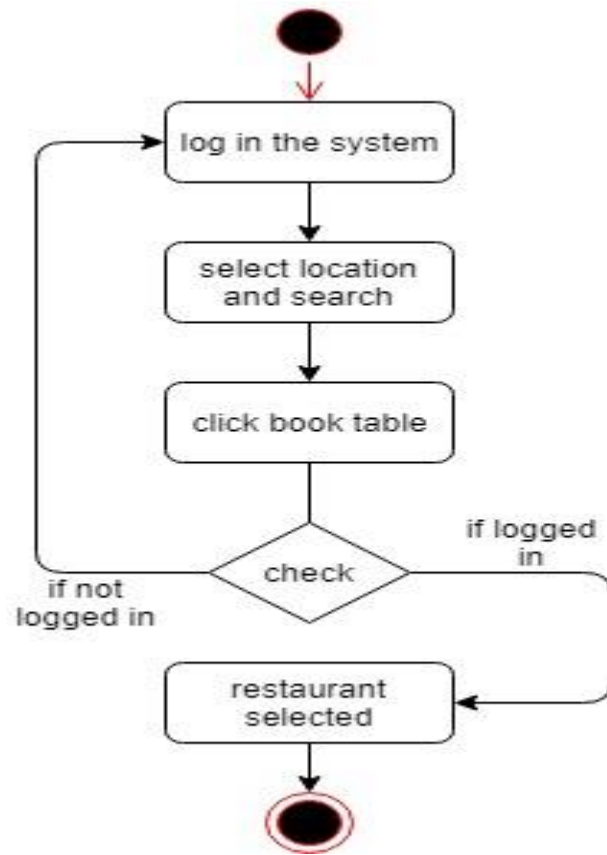


Figure 6: Activity Diagram for Select Restaurant

3.3.4. Book Table

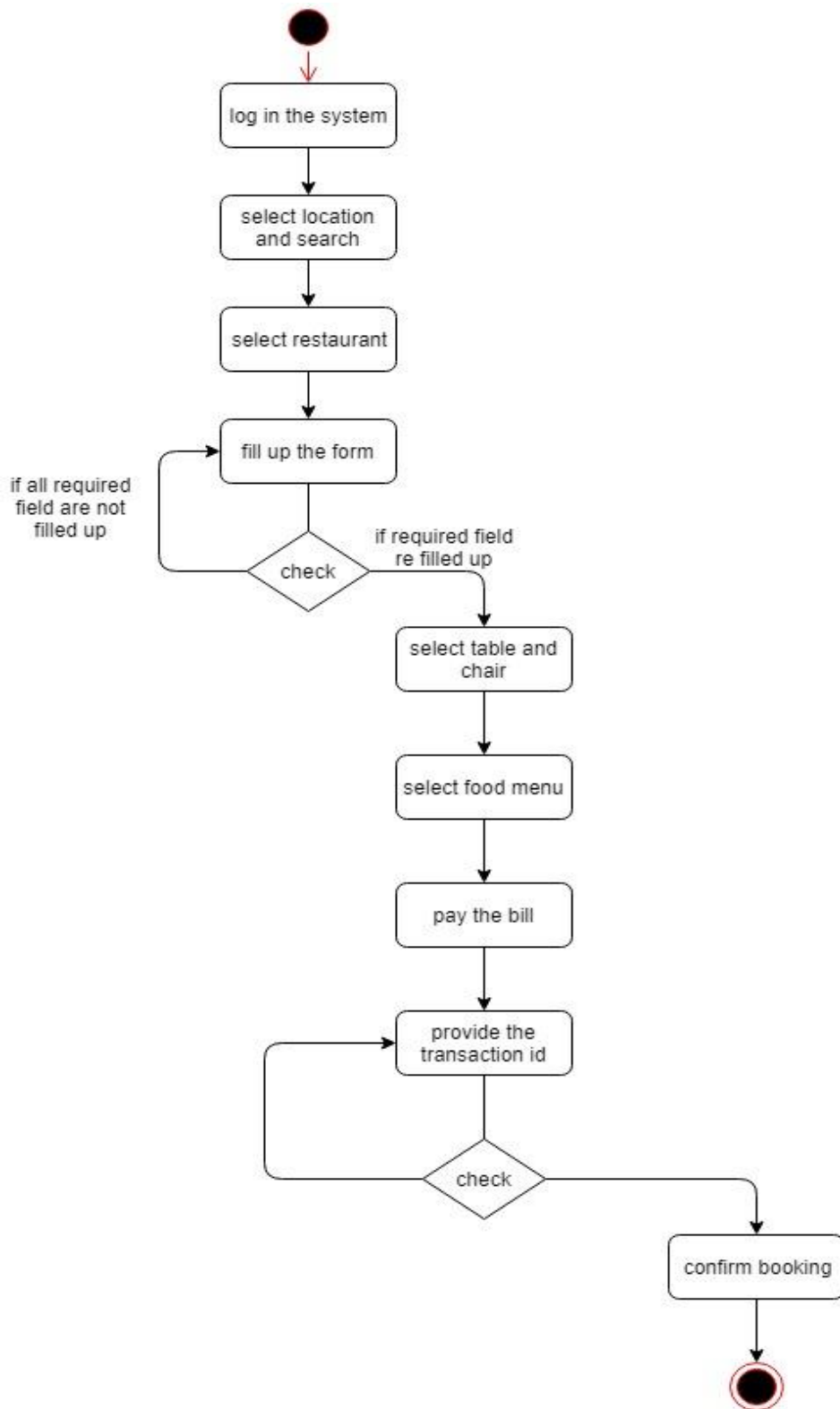


Figure 7: Activity Diagram for Book Table

3.3.5. Choose Food

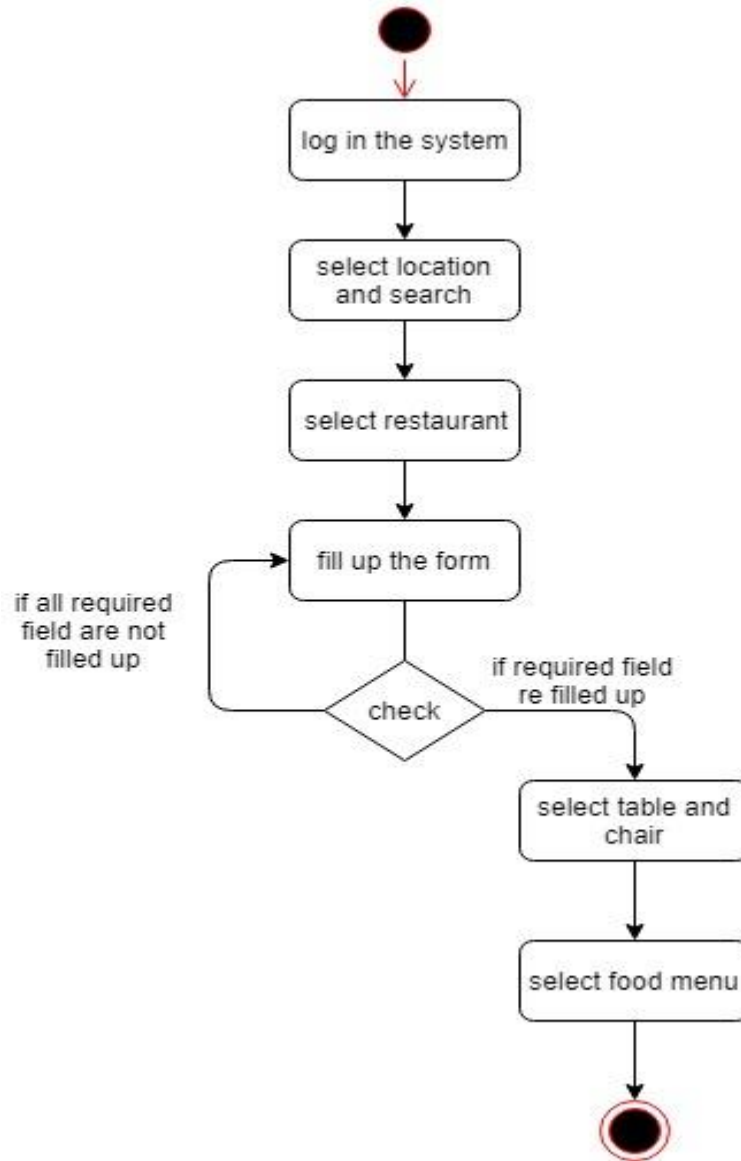


Figure 8: Activity Diagram for Choose Food

3.3.6. Make Payment

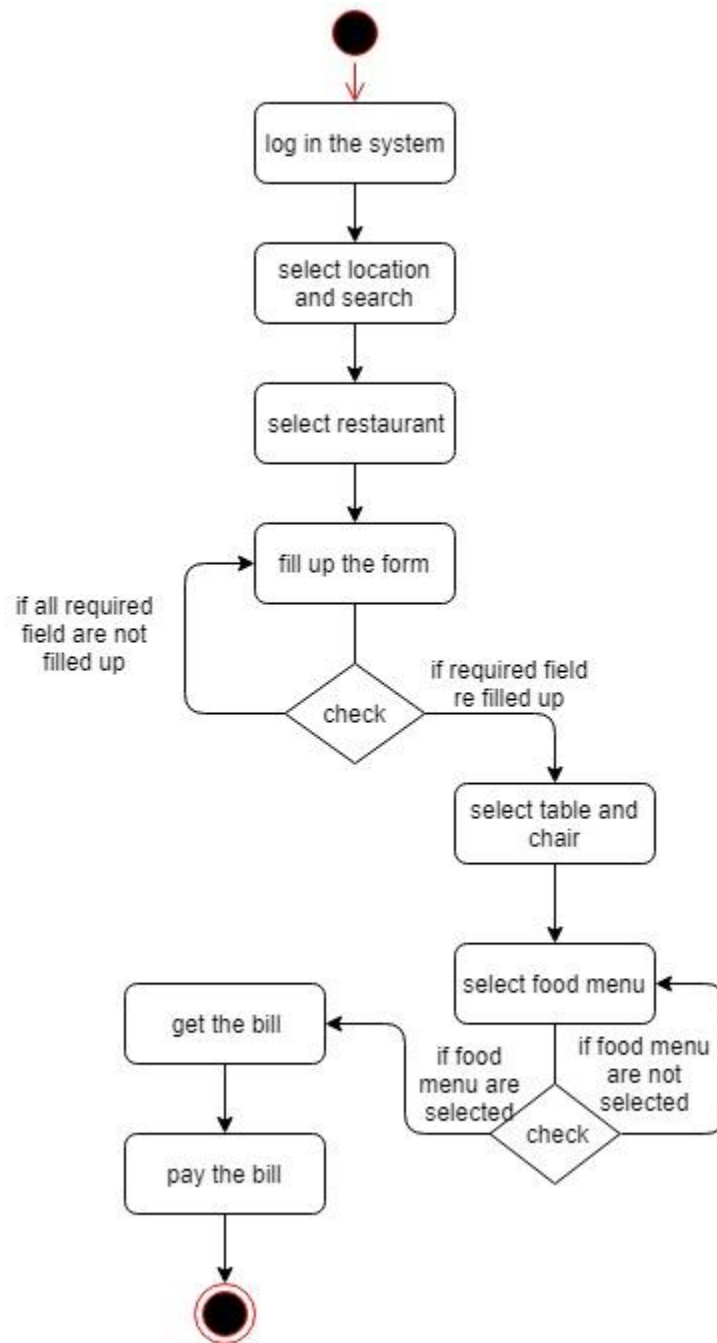


Figure 9: Activity Diagram for Payment

3.3.7. Add Food in Menu

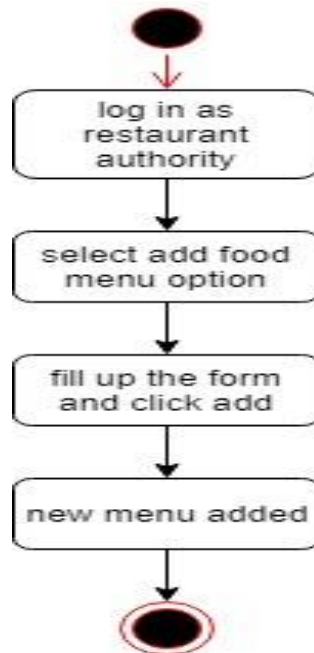


Figure 10: Activity Diagram for Add food in menu

3.3.8. Delete Menu

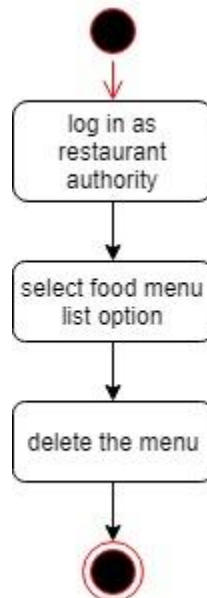


Figure 11: Activity Diagram for Delete menu

3.3.9. Add Table

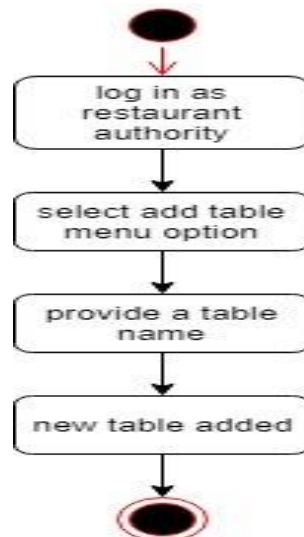


Figure 12: Activity Diagram for Add table

3.3.10. Add Chair

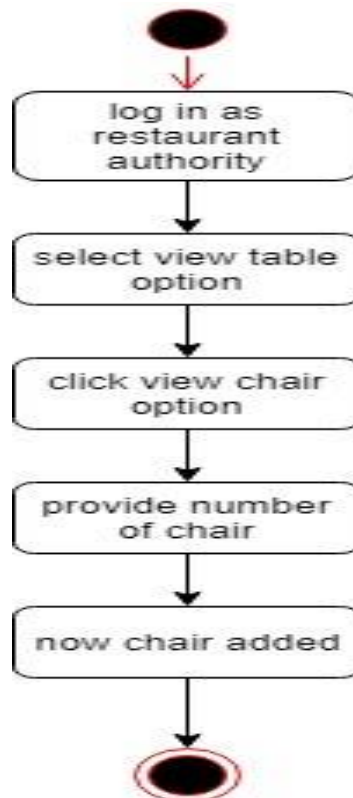


Figure 13: Activity Diagram for Add chair

3.4. System Sequence Diagram (for each use case)

3.4.1. Authentication

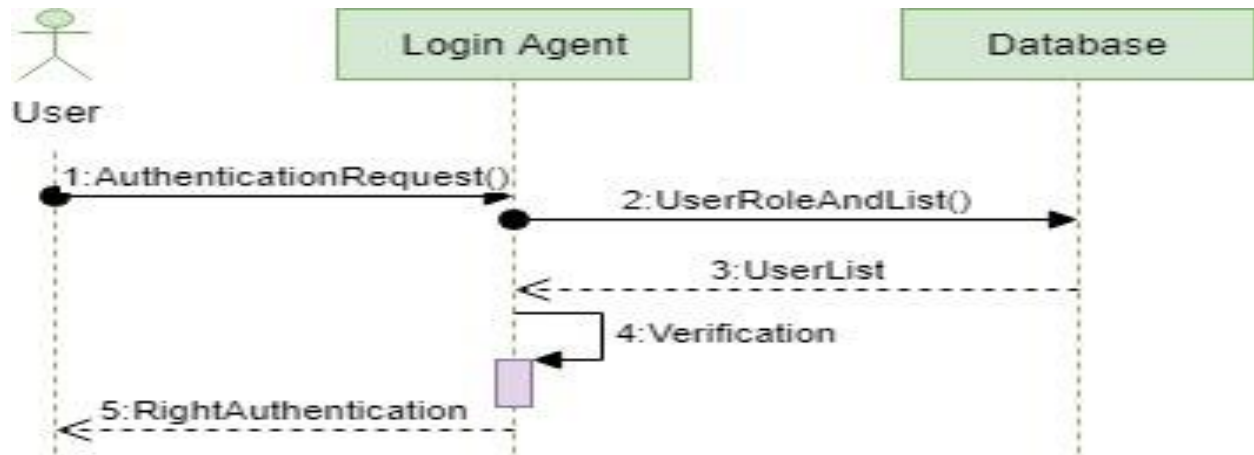


Figure 14: Sequence diagram for authentication

3.4.2. Select Location



Figure 15: Sequence diagram for Select Location

3.4.3. Select Restaurant

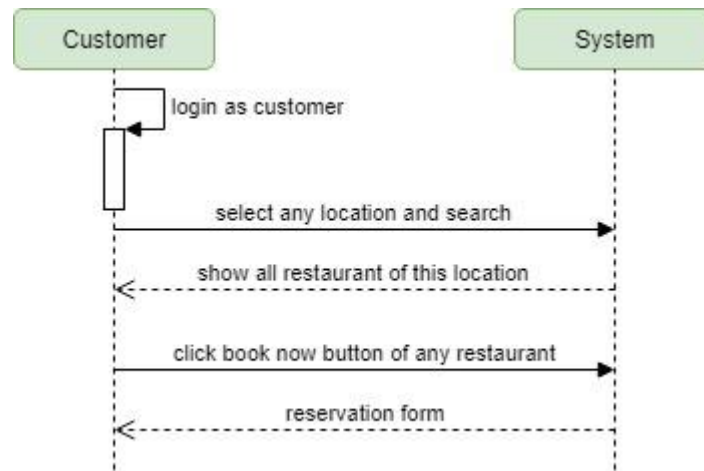


Figure 16: Sequence diagram for Select Restaurant

3.4.4. Book Table

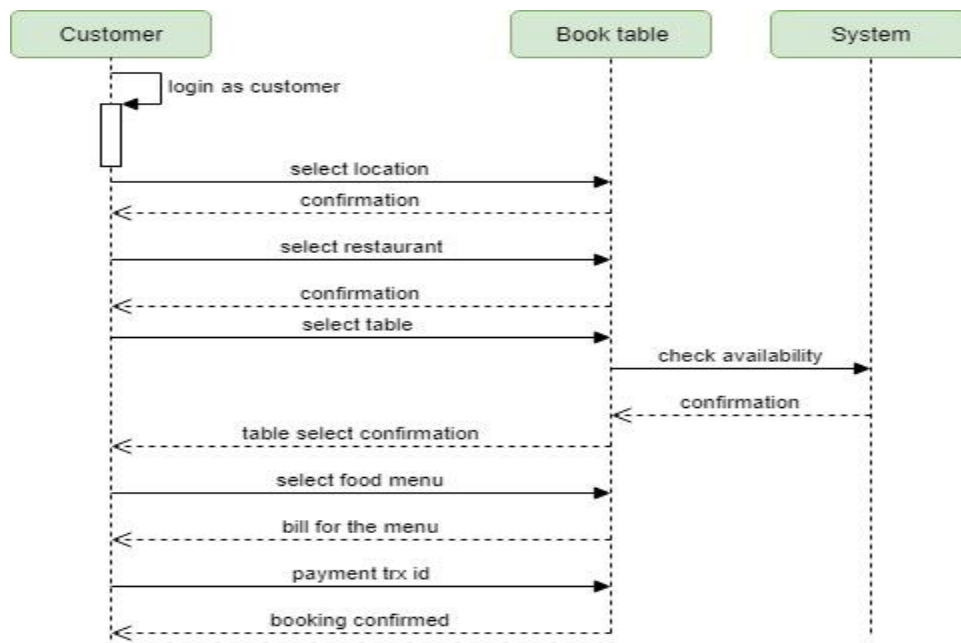


Figure 17: Sequence diagram for Book Table

3.4.5. Choose Food

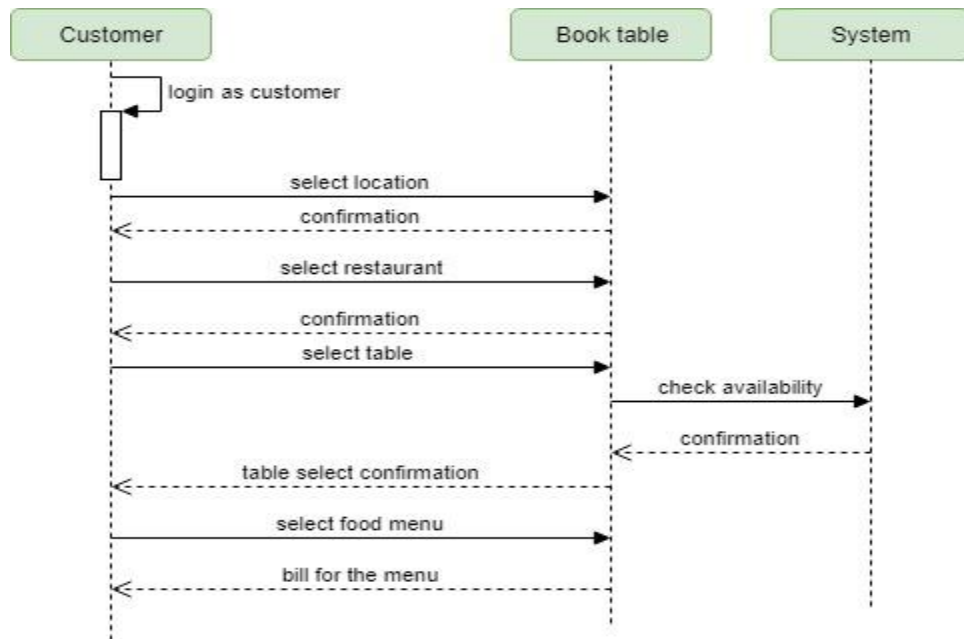


Figure 18: Sequence diagram for Choose Food

3.4.6. Make Payment

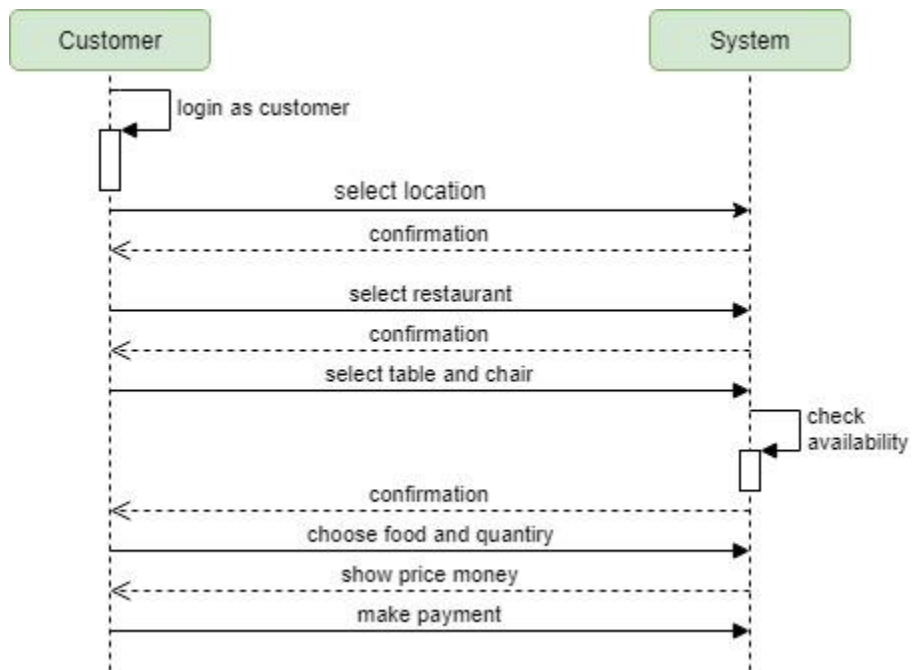


Figure 19: Sequence diagram for Make payment

3.4.7. Add Food in Menu

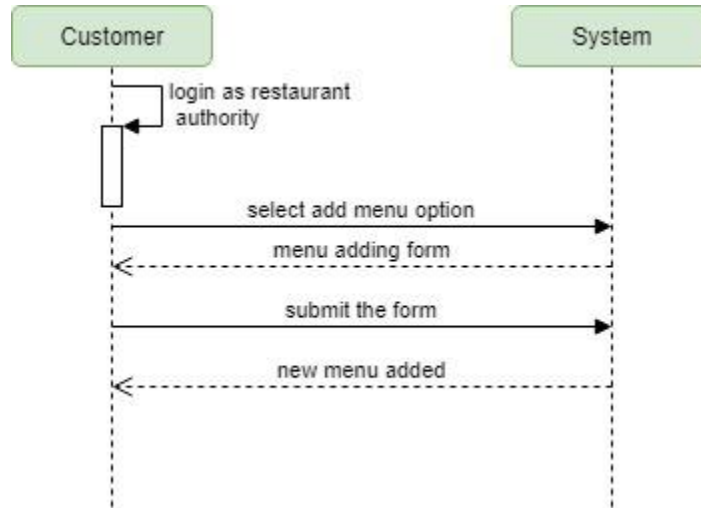


Figure 20: Sequence diagram for Add Food Menu

3.4.8. Delete Menu

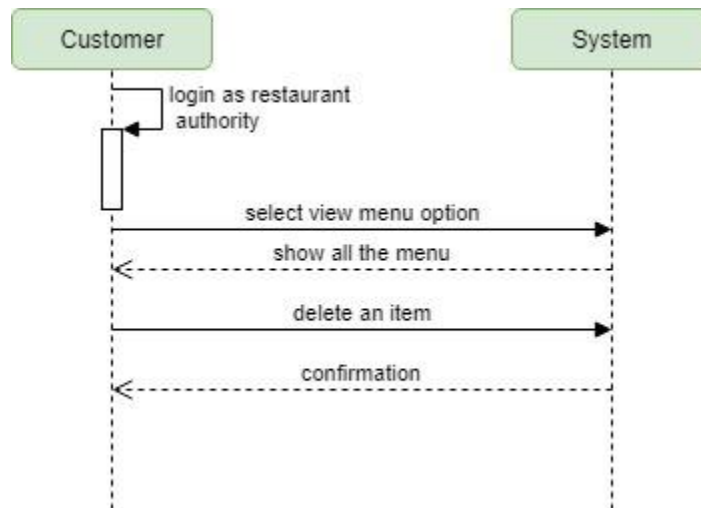


Figure 21: Sequence diagram for delete menu

3.4.9. Add Table

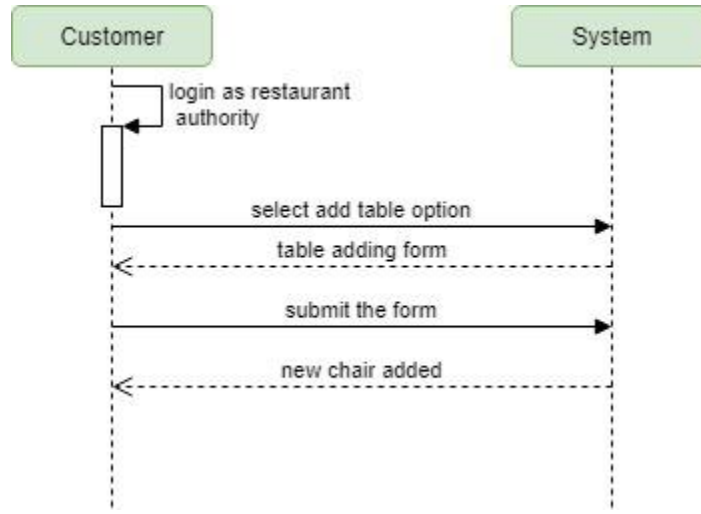


Figure 22: Sequence diagram for Add table

3.4.10. Add Chair

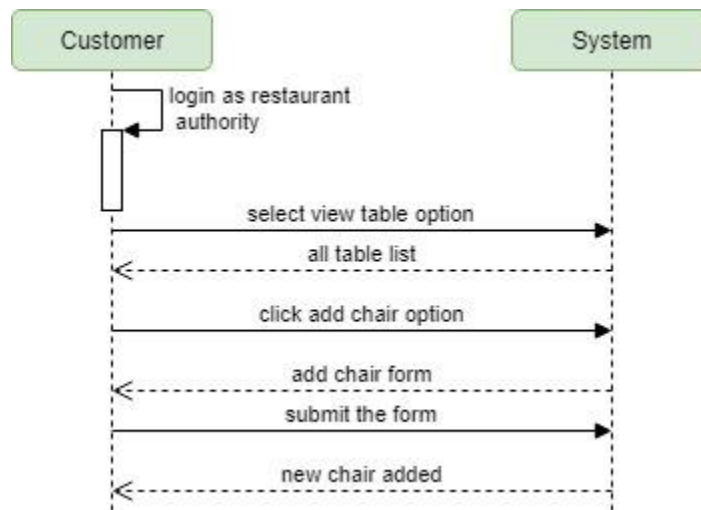


Figure 23: Sequence diagram for Add chair

Chapter 4

System Design Specification

4.1. Class Responsibilities Collaboration (CRC) Cards

4.1.1. Restaurant authority

Restaurant authority	
<ul style="list-style-type: none">• LogIn• LogOut• AddNewFoodMenu• DeleteFoodMenu• AddNewChair• AddNewTable• ConfirmBooking	<ul style="list-style-type: none">• Food Menu• Chair Information• Table information

4.1.2. Customer

Customer	
<ul style="list-style-type: none">• LogIn• LogOut• ViewFoodMenu• BookTable• SelectChair	<ul style="list-style-type: none">• Food Menu• Chair information• Table information

4.1.3. Book table

Book Table	
<ul style="list-style-type: none">• UpdateTableAvailability	<ul style="list-style-type: none">• Customer• Food Menu• Chair information• Table information

4.1.4. Chair information

Chair information	
<ul style="list-style-type: none">• AddNewChair• DeleteChair	<ul style="list-style-type: none">• Restaurant authority

4.1.5. Table information

Table information	
<ul style="list-style-type: none">• AddNewTable• DeleteTable	<ul style="list-style-type: none">• Restaurant authority

4.1.6. Food menu

Food Menu	
<ul style="list-style-type: none">• DeleteFood	<ul style="list-style-type: none">• Restaurant authority

4.1.7. Booking counter

Booking Counter	
	<ul style="list-style-type: none">• Book Table

4.2. Class Diagram

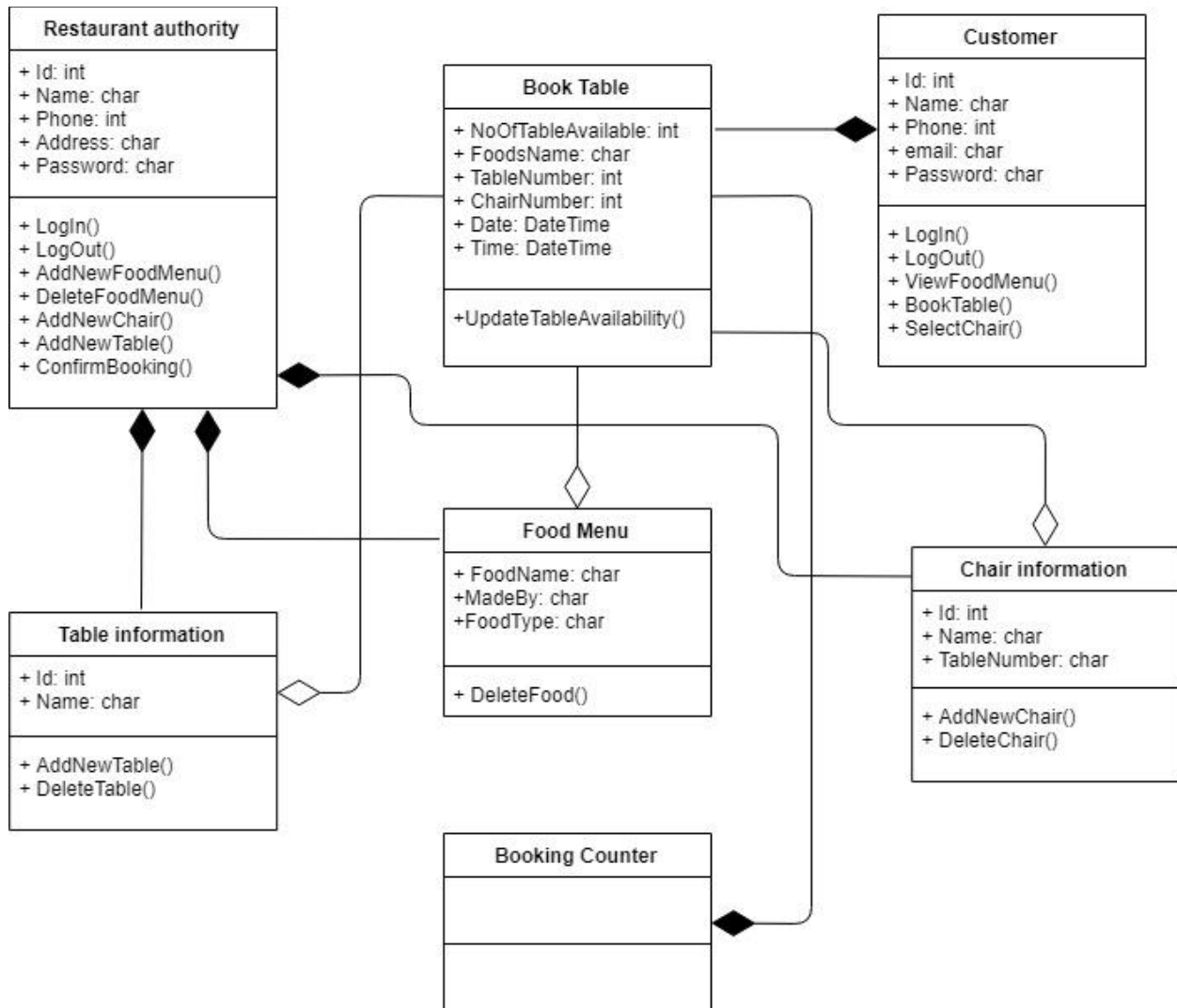


Figure 24: Class Diagram

4.3. Database Design Diagram

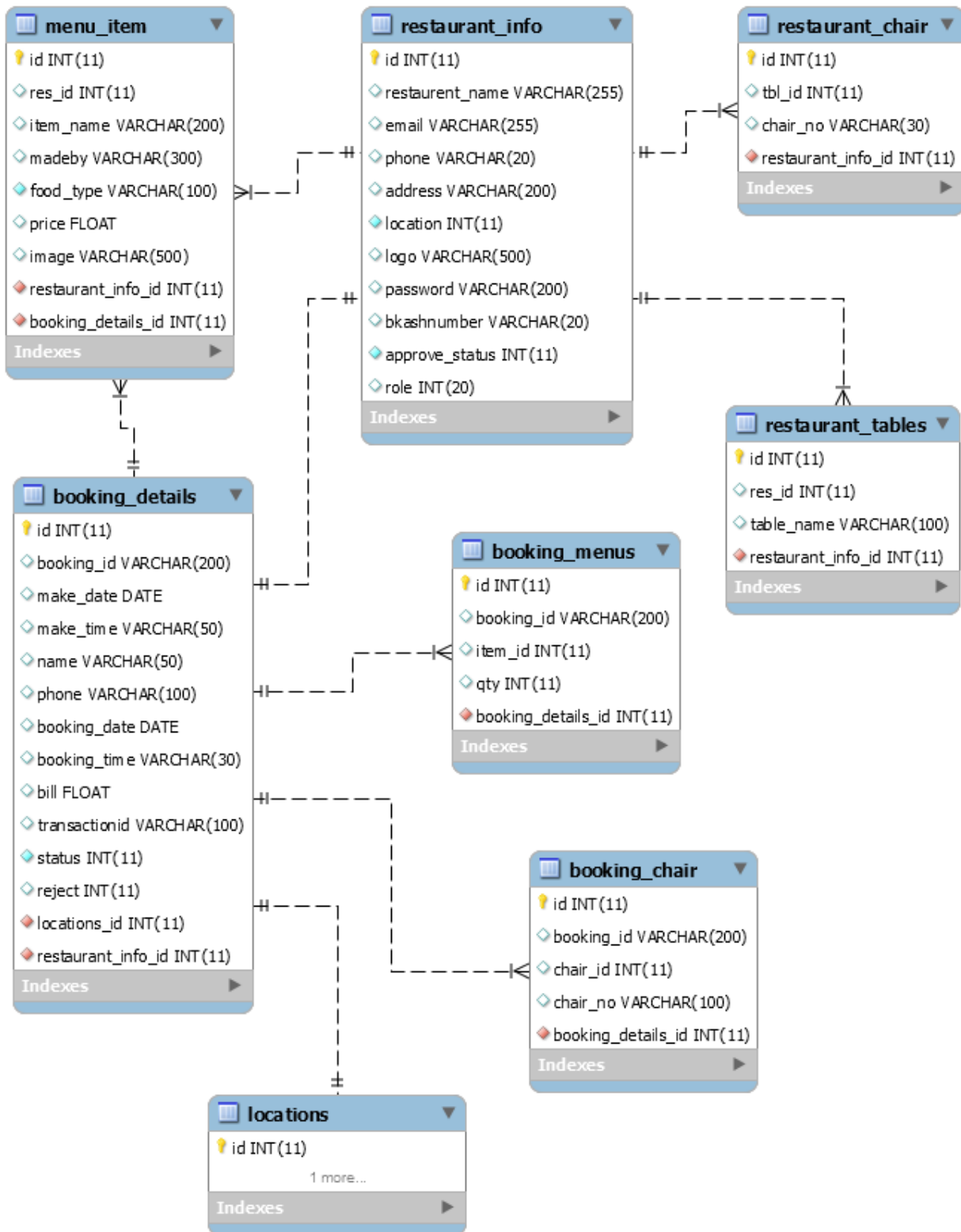


Figure 25: Database Design Diagram

4.4. Development Tools & Technology

4.4.1. User Interface Technology

4.4.1.1. *Framework*

In my project I didn't use any framework. In my project I have used server-side programming language named PHP (Personal Home Page). This is a scripting language.

4.4.1.2. *jQuery UI*

jQuery UI is a curated set of UI cooperation, effects, gadgets, and themes based over the jQuery JavaScript Library. I used jQuery in my project because jQuery makes easier to understand and work with. It also provides AJAX functionality which I used for search function.

4.4.1.3. *CSS Framework and Twitter Bootstrap*

Bootstrap is an open source toolkit for developing with HTML, CSS, and JS. Quickly prototype my ideas. Bootstrap provides a set of some files which contains stylesheets which gives basic definition. Bootstrap also provides some JavaScript components also. There are some built in components like jQuery UI. By using Bootstrap framework, I get both CSS and JavaScript facilities with a single platform.

4.4.1.4. *Font Awesome or Others*

4.4.2. Implementation Tools & Platforms

There are some tools and technologies that need to be used for developing software. It is very important to determine which tools and platforms are the best match of my requirements. After making a proper decision, I am using PHP that is a server-side scripting language.

4.4.2.1. *PHP Strom*

There is a lot of PHP editors available that are maintained on Windows, Linux, and Mac and are obtainable for free download. For my project I used Subline text editor. It is an accepted and a competing tool for the PHP editors. It is lightweight with required feature and is supported on OSX, Windows as well as Linux. The Sublime text editor is put up to gain its powers through different plugins and packages.

4.4.2.2. *MySQL Community Server*

I used MySQL server. It is free to use. It can be used on cross platform. It supports a wide range of features and I have worked with MySQL server before. It is also very easy to use. So, working with this server will be easier to me.

4.4.2.3. *Apache HTTP Server*

I used Apache HTTP server. It is free to use. It can be used on cross platform. It supports a wide range of features and I have worked with Apache server before. It is also very easy to use. So, working with this server will be easier to me.

Chapter 5

System Testing

5.1. Testing Features

Highlight testing can be considered as making change to add or modify the new functionality to the existing project. To test the highlights and usefulness, another test set is to be composed for testing reason. Pretty much every component and usefulness have diverse attributes. Those are designed to make the application more useful, intuitive, reliable, secured, effective and efficient.

5.1.1. Features to be tested

6. Features	Priority	Description
Sign In	3	Users must be authenticated by system
Logout	1	Session must be destroyed after logout
Table information	3	Table is booked or available must be show accurately.
Bill making	3	The bill of customer selected menus should be accurate.
Table list	3	When restaurant authority will add any table it should be added properly to the authority and customer panel.
Chair list	3	When restaurant authority will add chair to a table it should be added properly
Favorites list	2	When restaurant will add food menu it should be shown to the customer.
Technological Features		
Database	1	Database will be used at almost every operation. So this is why, this part must be controlled tightly.

Here, 1 = Low Priority, 2 = Medium Priority, 3 = High Priority

5.1.2. Features not to be tested

Here are some features that will not be tested in my project.

- Contact with restaurant: In my project there will be a section for contact with restaurant. I didn't test this feature yet.
- Data record time: I didn't test this feature yet.

5.2. Testing Strategies

5.2.1. Test Approach

To complete the test process, testers must take some approach. There are mainly two test approach.

- **Automation testing:** Automation testing is a name of testing technique by which test engineers prepare some scripts according to test plan and after that they use suitable tools to perform testing of the software. Nowadays, almost every software company follow the approach of automation testing.
- **Manual testing:** Manual testing is also a name of technique of testing by searching out the bugs or vulnerability in an application. In this process, test engineers manually test and execute the test cases without having any automation tools.

5.2.2. Pass/Fail Criteria

Pass or fail criteria will be set by the test engineers. They will prepare the pass / fail criteria on the basis of which input data are worked and which are not works well. Those data that are worked well will considered as pass criteria. And rest of input data will be considered as fail criteria.

My pass / fail criteria below:

- System crash will not be considered as pass case.
- If any criteria pass 100% times, then it will be considered as pass criteria only.
- If data can't be displayed to the application properly, then it is also to be considered as fail criteria.

5.2.3. Suspension and Resumption

Suspension criteria specify the criteria to be used to suspend all or a portion of the testing activities while resumption criteria specify when testing can resume after it has been suspended.

- Unavailability of server during execution.

System Integration Testing in the Integration environment may be resumed under the following circumstances:

- When the server become available again.

5.2.4. Testing Schedule

Test Phase	Time
Testing plan create	1 week
Test specification	2 weeks
Unit testing	During development time
Component test	1 week
Test Phase	Time
Integration testing	1 week
Validating use cases	1 week
Testing user interfaces	1 week
Load testing	1 week
Performance testing	1 week
Release	1 week

5.2.5. Traceability Matrix

Project Manager			Business Analyst Lead		
QA Lead			Target Implementation Date		
BR#	Category / Functionality / Activity	Requirement Description	Use Case Reference	Test Case Reference	Comments
BR-1	Functional	Authentication	3.2.1	6.4.1	Done
BR-2	Functional	Add table	3.2.9	6.4.2	Done
BR-3	Functional	Add chair	3.2.10	6.4.3	Done
BR-4	Functional	Add menu	3.2.7	6.4.4	Done
BR-5	Functional	Search restaurant selecting location	3.2.1	6.4.5	Done
BR-6	Functional	Book table	3.2.4	6.4.6	Done
BR-7	Non- functional	Bill calculation		6.4.7	Done

5.3. Testing Environment (hardware/software requirements)

Testing environment means to prepare the environment with hardware and software so that test engineers can be able to execute test cases as required. Besides hardware and software usage, network configuration might be needed to execute test plans. For making the environment for testing, some key area need to setup. Those are:

- Test data
- Database server
- Operating system
- Browser
- System and application
- Network

5.4. Test Cases

6.4.1 Authentication

Test case #1		Test case name: Authentication			
System: Restaurant Table Reservation		Subsystem: N/A			
Designed by: Ratan Hazra		Designed date: 05-February-2019			
Executed by:		Executed date: 05-April-2019			
Short description: The registered users need to login to the system. And before that system will check the authentication and authorization.					
Pre-conditions:					
<ul style="list-style-type: none"> • Users will be always redirected to the login page when they input wring information. • Assume that, the email is 'raj@gmail.com' and password is '123' 					
Step	Email	Password	Expected result	Pass/Fail	Comment
1	ratana@gmail.com	111	The Password is incorrect	Pass	
2	ratana@gmail.com		The Password is incorrect	Pass	
3	ratana@gmail.com	123	Successfully login to the application and redirected to the dashboard	Pass	
Post-conditions: Users and admin will successfully login to the application.					

6.4.2 Add table

Test case #2		Test case name: Add table			
System: Restaurant Table Reservation		Subsystem: N/A			
Designed by: Ratan Hazra		Designed date: 7 th February 2019			
Executed by:		Executed date: 12 th February 2019			
Short description: Every restaurant should have some chair and table. And now restaurant authority wants to add some tables to their profile.					

Pre-conditions:				
<ul style="list-style-type: none"> • User must have authenticate user • User must have to login as restaurant authority 				
Step	Action	Response	Pass/Fail	Comment
1	Table name entered properly	New table added successfully	Pass	
2	No table name is not entered	Please enter a table name	Pass	
Post-conditions: when restaurant authority will add a table in their restaurant, customer will able to see the table for booking.				

6.4.3 Add chair

Test case #3		Test case name: Add chair		
System: Restaurant Table Reservation		Subsystem: N/A		
Designed by: Ratan Hazra		Designed date: 12 th February 2019		
Executed by:		Executed date: 20 th February 2019		
Short description: Every restaurant should have some chair and table. Restaurant authority already added some table to their restaurant. And now they want to add char against their table.				
Pre-conditions:				
<ul style="list-style-type: none"> • User must have authenticate user • User must have to login as restaurant authority 				
Step	Action	Response	Pass/Fail	Comment
1	User give a number to add as chair for his selected table	New chair added successfully	Pass	
2	No number is given for adding chair	Please enter the number chair	Pass	
Post-conditions: when restaurant authority will add a chair in their restaurant, customer will able to see the chair for booking.				

6.4.4 Add menu

Test case #4		Test case name: Add menu		
System: Restaurant Table Reservation		Subsystem: N/A		
Designed by: Ratan Hazra		Designed date: 20 th February 2019		
Executed by:		Executed date: 22 th February 2019		
Short description: Every restaurant must have food menus for their customer. Now restaurant authority wants to add some menu to their restaurant.				
Pre-conditions:				
<ul style="list-style-type: none"> • User must have authenticate user • User must have to login as restaurant authority 				
Step	Action	Response	Pass/Fail	Comment
1	Fill up the form correctly	New menu added successfully	Pass	
2	All the field are not correct fill up	Please fill up the form correctly	Pass	
Post-conditions: when restaurant authority will add food in menus customer can select is for their booking.				

6.4.5 Search restaurant by location

Test case #5		Test case name: Search restaurant by location		
System: Restaurant Table Reservation		Subsystem: N/A		
Designed by: Ratan Hazra		Designed date: 22 th February 2019		
Executed by:		Executed date: 22 th February 2019		
Short description: user wants to book a table of a restaurant in 'panthapath'. In 'panthapath' there are three restaurant and it should be shown to the customer.				
Pre-conditions:				
<ul style="list-style-type: none"> • User must have authenticate user • User must have to login as customer 				
Step	Action	Response	Pass/Fail	Comment

1	User select 'panthapath'	Restaurant are shown	Pass	
Post-conditions: after search customer see some restaurant from that location and if they want they can choose one of the restaurant for booking.				

6.4.6 Book table

Test case #6		Test case name: Book table		
System: Restaurant Table Reservation		Subsystem: N/A		
Designed by: Ratan Hazra		Designed date: 22 th February 2019		
Executed by:		Executed date: 12 th March 2019		
Short description: now a customer wants to book a table.				
Pre-conditions:				
<ul style="list-style-type: none"> • User must have authenticate user • User must have to login as customer 				
Step	Action	Response	Pass/Fail	Comment
1	All required form are filled up correctly	Table reservation successful	Pass	
2	Customer did not provide date	Please fill your booking date	Pass	
3	Customer did not select food menu	Please select the food you want to take	Pass	
4	Customer did not select table	Please select a table	pass	
Post-conditions: when customer book a table this booking request will go to restaurant authority for confirmation.				

6.4.7 Bill calculation

Test case #7		Test case name: Bill calculation		
System: Restaurant Table Reservation		Subsystem: N/A		
Designed by: Ratan Hazra		Designed date: 12 th March 2019		
Executed by:		Executed date: 12 th March 2019		
Short description: during booking, when customer select their food and provide the quantity of their food the bill will generated automatically.				
Pre-conditions:				
<ul style="list-style-type: none"> • User must have authenticate user • User must have to login as restaurant authority 				
Step	Action	Response	Pass/Fail	Comment
1	Food is selected and quantity is two	It shows the correct amount	Pass	
2	No food is selected	Total bill is 0	Pass	
Post-conditions: after getting the bill customer have to pay the bill and they have to provide transaction id to confirm booking.				

Chapter 6

User Manual

6.1. User Manual (For Restaurant)

- **Register as restaurant:** To register as a restaurant, first user have to go log in page, then they have to go register now option. They have to select as restaurant option. Then they have to fill up the form.

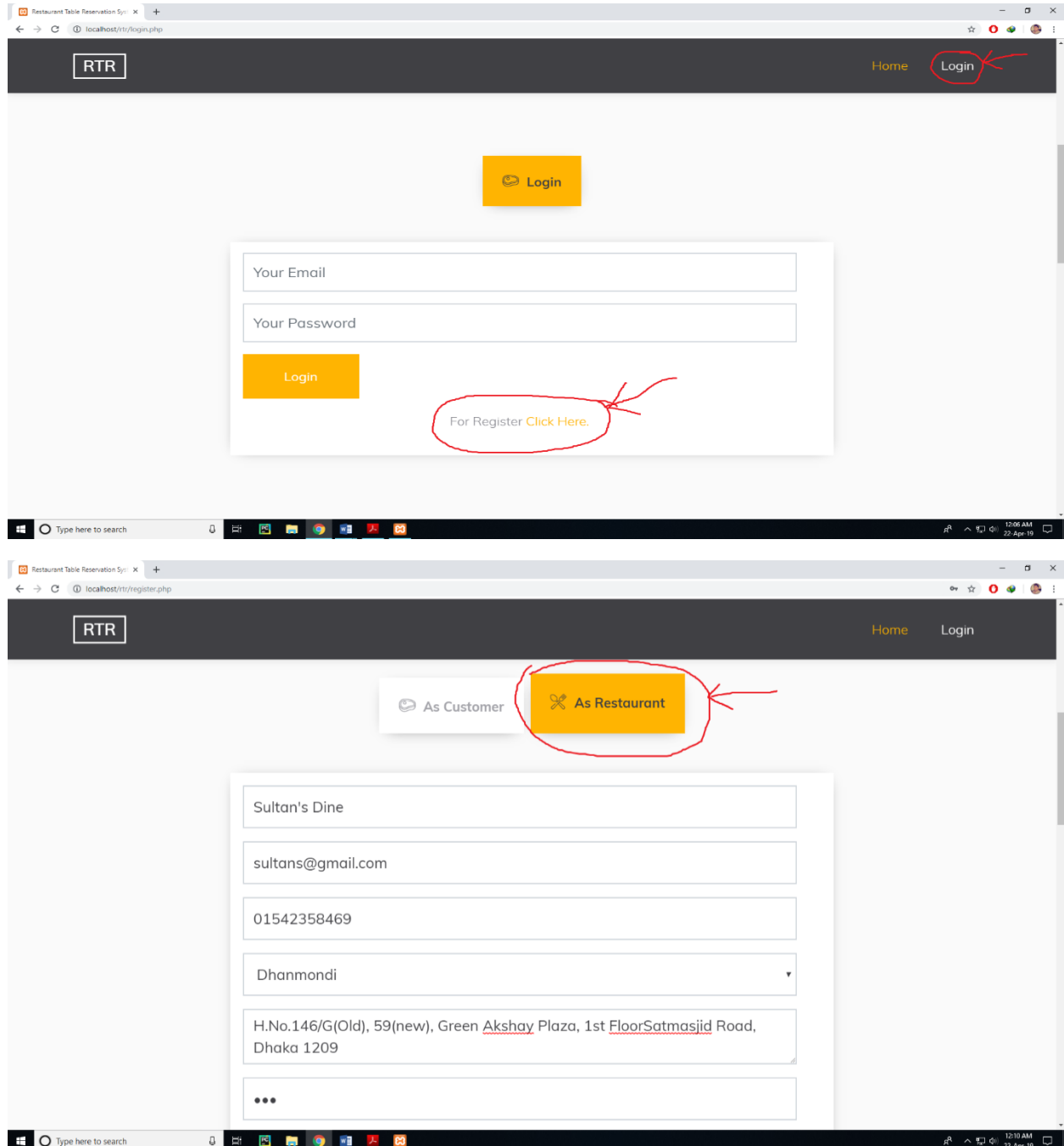


Figure 26: User manual of Register as restaurant

- **Table adding:** To adding a new table restaurant authority have to login with their email and password. Then they will get a dashboard, from dashboard they have to go add table option and have to provide a name for the table. For table our recommended format is ‘TBL-1’.

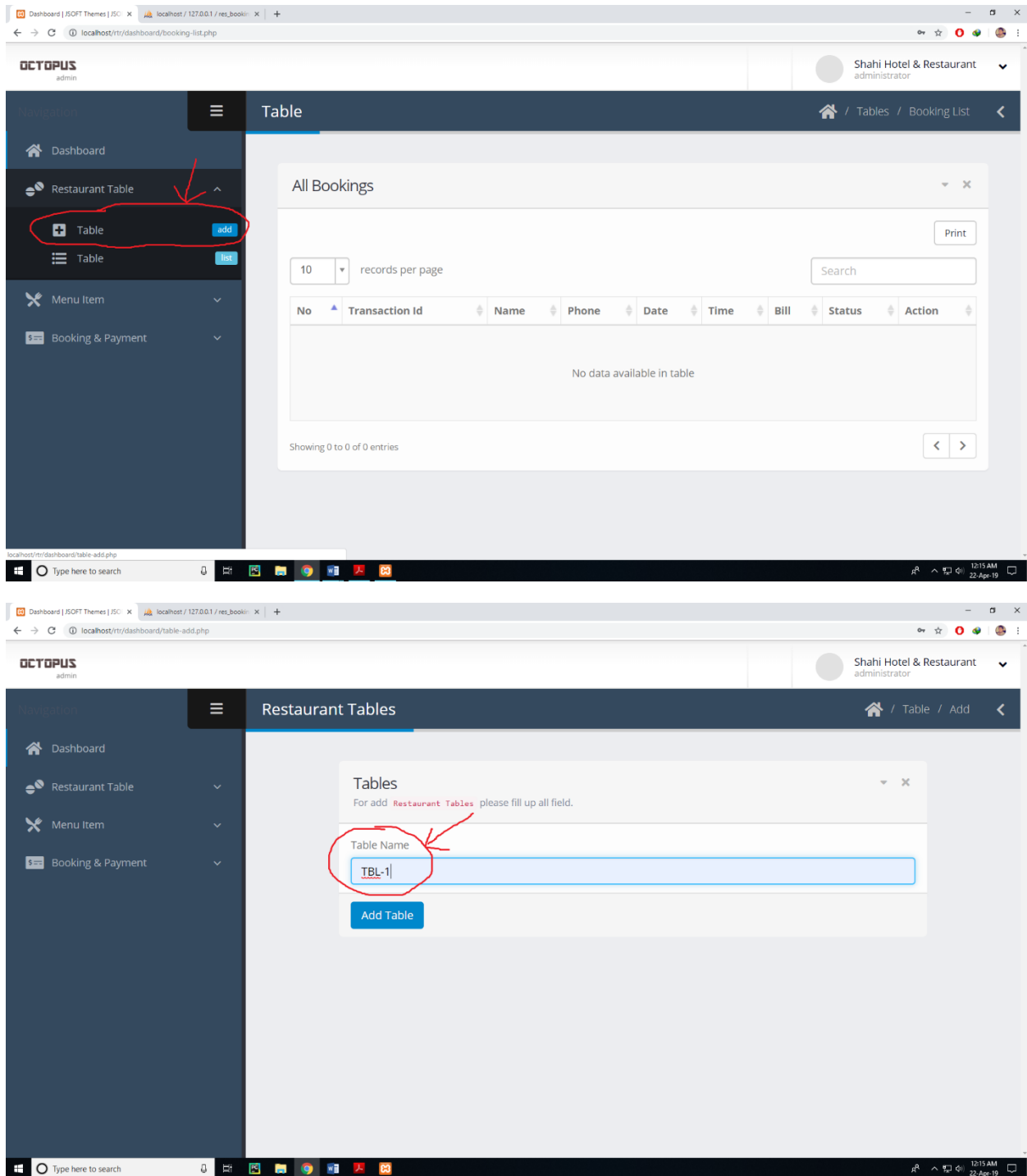


Figure 27: User manual of Table adding

- **Chair adding:** To add a chair first user have to go to table list option and they have to go view chair option. Then they have to provide number of chair for the table. Then chair will be automatically added.

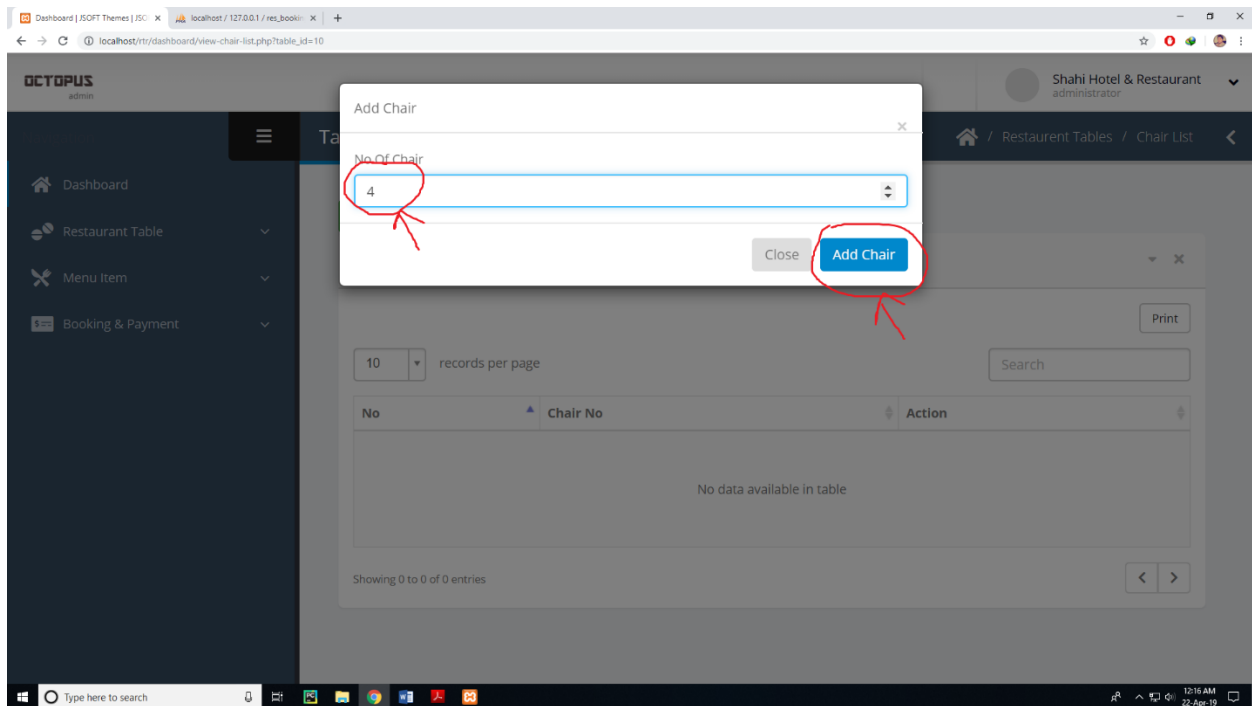
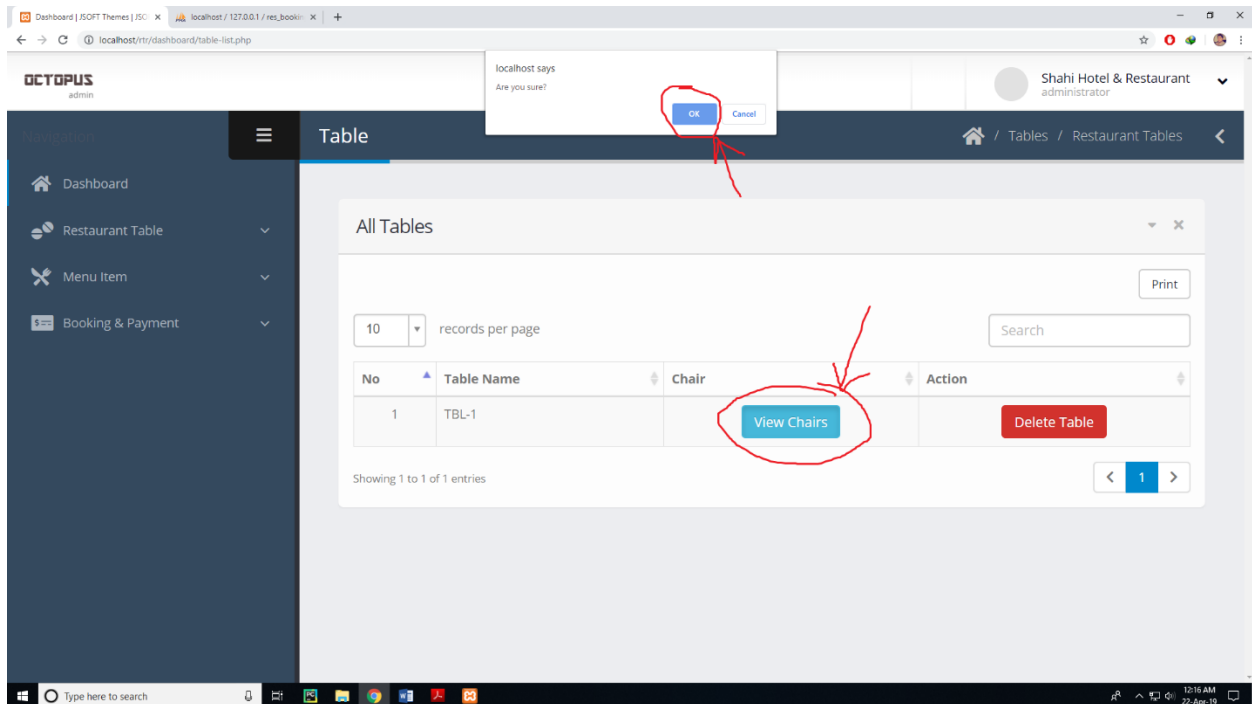


Figure 28: User manual of Chair adding

- **Adding food menu:** To add food menu user have to go menu item option and they have to go add menu option. Now they have to fill the form and click add option.

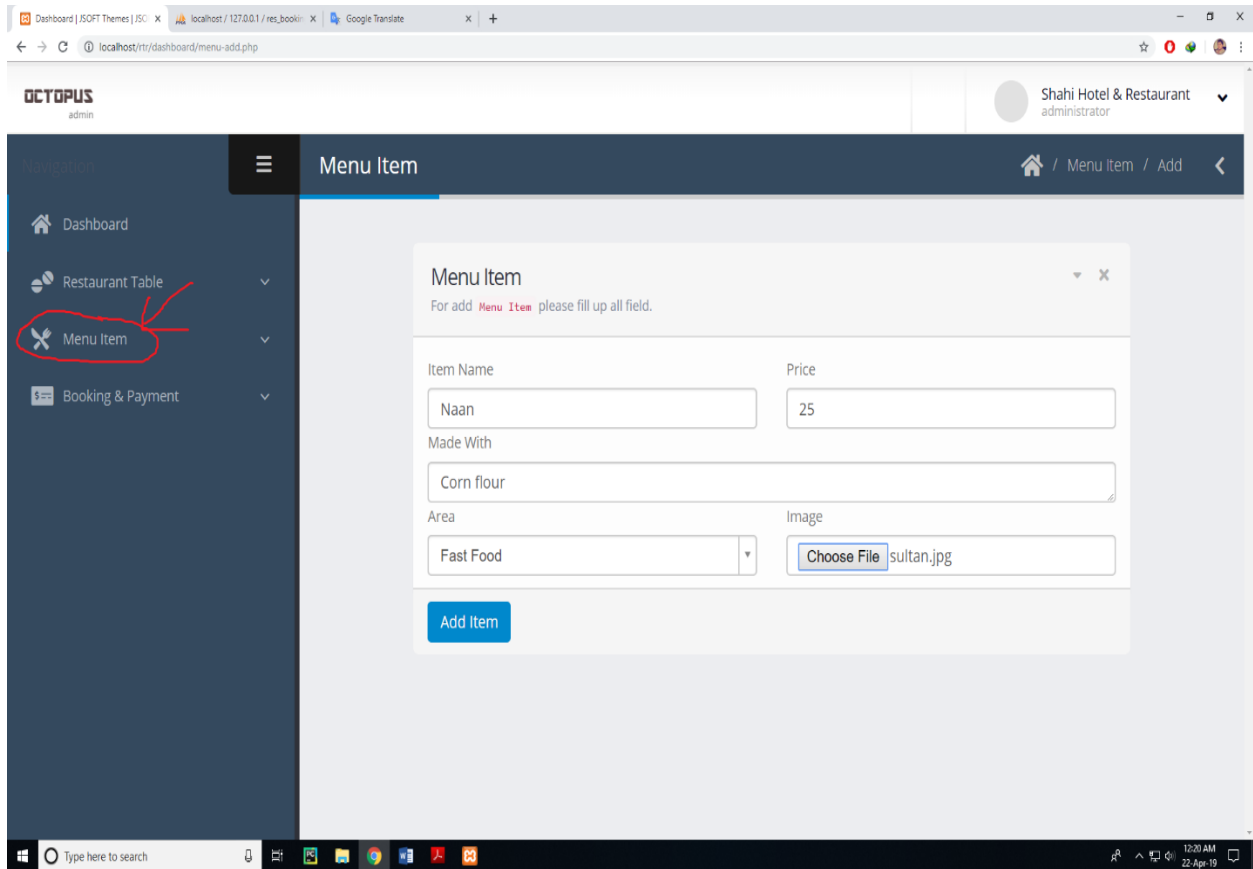


Figure 29: User manual of Adding food menu

6.2. User Manual (For Customer)

- **Booking table:** To book a table, at first have to login to the system. Then he have to select a location and search for the location then customer will get some restaurant for that location.

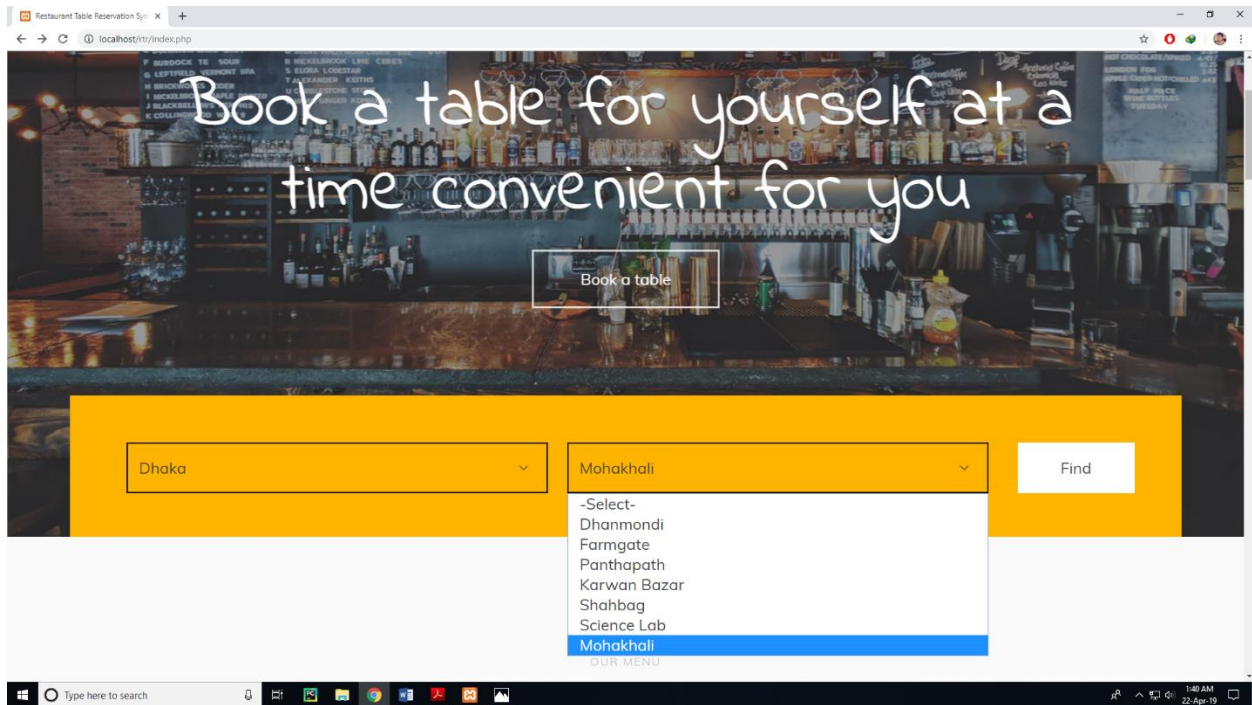


Figure 30: User manual of Select location

After getting that restaurant customer have to click book now button

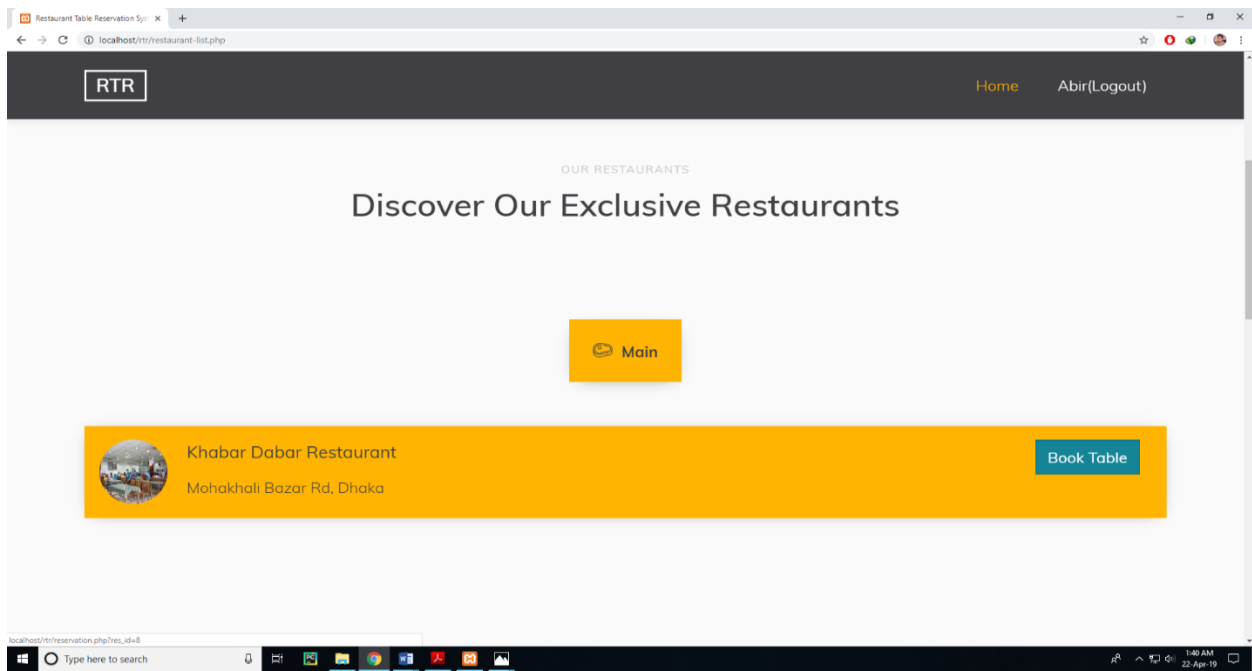


Figure 31: User manual of Select location

After click book table button customer will get this form. Now customer have to fill up the form. After filling the form correctly customer have to click make reservation button.

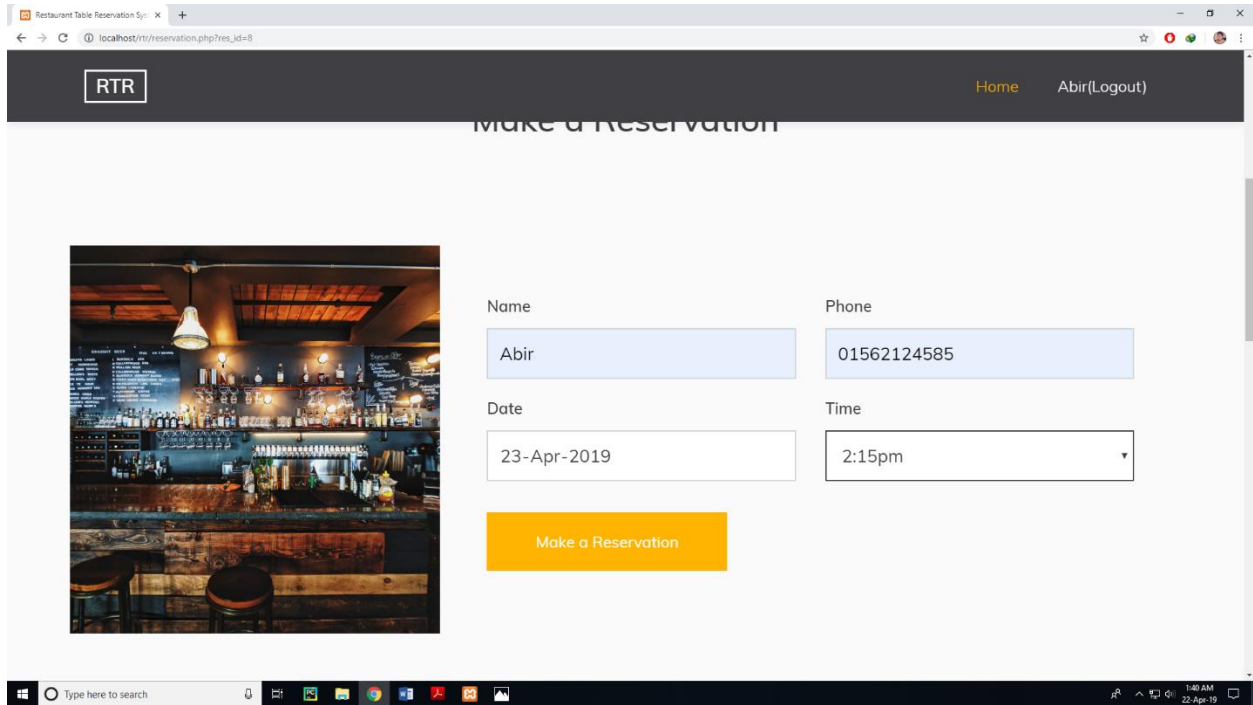


Figure 32: User manual of Provide date and time

After clicking make a reservation customer will able to see some table. Now customer have to select a table for booking.

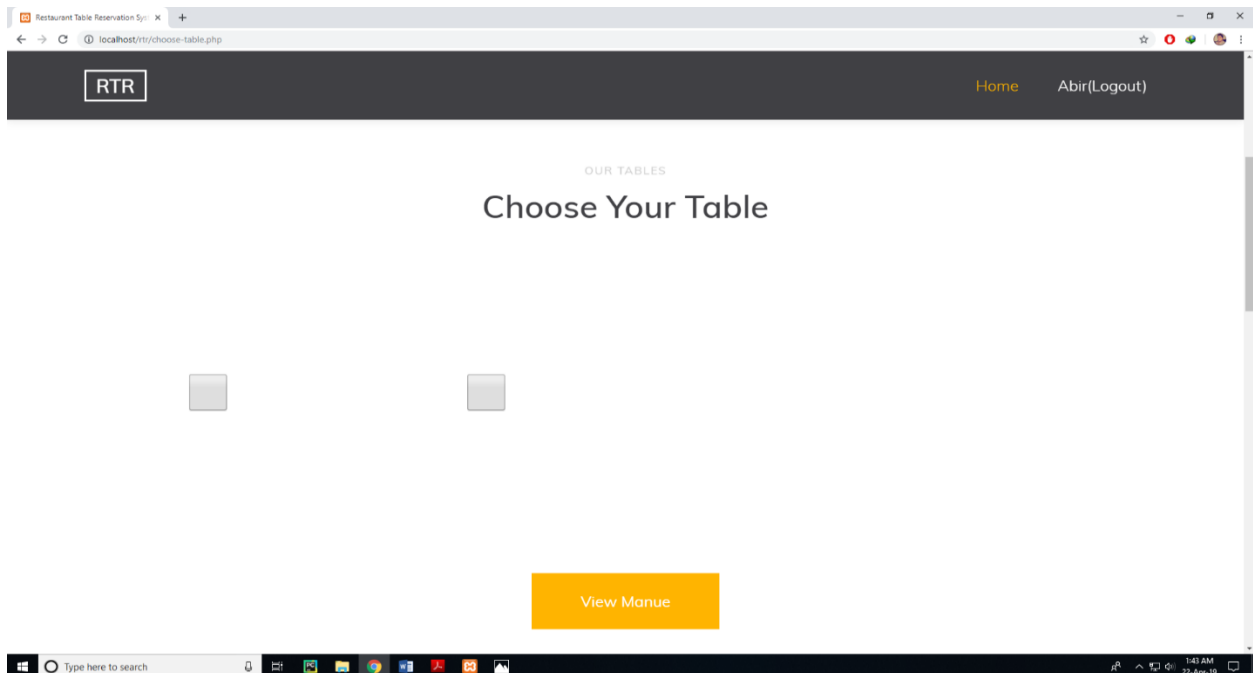


Figure 33: User manual of Select table

After select a table all of the chair will visible for the customer now customer have to select the chair that he wants to book. (If customer is not able to select any chair or some of the table that means this chair is already booked.)

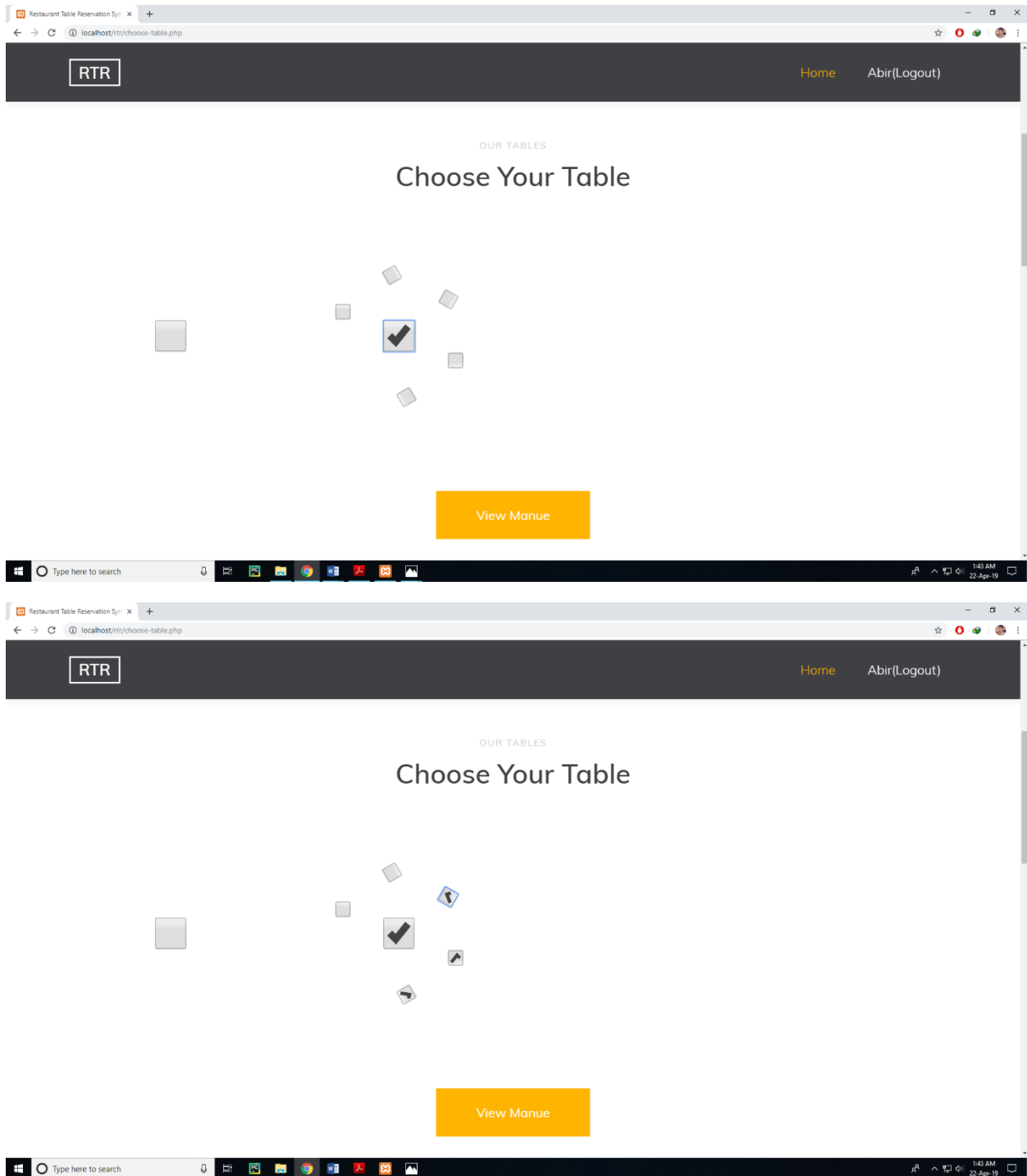


Figure 34: User manual of Select chair

Now customer have to choose food from the menu. And also provide the quantity of the food. After selecting food and providing quantity of the food customer have to click confirm button.

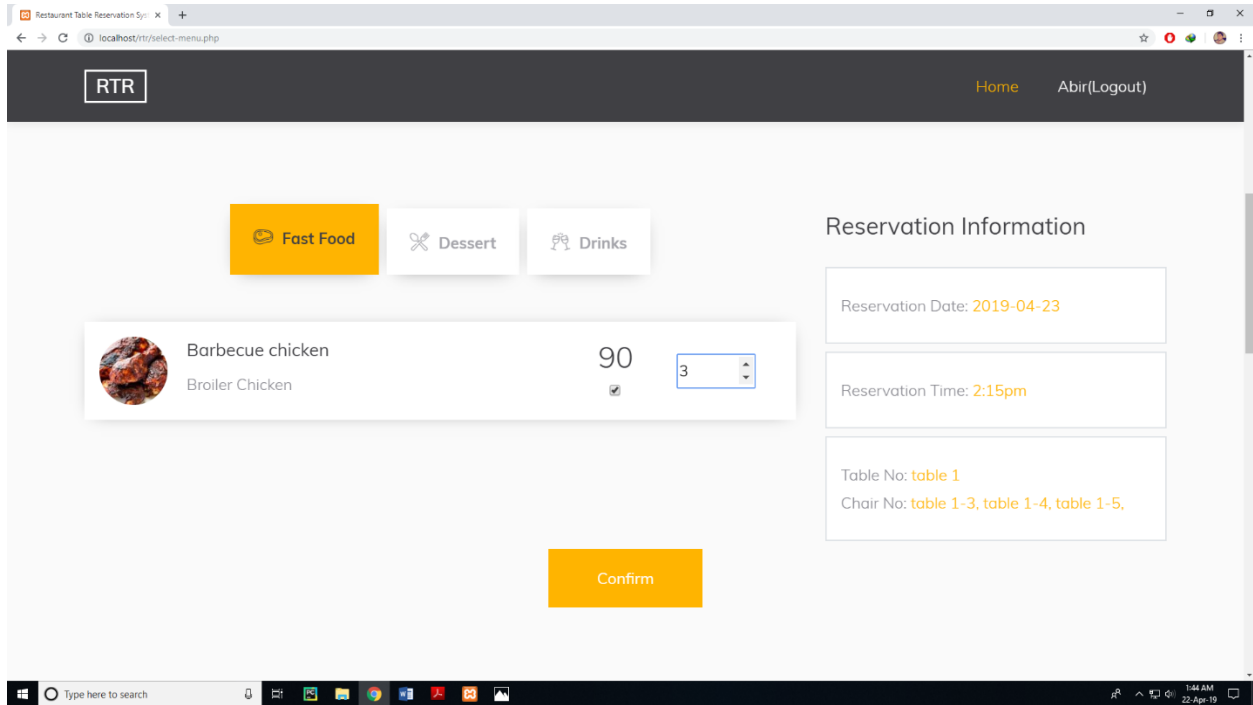
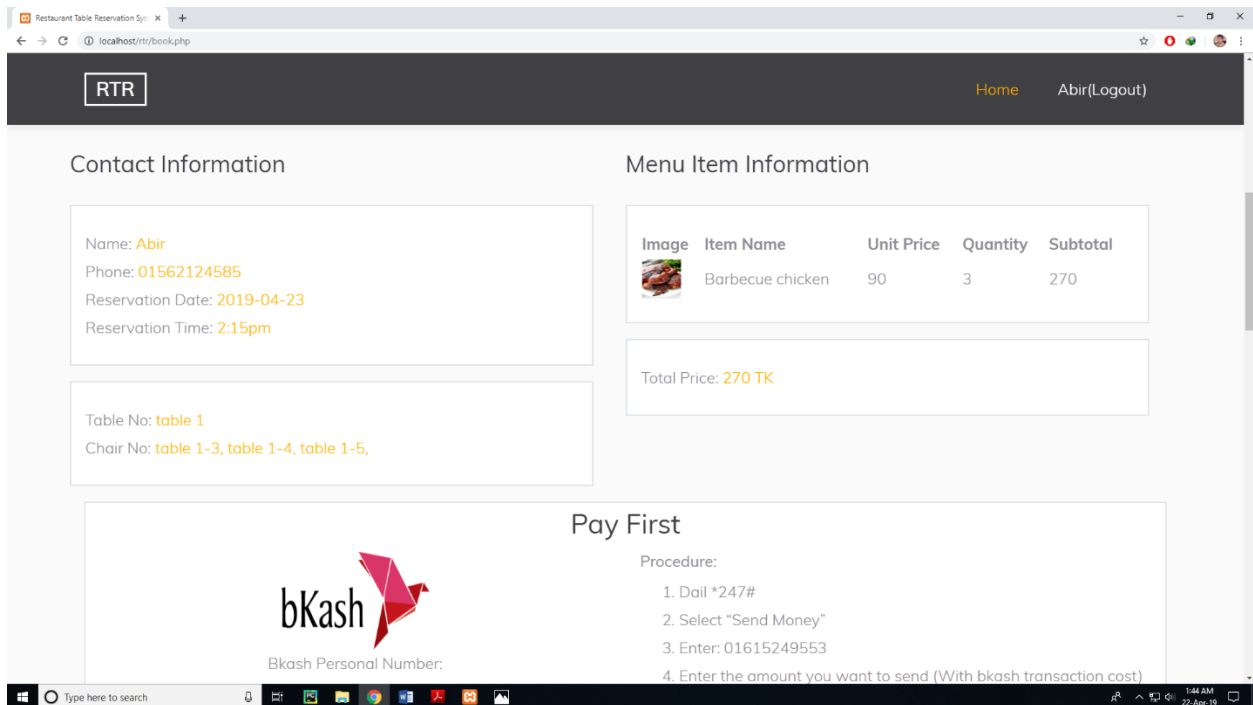


Figure 35: User manual of Select food menu and quantity

Now customer have to pay the bill for his menu. After paying the bill by bKash, customer have to provide the transaction id in the required field.



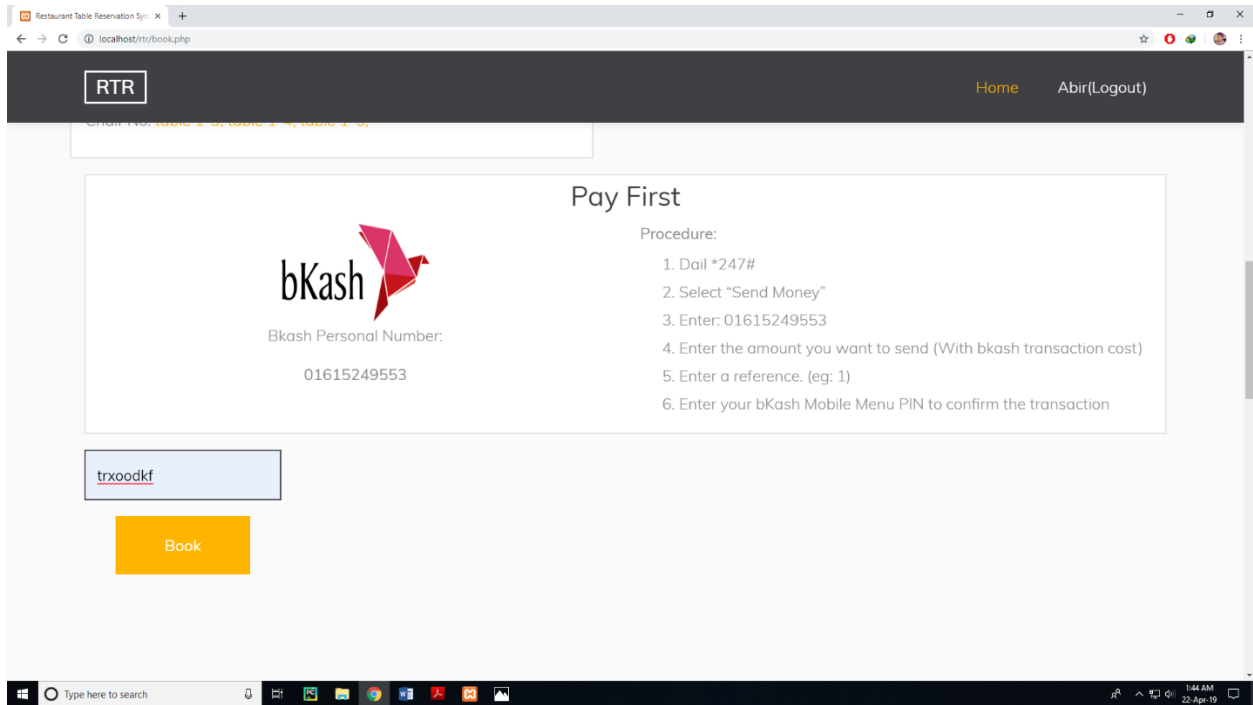


Figure 36: User manual of Send book table request

Now customer have to click book button. After clicking book button customer have done the booking. Now he have to wait for confirmation.

Chapter 7
Project Summary

Thanks to almighty ALLAH WHO blessed us to understand and carry out this work within my expected time-frame. By this project I am trying to help our people. All phases of this project are important because any kind of mistake can damage the whole system. And this documentation is the note of whole process of this 'Restaurant Table Reservation' system.

The project from a personal point of view helped us in understanding the following aspects of project development:

- The planning that goes into implementing a project.
- The importance of proper planning and an organized methodology.
- The key element of team spirit and co-ordination in a successful project.

The project also provided us the opportunity of interacting with our teachers and to gain from their best experience.

We think that all kind of people of our country will get a great benefit from this project.

7.1. Github Link

<https://github.com/RatanHazra/Restaurant-Table-Reservation>

7.2. Critical Evolution

In developing a project, obstacles mean challenges. Obviously, I had several obstacles during development of this project. After some development I was confused that if I am going on right way or my track is wrong. Also, I have one thing in my head is, is this project going to help peoples or not. Also, how much benefit they will get from my system. Here are some other obstacles.

- The main critical work was checking availability of tables and chair. When I was trying to doing this it was giving error again and again. And to solving this I needed a lot of time basically the most of the time of my project had passed to solve this problem. But at last I was succeed to do this.

7.3. Limitations

For developing this project, I have faced some limitations:

- **Payment Method:** In our application, there is not having any payment method directly. Customer have to pay the bill by Bkash. Then they have to provide the transaction id as text. And this transaction id is basically for payment verification. Restaurant authority will match customer provided transaction id with their bkash transaction id.

7.4. Obstacles & Achievements

Obstacles: In the time of developing this project I had faces some challenges. In my project I had found many things new to me and I would able to solve them. But in there were some problems that was very difficult to me. Basically showing the table availability and not availability was the most difficult problem to me. And it killed my lot of time. Basically it killed most time of the project.

- Table is available or not available? Making it was very difficult to me. I had spent more than 20 days to do this and at last I had succeed. It was most challenging for me.
- When restaurant authority accept a booking request customer will get a confirmation email. This function was also challenging for me. Because I did not never work with email system. So it was also difficult for me.

7.5. Future Scope

Now I have only one city selection in future I want to add all the city in our country. And in future I want to add food delivery system with it like foodpanda and pathao food.

7.6. Future Scope

Here I will add some references from where I got lot of helps:

- Refsnes data. (1998). W3School. Retrieved 05-05-2019, from <https://www.w3schools.com/>
- John resig. (2006). JQuery. Retrieved 05-05-2019, from <http://jquery.com/>
- Chad hurley, steve chen, jawed karim. (2005). YouTube. Retrieved 05-05-2019, from <https://www.youtube.com/>
- Mark otto, jacob thornton. (2011). Bootstrap. Retrieved 05-05-2019, from <https://getbootstrap.com/>
- Jeff Atwood, Joel Spolsky. (2008). Stackoverflow. Retrieved 05-05-2019, from <https://stackoverflow.com/>