SNS Paribahan – Safe And Sound Travel For You

(Online Ticketing System)

Software Requirement Analysis Document

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TABLE OF CONTENTS

Description of Contents

1 Introduction

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1.1 Purpose of the system

This is a Web-Application. It's a follow up of online ticketing system of a Travel Bus Company.

This Application will maintain all kind of online activities for a Travel Bus Company.
It will help the Company to give better service to their customer by giving them the opportunity to
do their necessary interaction sitting at home in online. So the customer will have the ease to buy
and cancel ticket and getting necessary information from anywhere, the won't be needing to go to
the counter anymore. So they will prefer this Company over other company who don't have this
online service. And as a result more customer will be attracted here which will eventually leads to
economical benefit. In proper completion of this Application we may able to sell it to a Travel Bus
Company which will be good for us.

We will build this product in the vision of Shohag Paribahan Ltd.
Link: *https://shohagh.com/*

1.2 Scope of the system

This is a fully functional system, not part of the system or subsystem.

1.3 Objective and success criteria of the project

The general objective of this project is to make the ticketing process easy for both the customer and the Bus company. Customer won't be needing to go to the customer care for purchasing ticket and as a result customer will be more attracted to the Company for Traveling which will eventually be beneficial for both the Customer and the Authority.

This application will be a Win and Win product for the company. Cause it won't cost much and it will bring more customer. And the customer experience will be more comfortable.

Anyone may argue that we already have Third party system like Sohoz which provide online ticket for a lot of bus company, then why we need this?
Well, though this third party system also do the same job, it takes extra charge from the customer. But a personal website of a company won't take any extra charge.

1.4 Definitions and Acronyms and abbreviations

There are no Acronyms and Abbreviations in this RAD except the word RAD.

1.5 References

None
It's Totally Self Made.

1.6 Overview

Not Applicable Here

2 Overall Description

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2.1 Product perspective

Before the automation the system suffered from the following drawbacks-

1. The existing system is highly manual involving only paper work or just verbal ticket ordering and therefore may cause problems and errors. This has lead to inconsistency and inaccuracy in the maintenance of ticketing system.
2. The data which is stored on the paper only, may be lost, stolen or destroyed due to natural or intentional issues.
3. The existing system is sluggish and consumes a lot of time causing inconvenience to customers and the bus company staff.
4. Since the number of passengers and buses have drastically increased and also increasing day by day a new automated web-based system is the need.
5. A bus company has many terminals or stoppages around the country, an absence of a link between these terminals often lead to lack of communication and co-ordination.

Hence the bus ticket reservation system is proposed with the following-

6 The automation of the reservation system will reduce a lot of paperwork and hence the load on the bus company administrative staff

7 The computer performs all the calculations. Hence chances of error are nil.

8 The passenger, reservation, cancellation list can easily be retrieved and any required addition, deletion or update can be performed.

9 The system provides for user-ID validation, hence unauthorized access is prevented.

2.2 Product functions

Customers with varying levels of familiarity with computers will mostly use this system. With this in mind, an important feature of this it to be relatively simple to use.

The scope of this product encompasses-

Search: This function allows the customer to search for train that are available between the two travel cities, namely the “Departure city” and “Arrival city” as desired by the traveler. The system initially prompts the customer for the departure and arrival city, the departure date and time slot and the number of tickets and ac/non ac bus. It then displays the buses which are fit for the customers need.

Selection: This function allows a particular bus to be selected from the displayed list. All the details of the buses are shown-

5 Bus number
6 Date, time and place of departure
7 Date, time and place of arrival
8 Journey duration
9 Fare per head
10 Number of stoppages

Review: If seats are available, then the software prompts for the booking of the tickets. The bus information is shown. The total fare including taxes are shown and journey details are reviewed.

Passenger information: It asks for all the passengers supposed to travel including name, address, phone number or e-mail id etc.

Payment: It asks the customer to enter the various credit and details for making the reservation.

5 Credit card type.
6 Credit card number.
7 CVC number of the card.
8 Expiration date of the card.
9 The name of the card.

Cancellation: The system also allows the passenger to cancel an existing reservation. This function registers the information regarding a passenger who has requested for a cancellation of his/her ticket. It includes entries pertaining to the bus no, Confirmation no, Name, Date of the journey, fare deducted etc.

2.3 User Profiles

Here are two types of users who will interact with the system.

1. Customer: Customers will select destination and starting point, buy tickets, give payment, cancel payment etc. These jobs will be done by this class.

2. Authority: Here the authority means the owner of the bus company who will manage the trips shown to the customers. He will add trips, delete trips, update trip descriptions, manage payment details etc.

2.4 Constraints

Software constraints:

5 The system will run on windows or linux operating system.

6 The user should have a browser (Chrome/Firefox etc.)

Hardware constraints:

- The system does not require any exceptional hardware requirements.

2.5 Assumptions and dependencies

There are some assumptions and dependencies which are given below-

1. Customers will have a valid username and password to access the system.
2. Software is dependent on access to the internet.
3. The software needs customers to have a complete knowledge of bus ticket booking system.

3 Specific Requirement

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3.1 Overview

3.2 Functional Requirement

3.2.1 Requirment 1

ID: 001

Name: Register

Description: Customer will Register with Email and Required Information

Priority: High

Reference: None

3.2.2 Requirment 2

ID: 002

Name: Login

Description: Customer Can Login with their pre-registered Email and Password

Priority: High

Reference: None

3.2.3 Requirment 3

ID: 003

Name: Log Out

Description: Customer Can Log Out from their Account

Priority: High

Reference: None

3.2.4 Requirment 4

ID: 004

Name: Search

Description: Customer will Search for available trip on the basis of Date and Source-Destination

Priority: High

Refernece: None

3.2.5 Requirment 5

ID: 005

Name: View Seat

Description: Customer will be able to see available seat of selected Trip

Priority: High

Reference: None

3.2.6 Requirment 6

ID: 006

Name: Book Seat

Description: Customer will be able to book required seat from available seat giving required information

Priority: High

Reference: None

3.2.7 Requirment 7

ID: 007

Name: Make Payment

Description: Customer will pay the amount via available Banking system

Priority: High

Reference: None

3.2.8 Requirment 8

ID: 008

Name: Search Ticket

Description: Customer can search a particular ticket with the PNR and view its details

Priority: High

Reference: None

3.2.9 Requirment 9

ID: 009

Name: Confirm Cancellation

Description: Customer will confirm the cancellation of his Ticket

Priority: High

Reference: None

3.2.10 Requirment 10

ID: 010

Name: See Location

Description: Customer can see the location and details about the available Counter

Priority: Medium

Reference: None

3.2.11 Requirment 11

ID: 011

Name: Contact Us

Description: Customer can contact with the authority via Email or phone

Priority: Medium

Reference: None

3.2.12 Requirment 12

ID: 012

Name: FAQ

Description: Customer can see the Frequently Asked Question to the Authority

Priority: Medium

Reference: None

3.2.13 Requirment 13

ID: 013

Name: Terms and Condition

Description: Customer can see the Terms and Condition of Company

Priority: High

Reference: None

3.2.14 Requirment 14

ID: 014

Name: See Profile

Description: Customer can see and change their profile Info

Priority: Medium

Reference: None

3.2.15 Requirment 15

ID: 015

Name: Add Trip

Description: Authority will be able to add new Trip with required Information

Priority: High

Reference: None

3.2.16 Requirment 16

ID: 016

Name: Update Trip

Description: Authority will be able to Update Trip Details

Priority: High

Reference: None

3.2.17 Requirment 17

ID: 017

Name: Cancel Trip

Description: Authority can Canecl a Trip if Necessary

Priority: High

Reference: None

3.3 Non Functional requirement

3.3.1 Usability

The software can be used by even a child above the age of 10. This specifies how easy it is to use. This is available in English language. User can accomplish any task in a very short period of time. User needs only 2/3 attempts in average to do the action. The buttons and headings are easy to understand as they also have their signs. User can navigate through the interface even if he is doing for the first time as things are designed in a very smooth way.

3.3.2 Reliability

The reliability of the overall project depends on the reliability of the separate components. The main pillar of reliability of the system is the backup of the database which is continuously maintained and updated to reflect the most recent changes. Also the system will be functioning inside a container. Thus the overall stability of the system depends on the stability of the container and it's underlying operating system.

3.3.3 Performance

The overall performance of the software will be great. The front-page load time must not be more than 3 seconds for users that access the website using an LTE mobile connection. The software also reacts very fast when a button is pressed or at the time of writing a comment in the comment box.

3.3.4 Supportability

The code and supporting modules of the system will be well documented and easy to understand. The software will use PHP, JAVASCRIPT, CSS for the front end and the backend server side code will be done using java/python.

3.3.5 Implementation

The software will be implemented in two steps. First to make the website's webpages and then the server side code. The programming languages which will be used for the system already described. Database will be selected MySql server/ SqlLite/ firebase etc. The payment system will be implemented by banks transaction ID given by the customer or the credit card system or paypal account.

3.3.6 Scalability

The software will be designed to be scalable. The server will be able handle multiple user at the same time. Our goal is to set the limit of the website to be scalable enough to handle 1,000 users at a time. Further improvement is not in our minds right now as this software will only serve a single bus company at a time. So we are not expecting a huge amount of growth of data handling in a short period of time.

3.3.7 Security

The system uses SSL (secured socket layer) in all transactions that include any confidential customer information. The system must automatically log out all customers after a period of inactivity. The system should not leave any cookies on the customer's computer containing the user's password. The system's backend servers shall only be accessible to authenticated management. ny security or privacy certifications that must be satisfied.>

3.3.8 Testability

Each components of the software will be tested individually before delivery. The software is observable, available, simple and controllable which makes it as testable. Summary by packages and summary by classes will be done for testing. For the test cases it will work efficiently and fast.

3.3.9 Maintainability

A commercial database is used for maintaining the database and the application server takes care of the site. In case of a failure, a re-initialization of the project will be done. Also the software design is being done with modularity in mind so that maintainability can be done efficiently.

3.4 System Models

3.4.1 Scenarios

3.4.1.1 Scenario 1

Customer A registering him/herself.

3.4.1.2 Scenario 2

Customer A logs in with authentication.

3.4.1.3 Scenario 3

Customer A gives input for the departure and arrival city and the other necessary information.

3.4.1.4 Scenario 4

Customer A can now see his/her choices which fulfill the given criteria.

3.4.1.5 Scenario 5

Customer A selects a bus trip.

3.4.1.6 Scenario 6

Customer A selects seats available.

3.4.1.7 Scenario 7

Customer A does not find a trip so searches again.

3.4.1.8 Scenario 8

Customer A finds a trip but could not find enough available tickets. So goes for another choice.

3.4.1.9 Scenario 9

Customer A confirms his tickets to the cart.

3.4.1.10 Scenario 10

Customer A selects a payment method.

3.4.1.11 Scenario 11

Customer A then does the payment process.

3.4.1.12 Scenario 12

Customer A receives a confirmation e-mail of ticket booking and balance deduction.

3.4.1.13 Scenario 13

Customer A receives a warning message for fake payment.

3.4.1.14 Scenario 14

Customer A changes name and password.

3.4.1.15 Scenario 15

Customer A logs out.

3.4.1.16 Scenario 16

Authority B logs in.

3.4.1.17 Scenario 17

Authority B Adds a trip.

3.4.1.18 Scenario 18

Authority B deletes a trip.

3.4.1.19 Scenario 19

Authority B updates a trip.

3.4.1.20 Scenario 20

Authority B Changes Name and password.

3.4.1.21 Scenario 21

Authority B logs out.

3.4.1.22 Scenario 22

Customer A selects accident prone roads option.

3.4.1.23 Scenario 23

Customer A is notified when he/she is inside that zone.

3.4.1.24 Scenario 24

Customer A makes a comment about the trip.

3.4.1.25 Scenario 25

Authority B reads customer comments.

3.4.1.26 Authority B replies to customer comments.

3.4.2 Use cases

3.4.2.1 Use Case 1
Title: Register
Primary Actor: Customer

Pre Condition:

1. System is Running
2. Customer Has a non registered Email ID

Main Success Scenario:

1. Customer Opens the Application
2. Click the Register button
3. Fill up required information
4. Submit the Information
5. System send Email to the customer for confirmation
6. Customer Confirms it.
7. Home page is displayed to the Customer

Post Condition:

1. An account is created

Extensions:

4a. Email is Invalid

1. System Display an Error

4b. Email is already in use

1. System Diplay an Error

3.4.2.2 Use Case 2

Title: Login

Primary Actor: Customer

Pre Condition:

1. System is Running
2. Customer Has an account

Main Success Scenario:

1. Customer Opens the Application
2. Click the Login button
3. Enter Email and Password
4. Click Login
5. System Verify Email and Password

Post Condition:

1. Customer Logged in to his account with Home page in the Display

Extensions:

5a. Email or Password is Invalid

1. System Display an Error

3.4.2.3 *Use Case 3*

Title: Search

Primary Actor: Customer

Pre Condition:

1. *System is Running.*
2. *Customer is Logged In.*

Main Success Scenario:

1. *Customer Opens the Application*
2. *Select Journey Date*
3. *Select Source and Destination*
4. *Click the Search Button*

Post Condition:

1. List of the Trip is Diplayed.

3.4.2.4 *Use Case 4*

Title: Buy Ticket

Primary Actor: Customer

Pre Condition:

1. System is Running

2. Customer is Logged In

Main Success Scenario:

1. Customer Opens the Application

2. Search available trip

3. View the available seat

4. Select required seat.

5. Give required Information

6. System books the Seat

7. Customer click to the 'Continue' button

8. System Display the Ticket Information

9. Customer Click 'Proceed' for payment

10. Choose payment Method.

11. Enter Account No and Password.

12. System show success massage.

13. System sends an email atatching the E-Ticket.

Post Condition:

1. A Ticket is Purchased.

Extensions:

2a. No Trip Available

1. System Display a Massage

4a. All seat is booked.

11a. Acc No or Password is Wrong

1. System display an Error massage.

3.4.2.5 *Use Case 5*

Title: Cancel Ticket

Primary Actor: Customer

Pre Condition:

1. System is Running

2. Customer is Logged In

Main Success Scenario:

1. Customer Opens the Application

2. Click the 'Cancel Ticket' button

3. Enter the PNR and Search

4. System display the Ticket details.

5. Customer confirms cancellation

6. Success massage is shown

7. Authority refunds later.

Post Condition:

1. Ticket is Cancelled.

Extensions:

3a. Ticket does not Exists

1. System Display an Error

5a. Cancellation Time is Over

1. System Diplay an Error

3.4.2.6 *Use Case 6*

Title: See Profile

Primary Actor: Customer

Pre Condition:

1. System is Running

2. Customer is Logged In

Main Success Scenario:

1. Customer Opens the Application

2. Click the 'Set Up Profile' button

3. System Diplay the Profile Details.

4. Customer make changes

5. Customer Save changes

6. System Confirms it

Post Condition:

1. Profile is Updated.

Extensions:

6a. Email is Invalid

1. System Display an Error

3.4.2.7 Use Case 7

Title: Add Trip

Primary Actor: Admin

Pre Condition:

1. System is Running
2. Admin is Logged In

Main Success Scenario:

1. Admin Opens the Application
2. Click the 'Add Trip' button
3. Fill up required information
4. Save the Information

Post Condition:

1. A Trip is Added

Extensions: None

3.4.2.8 Use Case 8

Title: Cancel Trip

Primary Actor: Admin

Pre Condition:

1. System is Running

2. Admin is Logged In

Main Success Scenario:

1. Admin Opens the Application

2. Click the 'Cancel Trip' button

3. Go to the details of the particular Trip

4. Confirm the Cancellation

5. System send email to those who bought ticket for this Trip.

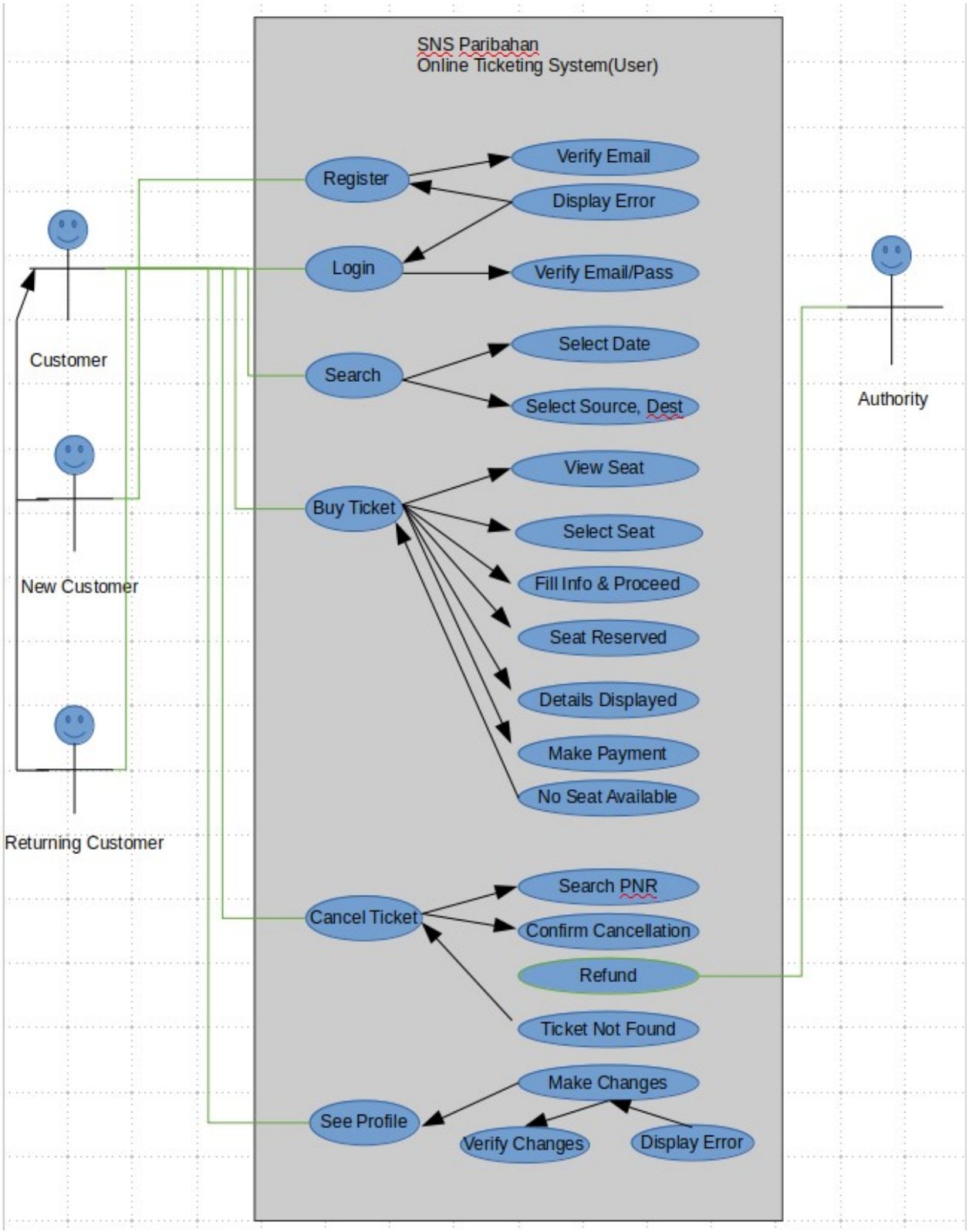
Post Condition:

1. The Trip is Deleted.

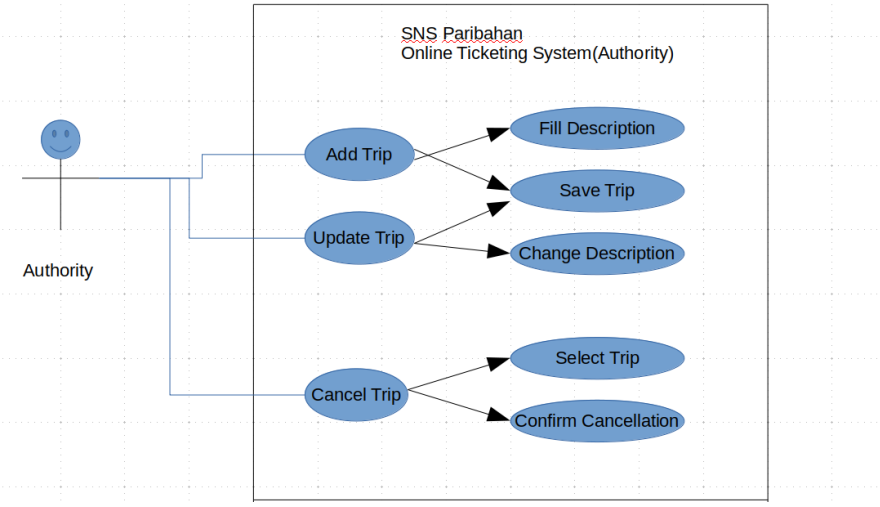
Extensions: None

3.4.3 Use case model

For Customer Site

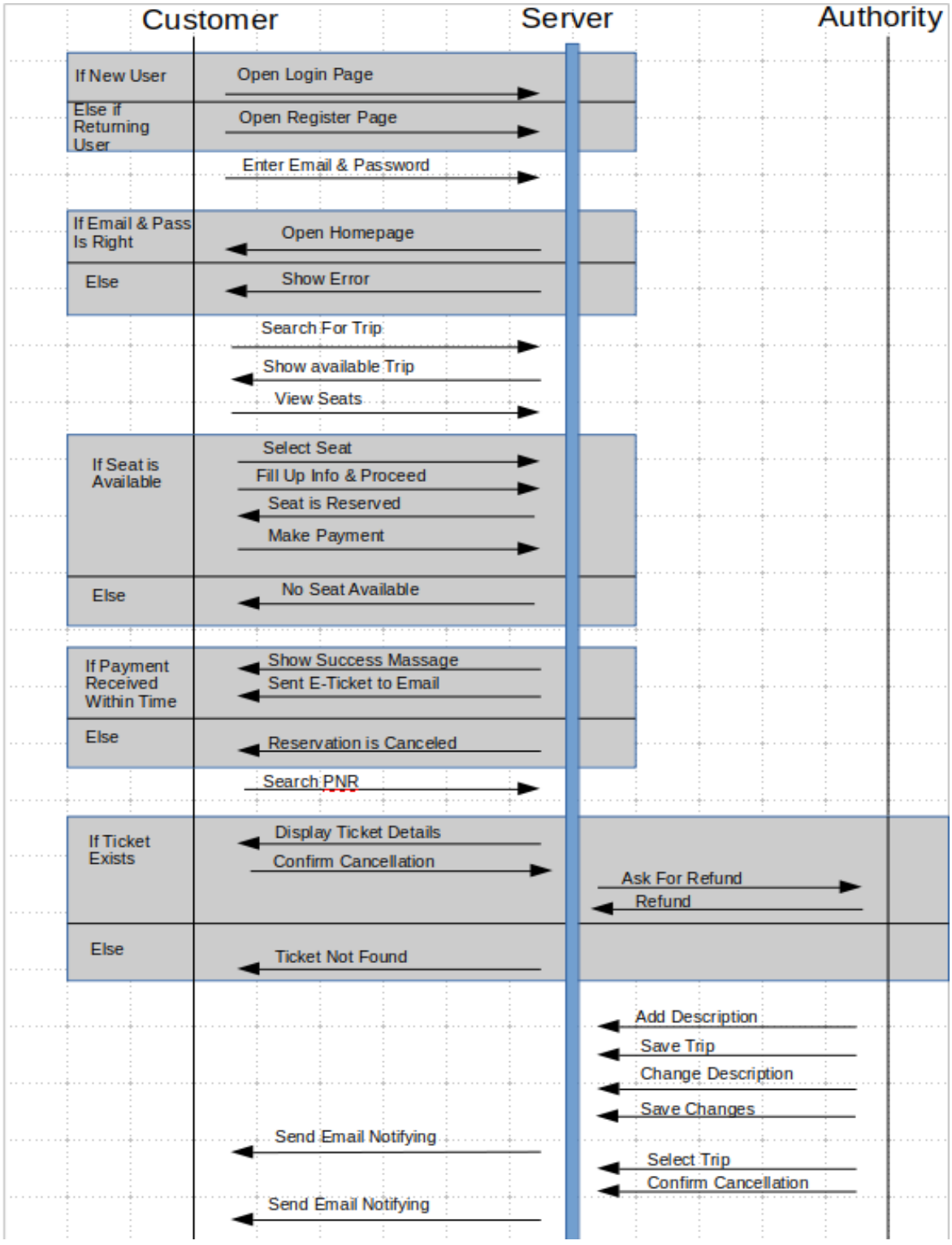


For Admin Site



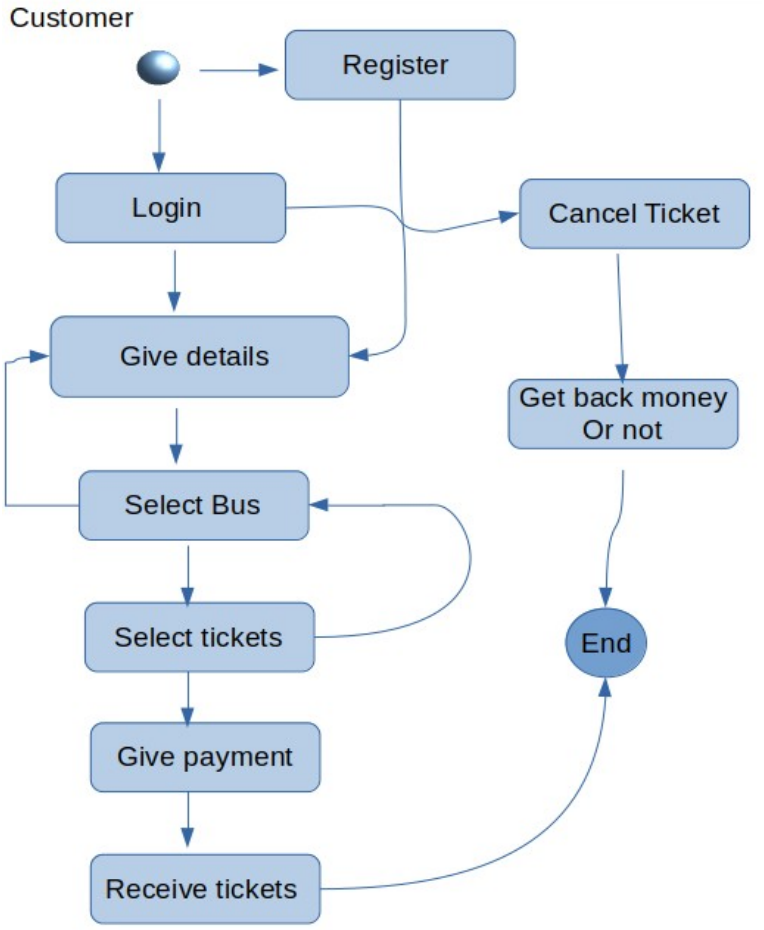
3.4.4 Dynamic Model

3.4.4.1 Sequence Diagram

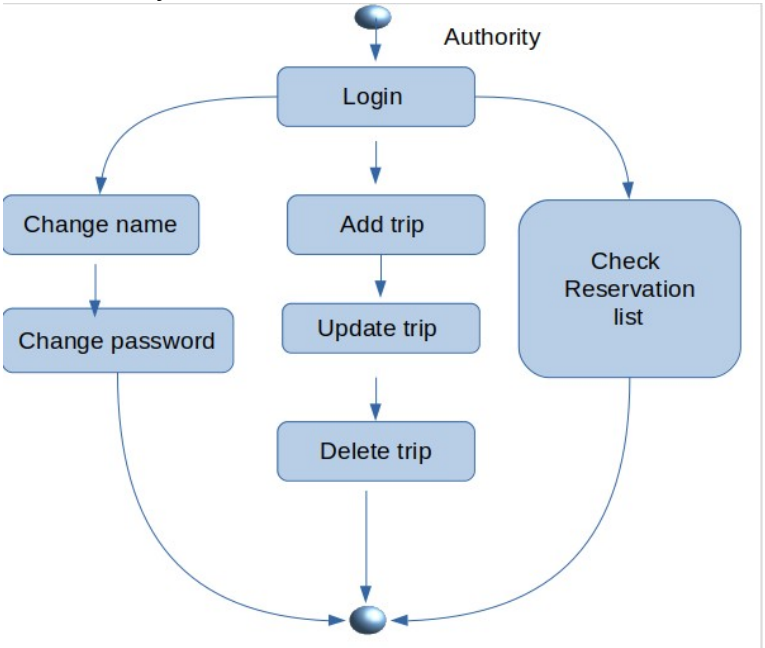


3.4.4.2 Statechart Giagram

For Customer

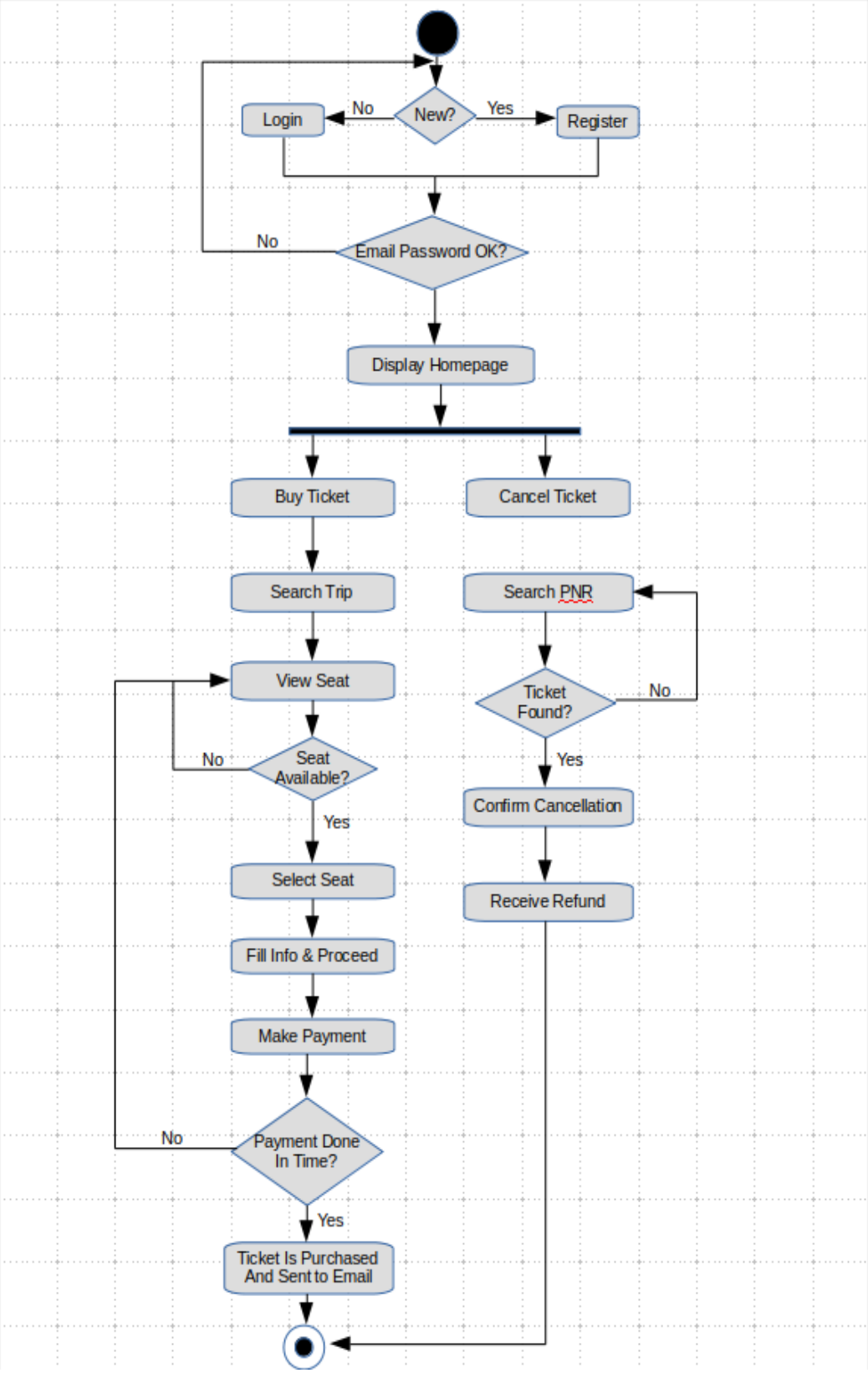


For Authority

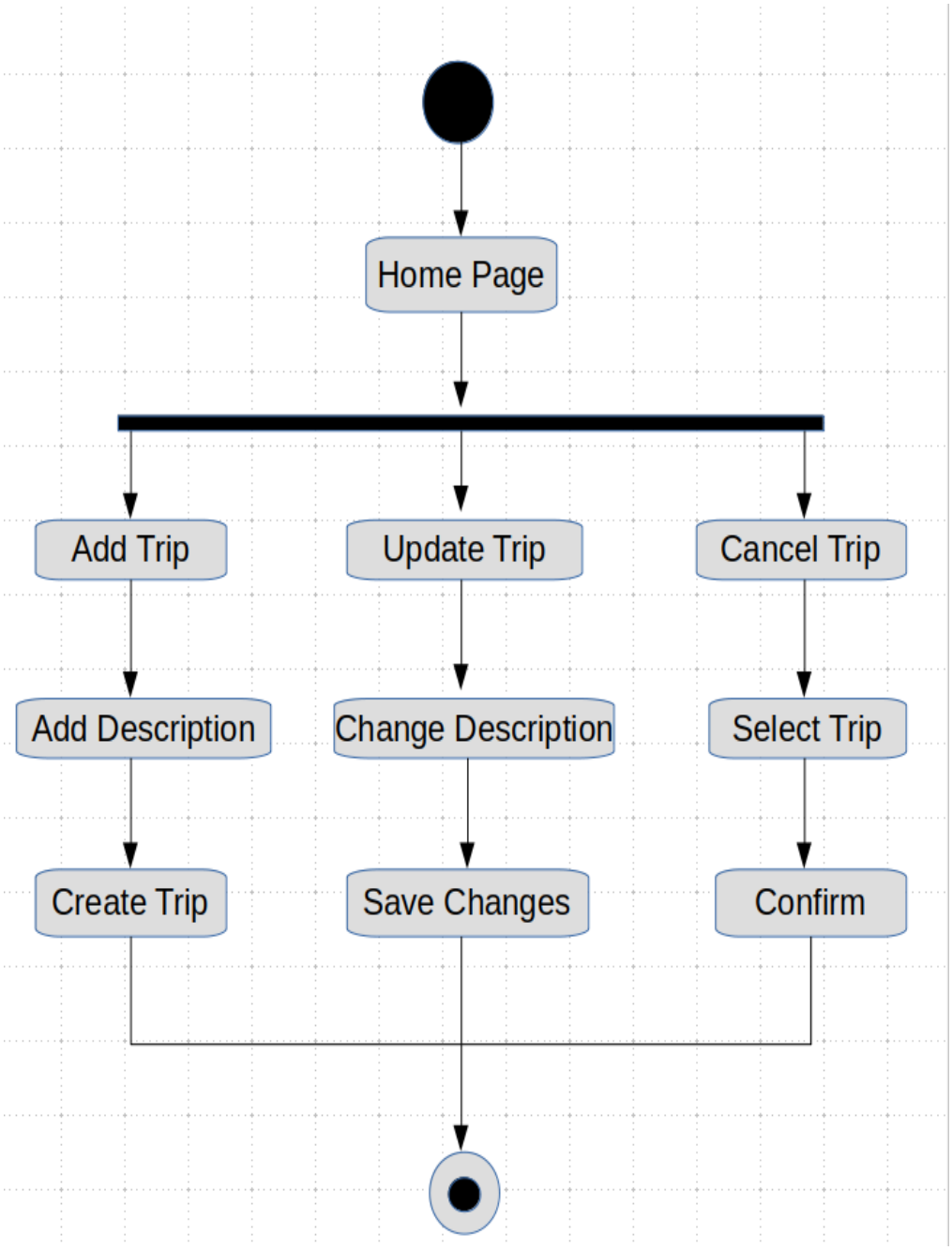


3.4.4.3 Activity Diagram

For Customers



For Authority



3.4.5 Interfaces

3.4.5.1 User Interface

TBD

3.4.5.2 Software Interface

The system is on server so it requires the any scripting language like PHP, VBScript etc. The system require database also to store any transaction of the system like MYSQL etc. System also require DNS for the naming on the internet. At the last user (both Customer and Authority) need a web browser for interact with the system.

3.4.5.3 Hardware Interface

The system runs over the internet. All the hardware shall require to connect internet will be hardware interface for the system. As for the example – WAN/LAN, Ethernet, Cross-Cable. Also the customer needs a device (Computer / phone / tablet pc/ smart watch) with a browser on it.

4 Supporting Information

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TBD