

**Online Bus Booking and Tracking System for SLTB**  
**Central Bus Station - *Colombo***

Software Requirements Specification

Version 1.0

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## **1. Introduction**

This document describes the requirements specification (SRS) [1], [2] for the (software infrastructure) (or product) that enables the Bus Booking through web based online system and also tracking system, and provides an overall description of it. This is the version 1.0 of the software requirements specification.

### **1.1 Purpose**

The purpose of the Software Requirements Specification document is to maintain all the functions and the specifications of the Online Bus Booking and Tracking System. Besides, it contains the detailed descriptions of all the requirements specified before. This would make clear about all the requirements.

### **1.2 Scope**

1. A person should be able to-

- Selecting the destinations, class of bus, no of passengers
- Able to choose the seats which are available for certain class[6]
- It should automatically show the fare for corresponding seat and the total amount for all the seats.
- Entering the customers valid information
- Selecting the payment method and entering the details. It would be saved for your future usage. [Here we use MySQL [4] to store the data to database]
- A message should be send to the person's specific telephone number about the Confirmation of the reservation.
- With the internet or android phone anyone could find out the location of the bus.

PHP [3] is a popular general-purpose scripting language that is especially suited to web development.

Java Script - JavaScript is generally used for client-side scripting. JavaScript works best for visual animation (such as changing an image when a user moves the mouse pointer over it) or for validating form fields. *Can minimums human error.*

Yii framework [8] is used in this system for it is a free, open-source Web application development framework written in PHP5 that promotes clean, DRY design and encourages rapid development.

These kind of software products helps to do the work quickly. In the development stage, we start with requirement then we defined the system components and we determined the relationship between them. The database has been design depended on relational entities, Normalization and implemented in My SQL [4]. Then, we use system analysis in order to develop a web based application. Model–view–controller (MVC) [7] is a software pattern for implementing this system. JQuery is a cross-platform JavaScript library designed to simplify the client-side scripting of HTML.

### 1.3 Definitions, Acronyms, and Abbreviations

Term	Definition
Active Article	The document that is tracked by the system; it is a narrative that is planned to be posted to the public website.
Author	Person submitting an article to be reviewed. In case of multiple authors, this term refers to the <i>principal author</i> , with whom all communication is made.
Database	Collection of all the information monitored by this system.
Reader	Anyone visiting the site to read articles.
Review	A written recommendation about the appropriateness of an article for publication; may include suggestions for improvement.
Reviewer	A person that examines an article and has the ability to

	recommend approval of the article for publication or to request that changes be made in the article.
SRS	A document that completely describes all of the functions of a proposed system and the constraints under which it must operate. For example, this document.
Stakeholder	Any person with an interest in the project who is not a developer.
User	Reviewer or Author.

## 1.4 References

- [1] Copyright © 1998 IEEE, “IEEE Std 830-1998” Internet: <http://www.math.uaa.alaska.edu/~afkjm/cs401/IEEE830.pdf>, [Accessed 20 - 11 - 2013].
- [2] Copyright © 1998 IEEE, “IEEE Std 830-1998” Internet: <http://www.cse.msu.edu/~cse870/IEEEExplore-SRS-template.pdf>, [Accessed 20 - 11 - 2013].
- [3] 2001-2013 The PHP Group, “PHP” Internet: <http://php.net>, [Accessed 25 - 12 - 2013].
- [4] © 2014, Oracle Corporation and/or its affiliates. “Mysql” Internet: <http://dev.mysql.com/>, [Accessed 3 - 01 - 2014].
- [5] KSRTC © 2011, “Terms and conditions” Internet: <http://www.ksrtc.in/site/reservation-terms>
- [6] Copyright© ANGLER Technologies | © 2001 – 2014, “E-Ticket Booking” Internet: [http://www.angleritech.com/case\\_studies/online-bus-booking-system](http://www.angleritech.com/case_studies/online-bus-booking-system) [Accessed 3 - 01 - 2014].
- [7] Wikipedia® is a registered trademark of the Wikimedia Foundation, Inc., a non-profit organization “MVC” Internet: <http://en.wikipedia.org/wiki/Model%E2%80%93view%E2%80%93controller>,
- [8] Copyright © 2014 by Yii Software LLC” yii framework“ <http://www.yiiframework.com/>, [Accessed 4 - 01 - 2014].

## 1.5 Overview

After giving a brief introduction about the project, the body of the report is divided into two parts. They are:

- The 2<sup>nd</sup> chapter contains a full description of the functions, their properties, their aims, the constraints and the requirements of the project.
- The last chapter consists of the details of the functions and function constraints.

## **2. General Description**

This section describes the functions of the programs and their aims. It also includes the constraints and the requirements of the project.

### **2.1 Product Perspective**

Online bus booking system provides a group of works with interface environments. Also there will be a database which will keep all the records that done by user while visiting the page. And the database stores the information of the customer to send the location of the bus with the use of GPS

### **2.2 Product Functions**

1. A person should be able to-
  - Selecting the destinations, class of bus, no of passengers
  - Able to choose the seats which are available for certain class[6]
  - It should automatically show the fare for corresponding seat and the total amount for all the seats.
  - Entering the customers valid information
  - Selecting the payment method and entering the details. It would be saved for your future usage. [Here we use MySQL [4] to store the data to database]

- A message should be send to the person's specific telephone number about the Confirmation of the reservation.
- With the internet or android phone anyone could find out the location of the bus.

The administrator of the website should used an admin tool for customize the website.

- The System Operate tool shall handle followings:
  - a) Shall add or remove links onto the main bar
  - b) Shall give options for search tools
  - c) Shall add, remove or update links on the menu
  - d) Shall add or remove medias in the content menu
  - e) Shall add or remove the employees details, bus information

## **2.3 User Characteristics**

The user types that would use the bus booking system are as follows:

- Administrator- Administrators shall usually do anything on the site, in all pages. Administrator is responsible for updating and the maintenance of the website content such as adding/removing information about the SLTB, adding/removing links onto the main bar, and adding/removing medias in the content menu.[5]
- System operators: - System operators are the users who have privilege to access the system to update daily information to system such as bus details, bus route, time schedules, and ticket price, etc. Administrator controls there access level.
- Customer- Customers are people who shall use Bus booking system. To use this service people should have the basic computer using ability. They shall see the buses information which is belong to current time. User can see all general information, FAQ can use search. If they have internet or android phone they could locate the bus route with the location.



## 2.4 General Constraints

- **Regulatory Policies:** There are some regulatory policies. Such as all the rules and terms will be followed by SLTB. The customers who use the program should agree the terms [5].
- **Hardware Limitations:** There are no hardware limitations.
- **Interfaces to other application:** There shall be an interface for tracking system.
- **Parallel operations:** There are no parallel operations.
- **Audit Functions:** There shall be no audit functions.
- **Control Functions:** There are no control functions.
- **Higher- Order Language Functions:** The PHP shall be used for developing the web pages with the help of Macromedia Dreamweaver. For the database information MySQL shall be used.
- **Signal Handshake Protocols:** This is no signal handshake protocols.
- **Criticality of the Application:** The server applications shall be available 365 days.
- **Safety and security Consideration:** Data protection shall be satisfied by the backup process at the server side.

## 2.5 Assumptions and Dependencies

- The user must have the ability to use the internet.
- The user must have connected to the internet to use the internet.
- The user should have internet or android phone to have the location of the bus.
- The accuracy of the information of users is the responsibility of all users.

## 3. Specific Requirements

- Administrator should be able control all functions of web based system, MySQL will be used to store data.
- According to the situation of no of buses and no of employees the administrator should change all the details.
- At the starting there is not any facility to cancellation, but we will make any difference in the future.

### **3.1 External Interface Requirements**

#### **3.1.1 User Interfaces**

The Online Bus Booking System shall be designed as a web based that has a main user interface. Format of main screen shall be standard and flex able. The system shall be user friendly designed. Pages shall be connected each other in a consistent way. Operations can be done with the system shall be repeatable. The design of the pages should allow users to do this.

#### **3.1.2 Hardware Interfaces**

There is no need hardware interfaces for Online Bus Booking System.

Computer, Mobile Phone

#### **3.1.3 Software Interfaces**

Web Browser

Apache Server [3],

My Sql

Database

#### **Apache Server**

**Purpose:** - The order to execute the client site of Online Bus Booking System, the web server specified above is required as the provider of the client software at the server site.

**Definition of the Interface:** The Apache HTTP Server Project is an effort to develop and maintain an open source HTTP server for modern operating systems including UNIX and Windows NT. The goal of this project is to provide a secure, efficient and

extensible server that provides HTTP services in sync with the current HTTP standards.

### **PHP**

**Purpose:** In order to build web pages which work with MySQL database and Apache server.

**Definition of the Interface:** PHP is a widely-used general-purpose scripting language that is especially suited for Web development and can be embedded into HTML.

### **Macromedia Dreamweaver**

**Purpose:** The web development tool specified above is required for designing and coding the project.

**Definition of the Interface:** Macromedia Dreamweaver is the industry-leading web development tool, enabling users to efficiently design, develop and maintain standards-based websites and applications.

### **MySQL**

**Purpose:** Required as database server.

**Definition of the Interface:** MySQL is the world's most popular open source database software, with over 100 million copies of its software downloaded or distributed throughout its history. With superior speed, reliability, and ease of use, MySQL has become the preferred choice of corporate IT Managers because it eliminates the major problems associated with downtime, maintenance, administration and support.

#### **3.1.4 Communications Interfaces**

The default communication protocol for data transmission between server and the client is Transmission Control Protocol/Internet Protocol (TCP/IP). At the upper level Hyper Text Transfer Protocol (HTTP, default port=80, default of apache port=8080) will be used for communication between the web server and client.

### **3.2 Functional Requirement**

### **3.2.1 Search for Buses**

The customer will be given an interface where he\she can search for buses between any source and destinations on any date he\she selects. He\she can also specify classes like luxury, semi luxury and normal. The interface will then return the information of those buses filtered\ ordered according to the selected conditions.

#### **3.2.2.2 Inputs**

Journey Form, Journey To and Journey Date

#### **3.2.2.3 Processing**

Check Field Empty or Not Empty, Search Bus form Database and Check for available Seat form DB

#### **3.2.2.4 Outputs**

Display Buses, Display Available Seat

#### **3.2.2.5 Error Handling**

Check valid date

### **3.2.2 Ticket Booking**

#### **3.2.2.1 Introduction**

In ticket booking if customer is satisfied with there requirements they can do all processes step by step to reserve there seats. Entering all the valid information and then the customer will be redirected to a page which has a pictorial representation of the seating arrangement of the bus, which shows the seats which are available. He\she can select seats from this diagram, select the bus entry point which is known as the nearest bus halt where do they get on and enter the passenger details. He/she then has to enter his credit card details and book the tickets.

#### **3.2.3.2 Inputs**

Select Seat, Enter Booring Details (Booker name, Mobile number, passenger name and age) and Select Payment Method

#### ***3.2.3.3 Processing***

Hold Seat, Check cookie, Check Field Empty or Not Empty, Update Details, Commit Transaction and Roll Back Transaction

#### ***3.2.3.4 Outputs***

Display Selection Seat, Display Message “Time is expired”, Display Booking Form and Print Ticket

#### ***3.2.3.5 Error Handling***

### 3.3 Use Cases

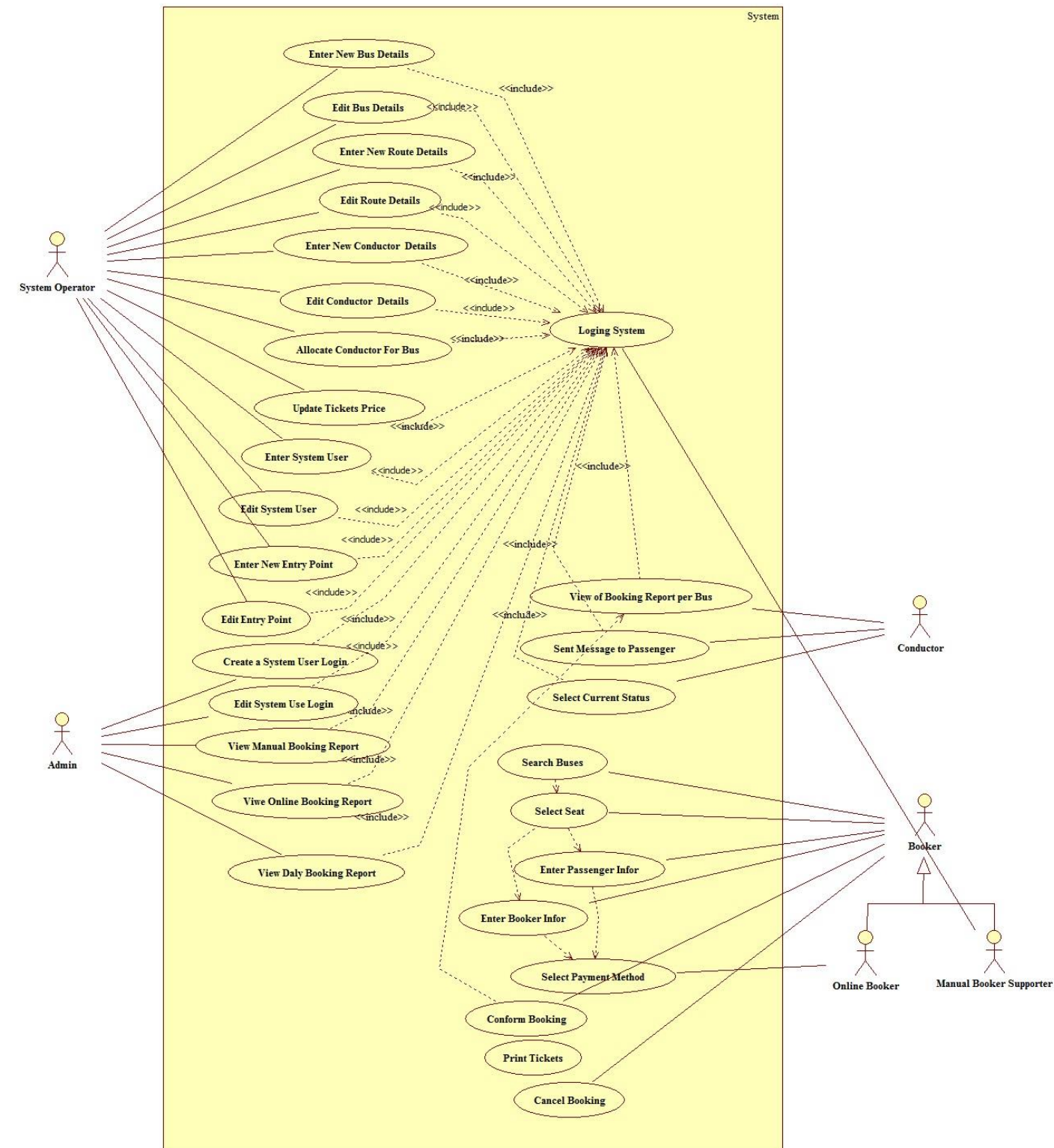


Figure 3.1 – Use Case for System

3.4 Classes / Objects

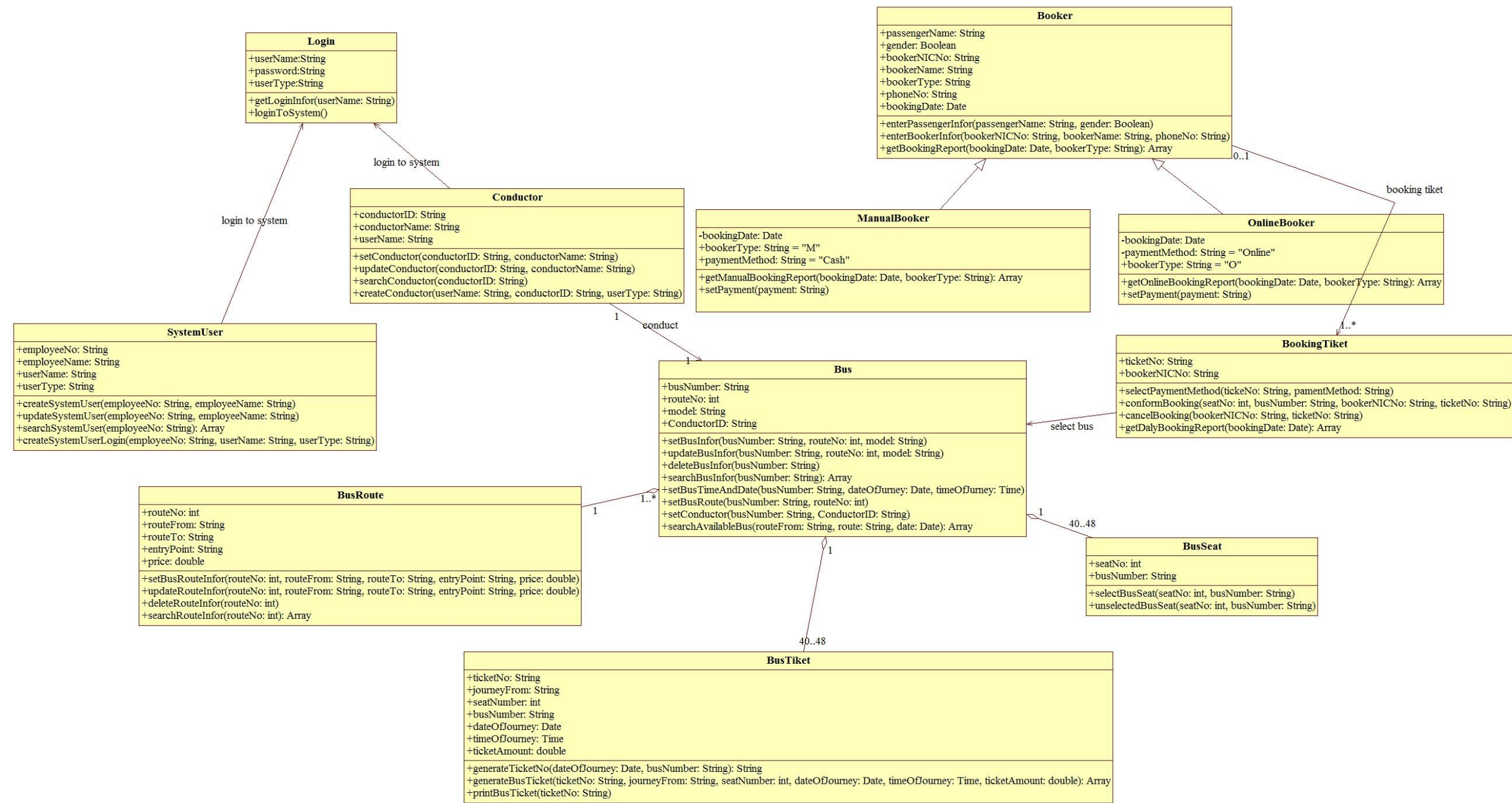


Figure 3.2 – Class Diagram for System

## **3.5 Non-Functional Requirements**

### **3.5.1 Performance**

The system performance is adequate. However, Online Bus Booking System is working with the user internet connection, 90% of the performance is up to the client side.

### **3.5.2 Reliability**

### **3.5.3 Availability**

The availability of the Bus booking system is up to the internet connection of the client. Since this is client-server related web-site, website shall be attainable all the time.

### **3.5.4 Security**

The authorization mechanism of the system will block the unwanted attempts to the server and let the system decide on which privileges may the user have. The system has different types of users so there are different levels of authorization. There will be also a firewall installed on the server so the incoming transactions can be filtered. Data integrity for critical variables will also be checked.

### **3.5.5 Maintainability**

The requirements, modules that are explained in this document are enough to satisfy the customers need and wants. In case of a change or addition demand after completing the system or in development processes of the system, new agreement shall be done between the acquirer and SLTB. The maintainability shall be easily done by integrating new modules and offering new software solutions for the system.

### **3.5.6 Portability**

The Bus booking system is an online service. So, anyone can use the service. One and only the server of the system must have the required software including MySQL, Apache.



### **3.6 Inverse Requirements**

There are no inverse requirements

### **3.7 Design Constraints**

All document of the system shall be prepared relate d to IEEE standards [1], [2].

### **3.8 Logical Database Requirements**

There are no logical database requirements

### **3.9 Other Requirements**

There are no other requirements in this phase. If some extra requirements are wanted by the customer or acquirer, these are added in this part later.

## **4 Analysis Models**

### **4.1 Activity Diagrams**

The Swim lanes for Booking Seat are cited in “Appendix A”.

## **5. Change Management Process**

Since the client requirements are clearly defined the change management process will not be functional frequently in this project. Although the SRS will be used to update when the project scope or requirements are changed in all of a sudden.

## Appendices A- Swim lanes for Booking Bus Seat

### Search Available Bus

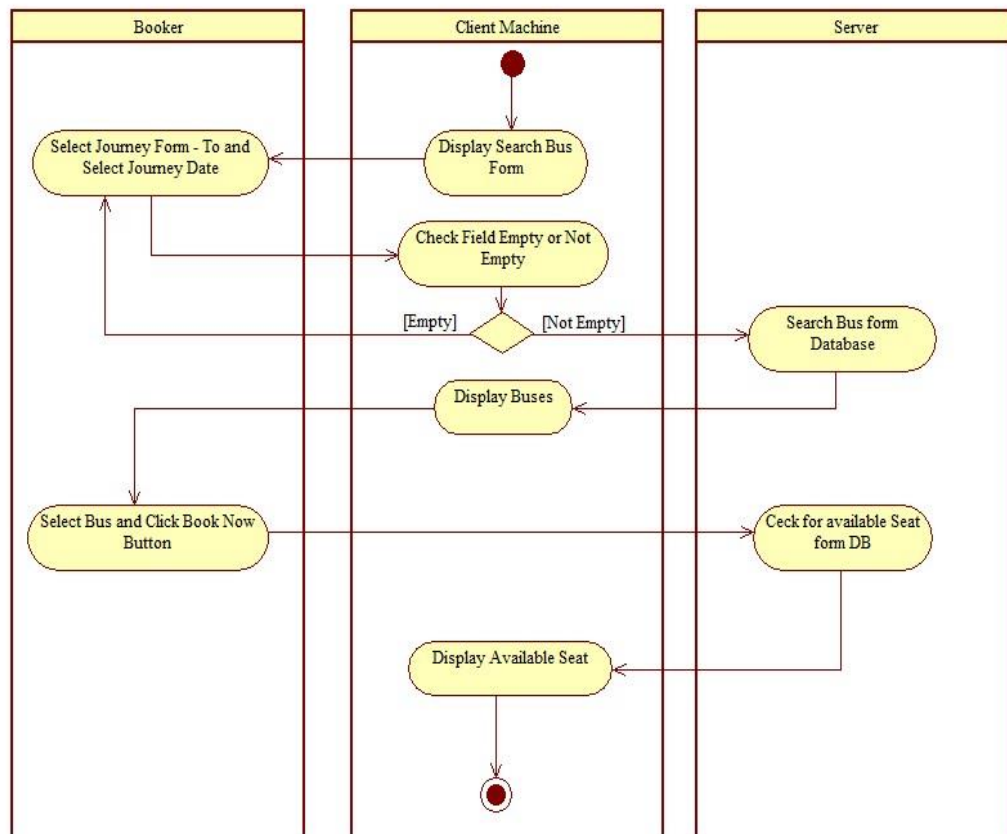


Figure 4.1 - Swim lanes for Booking Bus Seat

## Booking Bus Seat

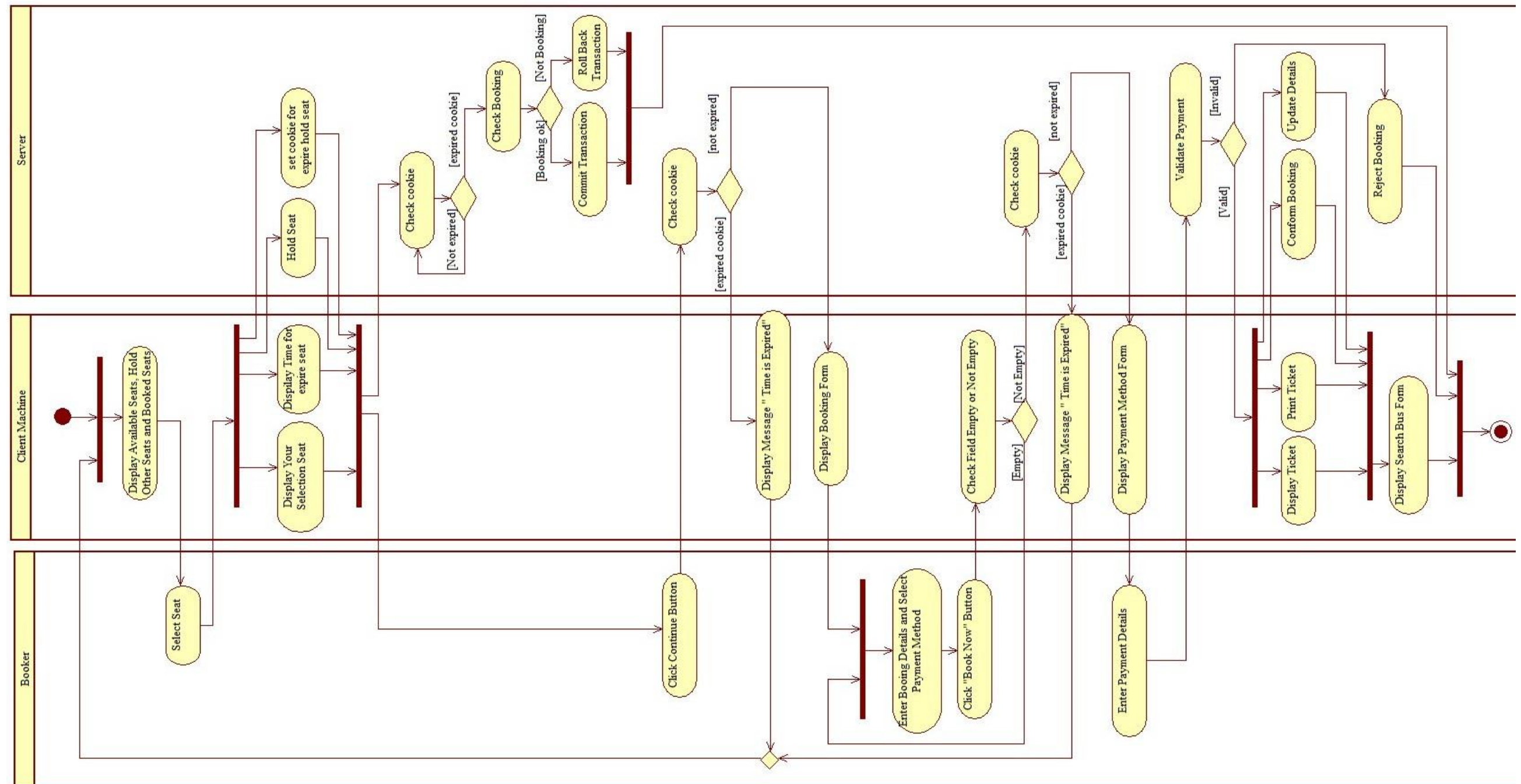


Figure 4.2 - Swim lanes for Booking Bus Seat

