Project Title: Bus Ticket Management System

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APPROVAL

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DECLARATION

We hereby declare that we have taken this thesis under the supervision of **Md. Anwar Hossen, Lecturer, Department of Software Engineering, Daffodil International University.** We also declare that neither this project nor any part of this has been submitted elsewhere for award of any degree.

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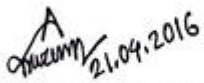

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ABSTRACT

Bus Ticket Management System is a web based system. This is the system for ticket booking in online remotely any type of location in Bangladesh and also helps to the bus owner to manage their business by using this system. It's also helps owner to reduced paper to track any type of bus information such as ticket information, passenger information, seat booking information and user can see the details of seat which are booked and which is available. If any user book ticket in online before confirmation of ticket other user can book ticket no need to refresh page. The Business Owner maintain their business and reduced paper to save information about type of bus, seats, departure date, seat booking, passenger every record saved in database and also collated money. User can pay their bus fair by bKash or Cash. The business owner can see their daily transaction history using this system.

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Chapter 1

Introduction

Bus Ticket Management System gives the opportunity to the general users/visitors to book the ticket remotely anytime in anywhere. By using this web application, users will be able to select the bus reserves the seats for going from staring place to destination place at their fixed time and date. For booking ticket, users confirm their personal information such as name, email number and mobile number for confirmation of ticket. If any user thinks about to go anywhere by using bus. They can get whole features in our web application. If any owner thinks about to maintain his/her business and they can get whole privilege in our web application.

Bus Ticket management system is aimed at reducing paper for the bus industry and hence improving its efficiency and speeding up of all processes.

The web apps can be accessed by the passengers from anywhere remotely in any location. Hence, all the related information about a passenger is available to admin and customers. Thus, this software saves the entire customers and track by phone number.

1.1 Purpose and Scope

This project is aimed at developing a web based application that will apply a system approach to depict the functional architecture. The Purpose of our project is to develop "Bus Ticket Management System" for owner to maintain their business and total details of bus and departure bus and also know ticket information which is booked and which is not booked and details of total collection of money for specific days and instant details of collection of money from bus ticket. Our systems innovative facilities are added for general users to book ticket anytime and anywhere remotely and general users can be able to know bus details and fare and seats combination is easy to track the information of all and departure destination. General users can be informed the seat which is booked and which is not booked. This feature is added for general users. Every business owner can take the opportunity to use our system. The main goal of our system is to build a good management tool for all customers. The main purpose of this software is to reduce the time taken through manual system in order to maintain all the records and operation virtually.

Those activities are longer in physically in our present life are easy to access virtually and save the customers valuable time. All aged customers can use our software to do the completion booking ticket online at their house and their working environment.

This System is helpful to the business owner to maintain their business by using this web application. Owner every moment check their departure information and seats booking information and also helps to keeping record of every transaction by using this application not only business owner but also general user using this web application for the purpose of ticket book in online general user can not need to go bus counter to book ticket they can book ticket remotely anywhere in the world by fulfill this instruction.

This system is helpful to reduce the time and complexity of maintaining the records. It also helps in accurate maintenance of customers and owners.

1.2 Document Convention

Main Chapter

Font: Times New Roman

Style: Bold

Size: 16

Sub Section Titles

Font: Times New Roman

Style: Bold

Size: 14

Sub-Sub Section Titles

Font: Times New Roman

Style: Normal

Size: 12

Chapter 2

Pre-Analysis and Initiation

2.1 Scenario

Scenario is a process used during requirement analysis to describe the use of proposed system. Scenario is a story about proposed System scenario explains an early stage of proposed system.

The scenario of this system is given below:

The system gives **Bus Ticket Management System** documentation. There are four types of users.

- ✓ Super Admin (Head Counter master)
- ✓ User Admin
- ✓ Operator (as a counter person)
- ✓ User/Passenger

The following table shows the brief description about different users with their level.

Table 2.1: User details of our system

User	Type	Description
Super Admin	Admin(Level-1)	Super admin have overall responsibility to the system. They can create operator and user admin.
User Admin	Admin(Level-2)	User admin can maintain the system.
Operator	Operator(Level-3)	Operator can view seat permutation. If a user/passenger request for new ticket with full instruction of our proposed system then the operator confirm user.
User/Passenger	Basic(Level-4)	User can request only new ticket. User must register here for ticket book.

In the early stage of our proposed system admin (head of the counter) do not need to register of our system admin are automatically manually create by System of developer. System has one admin. Admin user insert new bus if new bus in queue for specific counter otherwise none of them cannot insert new bus information, admin user provide to operator bus info with seat permutation and distributed seat for operator (counter person).

Admin user check everything of the our system ticket selling info seat information which counter how much provide number of passengers, Current status of seat permutation also total collection of money every day admin users check the update they can action when need to update or delete info about bus. Only admin can create operator for (specific counter

master). Operator they can check only current counter status, if new customer are request for a new ticket and they can confirm user if ticket are sold By email or sending message or contact by phone, they confirm passengers, and if seat are whole booked they can update status for specific bus cause user/visitor can know about seat permutation cause they do not need to request if seat whole are booked. Operator they can contact other operator (such like other counter master) for seat info about bus. Visitor or user can request for new ticket by fill up form. User can search bus if form is fill up and user know the information about bus, seat permutation. When user fill up the form they can know bus name, bus starting time and counter information. Choose the bus seat which seat are available only they can choose these seat and buy one or more seat a single user can do. Fill up the personal information of the visitor with payment method such like as bKash or cash it's our proposed features.

2.2 Associate Review

Associate review process should be in place in any software development organization as a significant defect removal activity. Associate reviews are included in the Software Engineering Institute's Capability Maturity Model Integration (CMMI) [3] as a required process for those organizations following the CMMI as a guide for process improvement. Associate reviews are especially valuable as a way to remove defects early in the development cycle and should be performed on all major software development work products including requirements, design, code, and test procedures. The software inspection method of performing associate reviews is generally considered the most effective method of performing associate reviews [2] and is an indisputable software engineering best practice. Other types of associate reviews that are practiced with varying degrees of formality are team reviews, walkthroughs, and pair programming. Once associate reviews are an established practice, the data from each associate review can be used for defect management. For this purpose the following data from each associate review are recommended to be collected in software development, associate review is a type of software review in which a work product is examined by its author, in order to evaluate its technical content and quality. The purpose of associate review is to provide a disciplined engineering practice for detecting and correcting in software artifacts.

The following System is reviewed by developer

Review One: Online Bus Ticket Reservation System
Date: 03/01/16
Online Bus Ticket Reservation System designed and developed by Tuvshinbay Davaa
APTECH BANASWADI, KALYAN NAGAR, BANGALORE

Description

Ticket Reservation System descriptions are given below:

Now they want incorporate an online service application where they can maintain the records of the buses along with the details of the customers. The customer can now book the tickets by visiting the booking counters at their place (nearby) to the respective destination as required. They want the application to be linked with the database, so that whatever details are entered like the details of the customers, buses, and bookings can be viewed by the other centers as well as it is an online application. They also want to incorporate some feature which performs the tasks that they actually perform, and an application where the customer can register with the site and then book the tickets online instead of visiting the booking counter A database should be maintained where the bus details along with the bus number, route, the places it covers throughout the distance and also the timings are needed to be maintained. Also the details of the customers that are entered at the time of booking the tickets are needed to be gathered in the database. So that they can track the details of the customer at any time using the search option based on the starting place, age, name, destination place and Date and Time and even based on the bus they had chosen.

The database should also maintain the list of the Employers as they alone book the tickets with the username and password. The list that is to be maintained is personal details, contact details, location, qualification, age, etc are needed to be gathered. There should be buttons like New, Update and Cancel are to be included. Based on the button chosen the respective action is needed to be performed. Also if the Employee record is entered (The Employee details will be maintained by the Admin alone), it should automatically generate a six digit code, and it will ask for the username and the password (the password can be changed by the Employee) through which he can login in to the a/c so as to perform the booking tasks. Also for canceling the ticket, there is a limit like, if cancelled before 2 days then the whole money will be returned, and if done one day before, then 15% is debited from the total amount and the remaining amount is returned and if done on that day 30% is debited from the total amount and the remaining is to be returned back. This action is also to be performed by the application alone. They want the application to be maintained in different details like the buses and the bookings information. When they try to book a ticket it should ask for the customer details like the name of the

customers for whom the tickets are booked, Date and Time, Starting and Destination place and the age (as the charges depends on the age). Also the Bus no. and the seat no. for which the ticket (s) booked are to be entered so that they can keep track of the bookings done. Whenever a customer enquiries for the availability they can check through the Enquiry form where the details like Destination Place, Starting Place, Date and Time are asked, by entering these details (all fields are not mandatory) the availability details should be displayed. Also there should be a search option through which the records of the customers and the buses can be known easily with the same above options. After the ticket is booked, one should be able to print the ticket, including the details like age, name, Date and time for which the ticket is booked and as well the destination and Starting locations and the charges for the ticket including the taxes. The application alone should be able to calculate the payments as per the age criteria and the distance. Also it has to be updated in the site.

Note:

- To book the ticket or to fetch the details (Search and Enquiry) first they need to Login and only then they will be able to perform such actions.
- This application is solely for the booking department to book the tickets and is purely maintained by them. It is not applicable for the customers and they (customers) cannot book the tickets online by themselves.
- The Admin maintains the list of the buses and as well the Employees which not be accessed by the Employee.

Review Two: Red Bus India

Description

Bus ticket booking system red bus from (India) helps me to primary knowledge about bus ticket booking system. Its big system there are using automated system to bus ticket and global for every user not only user but also business owner to maintain their bus business. There are using different module seat booking module, departure configuration module counter module station module and login module payment module for counter head and super admin and also track personal information. Red bus India connected the whole India and everyday 1.5 corer people using this system.

Chapter 3

System Analysis

The analysis phase defines the requirements of the system, independent of how these requirements will be accomplished. This phase defines the problem that the customer is trying to solve. The deliverable result at the end of this phase is a requirement document. Ideally, this document states in a clear and precise fashion what is to be built. This analysis represents the "what" phase. The requirement document tries to capture the requirements from the customer's perspective by defining goals and interactions at a level removed from the implementation details.

The goal of system analysis is to determine where the problem is, in an attempt to fix the system. This step involves breaking down the system in different pieces to analyze the situation, analyzing project goals, breaking down what needs to be created and attempting to engage users so that definite requirements can be defined. The termination step of requirement collection the next step is analysis on requirement .In this stage Software developers works with customers and system end user and find out about what services the system should provide, the required performance of the system, hardware constraints, defines project goals into defined functions and operation of the intended application. It analyzes end-user information needs.

3.1 Requirement Analysis

The tactics that are used to elicited requirements are as follows:

Interviewing

This Bus Ticket booking system some collected requirements from Bus counter head. Major requirements collect from interviewing of counter master I have visited Desh Express Paribahan in Gulisthan name of counter master Nasir Ahmed there are not using automated system to track departure information and seats and also total transaction information of daily and weekly monthly and yearly there are using analog system just like as whole things are recorded in paper documents and when seats are booked they confirm by other counter by phone and seats are booked by user by phone or physically. Every day they cannot follow to departure configure for ascending orders and they cannot stored user information but manually it's really hard to specific details of bus seats passengers and total revenue.

Observation

Some of requirement collected from our observation in the different type of exiting system.

Brain Storming

Some of requirement collected in our analysis of reading and self-study.

Supervisor feedback

Some requirements are selected by analysis requirements and Weekly meeting with project supervisor Md. Anwar Hossen, Lecturer, Department of Software Engineering, Daffodil International University.

3.1.1 Requirement Collection

We are collected some requirements from the use of requirement elicitation technique. Those are given below in details.

3.1.1.1 Raw Requirements

- Login and Registered for super admin (head counter master).
- Super admin only registered to counter operator (Operator) if they assign counter master for specific counter only they can access whole system.
- Counter master might be login for the reason to using the system and required email and password to authentic.
- Super admin only can whole privilege of the system if they cannot confirm any user means (counter master) to add they cannot access the system.
- Super admin (head counter master) add bus, add counter, assign counter person such as (counter master) add station.
- Departure configuration for specific date its operation only can insert Head counter master.
- Super admin assign seats for counter specific and only he can distribute seats among counter master and add seats for different types of bus.
- Counter master only he can see the details of every operation and he only can confirm seats and bus ticket passengers.
- User have to complete the registration for book ticket.
- User of the system search ticket to fulfill station from and station to and specific date for Searching bus.
- User or Passenger of the system book ticket and saw ticket details which is booked and which is non-booked, and user can book ticket to fill up the passenger info after selecting the seats.

- Confirmation message sending the system to the user via SMS and generate a pin code to identify the owner of ticket
- Payments system might be Cash or bKash to book ticket and got confirmation report.
- Admin and Operator can using this seat booking module for user if any user want to book ticket at counter.
- Operator and admin (head counter master) only confirm ticket if any user book ticket via SMS.

3.1.1.2 Functional requirements

Here,

M=Mandatory

H=High

D=Described

Table 3.1: Functional requirements

No.	Description	Priority
1.	Admin must register before login the system.	M
2.	Admin must fill all fields in the registration form, otherwise the system will show an error message.	D
3.	Admin can log in entire the system and also operator	M
4.	Administrator and user can search a destination, date, number of passengers and select the trip type.	M
5.	Payment must be done with bKash or Cash.	M
6.	Assign Counter must be done with admin (Head of the counter)	D
7.	Assign Coach must be done with admin (Head of the counter)	D
8.	Distribute Ticket done by head of counter (Admin)	D
9.	Head of the counters add departure for specific date.	H
10.	User can registration here.	H
10.	Any user can search bus and operator can operate the operation.	D
11.	Only register user can book the ticket.	M

3.1.1.3 Non-Functional Requirements

Here,

M=Mandatory

D=Described

Table 3.2: Non-Functional Requirements

No.	Description	Priority
1.	If the system has been crashed, it should not be more than 20 minutes and hour.	M
2.	Only Administrator will be able to enter the system to make maintenance.	M
3.	The system must have a high speed of manipulation data and reply to the user request.	M
4.	Support all Windows OS (7, 8, 10) & Linux OS	D

3.1.2 Software Requirement Specification (SRS)

Here,

FR=Functional Requirements

NFR=Non Functional Requirements

H=High

M=Medium

Table 3.3: Software Requirement Specification

SRS Id	SRS Name	SRS Description	SRS Type	Priority
FR001	Web Based Bus Ticket Management System	It will be a web based bus ticket management system where user can book bus ticket.	FR	H
FR002	Admin and operator	Operator must be registered by admin.	FR	H
FR003	Registration and login	There will be a user registration system and login system for admin, operator and user.	FR	H
FR004	Departure configuration	Admin will be able to add coach and seat details, add Station, add specific seats for counter and add specific date for departure configuration.	FR	H
FR005	Search destination	User and operator will be able to search destination for the specific time for the specific bus.	FR	H

FR006	Search departure	User and operator will be able to search departure for the specific bus.	FR	H
FR007	Seat choosing	User will be able to choose the seat and select maximum five seat.	FR	H
FR008	Seat booking	Admin, operator and user will be able to seat booked.	FR	M
FR009	Payment	Payment must be done by bKash or Cash.	FR	H
NFR001	Reliability	If the system has been crashed, it should not be more than 20 minutes and hour.	NFR	M
NFR002	Performance	The system must have a high speed of manipulation data and reply to the user request.	NFR	M
NFR003	Security	After data use the database connection will be closed.	NFR	M
NFR004	Usability	Usable any environment.	NFR	H

3.1.3 Use Case Diagram

Use Case Diagrams can be used to describe the functionality of a system in a horizontal way. That is, rather than merely representing the details of individual features of your system, UCDs can be used to show all of its available functionality. It is important to note, though, that UCDs are fundamentally different from sequence diagrams or flow charts because they do not make any attempt to represent the order or number of times that the systems actions and sub-actions should be executed.

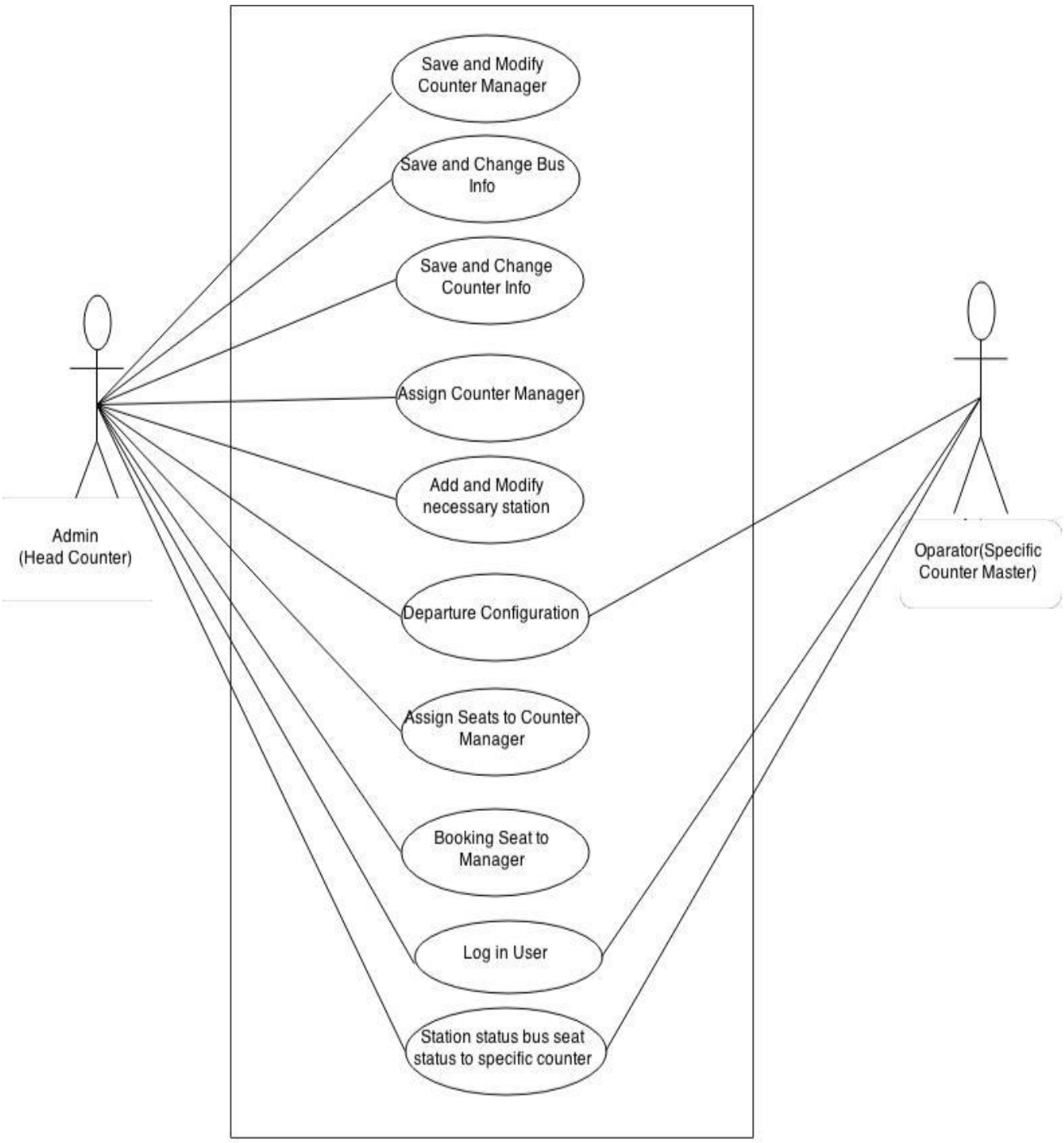

Figure 3.1: Use Case diagram for admin and operator

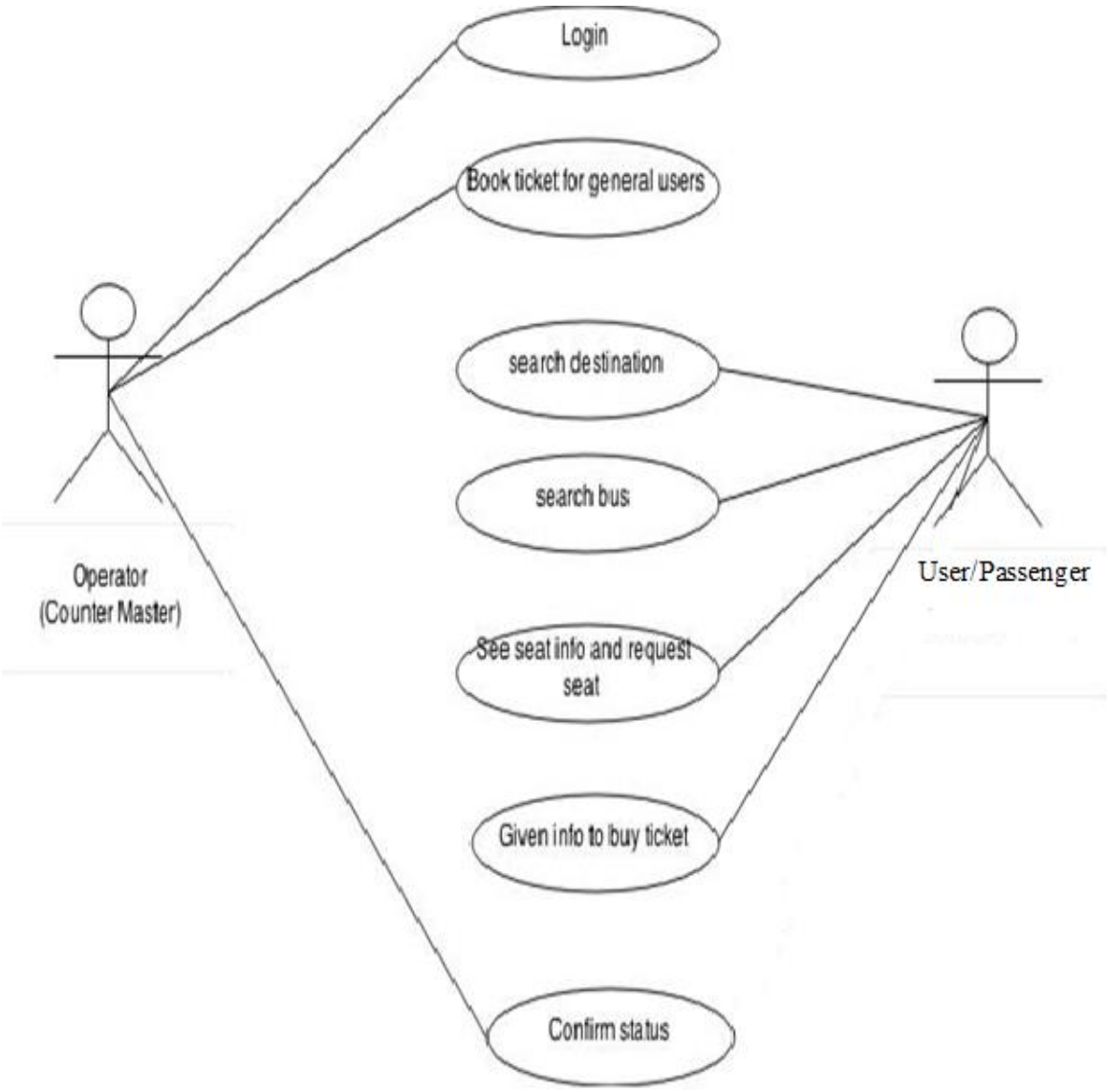

Figure 3.2: Use case Diagram for operator and User/Passenger

3.2 Software Development Plan (SDP)

Software Development Plan is a comprehensive that includes all information required to manage the project. The purpose of SDP is to describes the approach to development of software and generate Top-level Plan.

3.2.1 Project Overview

This project is about Bus Ticket Management System is a web based system, This is the system for ticket booking in online remotely any type of location in Bangladesh and also helps to the bus owner to manage their business by using this system. It's also helps owner to reduced paper to track any type of bus information such as ticket information passenger information, seat booking information any type of user can see the details of seat which are booked and which is available. It's a automated process if any user book ticket in online before confirmation of ticket other user can book ticket no need to refresh page, when user confirm ticket in other side in other hand they saw the seat colors is red its totally automated system not only see admin and operator but also seat details of bus passengers.

3.2.2 Proposed System and its Benefit

The proposed system intends to make a good document by an automated system that fulfills the minimal deliverable requirements of a software document. Generally the user of the software are Bus owner to maintain business and not only business owner of bus area but also general user and customers who are using to go anywhere by using bus. The system provides the opportunity of general people to book ticket virtually remotely anywhere any location in our country. Admin of the system provides bus and add station add user means operator of the system and departure configure for specific date ,and also seat distributes among the counter master. The main advantage of the system any type of user can search for bus and book ticket in his/her choice.

3.2.3 Project Features

- Registration (User, Admin, Operator)
- Login and logout (User, Admin, Operator)
- Add bus, station, bus seats, departure configure for specific date.
- Searching bus given specific date.
- Searching location of bus starting to starting from
- Seat choosing system
- Seat booking interface to user to know bus seat and book ticket

- Payments system
- Confirmation system
- Tracking passengers by using phone number given by user
- Ticket cancelling system

3.2.4 Process Model

A process model is an abstract representation of a software process. Each process model represents a process from a particular perspective, and thus provides only partial information about that process. Some common process models are

- Agile Model
- The waterfall Model
- Evolutionary Development
- Component-based Software Engineering.
- Iterative Development Process

Agile Model

Our propose system is designed using agile model.

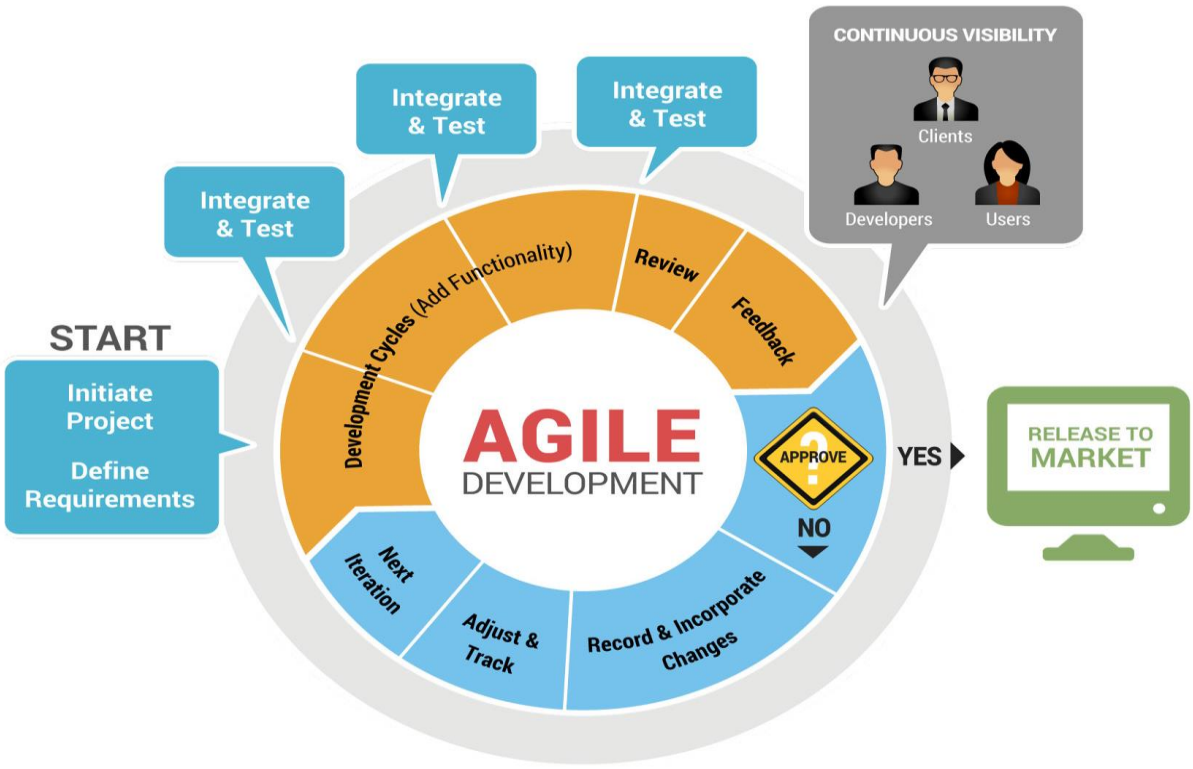

Figure 3.3: Agile Model

3.2.5 Project Schedule (Gantt chart)

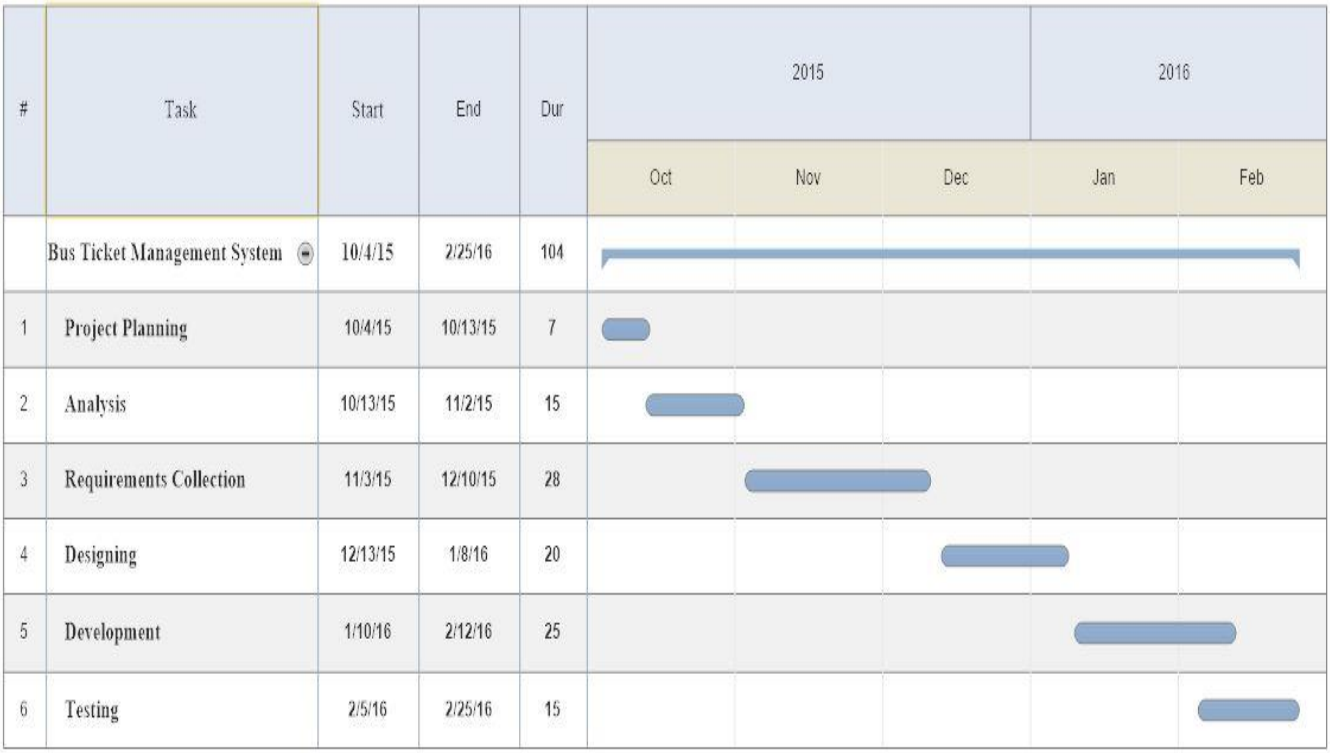

Figure 3.4: Project Schedule (Gantt chart)

3.3 Software Test Plan (STP)

Software development plan phase are divided into several phases those are given below.

3.3.1 Introduction

This is aimed at identifying and correcting errors. The major objective of this activity is to ensure that the processing done by the application is correct and meets the objectives of the organization. Test plan aids in effective and systematic testing of the system and it aims at checking the errors of omission and commission that hinders the realization of the objectives. It takes the bottom up testing approach.

3.3.2 Test Strategy

Test strategy is to show how the system is to be tested and also gives precise procedures to be followed during the test plan. The test date is identified, what is being tested and the expected output as well as the actual input. Test plan is one of the standard documents that should be produced in most software engineering projects. If the project does not have any test plan this means that the software produced is of low quality. This may not be acceptable to the user since

it will not satisfy their needs. The test plan should be written as soon as you have identified the requirements. The system will be tested with sample data to see how it would handle input and output functions as well as extreme data or conditions to determine the system behavior in overloaded situation which will directly slow the system that behaves in failure or extreme situations.

3.3.3 Test Scope and Test Items

A test item is a specific task. Test items can assess one or more points or objectives, and the actual item itself may take on a different constellation depending on the context.

Test items are features to be tested that are deliverable to the client. This is the list of what to be tested test item for proposed system.

- Testing in the login module.
- Testing in the registration module.
- Testing in the bus add module.
- Testing in the bus seat add module.
- Testing in the station add module.
- Testing in the add departure module.
- Testing in the add operator module.

3.3.4 Featured To Be Tested

Table 3.4: Featured To Be Tested

Featured Id	Featured Name	Description	Involved User
001	Registration	Check the user registered or not.	User
003	Login (User)	User login for ticket booking.	User
003	Login (Admin)	Admin login for get access the admin panel.	Admin
004	Operator	Operator created by admin and operator able to access some admin featured.	Admin
005	Bus add	Add new bus with new destination and specific time.	Admin, Operator
006	Departure add	Add departure by admin.	Admin
007	Station add	Station add by admin	Admin

3.3.5 Featured Not To Be Tested

Table 3.5: Featured Not To Be Tested

Featured Id	Featured Name	Description	Involved User
001	Speed	How quick the system show the search result.	User
002	Accuracy	How accurate result show the system.	User

Chapter 4

System Design

Software design is a process to transform user requirements into some suitable form, which helps the programmer in software coding and implementation.

For assessing user requirements, an SRS (Software Requirement Specification) document is created whereas for coding and implementation, there is a need of more specific and detailed requirements in software terms. The output of this process can directly be used into implementation in programming languages.

Software design is the first step in SDLC (Software Design Life Cycle), which moves the concentration from problem domain to solution domain. It tries to specify how to fulfill the requirements mentioned in SRS.

Software design is the process of implementing software solutions to one or more set of problems. The software design (SDS) document contains a statement of the design of inventory management system. The design contains an explanation of a way to carry out each of the product specification written in the Software Requirement Specification (SRS). The design will serve as a guide to the developer. The SDS also shows how the program is separated into modules, how the modules interact with each other and how users see the program.

4.1 High Level Design (HLD) / Architectural Design

High level design are divided into several phases those are given below:

4.1.1 Activity Flow Diagram

Activity diagrams are mainly used as a flow chart consists of activities performed by the system. But activity diagram are not exactly a flow chart as they have some additional capabilities. Our proposed system activity diagram are given below.

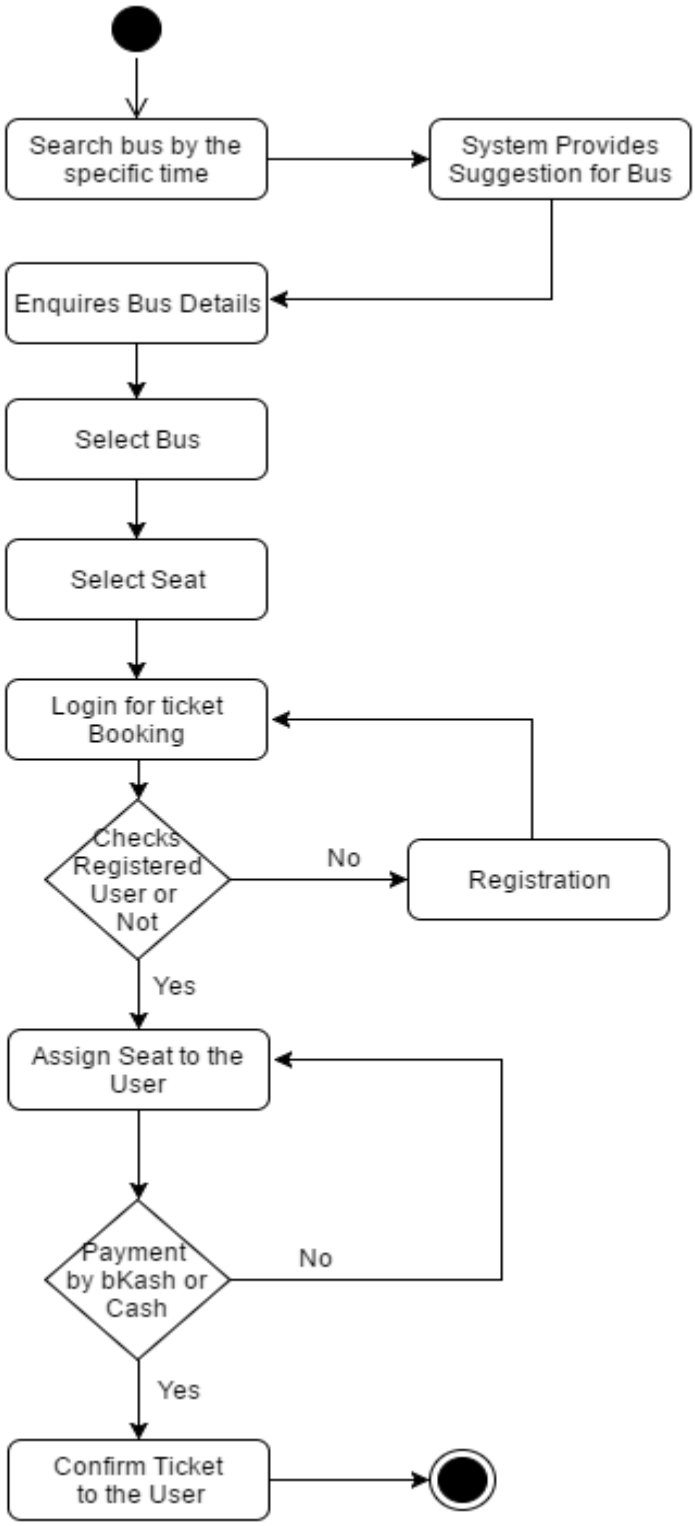

Figure 4.1: Activity Flow Diagram

4.1.2 Context Diagram (DFD Level-0)

We usually begin withdrawing a context diagram, a simple representation of the whole system. To elaborate further from that, we drill down to a level 1 diagram with additional information about the major functions of the system. This could continue to evolve to become a level 2 diagram when further analysis is required. Progression to level 3, 4 and so on is possible but anything beyond level 3 is not very common. Please bear in mind that the level of detail asked for depends on your process change plan.

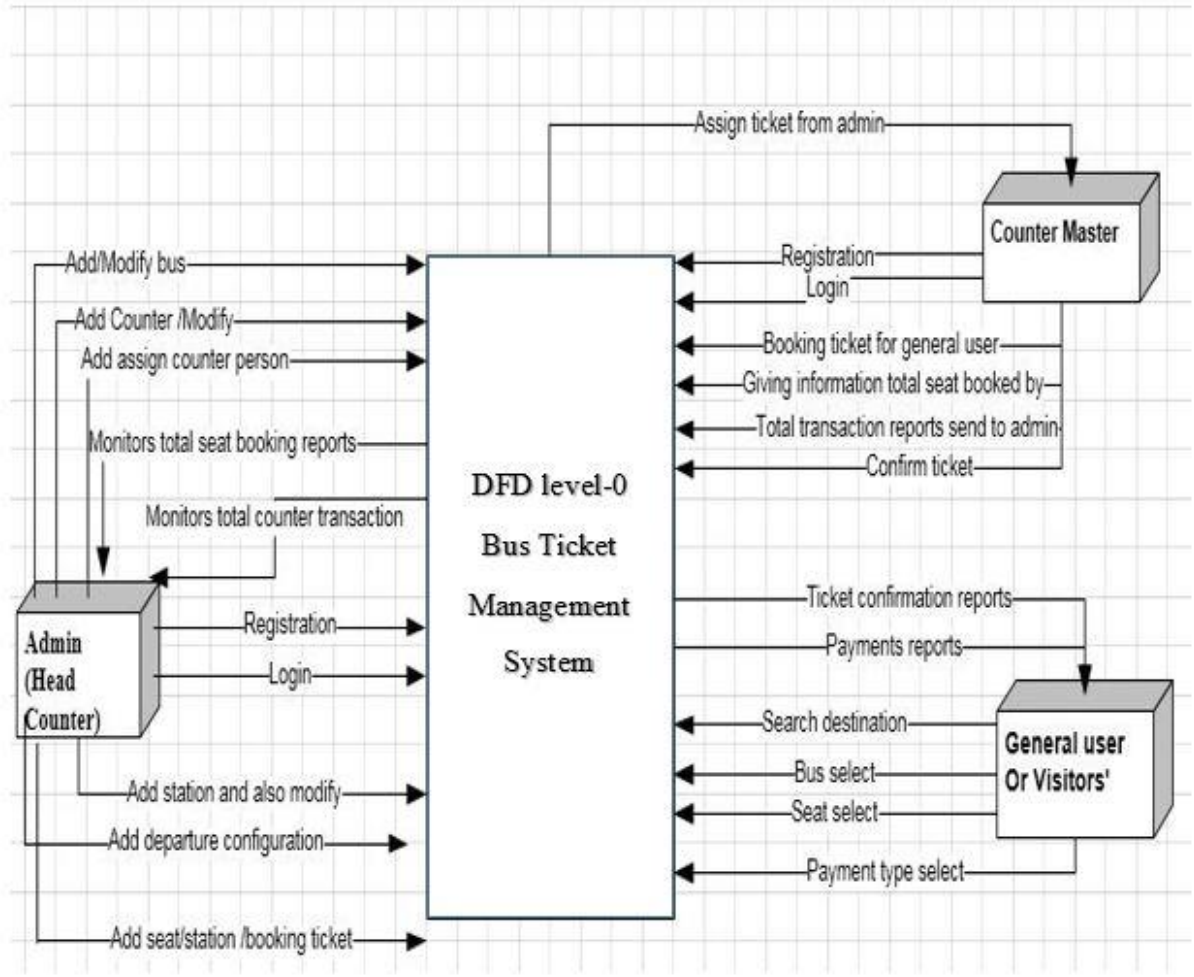

Figure 4.2: Context Diagram (DFD Level-0)

4.2 Detail Level Design (DLD) / Component Level Design

Detail Level Design (DLD) / Component Level Design are divided into some phase those are given below:

4.2.1 Data Flow Diagram Level-1

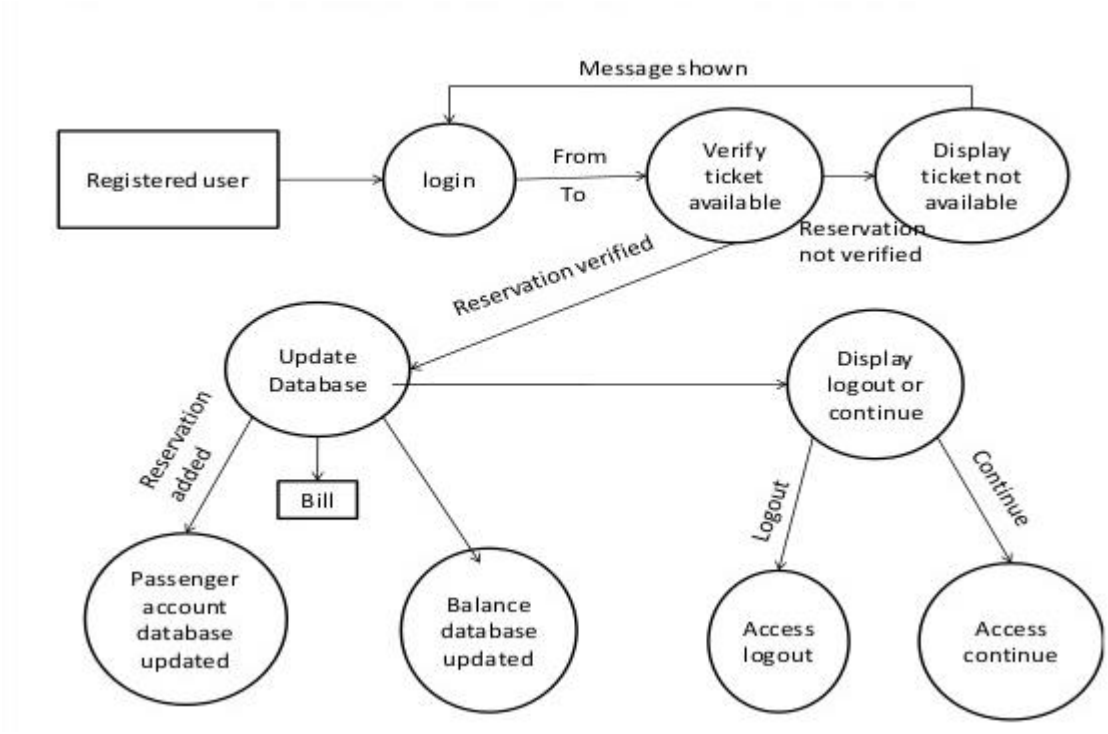

Figure 4.3: DFD (Level-1)

4.2.2 Entity Relationship Diagram (ERD)

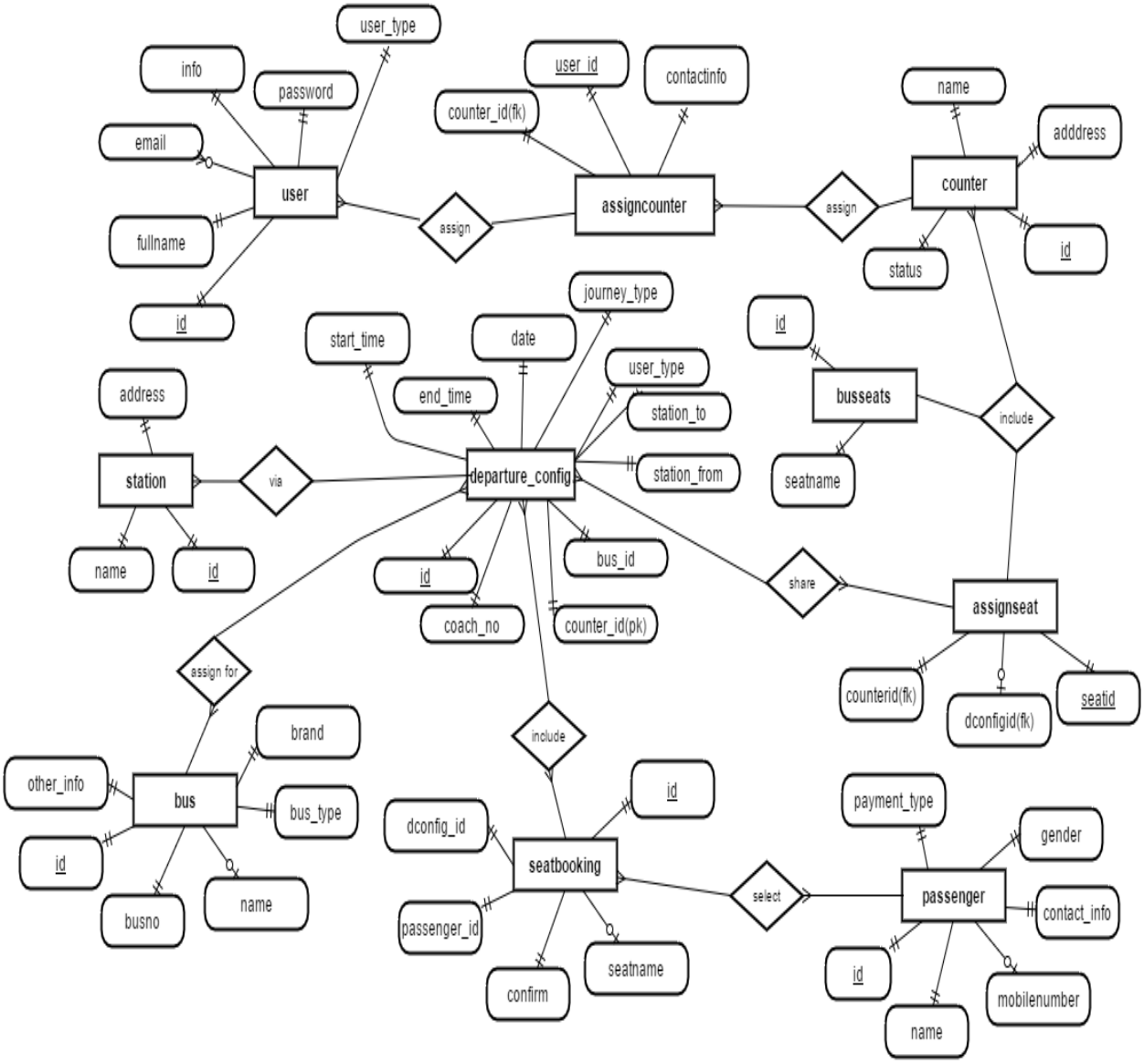

Figure 4.4: Entity Relationship Diagram

4.2.3 Class Diagram

Class diagram is UML structure diagram which shows structure of the designed system at the level of classes and interfaces, shows their features, constraints and relationships, generalizations, dependencies and association etc.

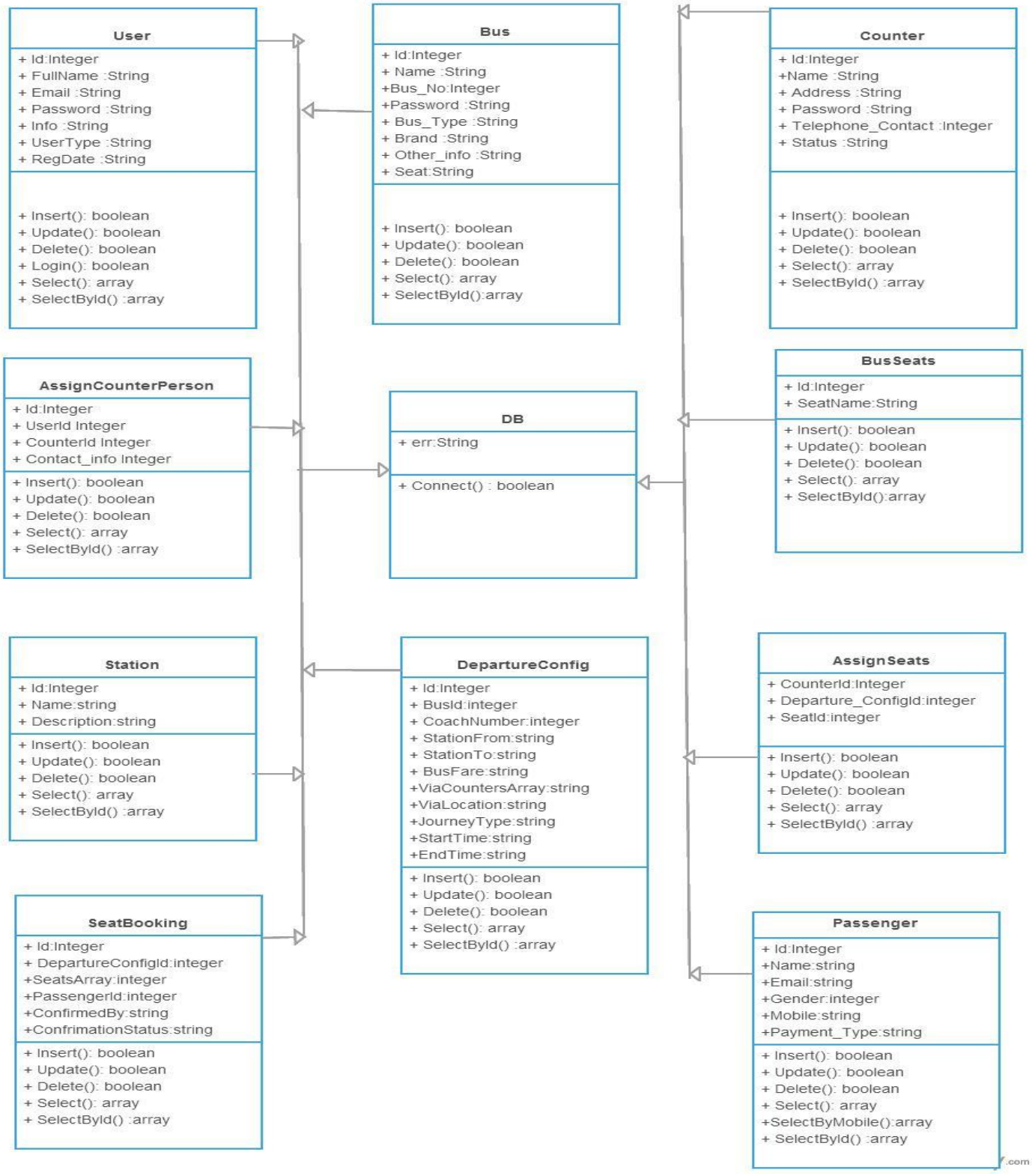

Figure 4.5: Class Diagram

4.2.4 Sequence Diagram

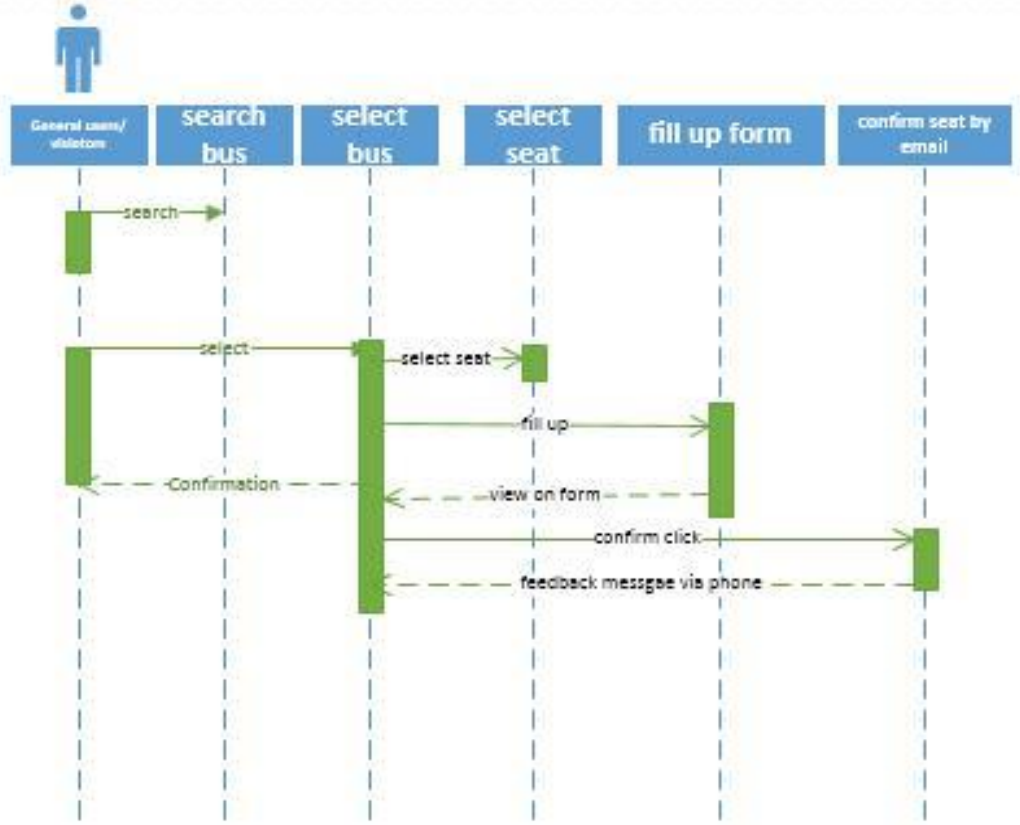

Figure 4.6: Sequence Diagram for admin and operator

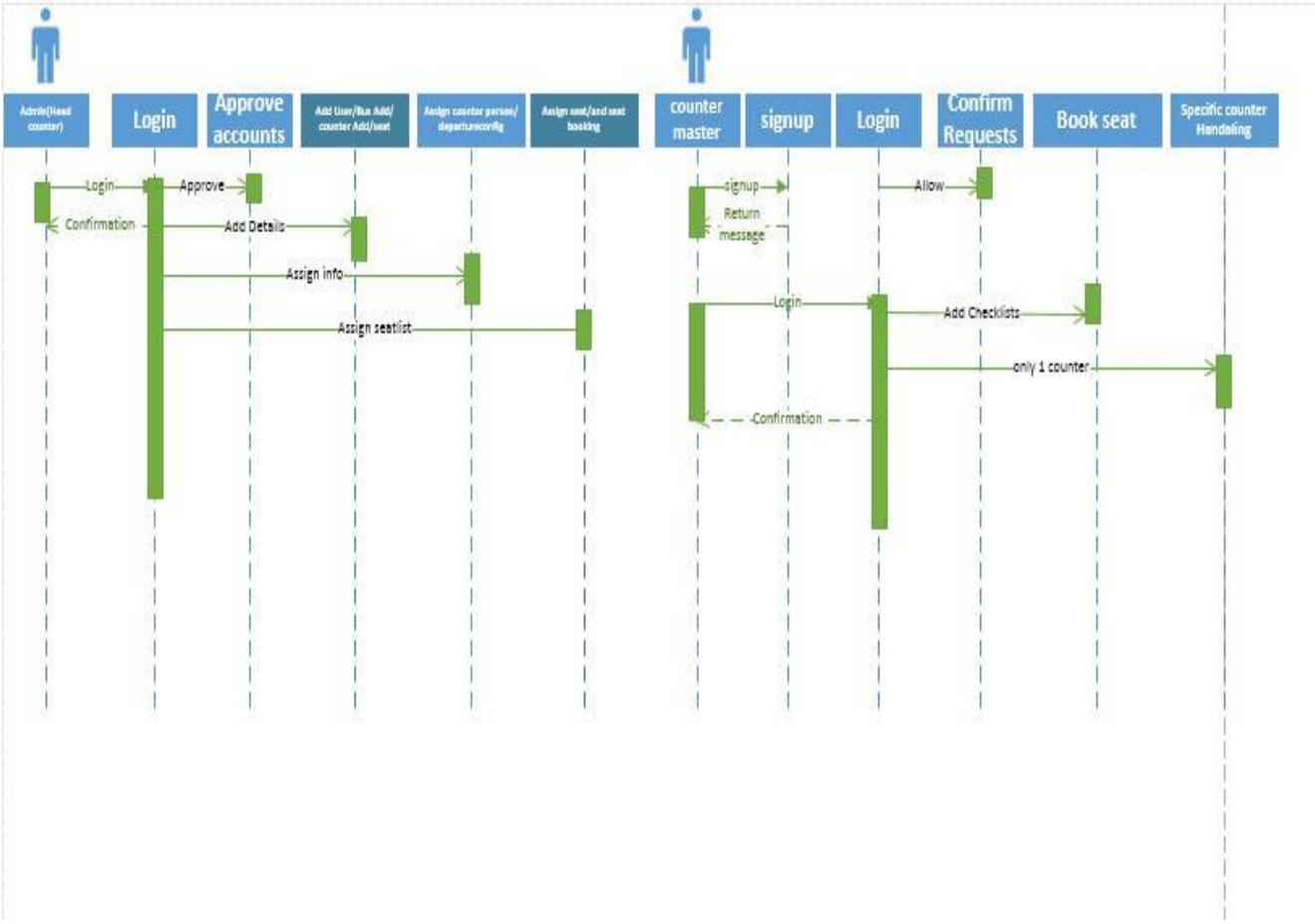

Figure 4.7: Sequence Diagram for User

4.2.5 Basic Code Structure

DAL(Data Access layer) code are given below

dalDepartureConfig.php

```
<?php
class DepartureConfig extends DB{

public $Id;
public $BusId;
public $CoachNumber;
public $StationFrom;
public $StationTo;
public $BusFare;
public $ViaCountersArray;
public $ViaLocation;
public $JourneyType;
public $StartTime;
public $EndTime;
```

```
public $Date;


public function Insert(){
$this->Connect();
for($i=0; $i<$this->ContinueDays; $i++){
$sql = "insert into departure_config(busid, coachno, station_from, station_to, bus_fare,
via_counters_array,  vialocation, journey_type, start_time, end_time, startdate)
values('".MS($this->BusId)."',
'".MS($this->CoachNumber)."',
'".MS($this->StationFrom)."',
'".MS($this->StationTo)."',
'".MS($this->BusFare)."',
'".MS($this->ViaCountersArray)."',
'".MS($this->ViaLocation)."',
'".MS($this->JourneyType)."',
'".MS($this->StartTime)."',
'".MS($this->EndTime)."',
'".MS(date('Y-m-d', strtotime($this->Date. ' + '.$i.' days')))."')";
mysql_query($sql);}
return true;
//echo $sql;
//if(mysql_query($sql)){
//
//}
$this->err = mysql_error();
return false;


}//end of insert brace

public function Update(){
$this->Connect();
$sql = "update departure_config
set
busid = '".MS($this->BusId)."',
coachno = '".MS($this->CoachNumber)."',
station_from = '".MS($this->StationFrom)."',
station_to = '".MS($this->StationTo)."',
bus_fare = '".MS($this->BusFare)."',
via_counters_array = '".MS($this->ViaCountersArray)."',
vialocation = '".MS($this->ViaLocation)."',
journey_type = '".MS($this->JourneyType)."',
start_time = '".MS($this->StartTime)."',
end_time = '".MS($this->EndTime)."',
startdate = '".MS($this->Date)."'

where id = '".MS($this->Id)."'"; echo $sql;

if(mysql_query($sql)){
return true;
}
$this->err = mysql_error();
```

```
return false;
}//end of update brace

public function Delete(){
$this->Connect();
$sql = "delete from departure_config  where id = '".MS($this->Id)."'";
if(mysql_query($sql)){
return true;
}
$this->err = mysql_error();
return  false;

}//end of delete brace

public function SelectById(){
$this->Connect();
$sql = "select * from departure_config  where id = '".MS($this->Id)."'";
$sql = mysql_query($sql);
while($r = mysql_fetch_row($sql)){
$this->BusId = $r[1];
$this->CoachNumber = $r[2];
$this->StationFrom = $r[3];
$this->StationTo = $r[4];
$this->BusFare = $r[5];
$this->ViaCountersArray =$r[6];
$this->ViaLocation = $r[7];
$this->JourneyType = $r[8];
$this->Date = $r[9];
$this->StartTime = $r[10];
$this->EndTime = $r[11];
}

}//end of selectbyid brace

public function Select()
{
$this->Connect();
$a = "";
$sql = "SELECT dc.id, bus.name AS BusName, dc.coachno AS CoachNo, (select name from
station where id = station_from) AS StationFrom,
(select name from station where id = station_to) AS StationTo, dc.bus_fare AS BusFare,
dc.via_counters_array, dc.vialocation AS Location, dc.journey_type AS JourneyType,
dc.start_time AS TimeStart, dc.end_time AS EndTime, dc.startdate AS Date, bus.seat
FROM departure_config AS dc, station AS st, bus
WHERE dc.busid = bus.id
AND dc.station_from = st.id";

//echo $sql;
if($this->StationFrom != ""){
$sql .= " AND dc.station_from = '".$this->StationFrom."'";
}

if($this->StationTo != ""){
```

```
$sql .= " AND dc.station_to = '".$this->StationTo."'";
}

if($this->Date != ""){
$sql .= " AND dc.startdate = '".$this->Date."'";
}

if($this->Id != ""){
$sql .= " AND dc.id = '".$this->Id."'";
}
//echo $sql;

$sql = mysql_query($sql);
while($d = mysql_fetch_array($sql)) {
$a[] = $d;
}

return $a;
}

}//end of main brace

?>
```

dalRegistration.php

```
<?php
class Registration extends DB{

public $Id;
public $Fastname;
public $Lastname;
public $Email;
public $Phonenumber;

public function Insert(){
$this->Connect();
$sql = "insert into registration (fastname, lastname, email, phonenumber)
values('".MS($this->Fastname)."',
'".MS($this->Lastname)."',
'".MS($this->Email)."',
'".MS($this->Phonenumber)."')";

if(mysql_query($sql)){
return true;
}
$this->err = mysql_error();
return false;
}//main brace of insert
}//main brace
?>
```

dalUserlogin.php

```
<?php
class Userlogin extends DB{

public $Id;
public $FullName;
public $Email;
public $Password;

public function login(){

$this->Connect();
$sql = "select * from registration
where
Email = '".MS($this->Email)."' AND
Password = '".MS($this->Password)."'";

$sql = mysql_query($sql);
if(mysql_num_rows($sql) > 0) {
while($d = mysql_fetch_row($sql)) {
$this->Id = $d[0];
$_SESSION["UserId"] = $d[0];
}
return true;
}
return false;
}
public function Select(){
$a = "";
$this->Connect();
$sql = "select * from registration";
$sql = mysql_query($sql);
while($d = mysql_fetch_row($sql)){
$a[] = $d;
}
return $a;
}
public function SelectById(){
$this->Connect();
$sql = "select * from registration where Id ='".MS($this->Id)."'";
$sql = mysql_query($sql);
while($r = mysql_fetch_row($sql)){

$this->FullName = $r[1].' '.$r[2];
$this->Email = $r[3];
$this->Password = $r[5];
}
}
}//end of main brace
?>
```

4.3 System Test Case Design (STC)

Table 4.1: System Test Case

Id	Action	Input	Expected Result	Actual Result	Pass/ Fail	Code Module
1.	Registration	12345, jahed12345	Show error	error	Pass	addUser.php
2.	Registration	Jahed, jahed12345	Successfully Registered	Successfully Registered	Pass	addUser.php
3.	Login	Admin, 12345	Login failed	Login failed	Pass	login.php
4.	Bus Add	Bus information	Insert Successfully	Insert successfully	Pass	busAdd.php
5.	Departure Add	Departure information	Departure successfully added	Departure successfully added	Pass	departureconfigAdd.php
6.	Departure Add	Departure information	Departure successfully added	Departure successfully added	Pass	departureconfigAdd.php
6.	Search for activities	Bus search	search result found	Error	Fail	index.php
7.	Submit	Seat book	Successfully Seat book	Error	Fail	seat_booking.php
8.	Submit	Seat book	Successfully Seat book	Successfully Seat book	Pass	seat_booking.php

Chapter 5

System Implementation and maintenance

The system has been developed using object oriented concepts and PHP (MVC Framework) using MySQL database.

5.1 Hardware & Software Specifications

Hardware Requirements

- PROCESSOR: Core i 3 or above
- RAM: 2GB or above
- Cache Memory: 2MB or above
- Hard Drive: 50GB or above
- Operating System: Windows (7, 8, 8.1, 10)

Software Requirements

- IDE: Netbeans 8.1
- Database: MySQL
- UI/UIX: HTML5, CCS, Bootstrap, JavaScript, query
- Web-Technology: PHP
- Web-Server: XAMPP Server

5.2 Physical Design

User Interface

User can search bus by using this interface this is the visitors and user interface.

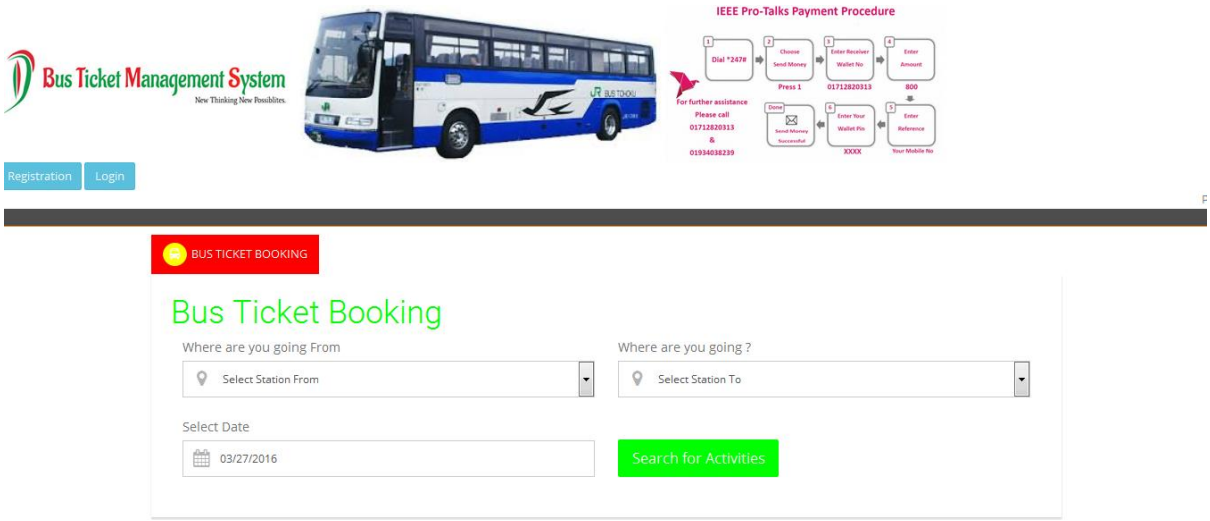

Figure 5.1: User Interface

Login page

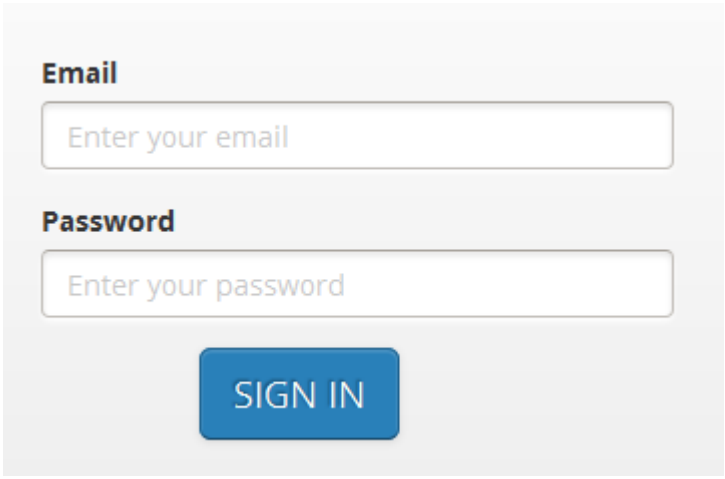

Figure 5.2: User and admin Login Interface

User Registration

User of the admin dashboard who are got privilege to access this system they might be registered of the system. And if any user registered of the administrator of the system they might be using register form to user of the admin panel.

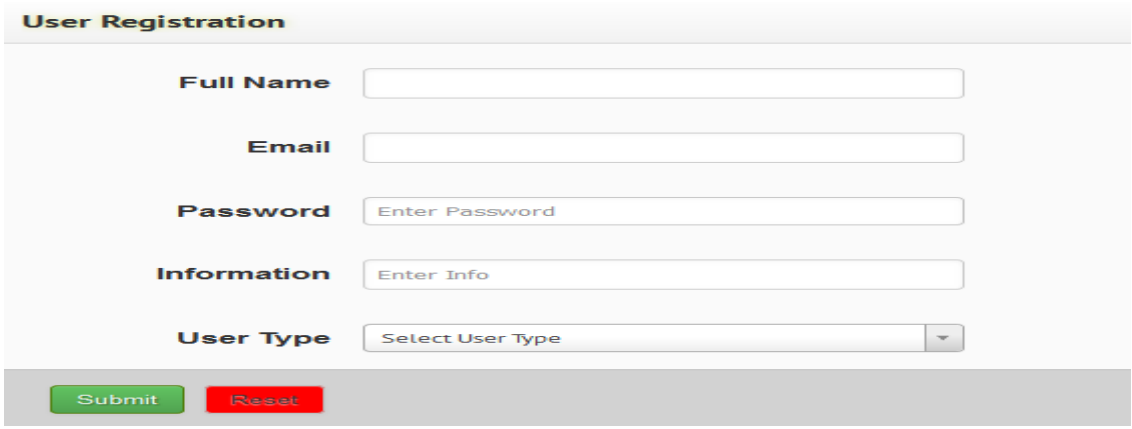

Figure 5.3: User Registration Interface

Bus Add

Here is the bus add interface only admin of the system add bus fill the form of bus add and click the submit button to add the bus

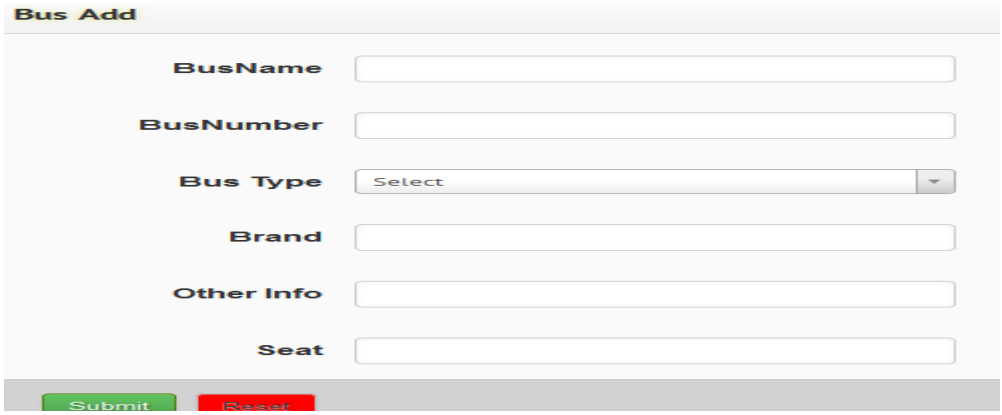

Figure 5.4: Bus Add Physical Design

Bus view

This is the bus view physical interface in admin dashboard operator only see the bus details which bus is added in the main view of bus

Figure 5.5: Bus View physical Design

Counter Add

Here is the Counter add page and counter view page of admin only control this page

Figure 5.6: Counter Add Physical Design

Counter view page

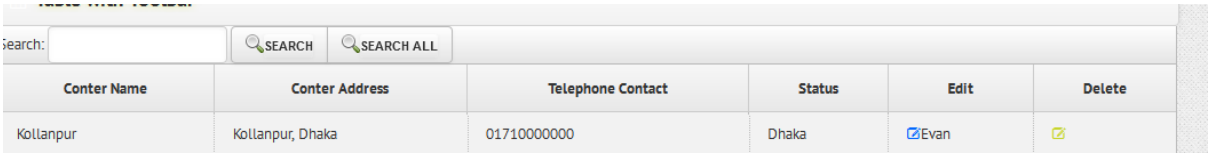

Figure 5.7: Counter View Physical Design

Physical Design Departure Add and View Edit page

Departure add for specific date and station configure only admin and operator control this form and operator only see the details of departure which bus are added which station.

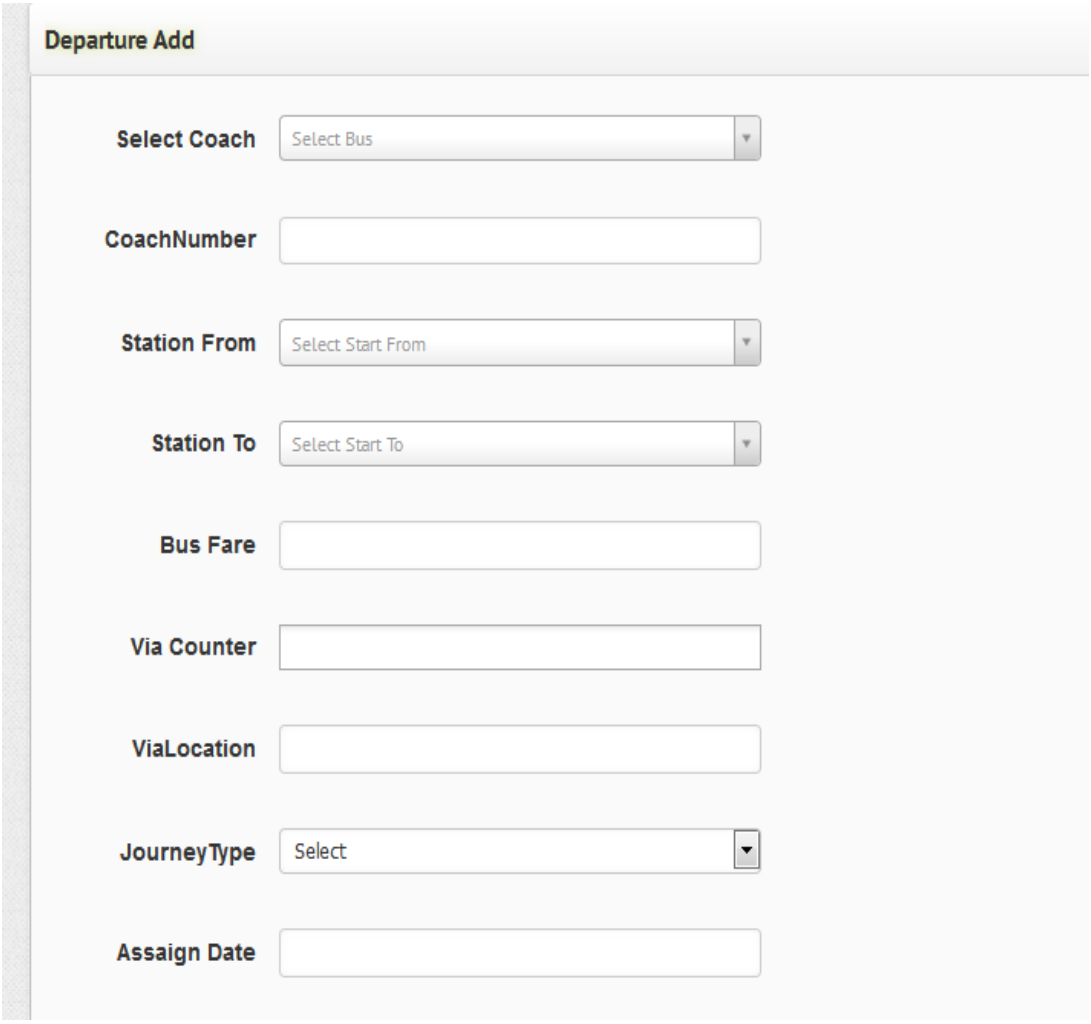

Figure 5.8: Departure Physical Design

5.3 Unit Test Case (UTC)

Table 5.1: Unit Test Case

Id	Test Case Name	Input	Click Button	Expected Result	Pass/ Fail	Code Module
1.	Add User	Full Name: Jahed Email: jahed@yahoo.com Password: admin12345 Information: Dhaka, Bangladesh User Type: Counter Operator	Registration	User added Successfully	Pass	addUser.php
2.	Admin and User Login	Email: jahed@yahoo.com Password: admin12345	Login	Login Successfully	Pass	login.php
3.	Add Bus	Bus Name: Nabil Enterprise Bus Number: N001 Bus Type: AC Brand: Volvo Seat: 48	Bus Add	Insert Successfully	Pass	busAdd.php
4.	Add Departure	Select Coach: Nabil Enterprise Coach Number: N1 Station From: Sirajganj Station To: Kollanpur Bus Fair: 500 Via Counter: Tangail Journey Type: Special Assign Date: 12/11/2015 Start Type:10:00AM End Type: 4:00PM	Departure Add	Departure successfully added	Pass	departureconfigAdd.php
5.	Bus Search	From: Sirajganj To: Kollanpur Date: 10/10/15	Search for activities	search result found	Fail	index.php
6.	Seat Booking	Select seat: A4 Full Name: Jahed Email: jahed@yahoo.com Mobile: 01711010101 Gender: Male	Submit	Successfully Seat book	Fail	seat_booking.php
7	Seat Booking	Select seat: A4 Full Name: Jony Email: jony@yahoo.com Mobile: 01711111111 Gender: Male	Submit	Successfully Seat book	Pass	seat_booking.php

5.4 Unit Test Report (UTR)

Total unit test case sample are 7. Some test cases are succeeding in first iteration and some are succeed in second iteration. The succession percent are shown in following table:

Table 5.2: Unite Test Report

Test Case Id	Test Case Name	Code Module	First Time Success
1.	Add Bus	addUser.php	Yes
2.	Admin and User Login	login.pgp	Yes
3.	Add Bus	busAdd.php	Yes
4.	Add Departure	departureconfig.php	Yes
5.	Search Bus	index.php	No
6.	Seat Booking	seat_booking.php	No
7.	Seat Booking	seat_booking.php	Yes

All testing was done carefully and each test was up to the required standards of the users. Error tests may be suggested but the above mentioned are just sufficient to test. Testing is an essential phase in system development and therefore it should be taken with a lot of interest.

Chapter 6

System Test & Completion

6.1 System Test Report (STR)

Table 6.1: System Test Report (STR)

Test Case Design	Test Case Executed	Test Case Pass	Test Case Fail
8	8	6	2

Pie Chart of System Test Report

Figure 6.1: System Test Report Pie Chart

Chapter 7

Conclusion

Despite the hardships encountered in the entire development process the system has been developed for Bus Ticket management system thus enabling it improves its efficiency and effectiveness.

Maintenance and usage of the system will be easy as the documentation and user manual of the system will be available to all users. Also there will be room for enhancement as this was considered during development.

The system will offer better functionalities than the manual system, its automated system where the users of the system can use any location any type devices and 24 hours details about bus its whole day service for general user.

It’s not only develop for think about general user but also for business man to operate business by using the system its turn very easy for our life to book ticket in online no need to go bus station too book ticket.

Generally In our country in Bangladesh bus ticket and bus business full with corruption if any owner interest to use the system they can benefit cause its helps bus owner to reduced 100% corruption and can secured her/his business.

Chapter 8

Future Work

Bus Ticket management system avoids the manual such as bus information, seat information, counter information, station information, bus fare and bus and total collection of fare from the current days and week months seat booking information stored in our online application its automate process every operation and reduced paper to store any type of information.

We are unable to implement daily transaction system at present but it will be engaged and take a period of time to add it in our system. It will have a plan of booking Air and Train ticket and hotel room booking system can also be added. and also our future plan every person when he want to using our system they can get privilege different module such as register as business owner and such as passengers with valid authentication to check user.

If business owner want to use system they must be register as owner and maintain their business in our system.

Chapter 9

References

[1]. Online GSRTC Reservation
http://www.slideshare.net/smitpatel10192/online-bus-ticket-reservation?related=1 (Access Date: 1 December, 2015)

[2]. Peer Review Definition
http://searchsoftwarequality.techtarget.com/definition/peer-review (Access Date: 5 December, 2015)

[3]. System Development Life Cycle
http://en.wikipedia.org/wiki/Systems_development_life_cycle (Access Date: 1 January, 2016)

[4]. http://www.tutorialspoint.com/software_engineering/software_design_basics.html (Access Date: 4 January, 2016)

[5]. Requirement Discovery
http://sydney.edu.au/engineering/it/~info5210/chap06.pdf (Access Date: 5 January, 2016)

[6]. Process Requirement view point
http://en.wikipedia.org/wiki/PREview (Access Date: 10 January, 2016)

[7]. Software Testing
http://en.wikipedia.org/wiki/Software_testing (Access Date: 15 January, 2016)

[8]. Software design basics Analysis Phase
http://infolab.stanford.edu/~burback/watersluice/node4.html#table:analysis (Access Date: 18 January, 2016)

[9]. Shelly, B, G, Cashman, J, T and Rosenblatt, J, H, 2006, System Analysis and Design, sixth edition, Thomson Course Technology, Massachusetts. (Access Date: 19 January, 2016)

[10]. Software engineering 8th edition by William stalling published by Pearson education. (Access Date: 1 February, 2016)

[11]. Online Bus Ticketing Reservation system http://www.slideshare.net/Tuvshuud/online-bus-ticket-reservation-system(Access Date: 2 February, 2016)

[12]. Red bus India
http://www.slideshare.net/nupur.ajmera/red-bus (Access Date: 5 February, 2016)