Software Requirements Specification

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IIITG Bus Reservation System.

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CS 330 Software Engineering

This work is based upon the submissions of the Winter 2015 CS 330. The students who submitted this projects is Vaibhav Bhuwan.

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# Introduction

* 1. ***Purpose***

The purpose of this document is to present a detailed description of the IIITG Bus Reservation System. . It will explain the purpose and features of the system, the interfaces of the system, what the system will do, the constraints under which it must operate. This document is intended for both the stakeholders and the developers of the system.

* 1. ***Scope of Project***

The software system will be a Bus Reservation System for Indian Institute of Information Technology, Guwahati. This system will help students as well as staff and faculty members of IIITG to see the timing and status of bus and accordingly they can plan their journey. This system will keep records of all the journey history of a user. It will have a relational database system which will keep all the record of user, source station, destination station, mode of payment, email id, phone no, seat no etc.

It will save the time as well as require less maintenance for both users as well as stakeholder.

* 1. ***References***
* IEEE. *IEEE Std. 830-1998 IEEE Recommended Practice for Software Requirements Specifications.* IEEE Computer Society, 1998.
* ArgoUML
* Visual Paradigm for UML
  1. ***Overview of Document***

The next chapter, the Overall Description section, of this document gives an overview of the functionality of the product. It describes the informal requirements and is used to establish a context for the technical requirements specification in the next chapter.

# Overall Description

* 1. ***Product prospective***

The IIITG Bus Reservation System project uses the JSP, MySql and is completely independent. The project itself is a bigger product and does not need to be introduced into a larger system. The application would be running on a Windows XP/8/8.1/10, Ubuntu Operating system

* 1. ***Product Features***

The IIITG Reservation System has the following features: This project is mainly intended for two types of audiences. One is the customer or the end user and the other is the administrator of the website. Some of the major functions of the product can be categorized under two different categories that are for the administrator and the user.

* + 1. ***Customer / End User Activities***

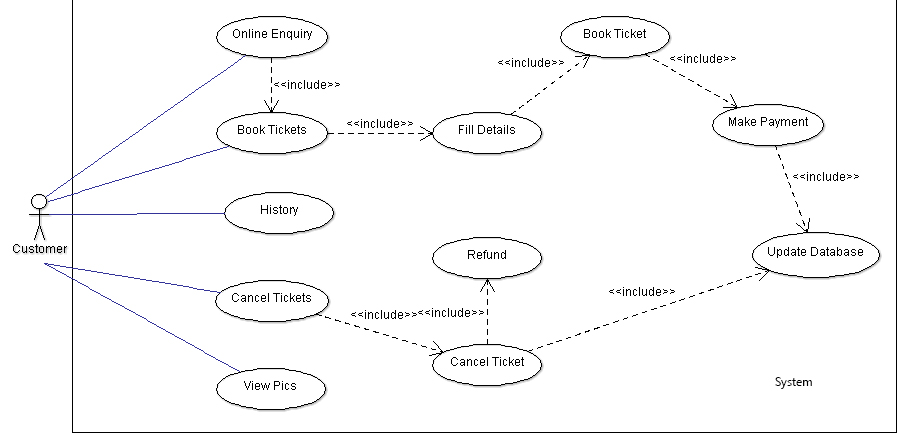


Fig. 1 : Customer Use Case Diagram

The above use case diagram depicts all the functions or activities that a user or a customer can perform on the application. They can be discussed in detail as follows:

**Home Page:** Like all the other Bus reservation websites available online, the user can access the user home page of the IIITG Bus Reservation System website, after he logs into the system. Here, he can look up information regarding buses.

**Login and Register:** The IIITG Bus Reservation System also comes with the customer registration details page, where the customer can enter his details and register. He can also create a username and password.

**Booking Tickets:** The customer can also search for the buses available and reserve his place on the bus by purchasing a ticket.

Some of the functions of the Airline Reservation System, such as creating, maintaining and updating the database are available only to the administrator. The functions of the administrator, explained in detail are as follows:

* + 1. ***Administrator Activities***

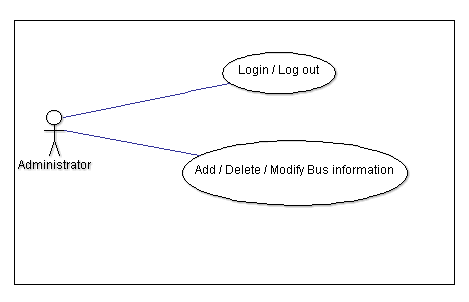
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Fig. 2 : Admin Use Case Diagram

**Login/Logout:** The administrator has to login first in order to be able to make changes to the Airline Reservation System, by adding, deleting or modifying the data in the Airline Reservation System database. After making the necessary changes, he then has to logout of the system, in order to prevent misuse of the data.

**Add/Modify Bus Information:** The Administrator also has the sole rights to add, delete or modify the bus information. Sometimes, bus get cancelled for some reason, so such bus would be removed from the list of bus available to the customer. Similarly, whenever any bus information has to be modified or if any new bus need to be added to the database, these operations are performed by the administrator.

* 1. ***User Characteristics***

There are two kinds of users for the Airline Reservation System. One is the customer and the other is the administrator. The customers do not need to have any prior training to use the application. The administrators would however need to be trained in order to use the application.

* 1. ***Constraints***

Incase of changes made to the database, the application should be able to show the updated information on the website, without much delay. The database for the project is designed to be of moderate size. The JSP will be used to code the project and MySQL will act as the database for the project.

* 1. ***Assumptions and Dependencies***

There are no assumptions as of now. To be updated in later versions of the vision document.

# Functional Requirements

The functional requirements of the IIITG Bus Reservation System are divided among the customer and the administrator of the application. These functional requirements can be explained in detail as follows:

* 1. ***Use Case name: User Online Enquiry***
* **Description:** This use case describes the scenario where the user views the status of bus availability and seat availability.
* **Actor:** User or the customer.
* **Input:** After the customer logs onto the application with his username and password, he provides the details of his journey.
* **Output:** The application shows the availability status of bus and seats.
  1. ***Use Case name: Book Tickets***
* **Description:** This use case describes the scenario where the user reserves the bus ticket.
* **Actor:** User or the customer.
* **Input:** After the customer logs onto the application with his username and password, he provides the details of his journey and passenger details.
* **Output:** The application verifies the journey details and if bus and seat will be available, it reserves the ticket.
  1. ***Use Case name: History***
* **Description:** This use case describes the scenario where the user views his booking history.
* **Actor:** User or the customer.
* **Input:** After the customer logs onto the application with his username and password, he can look up at the history.
* **Output:** The application shows the booking history.
  1. ***Use Case name: Cancel Tickets***
* **Description:** This use case describes the scenario where the user can cancel the tickets.
* **Actor:** User or the customer.
* **Input:** After the customer logs onto the application with his username and password, he provides the details of his tickets.
* **Output:** The application cancels the ticket and update the database.
  1. ***Use Case name: Picture Gallery***
* **Description:** This use case describes the scenario where the user views the pictures of the bus.
* **Actor:** User or the customer.
* **Input:** After the customer logs onto the application with his username and password, he can look up at the picture gallery.
* **Output:** The application shows the pictures of the buses from outside as well as inside.
  1. ***Use Case name: Admin login / log out***
* **Description:** This use case describes the scenario where the admin logs in the system and logs out after finishing the work.
* **Actor:** Administrator.
* **Input:** Administrator of the website logs in with the userId and password provided to him.
* **Output:** The application verifies the authenticity and displays the home page of the administrator on successful authentication.
  1. ***Use Case name: Add / Delete / Modify Bus Details***
* **Description:** This use case describes the scenario where the administrator adds, deletes or modifies bus information in the application database.
* **Actor:** Administrator.
* **Input:** The administrator logs onto the system with the username and password provided to him.
* **Output:** The application authenticates the administrator, by verifying the username and password. Then the application displays the page where the administrator can add new buses to the database, delete the buses that have been cancelled or modify information for the buses.

# Performance Requirements

The IIITG Bus Reservation System application should be able to respond to the queries submitted by the customer without much delay. When a user searches for a bus leaving from a particular place to another place, the application should not take much time to return the results. Considering that the application is of moderate size, it should be able to display 10 results at a time on each page, when the customer looks up for any particular data. Since the Bus Reservation websites may have much traffic, the user should also be able to logon to the system using high speed internet. Most of the requests sent to the application should be answered in less than 5 seconds.

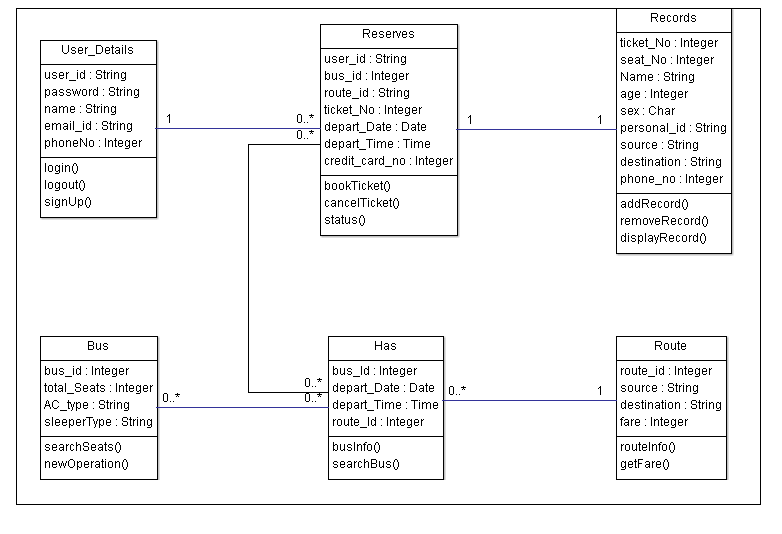


Fig. 3 : Class Diagram

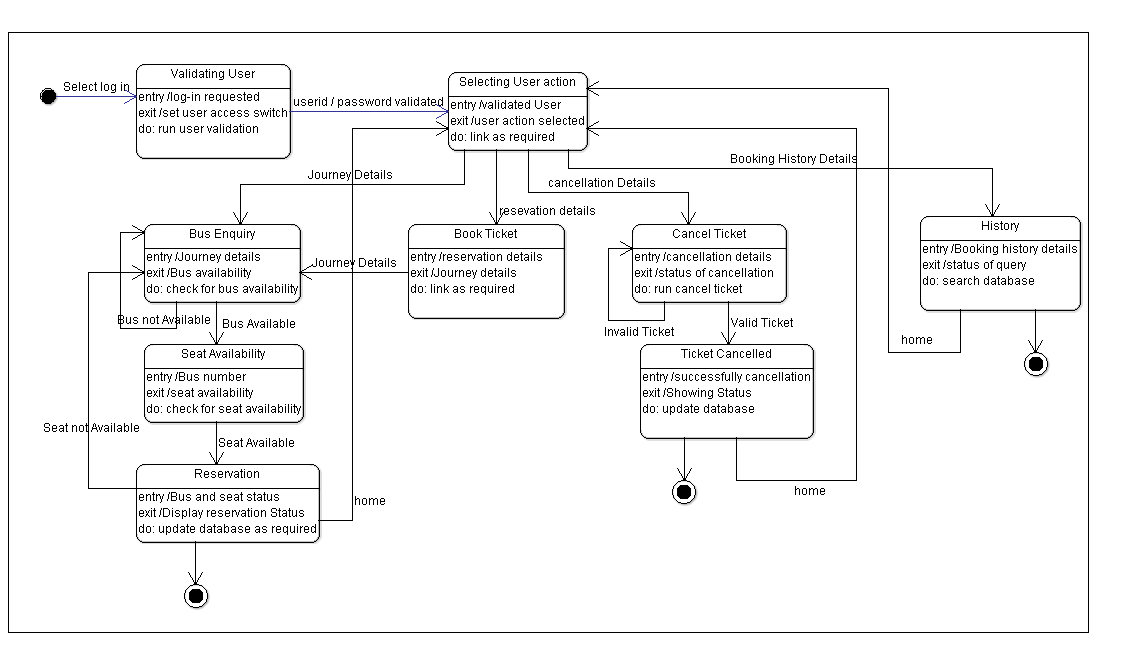


Fig. 4 : State Diagram

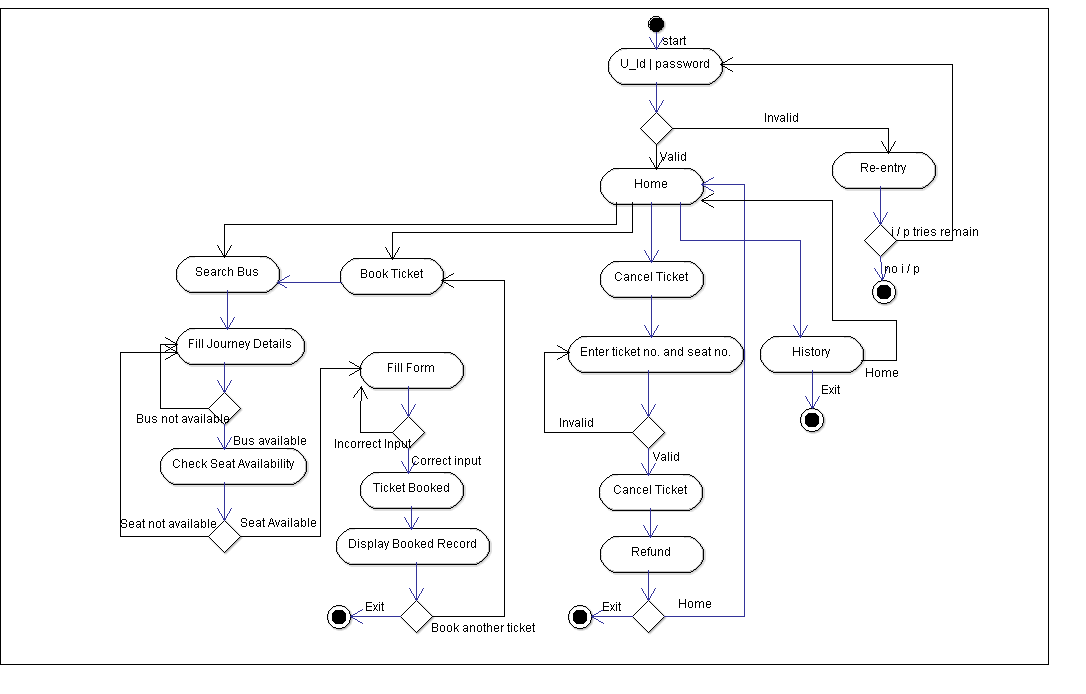


Fig. 5 : Activity Diagram

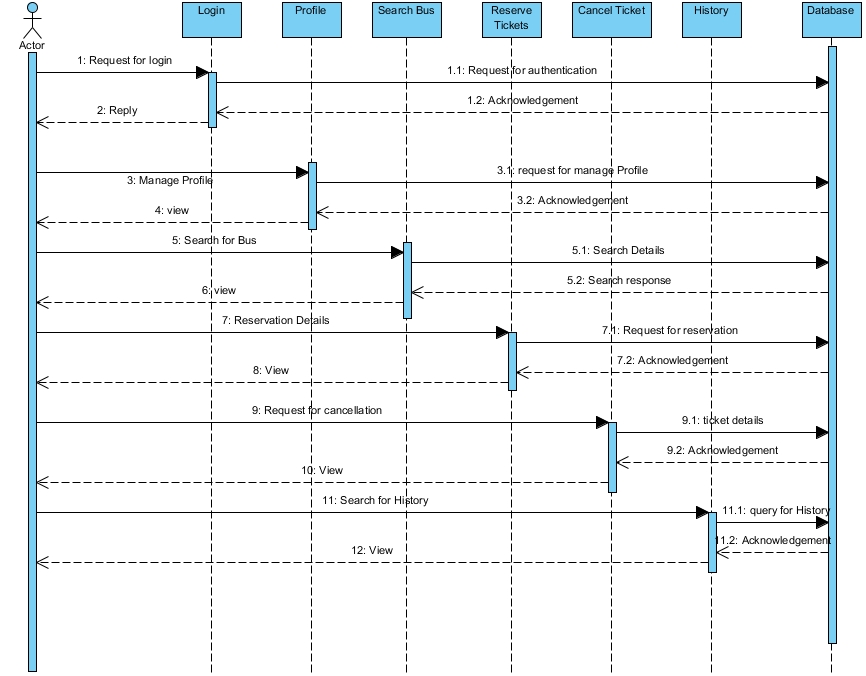


Fig. 6 : Sequence Diagram

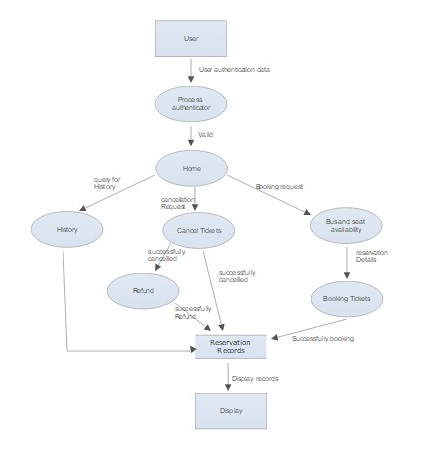


Fig. 7 : Data Flow Diagram

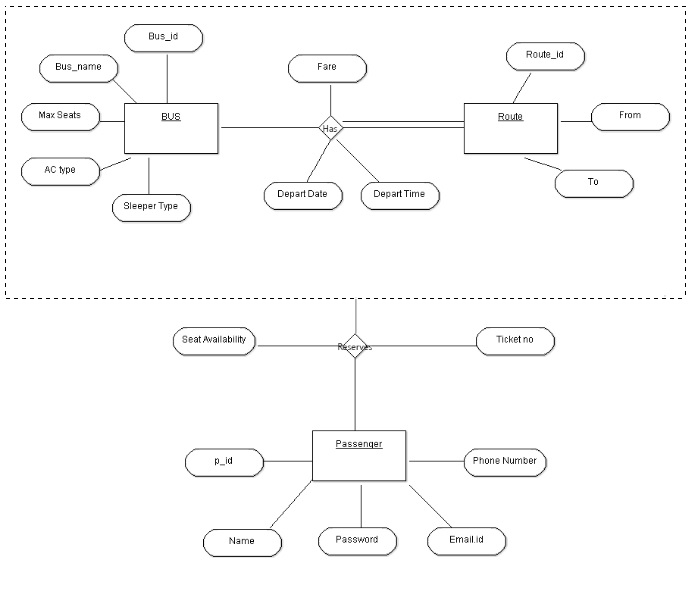


Fig. 8 : ER Diagram

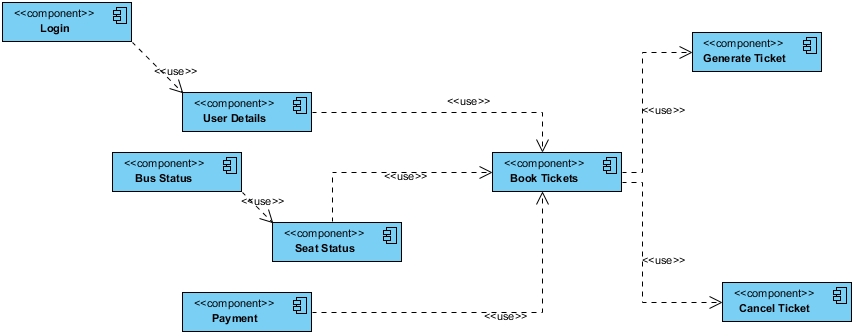


Fig. 9 : Component Diagram