# BUS TICKET MANAGEMENT SYSTEM

**A MINI PROJECT REPORT**

***Submitted by***

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## BONAFIDE CERTIFICATE

Certified that this project report titled "**BUS TICKET MANAGEMENT SYSTEM**" is the bonafide work of " **SRIDHAR R [Reg No: 20384120]" of Integrated M.Sc Computer Science in Semester VI during the year 2022-2023.**

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# ABSTRACT

The Bus Ticket Reservation System (BTRS) is a comprehensive solution designed to streamline the process of booking and managing bus tickets for both passengers and transportation operators. This report delves into the various aspects of the BTRS, including its architecture, features, and benefits. The system aims to enhance the user experience by providing a user-friendly interface, real-time seat availability, and secure payment options. Additionally, it offers transportation operators an efficient platform for managing bookings, schedules, and revenue generation. The BTRS leverages modern web technologies and integrates with existing infrastructure to ensure seamless adoption and scalability. By implementing the BTRS, public transportation systems can significantly improve their operational efficiency, reduce manual intervention, and provide a more convenient and accessible service to passengers. Ultimately, the BTRS has the potential to revolutionize the way people travel by bus, making it a more attractive and sustainable mode of transportation.

# ACKNOWLEDGEMENTS

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# CHAPTER 1

# INTRODUCTION

## 1.1 Overview

The project is designed for the effective management for a travel agency(bus) according to their needs. In today's world it is very important to work efficiently to avoid any confusion and for productive results. In the booking of bus tickets there exists various levels of hierarchy, the responsibilities and functions differ at each level, in the existing system most of the work done is paper work and it is manually carried out, this may lead to confusion and increase of work load at each level. With increasing technology and tools in each and every aspect of the world, it has become much easier and efficient to carry out any task. The proposed desktop application will be able to store and retrieve the bus tickets and can be accessed accordingly by the different levels of the management structure depending upon their necessities and functionalities.

## 1.2 Problem Statement

This section is to describe the project "Bus ticket reservation system" is designed to overcome specific issues intended or designed to overcome. Booking a ticket at a bus stand can have several difficulties compared to reserving it at a travel agency, such as:

- Limited options: Bus stands may not have access to all the available routes and schedules, which can limit the options for travelers. In contrast, travel agencies can provide information on multiple bus companies and routes, giving travelers more options to choose from.
- Time-consuming: Booking a ticket at a bus stand can be time-consuming, particularly if there is a long queue or if the bus stand is located in a busy area. Travelers may have to wait for an extended period to book their tickets, which can be inconvenient.

- Risk of fraud: There is a risk of fraud when booking tickets at a bus stand, particularly if travelers are not familiar with the bus company or the booking process. Scammers may take advantage of travelers by charging higher prices or providing fake tickets.

The project will be implemented to address all the drawbacks of the existing difficulties and improvise the effectiveness of the system.

## 1.3 Objective

The main objective of the proposed system is to provide a user-friendly and efficient platform for customers to book bus tickets, check schedules, and manage their reservations, while also enabling bus operators to manage their fleets and optimize routes, resulting in increased revenue, customer satisfaction, and operational efficiency. The proposed system will be able to make the work easier by providing ease of access to the data required. Through this course, students would learn about project management, software development life cycle, software design patterns, database design, and user interface design and also gain experience in working with Java development tools and technologies, such as **Visual Studio Code , Java FX, Scene builder**

# CHAPTER 2

# FUNCTIONALITY

## 2.1 Introduction

The Bus Ticket Reservation System (BTRS) is designed to provide a seamless and efficient experience for passengers and transportation operators. The system offers various functionalities. Here are some key functionalities of the BTRS:

## 2.2 Functionality of BRTS

1. User Registration and Authentication: The system allows passengers to create an account and log in securely. This enables them to manage their bookings, view their travel history, and update their personal information.

2. Search and Browse: Passengers can search for available bus routes based on their origin, destination, and travel dates. The system displays a list of available buses, including information about the operator, departure and arrival times, and ticket prices.

3. Seat Selection and Availability: The BTRS provides real-time seat availability, allowing passengers to choose their preferred seats based on the bus layout. This ensures that passengers can reserve the exact seat they want and avoid overbooking issues.

4. Booking and Payment: Once passengers have selected their desired bus and seat, they can proceed to book their ticket. The system supports various payment methods, such as credit cards and google Pay, ensuring a secure and convenient payment process.

5. Ticket Generation and Confirmation: After a successful payment, the system generates an e-ticket with a unique booking reference number. Passengers receive a confirmation email with their ticket details, which they can either print or present on their mobile device when boarding the bus.

6. Operator Management: For transportation operators, the BTRS provides a platform to manage their bus schedules, routes, and pricing. They can also monitor seat availability, booking trends, and revenue generation through the system's reporting.

7. Scalability and Security: The system is designed to be scalable, accommodating the growth of transportation operators and the increasing number of passengers.

These functionalities make the Bus Ticket Reservation System a comprehensive solution for managing bus ticket reservations, improving the overall experience for passengers and transportation operators alike.

## 2.3 Controller class from FXML

When using FXML to describe a Java FX scene, the controller class is written manually and it's member variables and methods can then be referenced from the .fxml file. When loading the scene using the FXMLLoader, member variables are set to the corresponding scene elements and methods are wired up to the corresponding events automatically. This works but is very cumbersome as changes need to be done in two places and any mistakes will only show up at runtime.

I've seen other GUI frameworks that allow you to instead generate the controller from a scene description as an abstract class which needs to be implemented to access the scene elements and handle the events.

# CHAPTER 3

# APPLICATION OF THE PROJECT

## 3.1 Introduction

The Bus Ticket Reservation System (BTRS) has several applications and can be used in various contexts where bus transportation is involved. Here are some examples of where the BTRS can be applied and deployed:

## 3.2 Project Scope

1. Public Transportation: The BTRS can be used by public transportation systems, such as city buses, intercity buses, and long-distance buses. It can help streamline the booking process, reduce manual intervention, and provide a more convenient and accessible service to passengers.

2. Private Transportation: Private transportation companies, such as tour operators, can also use the BTRS to manage their bookings and schedules. This can help them improve their operational efficiency, reduce costs, and provide a better customer experience.

3. Educational Institutions: Educational institutions, such as schools and universities, can use the BTRS to manage their bus transportation services for students. This can help them ensure the safety and security of students, optimize bus routes, and reduce transportation costs.

4. Corporate Transportation: Companies that provide transportation services to their employees can use the BTRS to manage their bookings and schedules. This can help them optimize their transportation resources, reduce costs, and provide a better employee experience.

5. Travel Agencies: Travel agencies can use the BTRS to offer bus ticket booking services to their customers. This can help them expand their service offerings, increase revenue, and provide a more comprehensive travel experience to their customers.

## 3.3 Summary

The BTRS can be deployed on various desktop platforms, such as Windows, macOS, and Linux. It can be installed on individual computers or on a network of computers, depending on the requirements of the organization. The system can be customized to meet the specific needs of the organization, such as integrating with existing systems or adding new features. Overall, the BTRS is a versatile solution that can be applied and deployed in various contexts to improve the efficiency and convenience of bus transportation services.

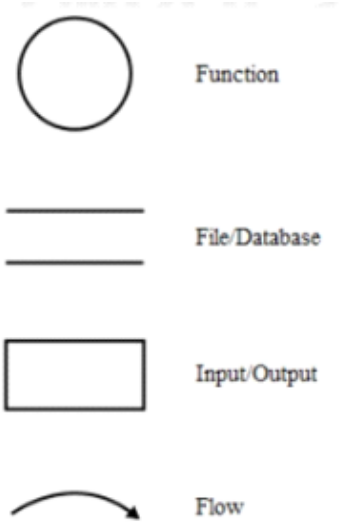


**Figure 4.3:** Symbold used in the DataFlow Diagram

HOD login options like time table, available staff, staff time tables and responsibilities, location of the classes will be given, the user has to choose one and the given input will be retrieved by the database and the respective information like displaying the location of the class which has been entered, displaying the information about available staff etc. can be accessed or viewed. If it is a dean login options like HOD or staff will be given, once the input is received by the database the next respective module like displaying the details of the HOD of a particular department, contacting a HOD, checking for staff etc. will be accessed.

## 4.4 System Requirements

### 4.4.1 Software specifications

The software specifications required to build the software of the system are:

Scene Builder

JavaFX

JDK

MySql

IDE - Visual Studio Code (recommended)

### 4.4.2 Hardware specifications

The recommended hardware specifications required by the system are:

Dual-core 64-bit processor

8 GB of memory

Up to 24 GB of internal storage

4-8 GB RAM

Hard disk capacity 40GB

# CHAPTER 5

# DEPLOYMENT

## 5.1 How to deploy in the system

1. Download Java SDK and MySQL

2. Configure MySQL and open MySQL Workbench. Import the database 'bus'

3. Add mysql connector jar file can be found in the lib db folder.

4. Open the project in IDE (Visual Studio Code). Go to File -> Project Structure -> Project and set your project SDK to the JavaFX SDK you downloaded.

5. Then go to File -> Project Structure -> Libraries and add the JavaFX SDK as a library to the project. Point to the lib folder of the JavaFX SDK. Also add the MySQL connector jar file to the project.

6. Add VM options. click on Run -> Edit Configurations and add these VM options ""vmArgs": "–module-path C̈:/Program Files/Java/javafx-sdk-17.0.6/lib¨-add-modules javafx.controls,javafx.fxml"

7. Run the application (Main.java)