RAJALAKSHMI ENGINEERING COLLEGE

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CS23333 OOPS Using Java

Laboratory Record Note Book

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Signature of Faculty in-charge

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Submitted for the Practical Examination held on

Internal Examiner External Examiner

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TRANSPORT MANAGEMENT SYSTEM

A MINI-PROJECT REPORT

Submitted by

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in partial fulfillment of the award of the degree

of

BACHELOR OF ENGINEERING

IN

COMPUTER SCIENCE AND ENGINEERING

RAJALAKSHMI ENGINEERING COLLEGE, CHENNAI

An Autonomous Institute

CHENNAI

NOVEMBER 2025

BONAFIDE CERTIFICATE

Certified that this project **"TRANSPORT MANAGEMENT SYSTEM"** is the bonafide work of **"DIVYA SHREE G","DURKA SRI SM" ,"GAYATHRI MOHANRAAJ"**who carried out the project work under my supervision.

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This mini project report is submitted for the viva voce examination to be held on

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INTERNAL EXAMINER **EXTERNAL EXAMINER**

ABSTRACT

The **Transport Management System** is a web-based application developed to address the challenges of managing college and office bus transportation services. Traditional manual systems lead to communication gaps, lack of transparency, and operational inefficiencies. This project provides a comprehensive solution through a role-based system with three user types: Administrator (for complete route management with CRUD operations), Driver (for real-time status updates), and User (for viewing routes and schedules).

Developed using **Java Servlets**, **JSP**, and **MySQL**, the system is deployed on **Apache Tomcat 9.0** and features an aesthetic lavender-themed interface. The application follows a three-tier architecture ensuring separation of concerns and maintainability. Key features include secure authentication, role-based access control, real-time status updates, search functionality, and responsive design.

The database design comprises two normalized tables - users for authentication and bus_routes for transportation data - ensuring data integrity and efficient operations. The system enables administrators to manage routes effectively, drivers to communicate delays instantly, and users to access transportation information conveniently.

Comprehensive testing validates all functionalities including authentication, CRUD operations, status updates, and search capabilities. The system successfully eliminates manual processes, enhances transparency, and provides a scalable foundation for future enhancements such as GPS tracking, mobile applications, and analytics. This project demonstrates effective application of web technologies and database management in solving real-world transportation challenges.

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CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

The project helps users to easily find necessary information about available bus routes, schedules, and real-time status updates. Through a simple web interface, passengers can view which bus goes to their destination, check departure times, and see if the bus is running on time or delayed. Administrators can efficiently manage all route information, while drivers can update bus status with a few clicks. The necessary information about bus availability, driver contacts, and route details is organized and presented according to user convenience, making daily commute planning effortless

1.2 SCOPE OF THE WORK

The scope of this project includes development of a web-based Transport Management System for colleges and offices. The system allows administrators to manage bus routes with add, edit, and delete operations, drivers to update bus status in real-time, and users to view route information and search by destination. It maintains comprehensive database of all buses including route details, driver information, schedules, and current status. The project aims to provide easy accessibility and efficient transportation service management for educational and corporate institutions

.

1.3 PROBLEM STATEMENT

Efficient transportation management is a major challenge due to

increasing traffic congestion, rising fuel costs, and unoptimized route planning. Current systems often fail to ensure timely deliveries and resource utilization. There is a need for a smart, data-driven transport management solution to improve efficiency, reduce costs, and enhance customer satisfaction.

1.4 AIM AND OBJECTIVES OF THE PROJECT

The aim of this project is to develop an efficient Transport Management System to streamline transportation operations.
The objectives include optimizing route planning for timely deliveries, reducing operational costs, and improving vehicle utilization.
It also aims to enhance real-time tracking and management of transport resources.
Finally, the system seeks to improve decision-making through data analysis and reporting.

CHAPTER 2

SYSTEM SPECIFICATIONS

2.1 HARDWARE SPECIFICATIONS

Processor	:	Intel i5
Memory Size	:	8GB (Minimum)
HDD	:	1 TB (Minimum)

2.2 SOFTWARE SPECIFICATIONS

Operating System	:	WINDOWS 10

Front – End	:	Java
Back - End	:	MySql
Language	:	Java,SQL

CHAPTER 3

MODULE DESCRIPTION

This application consists of threee modules. When the program runs, it will ask for a confirmation to the login window. The person who interacts can login as an Administrator ,Driver or as a User. The description of the modules are as follows:

1. **Admin login**

   When the person who interacts tries to login as Admin then he needs to login with his username and password. The administrator only has the power to change and manipulate the bus route ,add new bus route and delete the same.

2. **User login**

   When the person tries to login as a user then he/she will be prompted to enter User name and its password. The user (Student or employee) are capable of retrieving the all table from the database. And also retrieve the bus route by searching with the destination.

3. **DRIVER LOGIN**

   When the person tries to login as a driver then he/she can only update whether the bus is delayed due traffic , or any accidents, so that the

students can arrive the destination point before the bus arrival. The options available for the drivers are as follows (on time,delayed or cancelled)

CHAPTER 4

SAMPLE CODING

MAIN CODE FRAMEWORK

LOGIN JSP

```
<%@ page language="java" contentType="text/html;
charset=UTF-8" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-
width, initial-scale=1.0">
    <title>Login - Transport Management
System</title>
    <link rel="stylesheet" href="css/style.css">
</head>
<body>
    <div class="login-container">
        <div class="login-box">
            <div class="login-header">
                <h1> Transport System</h1>
                <p>College & Office Bus
Management</p>
            </div>

            <!-- Error/Success Messages -->
```

```
            <%
                String error =
request.getParameter("error");
                String message =
request.getParameter("message");

                if (error != null) {
                    if
(error.equals("invalid_credentials")) {
            %>
                        <div class="alert alert-
error">
                            Invalid username or
password!
                        </div>
            <%      } else if
(error.equals("invalid_role")) { %>
                        <div class="alert alert-
error">
                            Invalid user role!
                        </div>
            <%      }
                }

                if (message != null &&
message.equals("logout_success")) {
            %>
                    <div class="alert alert-
success">
                        You have been logged out
successfully!
                    </div>
            <%  } %>
```

```
            <!-- Login Form -->
            <form action="login" method="post">
                <div class="form-group">
                    <label
for="username">Username</label>
                    <input type="text"
id="username" name="username"
                           class="form-control"
required
                           placeholder="Enter
your username">
                </div>

                <div class="form-group">
                    <label
for="password">Password</label>
                    <input type="password"
id="password" name="password"
                           class="form-control"
required
                           placeholder="Enter
your password">
                </div>

                <button type="submit" class="btn
btn-primary">Login</button>
            </form>

            <!-- Demo Credentials -->
            <div style="margin-top: 30px;
padding: 15px; background: #f3f4f6; border-
radius: 8px; font-size: 13px;">
```

```
                <strong>Demo
Credentials:</strong><br>
                <strong>Admin:</strong> admin /
password123<br>
                <strong>Driver:</strong> driver1
/ password123<br>
                <strong>User:</strong> user1 /
password123
            </div>
        </div>
    </div>
</body>
</html>
```

CHAPTER 5

SCREEN SHOTS

Fig 5.1 Introduction page

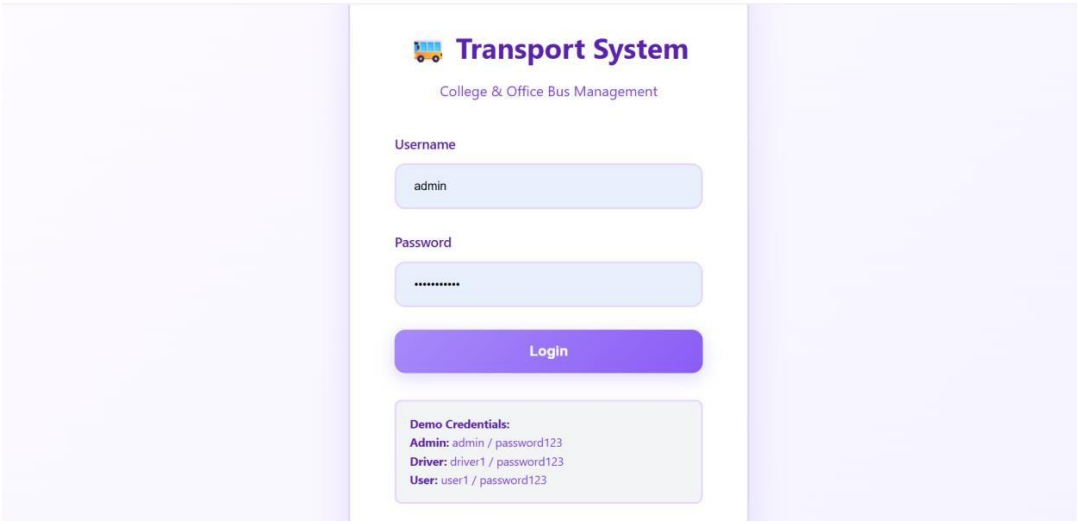


Fig 5.2 admin page

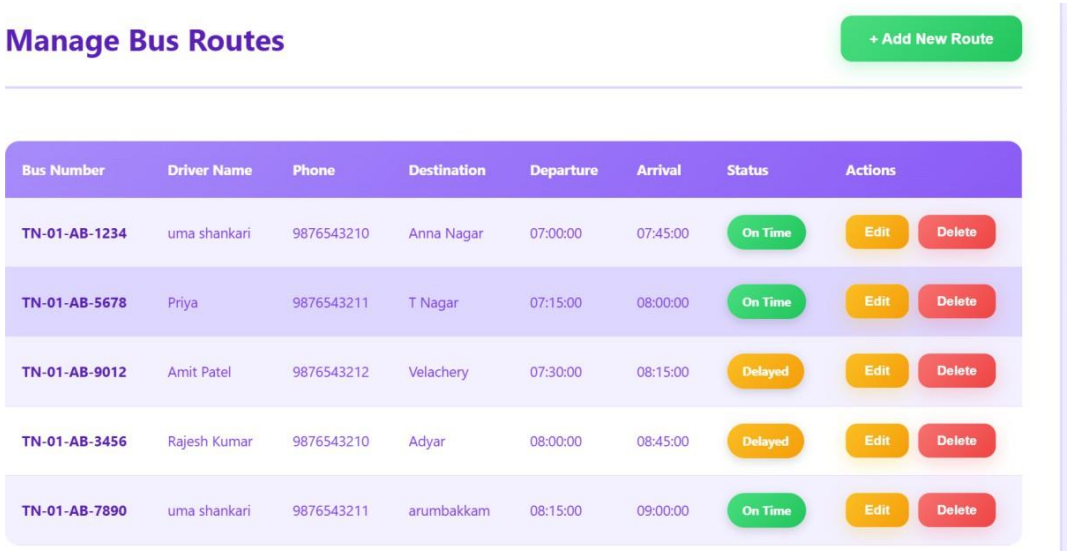


Fig 5.3 driver page

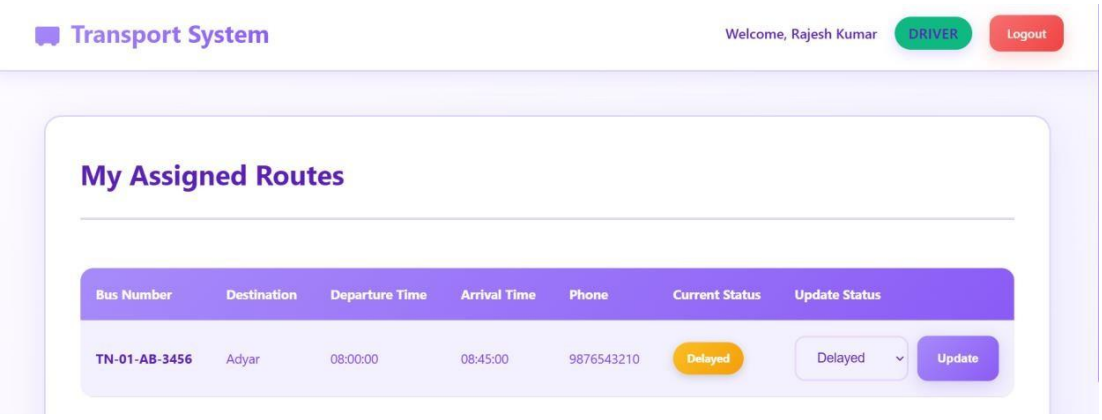
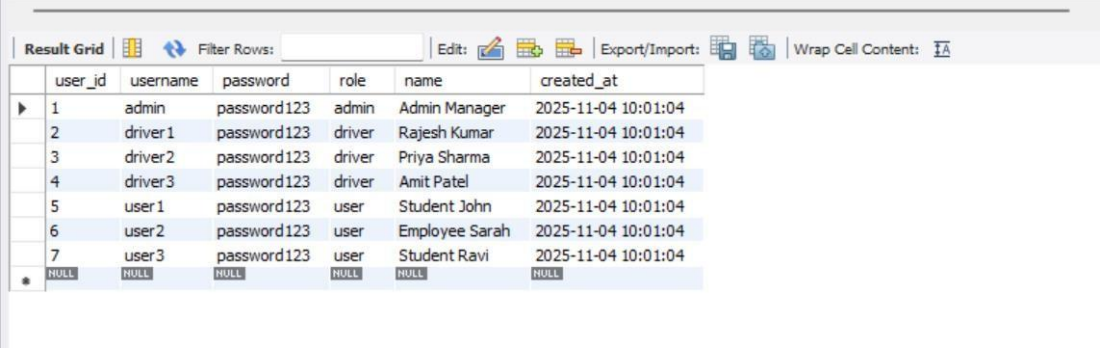


Fig 5.4 user page

Fig 5.5 Database creation

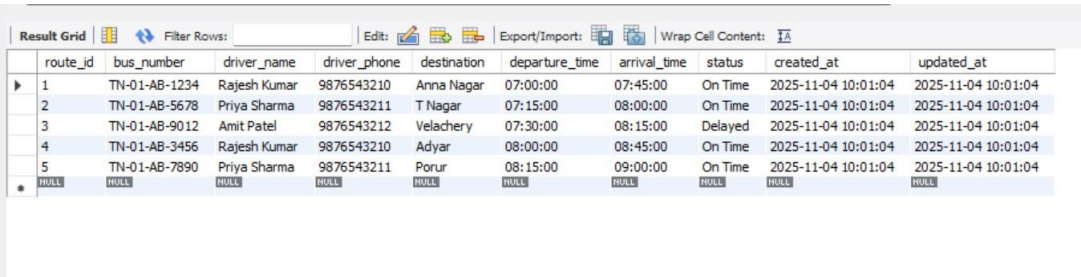
a) User Table Creation-



Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

user_id	username	password	role	name	created_at
1	admin	password123	admin	Admin Manager	2025-11-04 10:01:04
2	driver1	password123	driver	Rajesh Kumar	2025-11-04 10:01:04
3	driver2	password123	driver	Priya Sharma	2025-11-04 10:01:04
4	driver3	password123	driver	Amit Patel	2025-11-04 10:01:04
5	user1	password123	user	Student John	2025-11-04 10:01:04
6	user2	password123	user	Employee Sarah	2025-11-04 10:01:04
7	user3	password123	user	Student Ravi	2025-11-04 10:01:04
NULL	NULL	NULL	NULL	NULL	NULL

b) Bus route table creation-



Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

route_id	bus_number	driver_name	driver_phone	destination	departure_time	arrival_time	status	created_at	updated_at
1	TN-01-AB-1234	Rajesh Kumar	9876543210	Anna Nagar	07:00:00	07:45:00	On Time	2025-11-04 10:01:04	2025-11-04 10:01:04
2	TN-01-AB-5678	Priya Sharma	9876543211	T Nagar	07:15:00	08:00:00	On Time	2025-11-04 10:01:04	2025-11-04 10:01:04
3	TN-01-AB-9012	Amit Patel	9876543212	Velachery	07:30:00	08:15:00	Delayed	2025-11-04 10:01:04	2025-11-04 10:01:04
4	TN-01-AB-3456	Rajesh Kumar	9876543210	Adyar	08:00:00	08:45:00	On Time	2025-11-04 10:01:04	2025-11-04 10:01:04
5	TN-01-AB-7890	Priya Sharma	9876543211	Porur	08:15:00	09:00:00	On Time	2025-11-04 10:01:04	2025-11-04 10:01:04
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

CHAPTER 6

CONCLUSION AND FUTURE ENHANCEMENT

The transport management system efficiently streamlines vehicle scheduling,route planning, improving overall operational efficiency

FUTURE ENHANCEMENT:

Future improvements can include AI-based route optimization ,real –time GPS tracking, automated maintenance alerts ,and integration with mobile UI interface

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