

Bus Management System - Project Overview

Bus Management System

Project Overview

The Bus Management System is designed to streamline the process of managing student trips to and from school.

This system accommodates two user roles: **Admin** and **Mentor**, each with specific functionalities to handle routes, mentors, students, and trip bookings. The system ensures smooth operations, providing user-friendly interfaces for both roles and ensuring data integrity.

User Roles

Admin

Responsibilities:

1. Manage routes (add, update, enable/disable, delete).
2. View and manage mentor details.
3. View and manage student details.
4. Monitor and view trip details.

Features:

- Login with predefined credentials.
- Perform CRUD (Create, Read, Update, Delete) operations on routes.
- View all registered mentors.
- Manage all registered students (delete students if needed).
- View mentor-wise trip bookings with trip details, student information, and trip types.

Mentor

Responsibilities:

1. Manage students (add, edit, delete).
2. Book trips for students.

Features:

- Registration for system access.
 - Login with registered credentials.
 - Add students along with their details.
 - Edit or delete student information.
 - Book trips, selecting routes and trip types (one-way or round-trip).
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User Flow

Admin

1. Login:

- Enter predefined credentials to access the Admin Dashboard.

2. Admin Dashboard:

- Manage Routes: Add, update, enable/disable, and delete routes.
- View Mentors: Display a list of registered mentors with details.
- View Students: List all students associated with mentors, with options to delete students.
- View Trips: Overview of mentor-wise trip bookings, including student and route details.

Mentor

1. Registration:

- Fill out the registration form with personal and login details.
- Redirected to the Login page upon successful registration.

2. Login:

- Enter registered credentials to access the Mentor Dashboard.

3. Mentor Dashboard:

- Add Students: Submit a form with student details such as admission number, class, dropping point, etc.
 - Edit/Delete Students: List students with options to modify or remove their records.
 - Book Trips: Search students by name or admission number, select routes and trip type, calculate the fare, and confirm bookings.
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UI Functionalities

Login Page

URL: `/login`

- **Admin Login:** Predefined credentials (`admin` , `admin`).
- **Mentor Login:** Post-registration.
- **Features:**
 - Fields: Username, Password.
 - Buttons: Login, Register (only for Mentors).

Mentor Registration Page

URL: `/register`

- **Form Fields:**
 - Mentor ID
 - Name
 - Phone Number
 - Email
 - Password
- **Features:**
 - Registration form with validation.
 - Redirects to Login page upon successful registration.

Admin Dashboard

URL: /admin-dashboard

- **Sections:**
 - a. **Manage Routes:** Add, update, enable/disable, delete routes.
 - b. **View Mentors:** List mentor IDs, names, and email addresses.
 - c. **View Students:** Display student details with options to delete records.
 - d. **View Trips:** Overview of mentor-wise bookings, routes, students, and trip types.

Mentor Dashboard

URL: /mentor-dashboard

- **Sections:**
 - a. **Add Students:**
 - Form with fields: admission number, name, class, dropping point, fare, primary contact number, and secondary contact number.
 - b. **Edit/Delete Students:**
 - List all students with options to edit (excluding route) or delete.
 - c. **Book Trips:**
 - Searchable student list.
 - Dropdowns to select route and trip type.
 - Automatic fare calculation.
 - Booking confirmation summary.

Database Design

Admin Table

Field	Type	Description
id	INT (PK)	Unique ID for the admin.
username	VARCHAR(50)	Admin username.
password_hash	VARCHAR(255)	Hashed password.
status	VARCHAR(20)	Active/Inactive status.
created_date	DATETIME	Date the record was created.
created_at	DATETIME	Timestamp of record creation.
updated_at	DATETIME	Timestamp of last update.
updated_by	VARCHAR(50)	Who last updated the record.

Mentor Table

Field	Type	Description
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mentor_id	INT (PK)	Unique ID for each mentor.
name	VARCHAR(100)	Mentor's full name.
phone	VARCHAR(15)	Mentor's phone number.
email	VARCHAR(100)	Mentor's email address.
password_hash	VARCHAR(255)	Hashed password.
status	VARCHAR(20)	Active/Inactive status.
created_date	DATETIME	Date the record was created.
created_at	DATETIME	Timestamp of record creation.
updated_at	DATETIME	Timestamp of last update.
updated_by	VARCHAR(50)	Who last updated the record.

Student Table

Field	Type	Description
admission_number	INT (PK)	Unique admission number.
name	VARCHAR(100)	Student's name.
class	VARCHAR(10)	Class/grade of the student.
dropping_point	VARCHAR(100)	Drop-off location.
fare	FLOAT	Transportation fare.
contact_number_primary	VARCHAR(15)	Primary contact number.
contact_number_secondary	VARCHAR(15)	Secondary contact number.
mentor_id	INT (FK)	Associated mentor ID.
status	VARCHAR(20)	Active/Inactive status.
created_date	DATETIME	Date the record was created.
created_at	DATETIME	Timestamp of record creation.
updated_at	DATETIME	Timestamp of last update.
updated_by	VARCHAR(50)	Who last updated the record.

Route Table

Field	Type	Description
route_id	INT (PK)	Unique ID for each route.
route_name	VARCHAR(100)	Name of the route.
is_active	BOOLEAN	Indicates if route is active.

status	VARCHAR(20)	Active/Inactive status.
created_date	DATETIME	Date the record was created.
created_at	DATETIME	Timestamp of record creation.
updated_at	DATETIME	Timestamp of last update.
updated_by	VARCHAR(50)	Who last updated the record.

Trip Table

Field	Type	Description
trip_id	INT (PK)	Unique ID for each trip.
student_id	INT (FK)	Associated student ID.
mentor_id	INT (FK)	Associated mentor ID.
route_id	INT (FK)	Associated route ID.
trip_type	VARCHAR(50)	Type of trip (one-way, round-trip).
total_amount	FLOAT	Total fare amount.
status	VARCHAR(20)	Active/Inactive status.
created_date	DATETIME	Date the record was created.
created_at	DATETIME	Timestamp of record creation.
updated_at	DATETIME	Timestamp of last update.
updated_by	VARCHAR(50)	Who last updated the record.
