Mess Management System – Project Documentation

1. 📝 Project Overview

The Mess Management System is a Java-based backend application designed to streamline the operations of mess owners. It allows owners to register, log in, create mess profiles, and update daily menus. The system uses JDBC for database connectivity and MySQL 8.0 for persistent data storage.

2. 🎯 Objectives

- Enable mess owners to register and securely log in.
- Allow owners to add and manage mess details.
- Provide functionality to update and view daily menus.
- Store and retrieve data efficiently using MySQL.
- Build a clean, modular backend using Java and JDBC.

3. 🧰 Technologies Used

Component	Technology
Programming Lang	Java (Core Java)
Database	MySQL 8.0
Connectivity	JDBC (Java Database Connectivity)
IDE	VS Code
Tools	MySQL Workbench
OS	Windows 10/11

4. 🏗️ System Architecture

The system follows a layered architecture:

- **Presentation Layer**: Command-line interface (Main.java)
- **Business Logic Layer**: DAO classes (OwnerDAO, MessDAO, MenuDAO)
- **Data Layer**: MySQL database with tables for owners, messes, and menus

Main.java → DAO Classes → DBConnection.java → MySQL Database

5. 🗃️ Database Design

📌 Tables

1. `owner`

Column	Type	Constraints
owner_id	INT	PRIMARY KEY, AUTO_INCREMENT
name	VARCHAR(100)	NOT NULL
email	VARCHAR(100)	UNIQUE, NOT NULL
password	VARCHAR(100)	NOT NULL

2. `mess`

Column	Type	Constraints
mess_id	INT	PRIMARY KEY, AUTO_INCREMENT
owner_id	INT	FOREIGN KEY REFERENCES owner(owner_id)
name	VARCHAR(100)	NOT NULL
address	VARCHAR(255)	NOT NULL

3. `menu`

Column	Type	Constraints
menu_id	INT	PRIMARY KEY, AUTO_INCREMENT
mess_id	INT	FOREIGN KEY REFERENCES mess(mess_id)
date	DATE	DEFAULT CURRENT_DATE
breakfast	VARCHAR(255)	
lunch	VARCHAR(255)	
dinner	VARCHAR(255)	

6. 🔑 Key Features

- **Owner Registration**: New owners can register with name, email, and password.
- **Login System**: Secure login using email and password.
- **Mess Management**: Owners can create and manage mess profiles.
- **Menu Update**: Owners can update the breakfast, lunch, and dinner menu for the current day.
- **Database Integration**: All data is stored and retrieved using JDBC and MySQL.

7. 🧪 Sample Output

=== Mess Management System ===
1. Register as Owner
2. Login as Owner
Choose an option: 2
Enter Email: omkar@example.com
Enter Password: ****
✅ Login successful!

--- Owner Menu ---
1. Add New Mess
2. Update Today's Menu
Choose an action: 2
Enter Mess ID: 1
Enter Breakfast: Poha
Enter Lunch: Dal Bhat
Enter Dinner: Chicken
✅ Menu updated successfully!

8. ⚠️ Challenges Faced

- `ClassNotFoundException` for JDBC driver → Solved by adding MySQL connector `.jar` to classpath.
- `SQLIntegrityConstraintViolationException` → Handled by refining schema and constraints.
- `Plugin caching_sha2_password could not be loaded` → Resolved by switching to the correct MySQL 8.0 client.
- Environment setup issues → Fixed by configuring PATH variables and using MySQL Workbench.

9. 🚀 Future Enhancements

- Add customer login and menu viewing features
- Implement a web interface using Spring Boot or JSP/Servlets
- Add feedback and rating system for meals
- Weekly menu planner and analytics dashboard
- Deploy the system online using a cloud database

10. ✅ Conclusion

This project provided hands-on experience in backend development using Java and MySQL. It strengthened skills in database design, JDBC integration, and system architecture. The Mess Management System is a scalable foundation for future enhancements and real-world deployment.