**Tutor Management System: Complete Design Document**

**Overview**

**The Tutor Management System (TMS) is a robust platform tailored for solo tutors to efficiently handle their classes, students, schedules, and finances. This document provides a detailed breakdown of the database schema, process flows, user workflows, UI designs, security framework, and future enhancement strategies for the TMS.**

**Database Schema**

**Key Tables**

1. **Users**
   * **Fields: user\_id, name, email, password, role (admin, student), contact\_info.**
2. **Classes**
   * **Fields: class\_id, class\_name, subject, description, start\_date, end\_date, schedule, capacity, fee, status (active/inactive).**
3. **Enrollments**
   * **Fields: enrollment\_id, student\_id, class\_id, enrollment\_date, status (active/dropped).**
4. **Attendance**
   * **Fields: attendance\_id, class\_id, student\_id, date, status (present/absent).**
5. **Payments**
   * **Fields: payment\_id, student\_id, class\_id, amount, status (paid/pending), due\_date.**
6. **Materials**
   * **Fields: material\_id, class\_id, file\_name, file\_path, access\_rules.**
7. **Notifications**
   * **Fields: notification\_id, user\_id, message, type, date\_sent, read\_status.**

**Process Flow**

1. **Class Creation**
   * **Input class details → Define schedule and fees → Upload resources → Publish class → Notify students.**
2. **Student Enrollment**
   * **Add student manually or via online form → Assign to class → Confirm enrollment → Send welcome notification.**
3. **Attendance Management**
   * **Tutor marks attendance → System updates records → Generate reports → Notify absent students.**
4. **Payment Tracking**
   * **Generate invoices → Send payment reminders → Update payment status → Generate financial reports.**
5. **Learning Materials**
   * **Upload files → Set access rules → Notify enrolled students → Track downloads.**

**User Workflows**

**Tutor Workflow**

1. **Login → Access dashboard.**
2. **Create/manage classes.**
3. **Upload materials.**
4. **Monitor attendance and payments.**
5. **Communicate with students.**

**Student Workflow**

1. **Login → View enrolled classes.**
2. **Download materials.**
3. **Track attendance and payments.**
4. **Communicate with tutor.**

**UI Designs**

**Key Screens**

1. **Dashboard**
   * **Overview of classes, schedules, and payments.**
2. **Class Management**
   * **Form for creating/updating classes.**
3. **Student Profiles**
   * **View student details, enrollment history, and payments.**
4. **Attendance Tracker**
   * **Calendar view with attendance status.**
5. **Payment Dashboard**
   * **List of invoices, payment statuses, and reminders.**

**Security Design**

1. **Authentication**
   * **Secure login with two-factor authentication.**
2. **Authorization**
   * **Role-based access control for tutors and students.**
3. **Data Protection**
   * **Encrypt sensitive data (e.g., passwords, payment details).**
4. **Backup System**
   * **Automated daily backups to prevent data loss.**

**Future Enhancements**

1. **AI Recommendations**
   * **Personalized study plans and performance insights.**
2. **Gamification**
   * **Reward students for attendance and participation.**
3. **Online Classes**
   * **Integrate with video conferencing platforms (e.g., Zoom).**
4. **Multi-Language Support**
   * **Localize system UI for broader accessibility.**
5. **Mobile App**
   * **Dedicated app for tutors and students.**

**Conclusion**

**The Tutor Management System combines efficiency, usability, and scalability, empowering tutors to focus on teaching while the system handles administrative tasks. By following this comprehensive design document, the TMS will meet user needs and set the foundation for future growth.**