Software Requirements Specification (SRS)

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1. Introduction

1.1 Scope

The **Admin Portal** is a key component of an educational platform, offering a structured system for **student and teacher management, attendance tracking, performance analytics, communication, and data security**. It includes:

- Dashboards

- Reports

- Notifications

- Role-based access

1.2 Stakeholders

👤 **Administrators**: Manage data, attendance, curriculum, and performance. 👨‍🏫 **Teachers**: Handle student queries, assignments, attendance, and course management. 🎓 **Students**: Access attendance, results, announcements, and queries. 🛠 **Development Team**: Design, develop, and maintain the system.

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2. Functional Requirements

2.1 User Authentication

✔ Secure login with **role-based access control**. ✔ Teachers manage subjects & student interactions. ✔ Admins access system-wide data.

2.2 Student Management

📊 **Student Overview Dashboard:**

- Student count per campus.

- Academic performance & fines tracking.

- Attendance monitoring.

🔍 **Student Search & Filter:**

- Search by **name, ID, enrollment date, and attendance**.

📝 **Student Profile Page:**

- **Personal details, enrolled subjects, attendance history, results, fines, and queries.**

- **Bulk Student Upload:** CSV or Excel upload.

2.3 Teacher Management

📌 **Teacher Dashboard:** Displays **teacher count, subjects, performance, and login status**. 📖 **Teacher Profile Page:** Personal details, subjects, student performance, feedback. 📊 **Teacher Attendance Management:** View and export teacher attendance reports.

2.4 Subjects & Curriculum

📌 **Subject Dashboard:** Lists all subjects, assigned teachers, student count. 📈 **Performance Analysis:** Visual reports of subject trends. 📖 **Curriculum Management:** Add/update/delete subjects.

2.5 Attendance Management

✅ **General Attendance Dashboard:** Tracks attendance across campuses. 📋 **Daily Attendance Details:** Admins can mark absences. 📚 **Classroom-wise Attendance:** Filter by class, subject, instructor. 📊 **Custom Reports:** Export PDF/Excel attendance reports.

2.6 Performance Analytics

📊 **Campus-Wise Performance:** Graphs display trends. 📉 **Daily Attendance Analysis:** Absentee patterns. 📈 **Subject Performance Analytics:** Subject-wise reports.

2.7 Results Management

📝 **Results Dashboard:** Displays campus-wide results. 📊 **Analysis by Gender, Campus, Subject** 📤 **Export Reports:** Includes attendance & performance.

2.8 Communication & Notifications

📢 **Announcements:** Linked to the academic calendar. 📩 **Student Queries:** Ticketing system for queries. 🔔 **Push Notifications:** Auto-reminders for **exams, fees, attendance issues**.

2.9 Fee Management

🪙 **Fine Management:** Admins impose/waive fines. 🧾 **Payment History:** Transaction tracking and export.

2.10 Student Registration & Enrollment

📝 **New Student Registration:** Manual or bulk upload. 📚 **Subject Enrollment:** Admin approval required.

2.11 Calendar & Scheduling

📅 **Academic Calendar:** Manage **events, exams, holidays**. 📆 **Event Scheduling:** Notifications for workshops, lectures, exams.

2.12 Data Management

📤 **Bulk Data Export/Import:** Students, teachers, results, fines. 🔒 **Security & Backup:** Regular backups, access control.

2.13 Security & User Management

🔑 **Multi-level User Roles:** Super Admin, Campus Admin, Teacher, Support Staff. 📜 **Audit Trails:** Tracks admin/staff activities.

2.14 Alumni Management

🎓 **Alumni Directory:** Graduate details & career progress. 📅 **Alumni Events:** Meet-ups & networking events.

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3. Teacher Portal Features

📌 **Dashboard:** Assigned subjects, student queries, notifications. 📤 **Student Queries:** View & respond. 📚 **Subject Management:** Assignments, performance, report cards. 📖 **Assignments:** Create, upload, track submissions. 📊 **Report Cards:** Generate, update, and view marks.

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4. Student Portal Features

📌 **Dashboard:** Quick links to Attendance, Results, Calendar, Announcements, Queries. 📊 **Attendance Section:** Subject-wise and overall percentage. 📜 **Results Section:** Assessment categorization, sorting, filtering. 📅 **Academic Calendar:** Monthly/event list view. 📢 **Announcements & Notifications:** Unread alerts. 📤 **Query System:** Submit and track queries.

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5. Additional Features

🤖 **AI Chatbot:** Assists with FAQs, schedules, fees, academic performance. 💬 **Live Messaging:** Real-time text, file sharing, group chats. 📡 **RFID-Based Attendance:** NFC scanners log attendance. 📊 **MOSS Integration:** Plagiarism detection for assignments. 🚗 **Carpooling System:** Organizes student/staff ride-sharing. 📌 **Project Milestones:** Academic project tracking.

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6. Tech Stack

📑 **Frontend:** React.js, Tailwind CSS/Bootstrap. 🛠 **Backend:** Python (Flask), JWT Authentication. 🗄 **Database:** MySQL, optimized queries. 🔗 **APIs & Integrations:** Twilio, Firebase, MOSS API, NFC SDK.

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7. Hardware Requirements

🔷 **NFC Scanners & Cards** 🔷 **Server Hardware:** Intel Xeon/AMD Ryzen, 16GB RAM, SSD storage, backup systems.

8. Security Features

🔐 **RSA Encryption:** Secure authentication & data transfer. 🔑 **Role-Based Access Control (RBAC):** Super Admin, Campus Admin, Teacher, Student. 📜 **Compliance:** GDPR, FERPA, audit logs, data backup policies.

9. Database Schema & Relationships

📊 **Complete Database Schema**

- **Tables:** Admin, Alternative_Rfid, Assessments, Bunk, Calls, Campus, CampusAdmin, DM, Employee_Attendance, Exam_Submissions, Exams, General_Attendance, GroupMembers, Groups, Messages, Stories, StudentFees, Students, Subject_Attendance, Subjects, Subjects_Enrolled, Teachers, UserData, Users, assessments_marks, employee, quiz_marks, quizzes.

- **Relationships:** Proper linkage between Students, Teachers, Subjects, Attendance, Results, Fees, Assessments, and Exams to ensure data consistency.

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