## ****Software Requirements Specification (SRS) for School Management System****

### ****1. Introduction****

#### **1.1 Purpose**

The purpose of this document is to define the requirements, functionalities, and objectives of the School Management System (SMS). The SMS is designed to enhance school operations by streamlining administrative tasks, improving communication, and offering a better learning experience. It will be sold to multiple schools, each operating independently.

#### **1.2 Scope**

The SMS provides the following features:

* **Student Management**: Add students via CSV or manual entry.
* **Payroll and Fees Management**: Automate fee generation, payment tracking, and staff payroll.
* **Attendance Management**: Track attendance and generate analytics.
* **Grades Management**: Enable grading, analysis, and reporting.
* **Role-Based Access**: Different modules for Admins, Teachers, and Students.
* **AI Features**: Predictive analytics, automated grading, personalized learning recommendations, and attendance anomaly detection.
* **Parent Communication**: Notifications and fee challans sent via WhatsApp and SMS.
* **Google Classroom-like Features**: Teachers can upload course materials, quizzes, and assignments; students can view resources and submit work.
* **Event Management**: Schedule and manage events, meetings, and holidays.
* **Gamification**: Earn badges for assignments, attendance, and achievements.

#### **1.3 Definitions, Acronyms, and Abbreviations**

* **CSV**: Comma-Separated Values
* **AI**: Artificial Intelligence
* **SMS**: School Management System
* **Challan**: Fee payment document for parents
* **Admin**: School administrator with system-wide access

### ****2. Overall Description****

#### **2.1 Product Perspective**

The SMS is a web-based platform supporting cloud-based and on-premise deployment. It integrates seamlessly with third-party tools like WhatsApp and online payment gateways, providing a modern, scalable solution for school management.

#### **2.2 Product Features**

1. **Student Management**
   * Add, edit, and remove student profiles.
   * Bulk student uploads via CSV.
   * Filter and search students by class, subject, or grade.
2. **Payroll and Fees Management**
   * Generate and distribute student fee challans via WhatsApp.
   * Automate reminders for pending fees.
   * Configure staff payroll structures with detailed reporting.
3. **Attendance Management**
   * Record daily attendance.
   * AI-driven notifications for irregular attendance patterns.
   * Generate reports for teachers, admins, and parents.
4. **Grades Management**
   * Input, analyze, and view grades for quizzes, assignments, and exams.
   * Provide performance insights across all subjects.
5. **Teacher Module**
   * Upload course materials (PDFs, videos, etc.).
   * Create and manage assignments and quizzes.
   * View and analyze student submissions.
6. **Student Dashboard**
   * View marks, attendance, and performance insights.
   * Access fee challans and payment records.
   * Submit assignments and quizzes.
7. **AI Features**
   * Predictive analytics for identifying students at risk.
   * Automated grading for multiple-choice and structured assignments.
   * Personalized learning paths and recommendations.
   * Smart chatbots to assist students and parents.
8. **Communication and Notifications**
   * Bulk announcements to parents and students.
   * Automated WhatsApp notifications for fees, events, and assignments.
9. **Event Management**
   * Schedule and track school events, meetings, and holidays.
   * Automatic reminders for upcoming events.
10. **Gamification**
    * Badges and leaderboards for academic and extracurricular achievements.

#### **2.3 User Classes and Characteristics**

1. **Admin**
   * Manages students, teachers, fees, and events.
   * Accesses detailed analytics for grades, attendance, and finances.
2. **Teacher**
   * Uploads materials, assigns quizzes, and evaluates submissions.
   * Tracks attendance and grades for assigned students.
3. **Student**
   * Accesses academic records, materials, and notifications.
   * Submits quizzes and assignments.

### ****3. Functional Requirements****

#### **3.1 Admin Functionalities**

* Add/edit/remove users and students.
* Filter students by class or subject.
* View financial reports and payment statuses.

#### **3.2 Teacher Functionalities**

* Upload learning materials and create quizzes.
* Analyze student performance and attendance.

#### **3.3 Student Functionalities**

* Access materials, grades, attendance records, and fee challans.
* Participate in quizzes and assignments.

### ****4. Non-Functional Requirements****

#### **4.1 Performance Requirements**

* Support up to 10,000 concurrent users with no noticeable delay.
* Process transactions within 2 seconds.

#### **4.2 Security Requirements**

* Multi-factor authentication for admin and teachers.
* End-to-end encryption for sensitive data like fees and grades.

#### **4.3 Usability Requirements**

* Responsive design for mobile and desktop.
* Compliant with accessibility standards (e.g., WCAG).

### ****5. Appendices****

* **CSV Templates**: Sample formats for bulk student uploads.
* **UI Mockups**: Visual references for dashboards.
* **Third-Party Integrations**: WhatsApp API, payment gateways, and cloud services.