Software Requirements Specification (SRS) for Vartsy School Management System

# 1. Introduction

## 1.1 Purpose

The Vartsy School Management System aims to streamline school operations by providing an integrated platform for managing academic, administrative, and financial activities. This document outlines the functional and non-functional requirements for a hybrid system consisting of both web-based and desktop-based platforms. The system will enhance efficiency, accessibility, and transparency for school administrators, teachers, students, and parents.

## 1.2 Scope

The system will serve as a comprehensive solution for managing various aspects of a school’s operations. It includes features like user management, academic management, communication modules, fee and finance management, library management, and more. The system will support both online and offline functionalities, ensuring seamless operation even in areas with limited internet connectivity.

## 1.3 Audience

This document is intended for:

* Development team
* Quality assurance team
* School administrators and stakeholders
* End-users (teachers, students, and parents)

## 1.4 Definitions, Acronyms, and Abbreviations

* **SIS**: Student Information System
* **UAT**: User Acceptance Testing
* **Role-based Access Control (RBAC)**: A method of regulating access based on user roles

## 1.5 Overview

This document describes the system’s functionalities, design constraints, and technical requirements. It also outlines both the web-based and offline (desktop) versions of the system.

# 2. Overall Description

## 2.1 System Overview

The Vartsy School Management System is a hybrid solution designed to manage user profiles, academic records, communication, fees, and library resources. The web-based platform offers real-time data access and management, while the offline desktop version ensures continuity in areas with limited internet.

## 2.2 User Classes and Characteristics

* **Administrators**: Full access to all system functionalities, including user and system management.
* **Teachers**: Limited access to manage academic records, attendance, grades, and communication.
* **Parents**: Access to their child’s academic and fee records.
* **Students**: Access to assignments, resources, and grades.

## 2.3 Design Constraints

* Cross-platform compatibility (Windows, macOS, and modern web browsers).
* Seamless offline-to-online data synchronization.

# 3. Functional Requirements

## 3.1 Essential Features (Web-Based)

### 3.1.1 User Management

* User registration and login (with role-based dashboards).
* Profile management for students, teachers, and parents.
* Attendance tracking.

## 3.1.2 Academic Management

* Class and course management.
* Timetable scheduling.
* Grade management and report cards.

## 3.1.3 Communication Module

* Notifications via email or SMS for important updates.
* Messaging between parents, teachers, and students.

## 3.1.4 Fee and Finance Management

* Online fee payment and tracking.
* Scholarship and financial aid tracking.

## 3.1.5 Library Management

* Book cataloging and borrowing system.
* Digital library integration for e-books and academic resources.

## 3.1.6 Examination Management

* Online exam creation and grading.
* Result analysis and report generation.

## 3.1.7 Event and Activity Management

* Calendar integration for tracking school events and holidays.
* Clubs and extracurricular activity management.

## 3.1.8 Parent Portal

* Access to child’s academic records, attendance, and fee status.
* Communication with teachers.

## 3.1.9 Staff Management

* Payroll management for teaching and non-teaching staff.
* Leave and attendance tracking.

## 3.1.10 Student Portal

* Assignment submissions and progress tracking.
* Access to lecture notes and other resources.

## 3.1.11 Administrative Dashboard

* Visualizations for key metrics (e.g., attendance rates, fee collection).
* Bulk actions for student/staff management.

## 3.2 Optional Advanced Features (Web-Based)

* AI-Powered Analytics: Insights on student performance trends and dropout risk prediction.
* Mobile Application: A dedicated app for real-time notifications and easier access.
* API Support: Allow third-party integrations with other platforms.
* Multi-School Support: Manage multiple schools or campuses under one system.
* Visitor and Inventory Management: Track campus visitors and manage school assets.

## 3.3 Offline Version: School Management System (Desktop)

### 3.3.1 User Authentication and Management

* Offline login and registration for Teacher and Admin roles only.
* Role-based access to ensure restricted permissions.

## 3.3.2 Academic Management

* Offline creation and editing of courses and timetables.
* Input and update of grades and report cards.

## 3.3.3 Fee and Financial Management

* Offline fee tracking and payment recording.

## 3.3.4 Library Management

* Offline resource cataloging and checkout records.

## 3.3.5 Data Synchronization

* Sync offline data (grades, courses, fee payments, library records) with the online system when internet is available.
* Handle conflicts and errors during synchronization.

# 4. Non-Functional Requirements

## 4.1 Performance Requirements

* The web system should support at least 1,000 concurrent users.
* The desktop system should load within 5 seconds on modern hardware.

## 4.2 Security Requirements

* User authentication with encrypted passwords.
* Role-based access control to ensure data privacy.
* Regular security audits for the web application.

## 4.3 Usability Requirements

* Intuitive UI/UX for both web and desktop platforms.
* Multilingual support for diverse user bases.

## 4.4 Availability

* Web system: 99.9% uptime.
* Desktop system: Always available offline.

# 5. System Models

## 5.1 Data Flow Diagram (DFD)

**Level 0:** Represents the overall system interacting with users and databases.

**Level 1:** Breaks down into subsystems like User Management, Academic Management, Fee Management, and Library Management.

## 5.2 Entity-Relationship Diagram (ERD)

Depicts the relationships between the main entities, including users (admins, teachers, students, and parents), courses, fees, library resources, and exams.

# 6. Appendices

## 6.1 Assumptions and Dependencies

* The system assumes internet connectivity for online features.
* External APIs (e.g., SMS or payment gateways) are available and functional.

## 6.2 References

* Academic management guidelines.
* Best practices for school management systems.

This document provides the framework for the development and implementation of the Vartsy School Management System. Let me know if you would like to dive deeper into specific sections or need additional features, diagrams, or workflows.