Software Requirements Specification (SRS)

Project: dsaf

Version: 1.0

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# 1. Introduction

## 1.1 Purpose

To streamline attendance recording and improve classroom management.

## 1.2 Scope

- attendance tracking

- reporting

## 1.3 Intended Audience

- students

- faculty

# 2. System Overview

An application for tracking student attendance in classrooms.

# 3. Functional Requirements

## 3.1 User Authentication [0]

**Description:**

The application should allow authorized users (teachers, administrators) to log in securely.

**Priority:**

High

**Subtasks:**

- Implement user registration functionality for teachers and administrators.

- Design and implement a secure password management system.

- Integrate a robust authentication mechanism (e.g., JWT) for user sessions.

- Enforce role-based access control to restrict access to sensitive features.

## 3.2 Student Registration [1]

**Description:**

The application should allow teachers or administrators to register new students.

**Priority:**

High

**Subtasks:**

- Implement user authentication to verify teacher/administrator access.

- Design a registration form with fields for student details.

- Store student data securely in a database.

- Generate unique student IDs automatically.

## 3.3 Attendance Marking [2]

**Description:**

Teachers should be able to mark attendance for students in each class session.

**Priority:**

High

**Subtasks:**

- Display a list of enrolled students for the current class session.

- Provide options to mark attendance as present, absent, or late.

- Allow teachers to add comments for individual students.

- Store attendance records with timestamps.

- Generate reports on student attendance.

## 3.4 Attendance Reporting [3]

**Description:**

The application should generate reports on student attendance, including daily, weekly, and monthly summaries.

**Priority:**

High

**Subtasks:**

- Generate daily attendance reports listing students present, absent, and tardy.

- Generate weekly attendance reports summarizing attendance for each day of the week.

- Generate monthly attendance reports summarizing attendance for each day of the month.

## 3.5 Attendance Analysis [4]

**Description:**

The application should provide analytics on student attendance patterns and trends.

**Priority:**

High

**Subtasks:**

- Calculate overall attendance percentage for each student.

- Identify attendance streaks (consecutive days present/absent).

- Visualize attendance data using charts and graphs.

- Generate reports on attendance by class, subject, or teacher.

## 3.6 Role-Based Access Control [5]

**Description:**

Different user roles (teachers, administrators, parents) should have appropriate access permissions to the application.

**Priority:**

High

**Subtasks:**

- Define user roles (Teacher, Administrator, Parent)

- Establish access permissions for each role (view attendance, edit attendance, manage users)

- Implement role-based authentication and authorization

- Integrate role management functionality for administrators

## 3.7 Data Backup and Recovery [6]

**Description:**

The application should have mechanisms for backing up and restoring attendance data.

**Priority:**

High

**Subtasks:**

- Implement a scheduled data backup system

- Allow manual data backup initiation

- Store backups securely and off-site

- Develop a data restoration process

- Ensure data integrity during backup and restore operations

## 3.8 Notifications [7]

**Description:**

The application should send notifications to teachers and parents regarding student attendance.

**Priority:**

High

**Subtasks:**

- Implement notification system for attendance updates to teachers via email.

- Implement notification system for attendance updates to parents via SMS.

## 3.9 Integration with Learning Management System (LMS) [8]

**Description:**

The application should optionally integrate with existing LMS systems.

**Priority:**

High

**Subtasks:**

- Establish API endpoints for data exchange with LMS

- Implement authentication and authorization for LMS integration

- Synchronize student attendance data between the application and LMS

- Allow users to configure LMS connection settings

# 4. Non-Functional Requirements

**NFR1**: The application should be reliable and ensure accurate attendance records.

**NFR2**: The application should be user-friendly and easy to navigate for teachers.

**NFR3**: The application should be secure and protect student data privacy.

**NFR4**: The application should be accessible from various devices (e.g., desktops, tablets, smartphones).

**NFR5**: The application should allow for efficient reporting and analysis of attendance data.