Software Requirements Analysis (SRA) for a simple Student Management System.

1. Introduction

1.1 Purpose:

This document outlines the requirements for a simple Student Management System (SMS).

It serves as a guide for developers, testers, and stakeholders to understand the system's functionalities and constraints.

1.2 Scope:

This SMS will manage basic student information, course enrollment, and grade tracking.

It is intended for small educational institutions or individual instructors.

1.3 Definitions, Acronyms, and Abbreviations:

SMS: Student Management System

ID: Identification

GPA: Grade Point Average

2. Overall Description

2.1 Product Perspective:

The SMS will be a standalone web or desktop application.

It will provide a user-friendly interface for managing student data.

2.2 Product Functions:

Student data management (add, edit, delete, view).

Course data management (add, edit, delete, view).

Enrollment management (enroll students in courses).

Grade management (record and view student grades).

Generate basic reports (student lists, grade reports).

2.3 User Classes and Characteristics:

Administrator: Manages all system functions, including student, course, and user data.

Teacher/Instructor: Manages course enrollment and grades.

Student/parent: Can view their own information, enrolled courses, and grades.

2.4 Operating Environment:

Web-based: Compatible with modern web browsers (Chrome, Firefox, Edge).

Desktop: Windows, macOS, or Linux.

Database: MySQL and SQLite.

2.5 Design and Implementation Constraints:

Simplicity and ease of use are prioritized.

Security measures to protect student data.

Responsive design for web based application.

2.6 User Documentation:

A simple user manual will be provided.

3. Specific Requirements

3.1 Functional Requirements:

3.1.1 Student Management:

FR1: The system shall allow administrators to add new student records, including name, ID, date of birth, address, and contact information.

FR2: The system shall allow administrators to edit existing student records.

FR3: The system shall allow administrators to delete student records.

FR4: The system shall allow administrators and teachers to view student records.

FR5: The system shall allow students to view their own records.

3.1.2 Course Management:

FR6: The system shall allow administrators to add new course records, including course name, course ID, and description.

FR7: The system shall allow administrators to edit existing course records.

FR8: The system shall allow administrators to delete course records.

FR9: The system shall allow administrators and teachers to view course records.

3.1.3 Enrollment Management:

FR10: The system shall allow administrators and teachers to enroll students in courses.

FR11: The system shall allow administrators and teachers to remove students from courses.

FR12: The system shall allow students to view their enrolled courses.

3.1.4 Grade Management:

FR13: The system shall allow teachers to record student grades for enrolled courses.

FR14: The system shall allow teachers to edit and delete student grades.

FR15: The system shall allow students to view their grades.

FR16: The system shall calculate and display a student's GPA.

3.1.5 Reporting:

FR17: The system shall generate a report of all students.

FR18: The system shall generate a grade report for a specific student.

FR19: The system shall generate a report of all students enrolled in a specific course.

3.1.6 User Management:

FR20: The system shall allow administrators to add, edit, and delete user accounts.

FR21: The system shall allow administrators to assign user roles (administrator, teacher, student).

FR22: The system shall require user authentication (login) to access the system.

3.2 Non-Functional Requirements:

3.2.1 Performance Requirements:

NFR1: The system shall respond to user requests within 2 seconds.

NFR2: The system shall be able to handle up to 100 concurrent users.

3.2.2 Security Requirements:

NFR3: The system shall protect student data from unauthorized access.

NFR4: The system shall use secure password storage.

NFR5: The system shall implement user role-based access control.

3.2.3 Usability Requirements:

NFR6: The system shall have a user-friendly interface.

NFR7: The system shall provide clear and concise error messages.

3.2.4 Reliability Requirements:

NFR8: The system shall be available 99% of the time.

NFR9: The system shall have robust data backup and recovery mechanisms.

4. External Interface Requirements

4.1 User Interfaces:

Web-based graphical user interface.

4.2 Hardware Interfaces:

Standard PC hardware (monitor, keyboard, mouse,).

4.3 Software Interfaces:

Web browser (if web-based).

Database management system (MySQL, SQLite).

5. Other Nonfunctional Requirements

5.1 Data Requirements:

Student data should be stored in a structured format.

Course data should be stored in a structured format.

Grade data should be stored in a structured format.

This SRA provides a solid foundation for developing a simple Student Management System. Remember that this is a starting point, and you can add more detailed requirements based on specific needs.