**Requirement Analysis and Gathering for Student Management System Project**

**1. Purpose**

**The purpose of the Student Management System is to provide educational institutions with a digital solution for managing student-related tasks. It will streamline administrative operations such as student enrollment, attendance tracking, grade monitoring, and generating reports, improving efficiency and reducing errors.**

**2. Stakeholders**

* **Administrators: Responsible for managing student data, generating reports, and overseeing the overall system.**
* **Teachers: Will input student attendance, grades, and academic data into the system.**
* **Students: Will access their records, grades, and attendance through the system.**
* **Parents: Can monitor their child's academic progress and attendance.**
* **Support Staff: Handle user queries, system maintenance, and backups.**

**3. Functional Requirements**

**The system should support the following features:**

* **Student Enrollment**
  + **Admin can add new students to the system.**
  + **Ability to assign classes, programs, and personal details (name, date of birth, contact info).**
* **Student Records Management**
  + **Admin can update student details.**
  + **Maintain a comprehensive record of students (personal details, academic performance, etc.).**
* **Attendance Tracking**
  + **Teachers can mark daily attendance.**
  + **Admin can view attendance reports for each student.**
* **Grade Monitoring**
  + **Teachers can record grades for assignments, exams, etc.**
  + **Students can view their grades online.**
  + **Admin can generate grade reports.**
* **Timetable Management**
  + **Admin can set and update class timetables.**
  + **Teachers and students can view timetables.**
* **Reporting**
  + **Admin can generate detailed reports (attendance, academic performance, overall progress).**
  + **Option to export reports (CSV, PDF, Excel).**
* **User Authentication and Authorization**
  + **Admin, teachers, students, and parents will have different access levels.**
  + **Secure login with role-based access control.**
* **Notifications and Alerts**
  + **Send notifications to students and parents regarding attendance, grades, etc.**
  + **Automated email/SMS alerts for specific events (e.g., poor attendance, low grades).**
* **Calendar Integration**
  + **Integration with Google Calendar for scheduling important events like exams, parent-teacher meetings, etc.**
* **Search and Filter**
  + **Allow searching by student name, grade, or attendance.**
  + **Filter attendance records by date, student, and subject.**

**4. Non-Functional Requirements**

* **Performance: The system should handle large amounts of data without noticeable delays.**
* **Scalability: It should support an increasing number of students, classes, and records.**
* **Security: The system should have strong authentication mechanisms, secure data storage, and encryption for sensitive information.**
* **Usability: The interface should be intuitive and user-friendly for all stakeholders.**
* **Availability: The system should be available 24/7 with minimal downtime.**

**5. System Design Requirements**

* **Platform: The application will be web-based, accessible from various devices (PCs, tablets, and smartphones).**
* **Database: The system will require a relational database (MySQL) to store student data, grades, attendance, etc.**
* **Programming Language: Java for backend development.**
* **Frontend: Basic UI design using possibly HTML, CSS and JavaSwing.**
* **API Integration: Integration with Google Calendar API for event scheduling.**

**6. Constraints**

* **Budget: The development should be done within a student budget (free tools and resources).**
* **Timeline: Must be completed within the timeframe allocated for the project.**
* **Technology Limitations: The system will be designed using free or open-source tools and technologies.**

**7. Future Enhancements**

* **Mobile App: In the future, the system could be enhanced with a mobile app for easy access.**
* **Advanced Analytics: Incorporate data analytics for performance analysis and trends.**
* **Parent-Teacher Communication: Integration for direct messaging between parents and teachers.**

**This requirement analysis will form the basis for the system’s design and implementation, ensuring that all user needs are met while providing flexibility for future enhancements.**

**1.User & Role Management**

Student Management System

Here are some core features of our “Student Management System project”.

* **Add, Edit, Delete Users** (Students, Teachers, Staff)
* **Assign Roles & Permissions** (Admin, Teacher, Student)

**2.Student & Teacher Management**

* **Enroll New Students**
* **Edit Student & Teacher Profiles**
* **Assign Teachers to Classes & Subjects**
* **Suspend or Remove Users**

**3.Attendance & Schedule Management**

* **Monitor Attendance Records**
* **Modify Attendance Entries** (if needed)
* **Create & Manage Class Timetables**

**4.Performance & Reports**

* **Generate Attendance Reports**
* **View Student & Teacher Performance Analytics**
* **Export Data (Excel, PDF)**

**5.Course & Subject Management**

* **Add, Edit, Remove Courses & Subjects**
* **Assign Teachers to Subjects**
* **Manage Class Sections & Batches**

**6.Fee & Payment Management (Optional)**

* **Track Student Fee Payments**
* **Generate Invoices & Receipts**
* **Send Payment Reminders**

**7.Announcements & Notifications**

* **Send Notices to Students & Teachers**
* **Manage Exam Schedules & Events**
* **System Alerts (e.g., fee due, attendance issues)**