**Functional and Non-functional Requirements for online school management System**

**Functional Requirements**

Functional requirements specify what the system should do.

1. **User Management**
   * **Student Registration and Enrollment**: Allow students to register and enroll in courses.
   * **Teacher Profiles**: Teachers can create and manage their profiles.
   * **Parent Accounts**: Parents can create accounts and monitor their children's progress.
   * **Administrative Roles**: Different administrative roles like Principal, Head of Departments, etc., with respective permissions.
2. **Course Management**
   * **Course Creation**: Teachers can create and manage courses.
   * **Curriculum Planning**: Support for curriculum creation and updates.
   * **Assignment Submission**: Students can submit assignments online.
   * **Grades Management**: Teachers can assign grades to students.
3. **Timetable Management**
   * **Class Scheduling**: Create and manage class schedules.
   * **Room Allocation**: Assign rooms to classes and manage room availability.
   * **Exam Scheduling**: Schedule exams and manage time slots.
4. **Attendance Management**
   * **Student Attendance**: Teachers can mark student attendance.
   * **Automated Attendance Reports**: Generate reports based on attendance data.
5. **Communication Tools**
   * **Messaging System**: Internal messaging between students, teachers, and parents.
   * **Announcements**: Admins can post announcements viewable by all users.
   * **Notifications**: Email and SMS notifications for important updates.
6. **Fee Management**
   * **Fee Structure Setup**: Admins can set up and manage fee structures.
   * **Online Payment**: Support for online payment of fees.
   * **Receipt Generation**: Generate receipts for payments made.
7. **Library Management**
   * **Book Catalog**: Manage an online catalog of books.
   * **Book Issuing/Returning**: Students and staff can issue and return books online.
   * **Late Fee Calculation**: Automatic calculation of late fees.
8. **Reports and Analytics**
   * **Performance Reports**: Generate student performance reports.
   * **Attendance Reports**: Generate attendance-related reports.
   * **Fee Reports**: View and generate reports on fee payments and dues.
9. **Security and Access Control**
   * **Role-Based Access Control**: Ensure users have access only to the information they are permitted to see.
   * **Data Encryption**: Encrypt sensitive data like passwords and payment information.
   * **Audit Logs**: Maintain logs of user activity for security purposes.

**Non-Functional Requirements**

Non-functional requirements specify how the system performs a specific function.

1. **Performance**
   * **Scalability**: The system should handle a growing number of users and data without performance degradation.
   * **Response Time**: The system should respond to user actions within 2-3 seconds.
2. **Usability**
   * **User-Friendly Interface**: The system should be easy to navigate with minimal training.
   * **Accessibility**: Compliant with accessibility standards (e.g., WCAG) to support users with disabilities.
3. **Reliability**
   * **Availability**: The system should be available 99.9% of the time.
   * **Backup and Recovery**: Regular backups and a robust disaster recovery plan should be in place.
4. **Security**
   * **Data Protection**: Ensure compliance with data protection regulations like GDPR.
   * **User Authentication**: Implement multi-factor authentication (MFA) for added security.
   * **Regular Security Audits**: Periodic security audits to identify and fix vulnerabilities.
5. **Maintainability**
   * **Modular Design**: The system should be designed in a modular way to facilitate easy updates and maintenance.
   * **Documentation**: Comprehensive documentation should be provided for developers and users.
6. **Interoperability**
   * **API Integration**: The system should provide APIs for integration with other systems (e.g., external LMS, payment gateways).
   * **Data Export/Import**: Support for exporting and importing data in standard formats (e.g., CSV, XML).
7. **Compliance**
   * **Regulatory Compliance**: The system should comply with educational regulations in the regions it operates.
   * **Audit Trails**: Maintain audit trails for actions related to financial transactions and academic records.
8. **Localization and Internationalization**
   * **Multi-Language Support**: The system should support multiple languages.
   * **Timezone Handling**: Correctly handle different time zones for international users.