Chapter-3: Design for Use, Reuse and Feasibility Study

3.1 STUDY OF CURRENT SYSTEM:

- The current school management system in place is a combination of manual processes and basic digital tools that aim to manage student information, attendance, grades, and communication between staff, students, and parents.

- However, it is fragmented and often leads to inefficiencies, errors, and a lack of centralized information.

- **Key Components:**

  ➢ **Student Enrollment and Records:**

    - Enrollment processes are primarily paper-based, requiring physical forms and manual data entry into spreadsheets or databases.

    - Student records, including academic history, health information, and emergency contacts, are maintained in separate files, leading to difficulties in accessing and updating information.

  ➢ **Attendance Management:**

    - Attendance is tracked manually by teachers using paper registers. This data is later entered into a digital system, which can lead to discrepancies.

    - Parents are notified of absences via email or phone calls, but there is no automated system to alert them in real-time.

  ➢ **Grade Management:**

    - Grades are recorded manually and communicated through report cards or parent-teacher meetings.

    - The process of calculating final grades and generating reports is time-consuming and prone to errors, affecting timely communication with parents.

➢ **Communication:**

- Communication between teachers, parents, and students primarily relies on emails, phone calls, and physical notices.

- There is no centralized platform for announcements, leading to missed information and confusion among stakeholders.

➢ **Financial Management:**

- Fee collection and tracking are handled through cash payments and manual record keeping.

- Parents receive invoices via mail or email, but there is no automated reminder system for overdue payments.

3.2 PROBLEM AND WEAKNESSES OF CURRENT SYSTEM:

- **Inefficiency**: Manual processes slow down operations and increase the likelihood of errors.

- **Lack of Integration:** Different departments use disparate systems, making it difficult to share information seamlessly.

- **Poor Communication:** Reliance on multiple channels for communication leads to missed messages and misunderstandings.

- **Limited Data Access:** Teachers and administrators often struggle to access the information they need quickly, hindering decision-making.

- **Fragmented Data Storage:** Inconsistent data storage leads to inefficiencies and errors.

- **Poor User Interface:** Difficult navigation and usability issues affect user experience.

- **Security Vulnerabilities:** Sensitive information is at risk of data breaches.

- **Inflexibility:** Unable to accommodate diverse needs of students, teachers, and administrators.

3.3 REQUIREMENTS OF NEW SYSTEM:

- School Management System needs to handle user authentication, attendance, fee management, communication tools, and grading. It must be secure, scalable, user-friendly, and reliable. Hardware should include servers, computers, and network infrastructure. Software requirements include web browsers, compatible operating systems, and database management systems.

3.3.1 USER CHARACTERISTICS:

➤ **Administrators:**

- Tech Skills: Generally, have good technical skills.
- Role: Manage school operations, user accounts, and reports.
- Needs: Require strong data management and reporting tools.

➤ **Teachers:**

- Tech Comfort: Familiar with technology but not highly technical.
- Role: Handle classes, grades, attendance, and communication.
- Needs: User-friendly tools for grading, attendance, and messaging.

➤ **Students:**

- Tech Savvy: Generally comfortable with digital tools.
- Role: Access study materials, submit work, and check grades.
- Needs: Easy navigation and access to grades and assignments.

➤ **Parents:**

- Varied Skills: Ranges from beginner to tech-savvy.
- Role: Monitor their child's progress and communicate with the school.
- Needs: Simple access to their child's information and notifications.

3.3.2   SYSTEM REQUIREMENTS:

- **Hardware:**

  - ➢ Servers for hosting the application.

  - ➢ Computers and tablets for users.

  - ➢ Network infrastructure for connectivity.

  - ➢ Backup storage devices for data redundancy.

- **Software:**

  - ➢ Web browsers for accessing the system.

  - ➢ Operating System compatible with the application.

  - ➢ Database management system for storing records.

  - ➢ Learning Management System (LMS) software.

  - ➢ Communication tools like email and messaging applications.

  - ➢ Antivirus and security software.

  - ➢ Data analytics tools for performance tracking.

3.3.3 FUNCTIONAL REQUIREMENTS:

- **User Management:** Create, update, and delete profiles for students, teachers, and administrators.

- **Attendance Management:** Log and track daily attendance with reports.

- **Grade Management:** Record, update, and display grades for students.

- **Communication Module:** Messaging or notification system for updates to students, parents, and teachers.

- **Report Generation:** Generate reports for attendance, grades, and other metrics.

- **Fee Management:** Processing fee payments and generating receipts.

- **Timetable Management:** Scheduling classes, exams, and school events.

- **Resource Management:** Tracking library books, lab equipment, and other school resources.

3.3.4 NON-FUNCTIONAL REQUIREMENTS:

- **Performance:** The system should load pages in less than 3 seconds for a smooth user experience.

- **Security:** Implement secure login with password encryption and user role management.

- **Scalability:** Support for expanding the database as the number of students, teachers, and data grows.

- **Backup and Recovery:** Regular backups of the database to prevent data loss in case of system failures.

- **Reliability:** System should be reliable and available with minimal downtime.

- **Maintainability:** Easy to update and maintain the system.

3.3.5 HARDWARE AND SOFTWARE REWUIREMENTS:

- **Hardware Requirements**

  ➢ **Server:**

    - Processor: Minimum 2.0 GHz or faster (Quad-core recommended)
    - RAM: 8 GB (16 GB recommended for better performance)
    - Hard Disk Space: Minimum of 500 GB available space
    - Network: Reliable internet connection for online access

  ➢ **Client Machines (for users such as teachers, students, and administrators):**

    - Processor: Minimum 1.8 GHz or faster
    - RAM: 4 GB (8 GB recommended)
    - Hard Disk Space: Minimum of 250 MB for application installation
    - Display: Monitor with a minimum resolution of 1280 x 720 pixels

- **Software Requirements**

  ➢ **Operating System:**

    - Windows 10 or later (for client machines)
    - Windows Server 2016 or later (for server)

  ➢ **Development Tools:**

    - Microsoft Visual Studio (latest version)
    - .NET Framework (latest version)

  ➢ **Database Management:**

    - Microsoft SQL Server (2016 or later) or any other preferred relational database management system (RDBMS)

  ➢ **Web Browser:**

    - Latest version of Chrome, Firefox, or Edge for accessing the web-based features of the SMS.

CHAPTER – 4: CONCLUSION AND FUTURE ENHANCEMENT

❖ CONCLUSION:

- **Improved Efficiency:** Automation of routine tasks, such as attendance management and report generation, has significantly reduced the time and effort required for administrative operations.

- **Data Accuracy and Security:** With the transition from manual to digital records, the system ensures greater accuracy in data handling and reduces the risk of data loss or manipulation. Additionally, access controls and authentication measures have strengthened data security.

- **Enhanced Communication:** The system facilitates better communication between students, teachers, and parents through integrated messaging and notification features, ensuring transparency and timely updates.

- **Scalability and Flexibility:** The system has been designed to accommodate future expansion, allowing the addition of new features as the institution grows. It is also flexible enough to be adapted to different types of schools and educational environments.

❖ FUTURE ENHANCEMENT:

- **AI Integration:** Integrate AI-powered features to automate administrative tasks, provide personalized learning recommendations for students, and enhance overall student support. AI analytics can help identify students needing additional help and predict academic outcomes.

- **Mobile App Development:** Develop a mobile application for students, teachers, and parents to access essential system features such as attendance, grades, notifications, and communication. This will enable more convenient and real-time interaction with the system on mobile devices.

- **Automated Alerts and Reminders:** Implement enhanced notification systems for automated reminders on important dates, assignment deadlines, attendance alerts, and upcoming events, ensuring better communication and time management.

- **Advanced Attendance Tracking:** Introduce biometric or RFID-based attendance tracking for accurate, real-time attendance updates and reduced manual errors, directly notifying parents and administrators.

- **Online Payment Gateway:** Integrate a payment gateway to allow online fee payments, making financial transactions easier for parents and streamlining the financial management process.

- **Learning Management System (LMS) Integration:** Incorporate LMS features for sharing course materials, conducting online exams, and tracking progress, providing a seamless digital classroom experience within the School Management System.

- **Customizable Reports:** Enable customizable reports for administrators and teachers to view and analyze specific metrics, enhancing data-driven decision-making and providing deeper insights.

- **Enhanced Security Features:** Improve data security with multi-factor authentication, encryption, and secure user management, especially for sensitive student and financial information.

- **Multi-Language Support:** Add multi-language options to cater to diverse user communities and improve accessibility for non-English-speaking users.

CHAPTER: 5 – References

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