NM1117- FULL STACK WITH JAVA

PROJECT TITLE: STUTENT ATTENDANCE AND RESULT MANAGEMENT SYSTEM

PROJECT CREATED BY:

PRAKASAM (310822104091)
SURESH K (310822104127)
SURYA PRAKASH C (310822104129)

OVERVIEW

- The Student Attendance and Result Management System is a web-based application.
- It is designed to simplify and automate academic record management.
- The system enables administrators and faculty to:
    - Record student attendance efficiently.
    - Manage student details in a structured way.
    - Maintain and update examination results in a centralized database.
- It helps reduce manual paperwork and human errors.
- The system ensures data accuracy and integrity.
- It allows quick retrieval of student information anytime, improving overall efficiency.

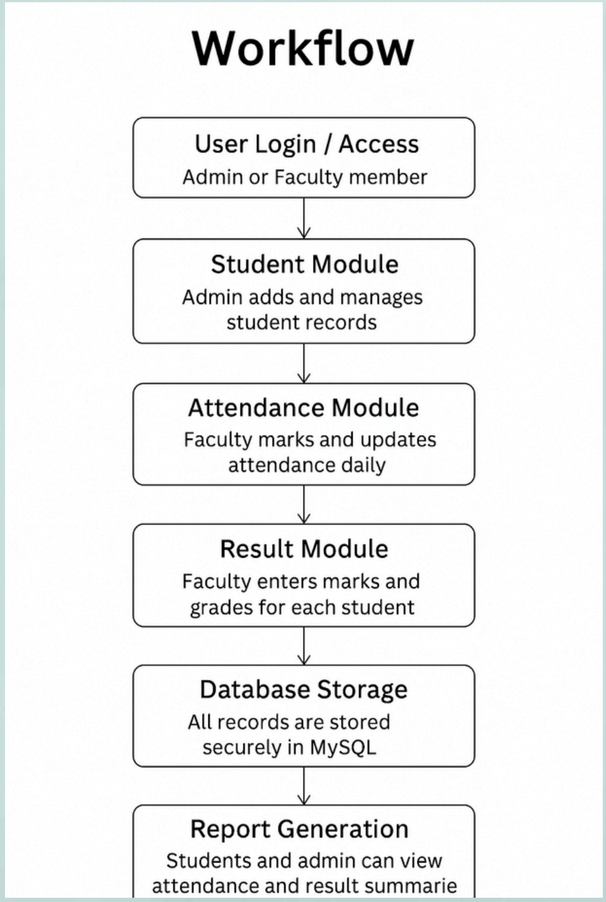
ABOUT THE PROJECT

- Replaces manual attendance and result recording with a digital system.
- Faculty can mark attendance, manage results, and view reports.
- Students can check attendance and academic performance online.
- Ensures secure, accessible, and analyzable academic data.

Modules:

- Student Management
- Attendance Management
- Result Management
- Admin Dashboard

WORKFLOW



- **User Login:** Admin or faculty logs in to access the system.
- **Student Module**: Admin manages student details.
- **Attendance Module:** Faculty marks and updates attendance daily.
- **Result Module:** Faculty adds marks and grades.
- **Database Storage:** All records saved securely in MySQL.
- **Report Generation:** Students and admin view attendance and results.
- **Flow**: Frontend → Backend (Spring Boot) → Database (MySQL).

TECHNOLOGY USED

- ***Frontend:*** HTML, CSS, JavaScript (or Thymeleaf if used)
- ***Backend:*** Java Spring Boot Framework
- ***Database:*** MySQL
- ***Server:*** Apache Tomcat (embedded in Spring Boot)
- ***IDE / Tools:*** Visual Studio Code, MySQL Workbench, Postman
- ***Build Tool:*** Maven

- The use of Spring Boot enables faster development with RESTful APIs and seamless database integration through JPA/Hibernate.

KEY CHALLENGES

- Ensuring data security and user authentication
- Integrating Spring Boot with MySQL smoothly
- Maintaining accurate attendance and result records
- Connecting frontend and backend via REST APIs
- Designing a simple, user-friendly interface
- Handling input validation and error control
- Generating accurate reports and summaries
- Managing performance with large student data
- Deploying and testing the system efficiently

CHALLENGES & SOLUTIONS

Challenge	Solution
Managing large sets of student data efficiently	Implemented optimized SQL queries and JPA Repository methods.
Ensuring secure data access	Used authentication and role-based access control.
Maintaining frontend-backend communication	Created RESTful APIs for smooth data exchange.
Keeping UI simple yet effective	Used responsive design with clean layouts.
Data consistency and validation	Added input validation in both frontend and backend.

PERFORMANCE ANALYSIS / OUTPUT

- Fast data processing using Spring Boot & MySQL
- Smooth CRUD operations with quick response time
- Efficient storage and retrieval of student records
- Accurate attendance and result generation
- Simple, user-friendly web interface
- Stable performance during multiple data entries
- Successfully displays and saves all records in database

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THANK YOU !!