**Research**

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| Question | Research |
| What are the main user roles in the Automated Attendance System and what can each role do? | The system has three main user roles:   * **Admin**: Manages user accounts, configures system settings, and accesses attendance reports. * **Instructor**: Scans student QR codes to record attendance and views attendance history. * **Student**: Receives a unique QR code and can view their personal attendance records. |
| What should be included in a high-level design document for a software project? | * System Overview * Architecture Diagram * Modules and Components * Data Flow / ER Diagrams * Technology Stack * Security Considerations * Scalability & Performance * Integration * Assumptions & Constraints * Conceptual Model * Use Case Diagram * Appendices |
| What technologies are used to build the Automated Attendance System? | * **Frontend**: React (Web) or React Native (Mobile) * **Backend**: Node.js * **Database**: MongoDB * **QR Code Generation -** QR code libraries like qrcode.js * **Authentication -** JWT (JSON Web Tokens) |
| How is a student’s attendance recorded in the system? | Each student is assigned a unique QR code linked to their ID. During class, the instructor uses a scanning device (mobile or webcam) to scan these QR codes. |
| How does the system generate and manage QR codes for students? | The **QR Code Generator Module** creates a unique QR code for each student upon registration. These codes are linked to student profiles and can be downloaded or printed through the student interface. Admins ensure codes are securely distributed and stored. |