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Project ID: 24

Project title: INVIGILATION DUTY AUTOMATION

Stack : LAMP STACK

Technical Components:

FRONT END	- HTML - CSS - JAVASCRIPT
BACK END	- LINUX - APACHE WEB SERVER - PHP WITH LARAVEL FRAMEWORK
DATABASE	MYSQL
API	RESTful API

PROBLEM STATEMENT : Automated Invigilation Duty Management System

Objective: Develop a web-based portal to automate the management and allocation of invigilation duties for faculty members during examinations. The portal must integrate with biometric systems and handle various scenarios related to duty assignments, monitoring, and notifications.

Requirements:

1. **Exam Portal Access:**
   - The portal should automatically open 15 minutes before the start of each examination.
   - Faculty members must authenticate via a biometric system (fingerprint) to confirm their presence in the office room.
   - Upon successful authentication, the system should display on the monitor whether the faculty member has invigilation duty or not.

2. **Duty Allocation:**
   - The system should allocate one faculty member for every 25 students, adjusting based on the number of students in each exam hall.
   - Faculty members with no invigilation duties should be informed of their status when they log in.

3. **Late Arrival & Penalty:**
   - The system should track the time of biometric authentication. If a faculty member fails to authenticate within the allotted time for collecting exam papers, it should automatically assign an extra invigilation duty as a penalty.
   - A notification email should be sent to the faculty member, informing them of their tardiness and the consequent extra invigilation duty.

4. **Alternative Faculty Assignment:**
   - If a faculty member leaves or fails to attend their duty, the system should automatically assign an alternative staff member to cover the invigilation.
   - The system should notify the newly assigned faculty member immediately via email and update the duty roster.

Project Flow

1. System Setup & Preparation:

- **Portal Initialization:** The exam portal will be initialized and accessible 15 minutes before the exam starts.
- **Biometric Integration:** A biometric device will be set up in the office room to register faculty presence.

2. Faculty Login & Verification:

- **Biometric Check:** Faculty members must scan their fingerprints to log in to the portal.
- **Duty Display:** After login, the system will check the faculty's invigilation assignment.
    1. **If Assigned:** The faculty will see details of their assigned duty.
    2. **If Not Assigned:** A message displaying "No Duty Assigned" will appear.

3. Duty Allocation.

- **Student-Faculty Ratio:** The system will allocate 25 students per faculty, depending on the exam hall capacity.
- **Automatic Allocation:** Based on the student count and exam hall, the system will automatically allocate the necessary number of invigilators.

4. Monitoring & Alerts.

- **Paper Collection Alert:** Faculty members will receive an alert to collect exam papers before the allotted time.
- **Late Arrival Detection:** If a faculty member fails to log in and collect papers on time, the system will:
    1. Flag the faculty member as late.
    2. Trigger a secondary duty assignment as punishment.
    3. Send an automatic email notifying them of their late arrival and additional duty.

5. Duty Reallocation

- **Reallocation Trigger:** If a faculty member leaves or fails to show up:
    1. The system automatically reallocates the duty to an available alternative staff member.
    2. The alternative staff member receives a notification about the reassignment.

6. Email Notifications

- **Late Arrival Notification:** Faculty will receive an email if they arrive late, informing them of the additional duty assigned.
- **Reallocation Notification:** If a faculty member leaves, an alternative staff member will receive an email with the new duty details.

Technical Implementation

1. Front-End

- **HTML/CSS/JavaScript:**

2. Back-End

- **PHP**
- **Apache**

3. Database

- **MySQL**

4. Biometric Integration

- **Middleware:** Integrate biometric hardware with the PHP backend.
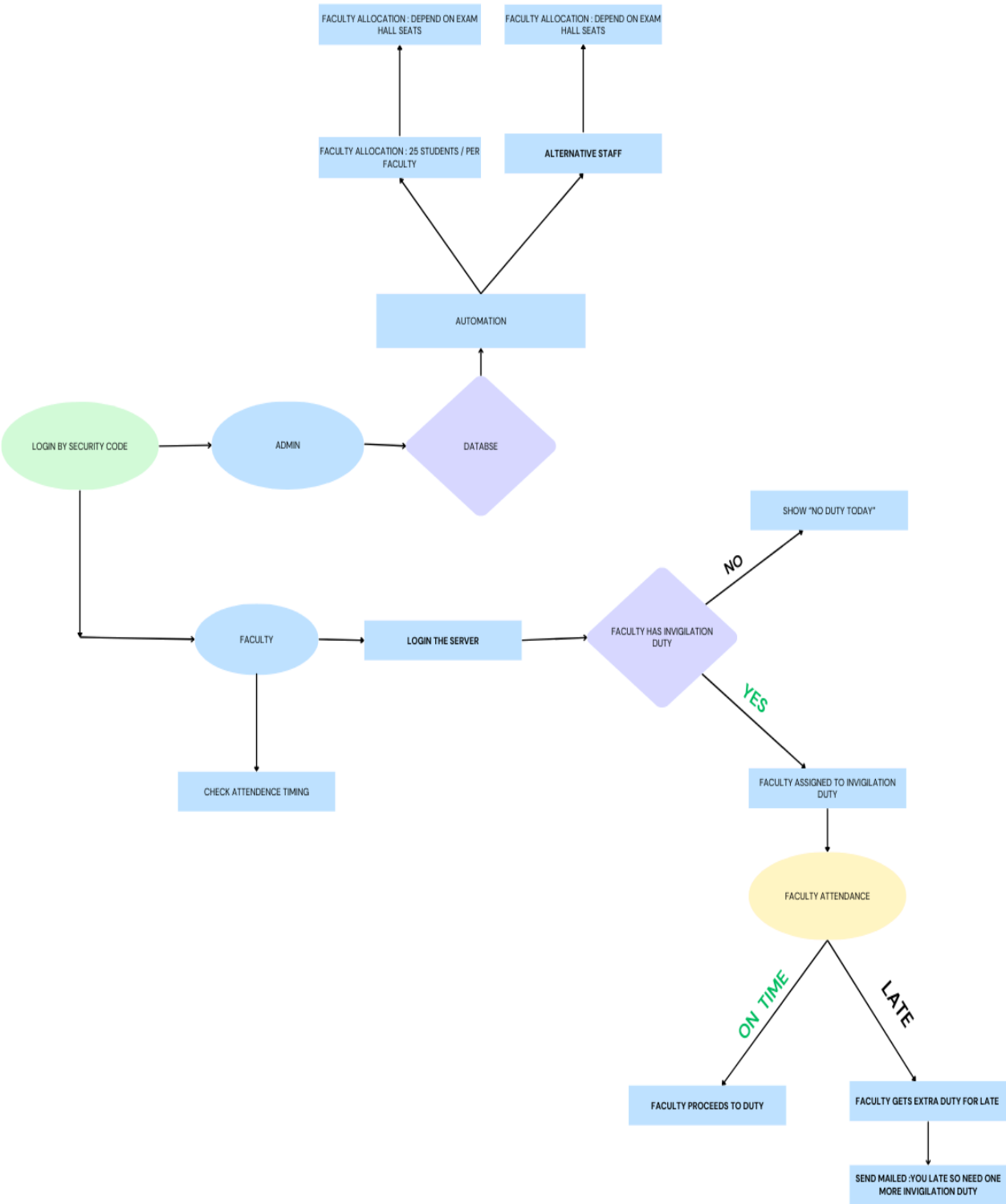- **Database:** Store and verify biometric data in MySQL.

5. Email Notifications

- **PHP Mailer:** Send email notifications for late arrivals and reallocation of duties.
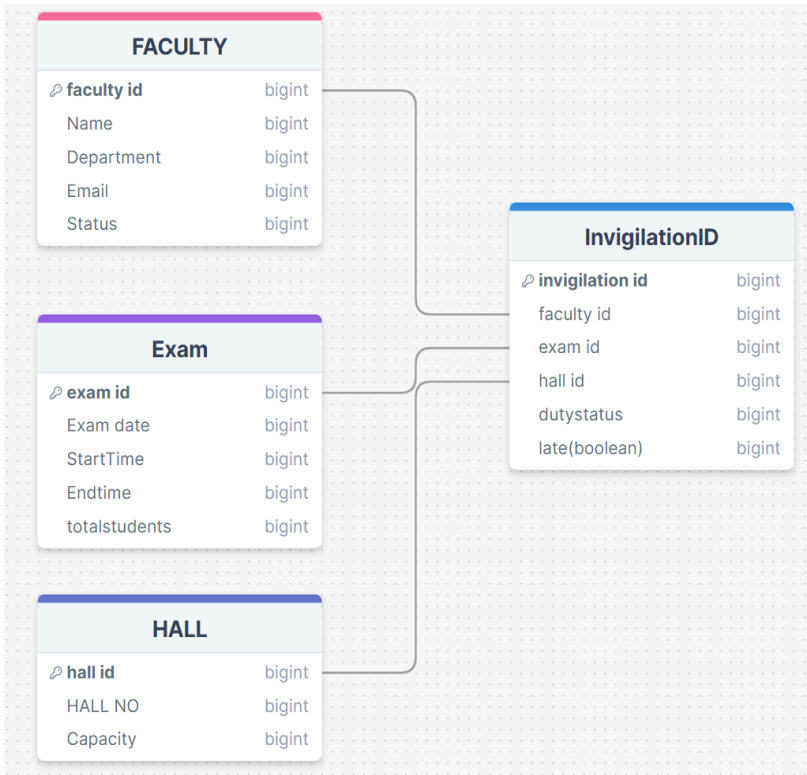
6. Logging & Reports

- **Database Logs:** Keep logs of faculty arrival times, duty assignments, and any reassignment of duties.
- **Reports:** Generate daily/weekly reports on faculty performance and attendance.

FLOWCHART:

FACULTY ALLOCATION : DEPEND ON EXAM HALL SEATS

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FACULTY ALLOCATION : 25 STUDENTS / PER FACULTY

ALTERNATIVE STAFF

AUTOMATION

LOGIN BY SECURITY CODE

ADMIN

DATABSE

SHOW "NO DUTY TODAY"

FACULTY HAS INVIGILATION DUTY

NO

YES

FACULTY

LOGIN THE SERVER

FACULTY ASSIGNED TO INVIGILATION DUTY

CHECK ATTENDENCE TIMING

FACULTY ATTENDANCE

ON TIME

LATE

FACULTY PROCEEDS TO DUTY

FACULTY GETS EXTRA DUTY FOR LATE

SEND MAILED :YOU LATE SO NEED ONE MORE INVIGILATION DUTY

ER DIAGRAM :

Frontend :