University Management System

Group Number - 19

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Problem Statement

Context: Managing university operations involves handling a variety of domains such as academic workflows, emergency management, financial services, and campus welfare. However, these domains often operate in isolation, with fragmented systems causing inefficiencies and miscommunication. The lack of a unified platform hinders collaboration, delays task execution, and creates a frustrating experience for students, professors, and administrative staff.

Solution: We propose the University Management System, a centralized platform designed to streamline university operations by integrating academic, administrative, emergency, financial, and medical services into a unified solution. The platform automates processes, enhances communication, and ensures real-time data sharing among stakeholders. By implementing a modular and scalable architecture, it addresses inefficiencies, improves response times, and creates a seamless user experience.

Use Cases

- **Student Enrollment and Academic Management:**
  A student can enroll in courses for the upcoming semester. The system verifies the student's credentials and facilitates the enrollment process. Professors use the system to view enrolled students and submit grades.

- **Campus Safety and Security:**
  In the event of a security threat, the Emergency Enterprise allows users to report emergencies through the Emergency Enterprise module. The system notifies the university security and police department. The Crime Organization enables to investigate reported crimes, liaise with university security, and provide necessary support.

- **Financial Transactions and Student Services:**
  A student accesses the Bank Enterprise to manage personal finances. They apply for a loan through the Bank Enterprise module, and the system processes the application. Bank employees use the system to manage student accounts, process tuition payments, and provide financial assistance as needed.

- **Medication Inventory Management:**
  Manage and track pharmacy inventory, including medications and medical supplies.

Stakeholders and their Contributions

Students: Students are the primary stakeholders in the university enterprise. They enroll in various courses.

Professors: Professors play a crucial role in the university by teaching courses and grading.

Administrative Staff: Administrative staff members handle various administrative tasks such as general university operations.

Pharmacy Admin: The admin of the pharmacy enterprise is responsible for managing the pharmacy's inventory, keeping track of medicines, their prices, and quantities. They also oversee transactions with pharmaceutical companies and ensure the smooth operation of the pharmacy.

Crime Reporter: Reports the crime details and keeps track of the criminal details.

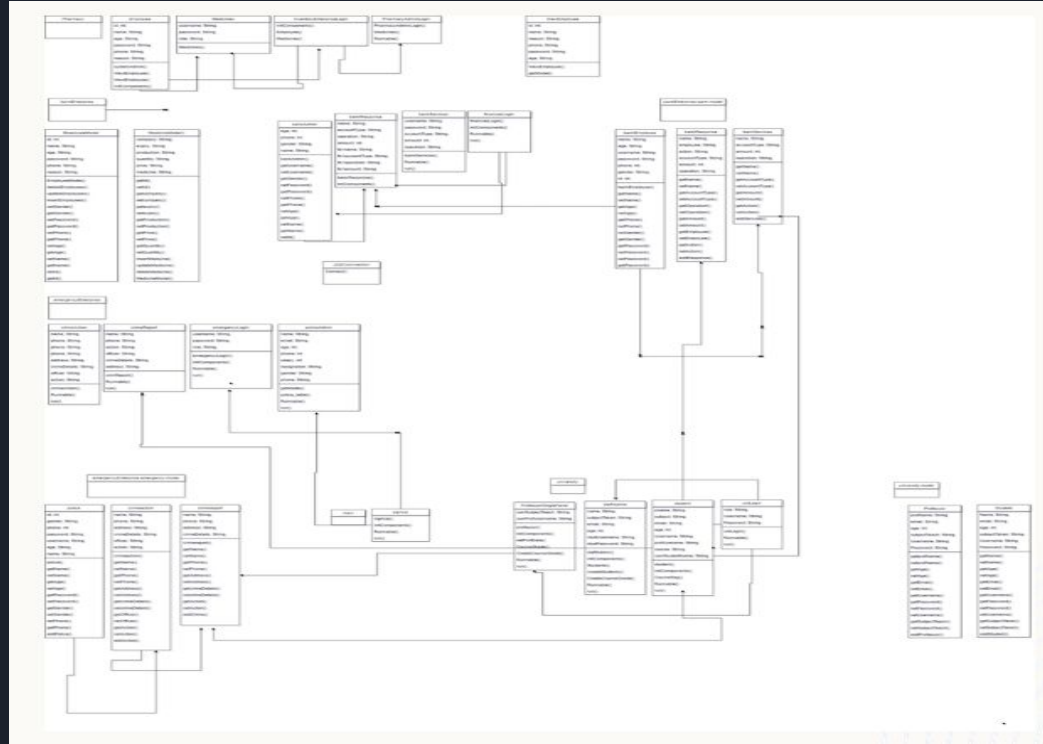**Police Officer**: Police officers investigate crimes.

Bank Employee: Keeping track of financial status.

Customers: Customers contribute taking out loans, and using various banking services.

UML Class Diagram

High-Level System Component Diagram

DESIGN

Classes: Enterprise, Organization, UserAccount, System.

Functionalities

Enterprise: Create and manage enterprise, user accounts, view and analyze organization data.

Organization: Student organization, Administration,Crime Organization,Emergency organization, Bank Organization, Pharmacy for keeping track of medications, Monitoring gym members and their membership.

User Account: View, manages and updates and delete the data.

System: Facilitate seamless interaction and information sharing among various university stakeholders.

Implementation Techniques

Database Management:
Utilized a sql database for storing enterprise, organization, user data, and enterprise records.

User Authentication and Authorization:
Implement secure authentication and authorization mechanisms for controlled access based on user roles.

Frontend Development:
Choose a suitable frontend framework for a user-friendly interface.

Scalability:
Design the system to be scalable, anticipating potential future growth.

Enterprises
4 enterprises

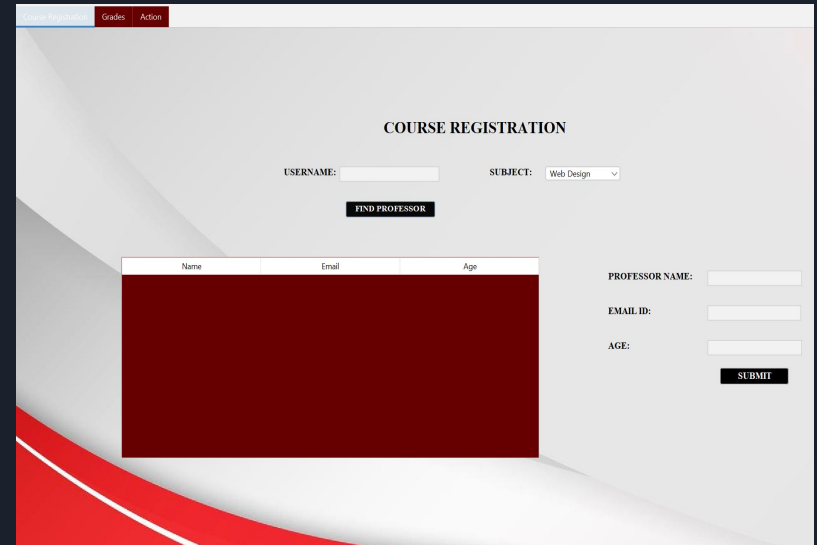## UNIVERSITY ENTERPRISE

Responsibilities:

Organization: Student, Professor, Admin

Functionalities:

Student Manages Course Registration under the certain professor, can view the grades provided by the professor and also take actions if needed like applying loan, Reporting Crime also buying medicines.

Professor can see students enrolled in the subject and provide grades to student.

Admin can manage students and professor by adding, updating, deleting and viewing them.

Emergency Enterprise

Responsibilities:

Organization: Police, Police Admin

Functionalities:

- Police admin can view crime details, take a look on documentation that is view the details of reporters also manage and add police.

- Police can view records and update the action taken status

Pharmacy Enterprise

Responsibilities:

Organization:
Pharmacy Admin: Manages Medicine by keeping Track of the supplies

Functionalities:

- Manages the Medicine table containing Medicine Name, Price, Quantity and the Company name supplying it.

Financial Enterprise

Responsibilities:

Organization:
Bank Employee, Bank Admin

Functionalities:

- Bank Admin can manage Bank Employees.
- Bank Employee can view records and can view update the action taken status.

Conclusion

- **Summary of the Solution:**
  The **University Management System** addresses fragmented systems, inefficiencies, and scalability challenges by centralizing academic, financial, emergency, and medical services. It fosters seamless collaboration, eliminates disconnected workflows, and ensures real-time data access for efficient decision-making.

- **Modularity and Scalability:**
  Built with a modular architecture, the system supports independent modules while enabling future scalability. Its robust design ensures adaptability to evolving university needs, making it a sustainable management solution.

- **Enhanced User Experience:**
  Role-based access and an intuitive interface deliver secure, tailored experiences for all stakeholders. Simplified workflows and real-time updates enhance productivity and satisfaction, providing a unified operational environment.

- **Closing Statement:**
  This concludes our presentation. We look forward to your questions and feedback. Thank you!

THANK YOU