

GROUP-19 PROJECT PROPOSAL

Approved by TA : Shreya Jaiswal

Project Proposal Topic: University Management System

Group Number: 19

Group Members:

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1. 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.

Challenges:

- **Fragmented Systems:** Separate tools for enrollment, safety management, and financial operations result in disconnected workflows and data silos.
- **Inefficient Task Management:** Delayed processes, such as emergency responses or cross-department approvals, slow down critical operations.
- **Limited Scalability:** Current systems fail to adapt to the growing and evolving needs of universities.
- **Lack of Transparency:** Stakeholders lack visibility into the progress of requests or access to centralized, real-time data.

Impact:

- **Students** experience delays in accessing grades, registering for courses, or applying for financial aid.
- **Professors** face difficulties managing academic records and streamlining coursework.

- **Administrative Staff** encounter operational bottlenecks, errors, and redundancies due to disjointed systems.
- **Safety and Security Teams** are unable to respond promptly to incidents, jeopardizing campus safety.

2. Solution

Overview:

We propose the **Smart Campus 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.

Core Features:

- **University Enterprise Module:**

Facilitates course registration, student enrollment, and grade management.

Allows professors to access student information and submit grades, while admins manage academic records.

- **Emergency Enterprise Module:**

Enables real-time reporting and tracking of campus emergencies.

Notifies university security and police for prompt response, with status tracking for incidents.

- **Pharmacy Enterprise Module:**

Manages campus pharmacy inventory, tracking medicine supplies, prices, and supplier details.

Streamlines transactions with pharmaceutical companies.

- **Financial Enterprise Module:**

Assists students with tuition payments, loan applications, and financial aid tracking.

Enables bank employees to manage student accounts and financial operations.

- **Centralized Data Management:**

A robust database providing real-time, secure, and centralized access to all system data.

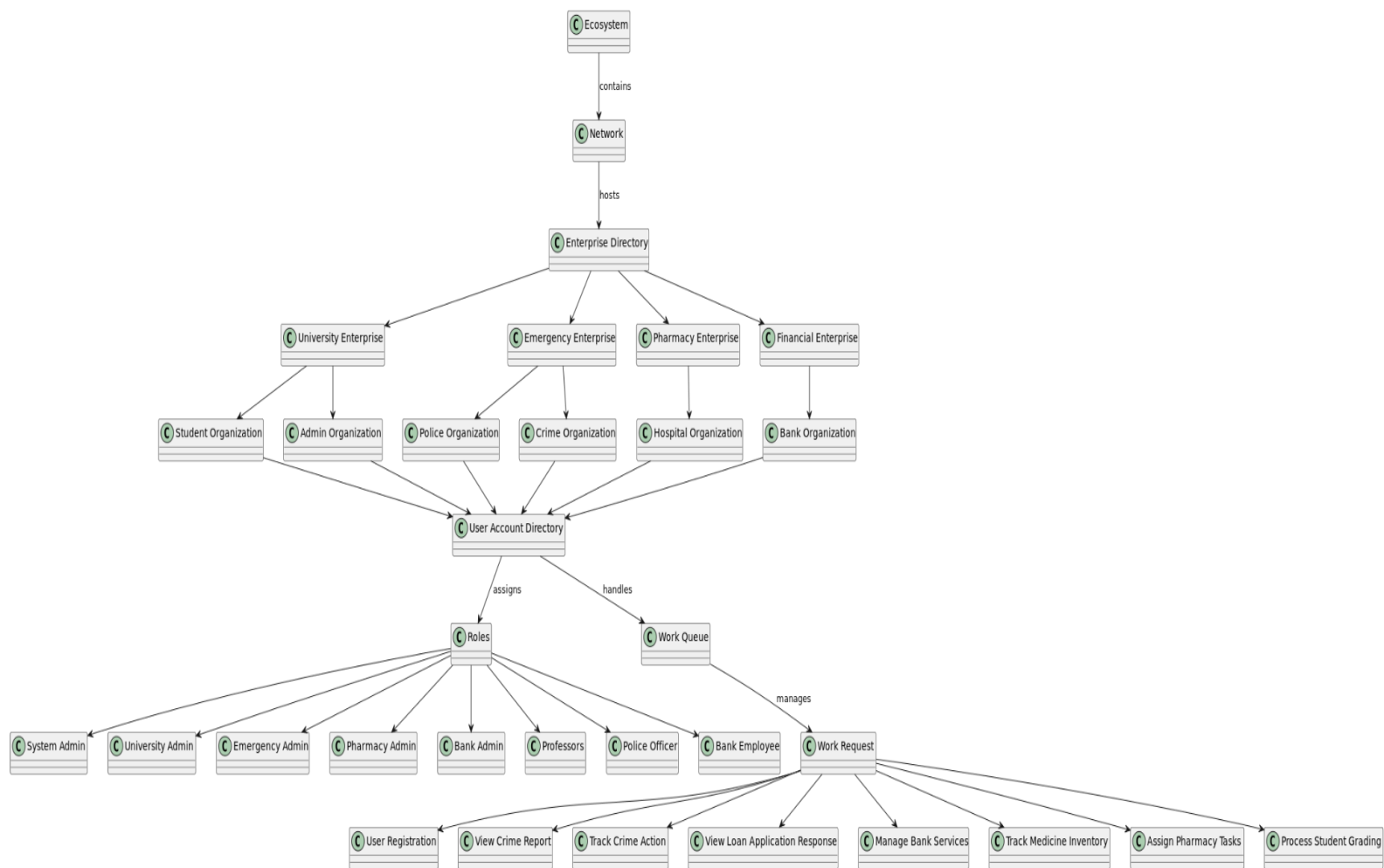
- **User Authentication and Authorization:**

Implements role-based access control, ensuring secure access to relevant data and features.

- **Three-Tier Architecture:**

Separates presentation, application logic, and data layers for scalability, maintainability, and adaptability.

3. High-Level Component Diagram



4. Ecosystem Hierarchy

1. Network:

The overarching system is the **University Network**, which connects all enterprises and organizations, enabling collaboration and unified operations.

2. Enterprises:

- **University Enterprise:** Academic operations and student services including Course registration, grade management, student enrollment, and academic records.
- **Emergency Enterprise:** Campus safety and emergency response including Incident reporting, status tracking, and real-time notifications during emergencies.
- **Pharmacy Enterprise:** Medication inventory and healthcare services including Managing pharmacy stock, tracking medical supplies, and streamlining transactions with suppliers.
- **Financial Enterprise:** Tuition payments, loans, and financial aid.

3. Organizations:

Each enterprise oversees its respective organizations:

1. **University Enterprise:**
 - Student Organization
 - Admin Organization
2. **Emergency Enterprise:**
 - Police Organization
 - Crime Organization
3. **Pharmacy Enterprise:**
 - Hospital Organization

4. Financial Enterprise:

- Bank Organization

4. Roles:

Roles are tailored for stakeholders to ensure role-based access and task execution:

- **System Admin:** Oversees the entire platform.
- **University Admin:** Manages academic operations and student records.
- **Emergency Admin:** Handles safety operations and emergency responses.
- **Pharmacy Admin:** Tracks and manages medicine inventory.
- **Bank Admin:** Supervises financial processes.
- **Professors:** Manage student grades and course-related activities.
- **Police Officers:** Investigate and update crime records.
- **Bank Employees:** Handle financial aid and student accounts.

5. Use Cases:

1. Student Use Case:

- Students register for courses, view grades, and apply for loans.

2. Admin Use Case:

- University Admins manage enrollment, academic records, and cross-enterprise collaboration.

3. Emergency Use Case:

- Police Officers respond to emergencies and update the status of incidents.

4. Pharmacy Use Case:

- Pharmacy Admins monitor medical inventory and manage supplies.

5. Financial Use Case:

- Bank Employees process student tuition payments and financial aid applications.