

Zenith Hackathon

TEAM NAME : CODE4CES

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Project Name: NexusEdu

[Smart Academic & Opportunity Management
Platform]

PROBLEM STATEMENT TITLE: UNIVERSITY ERP SYSTEM

PROBLEM STATEMENT

Many colleges use ERP systems to manage attendance, marks, and notices.

But students still face problems:

- They miss opportunities like internships and hackathons.
- They don't know eligibility rules.
- Important notices get lost.
- No guidance based on student skills.
- Everything is manual and reactive.

Because of this:

- Students miss growth opportunities.
- Colleges cannot track skill development.
- Academic risk is identified too late.



The Solution – NexusEdu Orchestrator

Student-Centric Intelligent ERP

NexusEdu integrates academic records, institutional policies, student skills, and opportunities into a centralized platform.

Core System Capabilities

- Academic tracking & eligibility monitoring
- AI academic assistant
- Opportunity visibility & structured communication
- Achievement tracking & motivation support
- Faculty curriculum insights
- Inter-college collaboration

The system transforms ERP from passive record storage into an active academic guidance platform.

Work Flow

Step 1: College uploads data

Attendance

Marks

Policies

Opportunities

Step 2: Data is stored securely in the system.

Step 3: AI analyzes the data.

Step 4: Students get:

Eligibility alerts

Opportunity recommendations

Academic warnings

Step 5: Admin monitors overall performance.

Structure

Layered Architecture Design

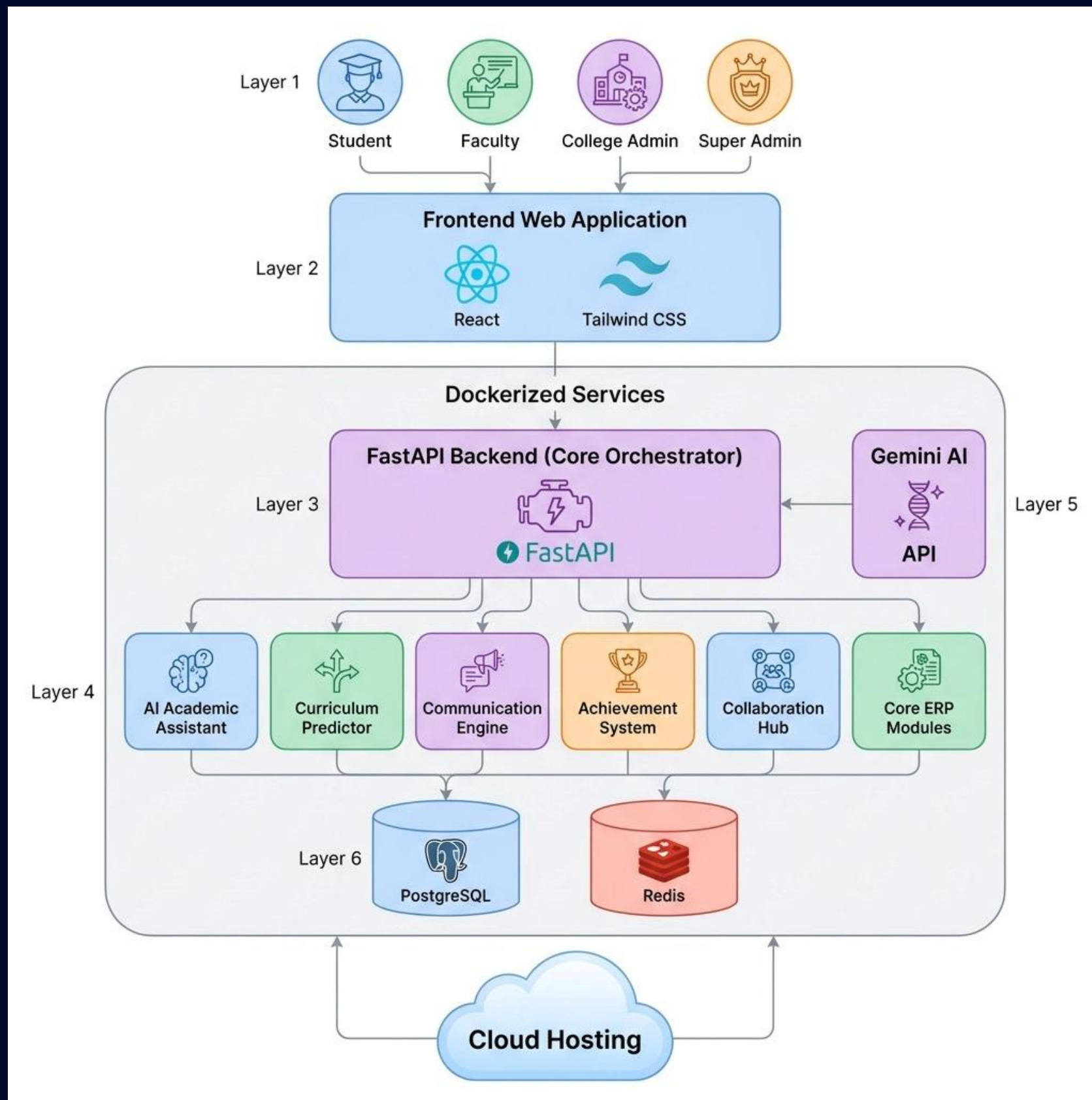
- Role Layer: Students, Faculty, Admins, Super Admin
- Frontend: Web dashboards for all stakeholders
- Backend: API orchestration & business logic
- AI Layer: Academic assistant & predictive modules
- Database: Academic, policy, and opportunity datasets

Technology Stack

- React + Tailwind (Frontend)
- FastAPI (Backend)
- PostgreSQL + Redis (Database & caching)
- Gemini API (AI processing)
- Docker + Cloud hosting (Deployment)

This ensures scalability, modularity, and multi-institution readiness.

ARCHITECTURE



Tech Stack



tailwindcss

ReactJS



TECH STACK



FastAPI



Gemini API



redis



The NexusEdu Edge - Engineering Innovation

- **AI Academic Assistant**

Interactive chatbot that answers queries on attendance, eligibility, and performance while guiding study improvement.

- **Curriculum Predictor**

Analyzes academic trends to support faculty in data-driven course planning.

- **Achievement & Motivation System**

Tracks accomplishments, sends reminders, and recommends relevant competitions.

- **Opportunity-Aware Communication Feed (Key Innovation)**

Structures internships, hackathons, and scholarships into a dedicated ERP feed instead of emails. Ensures visibility, eligibility filtering, and engagement tracking.

- **Inter-College Collaboration Hub**

Admin-controlled platform enabling cross-college projects and academic partnerships.

Delivering Measurable Institutional Impact

1. Rapid Deployment: Our "One-Click Onboarding" removes technical barriers, allowing a university to go fully operational in **under 10 minutes** with zero local server costs.

The Sharing Economy: AI-powered inter-college exchanges reduce infrastructure duplication, allowing institutions to share high-cost lab equipment and faculty expertise, cutting overhead by up to **30%**.

2. Student Success: The "Zero-Surprise" Policy

Predictive Retention: Real-time eligibility tracking and AI study plans eliminate "exam-day disqualification" and improve overall learning outcomes by identifying student struggles early.

Career Catalyst: By filtering and pinning life-changing hackathons and internships, we ensure a **100% visibility rate** for growth opportunities that students previously missed.

Delivering Measurable Institutional Impact

3. Administrative Excellence: Automated Governance

Faculty Empowerment: By automating routine monitoring and early-risk alerts, we reduce administrative load, allowing faculty to focus on **mentorship rather than paperwork.**

Audit-Ready Governance: Centralized, immutable records of attendance and performance provide a "Single Source of Truth," making accreditation and compliance reporting seamless and error-free.

4. Future-Proof Scalability

Secure Growth: Our Multi-tenant architecture isn't just a database; it's a **SaaS Framework.** It is built to scale from one department to an entire national university network without compromising speed or security.