

Phase 1: Problem Understanding & Industry Analysis

Step 1: Requirement Gathering

What this means: Understanding what people need from your system.

How to do it: Imagine you're talking to different people at a college. Here's what they would tell you:

College Administrator Says:

"We have 5 different systems - LMS for academics, separate placement portal, library system, hostel management, and finance software. I need to log into each one to get a complete picture of our college performance!"

Their Requirements:

- Unified dashboard showing all key metrics in one place
- Real-time analytics on student performance vs placement success
- Cross-system data insights (which courses lead to better placements)
- Predictive analytics for student retention and success

Admission Officer Says:

"Online applications are fine, but I still manually follow up with leads, update multiple spreadsheets, and can't track which marketing channels bring quality students. Plus, our CRM doesn't talk to the academic system!"

Their Requirements:

- Intelligent lead scoring and prioritization
- Automated nurturing campaigns with personalization
- Integration between admission data and academic performance
- Analytics on admission source effectiveness (which channels bring successful students)

Academic Staff Says:

"Students get grades only at semester end. I need real-time performance tracking, early warning systems for at-risk students, and better parent communication tools. Currently, I only know a student is struggling when they're about to fail."

Their Requirements:

- Continuous assessment tracking (not just final grades)
- AI-powered early warning system for student risk identification
- Proactive intervention recommendations
- Real-time parent communication portal
- Cross-subject performance correlation analysis

Placement Officer Says:

"Companies post jobs on LinkedIn, students apply randomly without knowing if they're eligible. I manually match 500+ students to 100+ job openings. We need AI-powered matching based on skills, grades, and company requirements!"

Their Requirements:

- Intelligent student-job matching algorithm
- Skills gap analysis and recommendation system
- Automated eligibility checking for job applications
- Real-time company collaboration portal
- Predictive analytics on placement success factors

Club Coordinators Say:

"We have 50+ clubs - Drama, Coding, Sports, Cultural, Technical societies. Each club sends separate emails and WhatsApp messages. Students miss events, we get poor participation, and there's no way to track student engagement across activities. We need a unified platform!"

Their Requirements:

- Centralized club and event management system
- Student interest-based activity recommendations
- Automated event promotion and registration
- Engagement analytics and participation tracking
- Cross-club collaboration and resource sharing

Students Say:

"We use 4 different apps - one for grades, one for placements, one for library, one for attendance. Plus there are 50+ clubs and societies, each with separate WhatsApp groups and email lists. We miss so many opportunities because we can't track everything! We want

ONE app that shows academics, jobs, AND all extracurricular activities with smart recommendations."

Their Requirements:

- Single unified student mobile app
- Centralized club and society management with event notifications
- Personalized activity recommendations based on interests and career goals
- Real-time grade updates and performance insights
- Smart notifications (not spam - only relevant opportunities and events)
- Career guidance linking academics + extracurriculars + job prospects

Parents Say:

"We get semester results 3 months later. We want real-time progress updates, early alerts if our child is struggling, insights into career prospects based on their academic performance, AND visibility into their extracurricular involvement for holistic development tracking."

Their Requirements:

- Real-time academic progress dashboard
- Proactive alerts for attendance/performance issues
- Career guidance based on child's strengths
- Extracurricular activity participation tracking
- Holistic development insights (academics + activities + skills)
- Direct communication channel with teachers and activity coordinators

Step 2: Stakeholder Analysis

What this means: Identifying who will use your system and what access they need.

Primary Users (Direct System Users):

Stakeholder	Role	What They Do	System Access Level
Administrator	System Manager	Setup, configure, oversee everything	Full Access (Admin)
Admission Officer	Lead Management	Handle inquiries, admissions	Leads, Students, Communications
Academic Staff	Grade Management	Enter grades, track performance	Students, Grades, Reports
Placement Officer	Job Placement	Manage jobs, companies, applications	Students, Jobs, Companies
Club Coordinators	Activity Management	Manage events, track participation	Clubs, Events, Student Activities

Secondary Users (Indirect Access):

Stakeholder	Role	Access Method
Students	End Beneficiary	View grades, apply for jobs, join clubs Student Portal
Parents	Progress Monitoring	Track child's performance & activities Parent Portal
Management	Decision Making	Reports and analytics Dashboards only

Step 3: Business Process Mapping

What this means: Drawing the journey of how things work currently vs. how they should work.

Current Process (Fragmented/Problem):

Student uses App 1 for grades → Switches to App 2 for job search → Checks App 3 for library → Uses App 4 for attendance → Gets club updates from 15 different WhatsApp groups → Misses cultural events due to email overload → Applies for irrelevant jobs → Gets rejected → Parents only know performance at semester end → Teachers react to problems instead of preventing them

Problems: Fragmented experience, notification chaos, missed opportunities, reactive support, poor decision making

Proposed Process (Unified/Solution):

Single EduConnect App → Real-time performance tracking → Smart club and event recommendations based on interests → AI-powered early warnings → Proactive interventions → Integrated extracurricular + academic profile → Smart job matching considering both grades and activities → Personalized recommendations → Real-time parent updates → Holistic student development tracking

Benefits: Unified experience, intelligent recommendations, holistic development, better outcomes

Detailed Process Flow:

Admission:

Lead Capture → Automated Nurturing → Application & Document Verification → Fee Collection

Academics:

Continuous Assessment → Real-time CGPA & Alerts → AI Interventions → Performance Analytics

Extracurriculars:

Club Registration → Event Creation → Smart Recommendations → Participation Analytics

Placement:

Job Posting → AI Matching → Eligibility Checking → Interview Scheduling → Outcome Tracking

Industry-specific Use Case Analysis

What this means: Understanding what makes education different from other industries.

- Semester-based system
- Data Privacy Regulations (FERPA-like)
- Accreditation Reporting
- Real-time analytics
- Mobile-first approach
- Predictive Analytics & NLP Support
- Integration APIs

AppExchange Exploration

What this means: Checking what's already available so you don't reinvent the wheel.

- EDA (Education Data Architecture): Too complex for learning project
- Student Success Hub: Inspiration for early alert system
- Campus Management Apps: Simplified version to learn concepts
- Event Management Apps: Will integrate event management in our unified solution