FULL BLUEPRINT: University Roadmap AI Web App

PHASE 1 — Core Concept & Scope

1. Define the main problem

Students don't know:

- What to do in university
- What organizations to join
- What certificates to get
- What skills to learn
- What projects to build
- What internships matter
- How alumni achieved career X

Your app solves this with AI + alumni patterns.

PHASE 2 — User Types

1. Students

- Input interests, goals, major
- Receive roadmap & recommendations

2. Alumni

- Provide career data
- (Optional) connect their LinkedIn
- Share what they did in university

3. Admin (University)

- Manage organizations
- Manage academic programs
- Verify alumni data
- See career analytics

4. AI System

- Matches patterns
- Generates roadmap

PHASE 3 — KEY FEATURES (Complete Breakdown)

A. Student Onboarding Module

Steps/Features

1. **Sign Up / Auth (email, Google, student ID, university account)**
2. **Basic Profile Form**
3. Name
    - Major
    - Year (1–4)
    - Current GPA (optional)
4. **Career Goal Selection**
    - Search career: Web Dev, Data Analyst, PM, HR, Lawyer, etc.

5. **Interest Tags**
    - UI/UX
    - Robotics
    - Business
    - Cybersecurity
    - Cloud Computing
    - Content creation
    - Leadership
    - Community Development
    - Research
    - etc.

6. **Skill Assessment (Simple Slider)**
    - Hard skills
    - Soft skills
    - Experience (0–5 scale)

7. **Upload Existing Resume (optional)**
    - AI extracts skills
8. **Output: Personalized Dashboard**

B. Personalized Roadmap Generator

Roadmap Components

1. **Recommended University Organizations**
    - Based on alumni with same career goals
    - Example: “Data Scientists usually joined AI Club + Research Club”
2. **Recommended Elective Courses**
    - Actual university course list
    - Mark which ones support your field
3. **Recommended Certificates**
    - Google UX
    - Coursera Web Dev
    - AWS Cloud Practitioner
    - etc.
4. **Recommended Hard Skills**
    - Programming languages
    - Tools
    - Technologies
5. **Recommended Soft Skills**
    - Leadership
    - Communication
    - Critical thinking
    - Public speaking
6. **Recommended Competitions / Events**
    - Hackathons
    - Business case competitions
    - Innovation challenges
    - Robotics events

7. **Internship Recommendations**
    - Roles that match their skill level
    - Based on alumni internship paths
8. **Recommended Projects**
    - "Build a weather app with API"
    - “Create a MERN portfolio”
    - “Create UI/UX prototype of mobile banking app”
    - etc.

9. **AI Gap Analysis**
    - “To achieve your goal (Software Engineer), you are missing: DSA, React, Git.”
10. **Timeline**

- Semester by semester
- Year-by-year plan

C. AI Recommendation Engine

Data the AI will process:

- Student inputs
- Alumni data
- University org list
- Course catalog
- Industry job requirements
- Skill map

AI Output Includes:

- Roadmap
- What to do each semester
- Skills to learn next
- Organizations to join
- Project ideas
- Recommended mentors
- Career probability score

AI Tasks

1. **Vectorizing student profile**
2. **Comparing with alumni patterns**
3. **Matching with job requirements**
4. **Generating recommendations**
5. **Creating a personalized roadmap document**

🧪 D. Alumni Data Collection System

Alumni Can Provide:

- Current career
- LinkedIn profile
- University organizations joined
- Certificates earned

- Soft skills developed
- Internships
- Projects they did
- What they wished they did better (recommendations to juniors)

Automatic Alumni Data Extraction

- Connect LinkedIn → scrape:
    - Experience timeline
    - Certificates
    - Skills

(If scraping is not allowed → ask alumni to paste data)

Alumni Activity Patterns

For example:

- 90% of mobile developers joined GDSC
- 80% of cybersecurity students took CEH courses
- 70% of UI/UX researchers joined PUMA and competed in UX Case Competitions

🧭 E. Roadmap Document Export (PDF)

The user can download:

- Roadmap PDF
- Skill plan PDF
- Semester plan
- Resume improvement suggestions

🎓 F. Mentorship Matching System (Optional Phase)

Features

- Students can request a mentor
- Alumni can volunteer
- AI matches student → alumni
- Based on:
    - Major
    - Career goals
    - Skills
    - Organization experience

🔧 G. Admin Dashboard (University)

Admin Can:

- Add/edit organizations
- Add/edit courses
- Add certifications directory
- Verify alumni profiles
- See analytics

Analytics Examples:

- Most popular career goals
- Organizations leading to highest job success
- Which courses correlate with good careers
- Student interest trends

H. Data Analytics for University

Charts & Data

- Career outcome success rates
- Skill popularity
- Alumni job sectors
- Which orgs impact job success the most
- Student behavior patterns

I. UI/UX Features

Core Pages

- Home → Value proposition
- Student Dashboard
- AI Roadmap page
- Skill Gap page
- Organization Explorer
- Certificate Explorer
- Alumni Explorer
- Admin panel

Student Dashboard Widgets

- Roadmap progress
- Weekly recommended task
- Skill meter
- Certificates to take
- Upcoming events
- Internship suggestions

J. Technical & System Architecture

Frontend

- React (or Next.js)
- TailwindCSS
- Shadcn UI
- Chart.js

Backend

- Laravel / Node.js
- REST API or GraphQL
- Authentication (JWT or OAuth)

Database (Tables)

1. **Users**

2. **Students**
3. **Alumni**
4. **Career Goals**
5. **Skills**
6. **Organizations**
7. **Courses**
8. **Certifications**
9. **Projects**
10. **Recommendations**
11. **AI Output History**
12. **Mentorship Matching** (optional)
13. **Analytics Logs**

You already have strong Laravel skills → perfect fit.

K. Required AI Models

1. **Embedding model**
    - For similarity of student → alumni → job skills
2. **LLM roadmap generator**
   Generate the readable roadmap
3. **Classifier model**
    - Categorize student skill level
4. **Skill Gap Engine**
    - Compare student skills → target job skills

L. Integrations

Optional add-ons

- LinkedIn sign-in
- Calendar sync for tasks
- Resume parsing
- Career marketplace (internships)

M. Deployment

Stack

- Frontend → Vercel / Netlify
- Backend API → VPS (DigitalOcean / Hostinger)
- Database → Supabase / MySQl
- AI API → OpenAI/Local LLM

🛠️ PHASE 4 — DEVELOPMENT STEPS (Full Roadmap)

1. Planning & Research

- List majors
- Collect courses
- List organizations
- Outline alumni survey questions

- Identify initial career paths
- Pick your tech stack

2. Database Design

- Create ERD
- Define relationships
- Create seed data for courses, orgs, skills

3. Backend API Development

- Auth
- Student profile APIs
- AI prompt endpoints
- Alumni submission APIs
- Roadmap generation API
- Admin CRUD for orgs, courses

4. AI Engine Development

- Prompt engineering
- Embedding creation
- Pattern detection
- Gap analysis
- Roadmap formatting

5. Frontend Development

- Login & onboarding
- Dashboard
- Roadmap generator
- Explore pages (orgs/courses)
- Alumni portal
- Admin panel
- Settings

6. Testing

- Student test flows
- Alumni test flows
- Admin test flows
- AI correctness tests

7. Launch MVP

MVP Includes:

- Student onboarding
- Alumni data input
- Basic AI roadmap
- Organization recommendations
- Course recommendations
  Dashboard

8. Future Upgrades

- Mobile app
- API integrations
- Mentorship system
- Job matching
- AI chatbot
- Skill tracker