CampusConnect - Product Blueprint (Updated)

# Vision:

A centralized network platform for students, alumni, and faculty of our college — combining:  
- Verified profiles (students & alumni)  
- Automated onboarding of freshers (via PDF upload)  
- Searchable directory (by name, batch, skills, branch)  
- Chat-based alumni connect  
- Skill analytics (college-wide skill map)  
Long-term vision: Make this a LinkedIn-like platform but restricted to our institution, with tamper-proof verified achievements (future blockchain module).

# Target Users:

1. Students (current & past) – Claim/edit profiles, showcase projects, connect with peers & alumni.  
2. Freshers – Get onboarded automatically and verify identity via OTP.  
3. Alumni – Chat with juniors, share opportunities.  
4. Faculty/Admin – Upload student lists, verify achievements, moderate platform.

# Core Features (MVP):

1. PDF-Based Auto-Onboarding:  
 - Admin uploads PDF of freshers (Reg No, Name, Branch).  
 - System parses PDF and creates unverified student records.  
2. Profile Claim & Verification:  
 - Students verify identity using Reg No + OTP (email).  
 - After verification → Edit their profile (bio, skills, projects).  
3. Student Search Directory:  
 - Search by name, batch, branch, skills.  
 - Filters for current students, alumni.  
4. Admin Panel:  
 - Upload PDFs for new batches.  
 - Moderate profile edits and achievements.

# Unique Features (Make It Stand Out):

1. Skill Graph & Analytics:  
 - Generate a college-wide skill map (how many students know C++, React, AI, etc.).  
 - Show trending skills, batch-wise skill distribution.  
2. Alumni Connect (Chat-Only):  
 - Students can search & directly message alumni.  
 - Simple one-to-one chat (no booking system).  
3. Verified Achievements:  
 - Students can upload certificates/projects.  
 - Admin verifies them.  
 - (Future: Store hashes on blockchain for tamper-proof credentials).

# Why It’s Unique:

- Goes beyond a simple directory → Professional networking + analytics for college.  
- Automated onboarding via PDF parsing (no manual sign-ups for freshers).  
- Data-driven insights (skill graph) – recruiters & students can see strengths of the community.  
- Future-ready: Blockchain integration for verified, tamper-proof credentials.

# Tech Stack (Initial):

- Frontend: React (Bootstrap for UI components).  
- Backend: Node.js + Express.js.  
- Database: PostgreSQL (Relational, normalized).  
- Caching: Redis (for fast search).  
- Auth: JWT + OTP (via Nodemailer).  
- File Parsing: Multer (upload) + pdf-parse.  
- Deployment: Docker + Render/Railway (later AWS EC2).

# Timeline:

4–6 weeks @ 2 hrs/day:  
- Week 1: Backend setup, DB design, PDF parsing & storage.  
- Week 2: Auth (JWT + OTP), Profile claim & edit APIs.  
- Week 3: React frontend (Login, Profile, Search, Admin Panel).  
- Week 4: Skill graph & chat features.  
- Week 5: Optimization (Redis), Dockerization.  
- Week 6: Deployment & Documentation.

# Outcome:

A production-style, deployed platform with real-world use (students & alumni actually using it). Perfect for showcasing:  
- Full-stack system design  
- Data parsing & automation  
- Scalable APIs & search  
- Clean corporate-level architecture