

Think deeply, I am Coditas, and I want to create an application that connects sales, recruitment, skills, and project tracking. For example, I have 700 employees. Each employee has a skill mapping section where they can map and rate skills. It will help Coditas to see the current strengths of the employee at the years of experience level (0-2, 2-5.5-7, 7-10, and 10+). Coditas admins can create a project name, project code, skill, experience level, no of people, hours per month, and project end date. Coditas project manager can assign an employee to the project at the skill and experience level. Coditas employee will fill the timesheet for the projects assigned to them with max 8 hours limit every day. Coditas sales team will be able to create a Project pipeline with the estimated people required at the skill and experience level. Coditas recruitment team will get the view based on the project pipeline, current bench, and current people mapped to projects, that how many people are required with what skill and experience level. Roles: Coditas admin, project manager, employee, sales, recruitment team Can you come up with a plan and designs for the same?

This is a powerful and strategic initiative for Coditas. You're essentially building an internal workforce planning and project intelligence platform, tying together:

- **Employee skill data**
- **Project demand and supply**
- **Sales projections**
- **Recruitment planning**

Here's a detailed **plan and system design** broken into modules, data models, architecture, and UX.

High-Level Modules

1. **Employee Skill Mapping**
2. **Project Management**
3. **Timesheet Management**
4. **Sales Pipeline Planning**
5. **Recruitment Forecasting**

6. Admin & Role Management

Core Entities & Relationships

plaintext

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```
Employee ---< SkillMapping >--- Skill
Employee ---< ProjectAssignment >--- Project
Project ---< ProjectRequirement >--- Skill
ProjectPipeline ---< SkillDemand >--- Skill
```

```
RecruitmentView ← Bench + ProjectAssignments + ProjectPipeline
```

Detailed Modules

1. Employee Skill Mapping

- Employees rate themselves on skills.
- Skills are grouped into experience brackets: 0-2, 2-5.5, 5.5-7, 7-10, 10+.
- Ratings (e.g., Beginner, Intermediate, Expert) + Years of experience.

Features:

- Skill suggestion/autocomplete
 - Rating per skill per experience bracket
 - Version history of skill updates
-

2. Project Management

Admin Capabilities:

- Create project (code, name, description, dates)
- Add skill-based requirements (skill + experience range + people + hours/month)

Project Manager Capabilities:

- Assign employees to specific skill-experience slots
 - Track fulfillment % of project staffing
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3. Timesheet Management

Employee:

- Fill daily timesheet (max 8 hrs)
- Allocate hours to assigned projects

Project Manager:

- View allocation vs actual
 - See overbooked/underbooked employees
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4. Sales Pipeline Planning

Sales Team:

- Create pipeline entries (upcoming projects)
 - Define expected skill/experience needs
 - Timeline + effort estimation
-

5. Recruitment Forecasting

Recruitment Team:

- Get skill + experience level demand forecast
 - Inputs: project pipeline, current assignments, bench data
 - View shortages by timeframe and role
-

Roles & Permissions Matrix

Feature / Role	Admin	Project Manager	Employee	Sales	Recruitment
Skill Mapping	View	View	Edit	View	View
Create Project	✓				
Assign to Project		✓			
Fill Timesheet			✓		
Sales Pipeline				✓	View
Recruitment View				View	✓
Admin Management	✓				

Suggested Architecture

Backend:

- **Language:** Python
- **API Layer:** REST
- **Database:** PostgreSQL (structured relationships + analytical queries)
- **Auth:** OAuth2 + RBAC

Frontend:

- **React or Angular**
- Role-based dashboards
- Mobile-responsiveness for timesheet + skill mapping

Optional:

- **Analytics Layer:** Metabase / Superset / Custom dashboards
 - **Notifications:** Email + Slack integrations (for timesheet reminders etc.)
-



UI Sketches (Described)

A. Employee Dashboard

- Skill rating matrix
- Timesheet tab
- Projects assigned + upcoming deadlines

B. Project Manager Dashboard

- Project list
- Resource allocation chart (Gantt style)
- Assignment table (project → skill → employee)

C. Sales Dashboard

- Pipeline table (project, skill, experience, dates, status)
- Visual funnel view (active → prospect → won)

D. Recruitment Dashboard

- Skills shortage matrix
 - Bench strength view
 - Timeline-based hiring needs
-



Forecasting Logic (Recruitment View)

Demand = Pipeline Skill Requirements (next 3 months)

Supply = Available bench + Ending Projects + New Joinees

Gap = Demand - Supply (per skill & experience)



Integration Ideas (Future Roadmap)

- Sync with **ATS** (like Lever or Greenhouse)
 - Use **OpenLineage** or **Metabase** for tracking metrics
 - Sync with **Jira** or **GitHub** for live project work hours
-

Coditas Internal Workforce & Project Intelligence App



ER Diagram (Entities & Relationships)

- Employee (id, name, email, role, doj, active)
- |
- |--< SkillMapping (id, employee_id, skill_id, experience_band, rating, years_of_exp)
-
- Skill (id, name, category)
-
- Project (id, name, code, start_date, end_date, description)
- |

- |--< ProjectRequirement (id, project_id, skill_id, experience_band, people_needed, hours_per_month)
- |
- |--< ProjectAssignment (id, project_id, employee_id, skill_id, experience_band, assigned_hours_per_month)
-
- Timesheet (id, employee_id, project_id, date, hours)
-
- ProjectPipeline (id, name, expected_start_date, expected_end_date, status)
- |
- |--< PipelineSkillDemand (id, pipeline_id, skill_id, experience_band, people_needed)
-

RecruitmentForecast (VIEW combining: ProjectPipeline + ProjectAssignments + Bench)

REST API Contracts

Authentication

- POST /auth/login
- POST /auth/logout

GET /auth/me

Employees & Skills

- GET /employees
- GET /employees/{id}
- POST /employees
- PUT /employees/{id}
-
- GET /skills
- POST /skills
- PUT /skills/{id}
-
- GET /employees/{id}/skills

POST /employees/{id}/skills

Projects & Assignments

- GET /projects
- POST /projects
- GET /projects/{id}

- PUT /projects/{id}
-
- POST /projects/{id}/requirements
- GET /projects/{id}/requirements
-
- POST /projects/{id}/assignments

GET /projects/{id}/assignments

Timesheets

- GET /timesheets?employee_id=xyz&date_range=...
- POST /timesheets

PUT /timesheets/{id}

Sales Pipeline

- GET /pipeline
- POST /pipeline
- GET /pipeline/{id}
- PUT /pipeline/{id}
-
- POST /pipeline/{id}/skills

GET /pipeline/{id}/skills

Recruitment View

GET /recruitment/forecast

□ Wireframe Summary

1. Employee Dashboard

- Tabs: My Skills, My Projects, Timesheets
- Skill Mapping Form: Skill + Experience Band + Rating + Years of Exp
- Timesheet Table: Date | Project | Hours

2. Admin / PM Dashboard

- Project Creation Form
- Requirement Mapping Table
- Employee Assignment Table

3. Sales Dashboard

- Pipeline List View (project name, timeline, status)
- Skill Demand Form (Skill + Exp + People)

4. Recruitment Dashboard

- Matrix: Skill vs Experience Band vs Need vs Bench vs Assigned
- Filters: Timeframe, Status