**Project name**

InsurAI Corporate Policy Automation and Intelligence System

**Project Overview**

**InsurAi** is an AI-powered platform designed to automate, manage, and intelligently analyze corporate insurance policies. It aims to simplify policy management, claims processing, compliance tracking, and risk analysis for corporate clients.

**Problem Statement**

Managing corporate insurance policies is often manual, fragmented, and error-prone, involving large volumes of documents, renewals, compliance requirements, and claims data.  
Key issues include:

* Time-consuming policy review and renewal processes
* Difficulty in tracking compliance deadlines
* Fraudulent or invalid claims slipping through manual checks
* Limited data-driven insights for risk and premium optimization

**User Roles & Permissions**

1. **Insurer Admin (Provider)**
   * Manage product catalog (group policies, riders, pricing rules).
   * Onboard corporates; approve corporate purchases; billing & invoicing.
   * Final claim decision (approve/reject/pay), fraud flags, settlement posting.
   * Global analytics (revenue, loss ratio, portfolio risk).
2. **Corporate Admin**
   * Purchase/renew group policies; manage employee roster & assignments.
   * First‑level claim review (verify docs; forward to Insurer).
   * Corporate analytics (coverage, utilization, TAT, upcoming renewals).
3. **Employee**
   * View assigned coverage; submit claims; track status; view E‑cards/policy docs.
4. **System/AI Service (internal)**
   * Processes documents, runs anomaly score, sends notifications.

**Core Features**

**A) Policy & Product Management (Provider)**

* Create/Update **Group Products**: coverage, premium rules, eligibility, exclusions, rider options.
* Price configuration: **per-employee tiering** or slab (e.g., 0–500 employees → ₹X).
* Document templates: master policy wording, E‑cards.

**B) Corporate Onboarding & Purchases**

* Corporate registration (domain, GSTIN, contact).
* Quote → Purchase flow: select product, employee count, riders → premium calc → invoice → activation.
* **Auto‑assignment rules** (e.g., all employees in dept “Sales” get Plan B).

**C) Employee & Coverage Management**

* Bulk CSV upload/API sync with HRIS.
* Assign policies/riders per employee; generate **E‑card** (PDF) with QR.

**D) Claims Workflow**

* **Employee** submits claim (form + bills + prescriptions).
* **Corporate Admin** review → forward to **Insurer**.
* **Insurer** adjudication → approve/partially approve/reject → settlement note.
* SLA tracking, audit log, comments, attachments.

**E) Renewals & Reminders**

* Upcoming renewal dashboard; premium re‑calculation by headcount.
* Automated **email/in‑app** reminders (T‑60/T‑30/T‑7 days).

**F) Analytics & Reports**

* **Insurer**: premiums by corporate, loss ratios, avg claim size, month‑on‑month trends.
* **Corporate**: coverage utilization, claim distribution, pending SLAs, expiring policies.
* Export: CSV/PDF.

**G) Notifications & Audit**

* Notification center + email: purchase events, claim status, approvals.
* Full audit trail: who did what, when.

**AI Add‑Ons**

1. **Document AI (OCR + NLP)**
   * Ingest PDFs/JPGs: master policy, invoices, claim bills.
   * Extract fields: policy number, coverage, expiry, claimant info, billed amount, dates.
   * Confidence scores + human review UI to “accept/override.”
2. **Claim Anomaly Scoring (lightweight)**
   * Hybrid rules + simple model (e.g., Isolation Forest or Logistic Regression) using:
     + Claim amount vs coverage, frequency per employee, provider patterns, time since policy start.
   * Flags high‑risk claims for manual scrutiny (no auto‑denial).
3. **Policy Q&A (optional)**
   * FAQ/Q&A over your product catalog and corporate policy terms (retrieval‑based).

**System Architecture**

**Frontend:** React + React Router + Axios + Recharts/Chart.js  
**Backend (Core APIs):** Spring Boot (Java 17), Spring Security (JWT), Spring Data JPA  
**AI Service (Microservice):** Python FastAPI (OCR/NLP, anomaly scoring)  
**DB:** MySQL