eSAFE

The eSAFE Project is a comprehensive platform designed to assist businesses in accurately identifying the correct National Industrial Classification (NIC) code for their activities, completing compliance-related questionnaires, and managing the ensuing compliance reporting and verification processes through a hierarchical office structure.

Key Aspects of the eSAFE Project

Project Goal:

- Provide an integrated platform (eSAFE) for businesses to identify NIC codes, respond to compliance questionnaires, and handle compliance reporting with verification workflows across administrative levels.

Core Technologies:

- Backend: Django with Django REST Framework (DRF)
- Frontend (User-facing): Django Templates, HTML, CSS, JavaScript
- Frontend (Office/Admin-facing): React
- AI/LLM: Langchain, Google Generative AI (Gemini), OpenAI (GPT-4o-mini)
- Database: PostgreSQL

Modules and Features

Module 1: User Management & Initial Interaction (aiform_app)

- User functions include registration with email and OTP verification, secure login, dashboard with profile management, and AI-powered chatbot interface for describing business activities.
- NIC Code Handling: The chatbot helps collect business descriptions to suggest suitable NIC codes. Users select NIC codes and fill out dynamically generated compliance questionnaires.
- Data Models:
    - Users, OTPs, User profiles, NIC code requests, compliance questions, and user responses.
- AI Agents:
    - Assist in business description chatbot, NIC code template selection, and compliance report generation using OpenAI and Google Gemini AI.

- Workflow:
  User registers → Interacts with chatbot → NIC code suggested → Questionnaire assigned → Responses saved → Tracking ID provided → User monitors compliance report status.

Module 2: Office & Admin Management

- Enables role-based access control with distinct roles such as Master Admin, Organization Admin, and Office User.
- Provides management of organizations, hierarchical office structures, user roles, templates, and compliance report lifecycle.
- Admin Features:
  - Create and manage Organizations, Offices, Hierarchy Levels, and Office Users.
  - Template and question generation (manual or AI-assisted from PDFs).
  - Compliance report review, verification, submission, and approval workflow.
- Data Models:
  - MasterAdmin users, Organizations, Offices, Employees, Templates, Questions, Compliance Reports.
- AI Agents:
  - Generate compliance questions from text/PDF inputs and detailed prompts.
- Frontend Services:
  Modular React services for authentication, administration, templates, office, and compliance report workflows.
- Workflow:
  Master Admin setup → Organization creation → Hierarchy and office setup → Office User and Employee management → Template creation and question generation → Inspector reviews NIC requests → Compliance reports generated, verified, and approved at multiple levels → End users can track status and view final reports.

Cross-Cutting Concerns

- Security:
  Implements password hashing, CSRF protection for forms, JWT authentication for APIs, and role-based permissions.

- Scalability:
  Database indexing and possible use of asynchronous processing (e.g., Celery) for AI tasks.
- Inter-App Integration:
  Central role of NicCodeRequest with tracking IDs linking user-submitted data to organizational compliance workflows.
- AI Utilization:
  AI agents streamline business description analysis, NIC code template matching, questionnaire and report generation supporting both users and administrative staff.

Summary

The eSAFE Project is a robust e-governance platform that facilitates regulatory compliance for businesses by integrating AI-powered NIC code identification and questionnaire automation with a comprehensive office/admin backend for managing compliance validation and reporting. This solution leverages modern web technologies and AI tools to deliver seamless interactions for users and office staff while maintaining strong security and administrative controls.