

ProJectra — Application Summary Report

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1. Overview

ProJectra is a full stack project management application with a React (Vite) frontend and a Node.js/Express/MongoDB backend. The app includes authentication, role based access for project operations, real time sockets, and AI assisted features with rate limited endpoints.

2. Architecture & Tech Stack

- Frontend: React + TypeScript (Vite).
- Backend: Node.js + Express with MongoDB (Mongoose).
- Auth: JWT with bearer token stored in localStorage (key: pj_access_token).
- Security middleware: helmet, cors, express-rate-limit, cookie-parser.
- Real-time: Socket.IO integrated on the server.

3. Backend API Summary (Major Route Groups)

- Auth: /api/auth — login, register, me, etc.
- Users: /api/users — profile update and management.
- Teams: /api/teams — team CRUD.
- Projects: /api/projects — list, create (role based), get, update, delete, reporting.
- Tasks: /api/tasks — task CRUD and status updates.
- Admin: /api/admin — administrative actions.
- Misc/Net:/api (misc.routes, network.routes) — health and misc endpoints.
- Perf: /api/performance — performance checks.
- AI: /api/ai — AI assistant features with rate limiting.

4. AI Endpoints (/api/ai)

- GET /health — AI service health check.
- POST /chat — general AI chat.
- POST /task-assistance — contextual help for tasks.
- POST /project-onboarding — onboarding assistance for projects.
- POST /skill-development — suggestions for skill growth.

All AI endpoints are protected by authentication and an hourly rate limit (default: 100 requests/hour, configurable via AI_RATE_LIMIT_PER_HOUR).

5. Frontend Features

- Header: global search (focus with "/"), quick navigation (press B to open Board), notifications, AI panel toggle.
- AuthContext: persists JWT and basic user info in localStorage; provides login/logout helpers.
- Route protection: ProtectedRoute redirects unauthenticated users to /login.
- Projects page: lists projects via /api/projects, allows creating new projects (name, description).
- Profile page: fetches /auth/me and updates /users/me (name, avatar, preferences like theme and notifications).

6. Security, Middleware & Rate Limiting

- helmet for security headers; cors with configurable origins.
- express-rate-limit on /api/auth and AI endpoints.
- morgan request logging; cookie-parser; JSON body parser (2MB).

- Role-based authorization for project mutations (Admin, ProjectManager).

7. Realtime (Socket.IO)

The server initializes a Socket.IO instance and logs connection/disconnection events. This enables future real time features such as live task updates or notifications.

8. How to Generate This PDF

- Install deps: `npm run install:all`
- From the repo root, run: `npm run generate:report`
- The PDF will be saved as `Projectra_App_Report.pdf` in the repository root.

9. Appendix: Environment & Build

- Server dev: `npm run server`
- Client dev: `npm run client`
- Build client: `npm run client:build`
- Run both dev servers concurrently (Windows helper): `npm run dev:win`