Project Report: AI-Powered Resume Evaluation System

This project report outlines the backend architecture and implementation of an AI-powered Resume Evaluation System developed using Node.js, Express, and Prisma ORM. The system leverages OpenAI API and ChromaDB for intelligent candidate assessment based on job descriptions and project reports.

1. System Architecture
The backend system follows a RESTful architecture and integrates multiple components: **Authentication:** JWT-based login and registration using bcrypt for password hashing. **File Handling:** Multer for CV and project PDF upload. **Text Extraction:** PDF-parse to extract candidate information. **AI Embedding:** OpenAI embeddings (text-embedding-3-small) for semantic vector representation. **Vector Storage:** ChromaDB for storing and retrieving vectorized job descriptions and candidate profiles. **Evaluation Engine:** GPT-4o model for candidate evaluation and feedback generation.

2. Implementation Details
The backend exposes multiple routes: POST /auth/register — register new user. POST /auth/login — authenticate and issue JWT token. POST /cv/upload — upload CV and project files. POST /evaluate — perform AI-based evaluation using CV, project, and job references. All database interactions are managed through Prisma ORM with MySQL. The embeddings and evaluation results are persisted to ensure traceability and reusability.

3. Technology Stack
Node.js 20 + Express Prisma ORM + MySQL ChromaDB (Vector Database) OpenAI / OpenRouter API JWT Authentication PDF Parsing and Multer for File Handling

4. Summary
The system successfully integrates AI and backend development principles to automate resume and project evaluation processes. It demonstrates practical knowledge in API development, authentication, AI model integration, and scalable architecture aligned with modern backend engineering practices.