Smart Resume Screening

Title: Smart Resume Screening System
Subtitle: AI-Powered Resume Analysis with Spring Boot & AWS
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Platform: AWS Elastic Beanstalk

Project Overview

- AI-powered system for automatic resume analysis and scoring.
- Built using **Spring Boot**, **Docker**, and **AWS Elastic Beanstalk**. • Integrates with **OpenAI API** to evaluate resumes intelligently.
- Supports **role-based authentication** for users and admins.

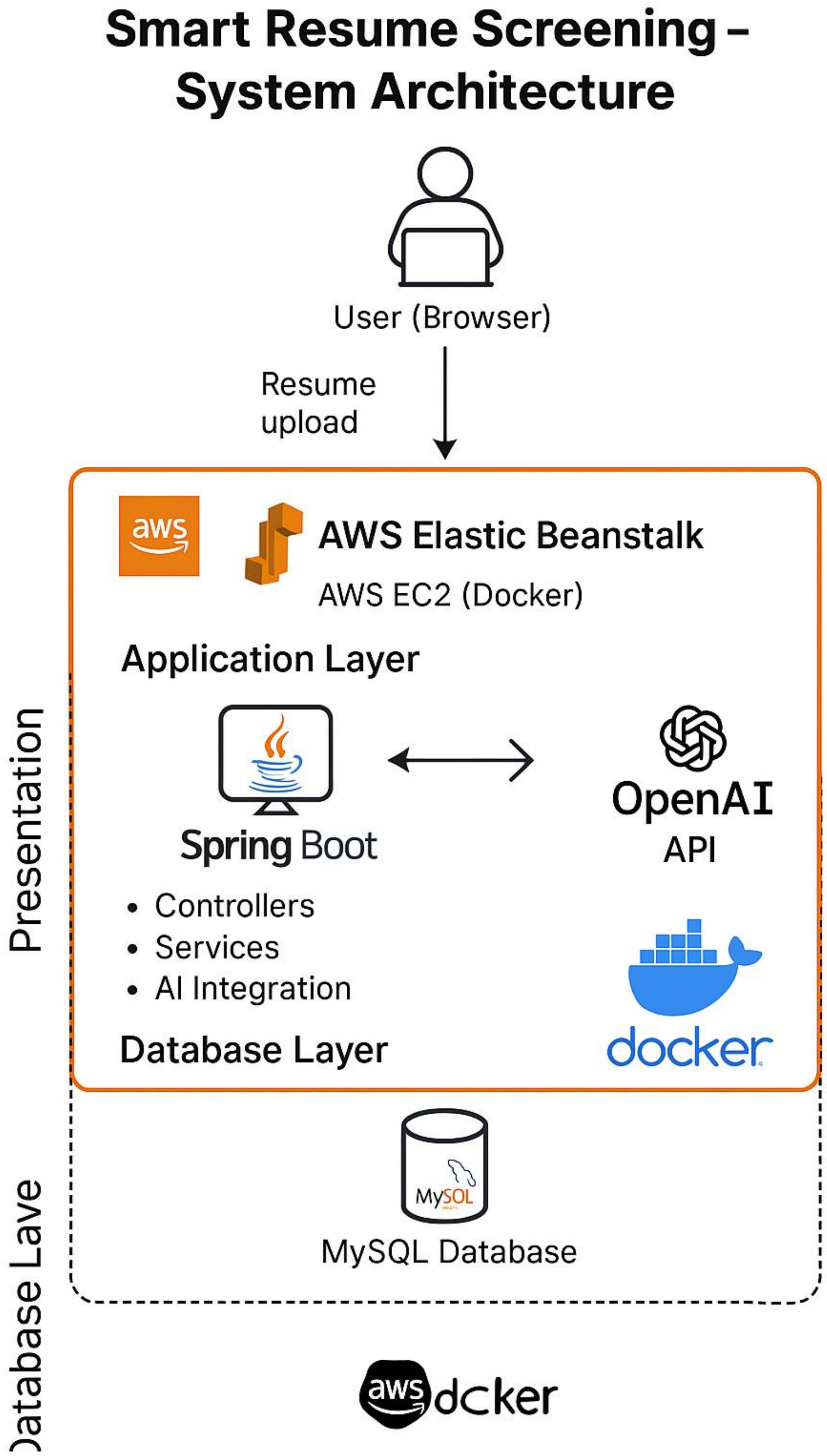
Core Technologies

- **Backend:** Spring Boot (Java 17)
- **Frontend:** Thymeleaf, HTML, CSS, JS
- **Database:** H2 (dev) / MySQL (prod)
- **AI Integration:** OpenAI GPT API
- **Deployment:** Docker + AWS Elastic Beanstalk

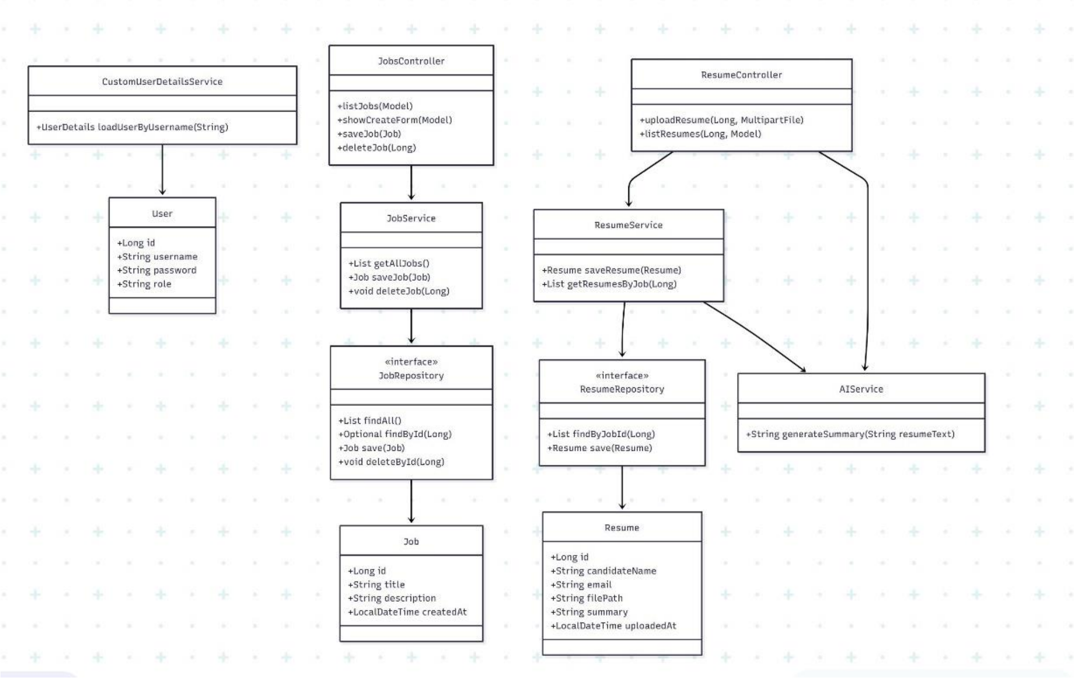
System Architecture (Overview)

Three-Tier Architecture: 1. **Frontend Layer:** User interface built with Thymeleaf templates.
2. **Backend Layer:** Spring Boot app handling logic, APIs, and security.
3. **Database Layer:** Stores user data and AI results (H2/MySQL).

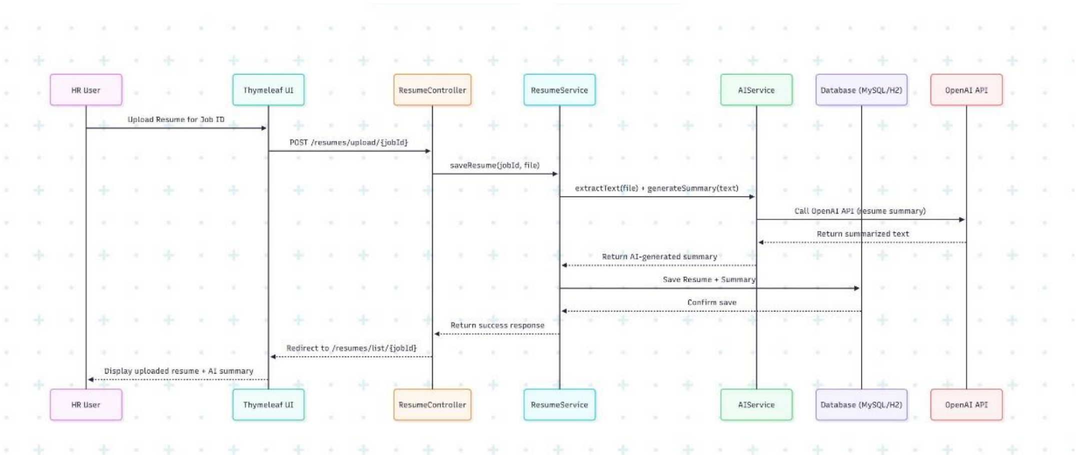
AWS Deployment Architecture



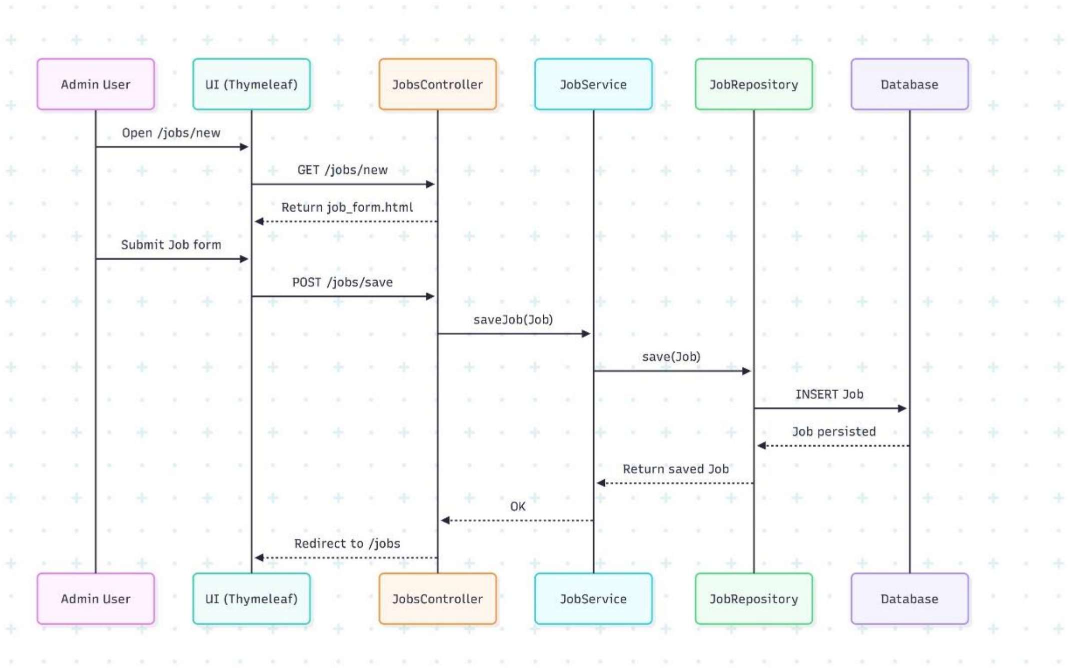
Class Diagram



Resume Upload & Screening Flow



Job Management Sequence



- **Elastic Beanstalk:** Hosts and manages Dockerized Spring Boot app.
- **EC2 Instance:** Runs the application container.
- **Optional RDS MySQL:** For persistent data storage.
- **S3 Bucket:** Stores app deployment packages.
- **IAM Roles:** Manage access and permissions.

Data Flow

1. User uploads a resume via the UI.
2. Controller parses and extracts text.
3. AI Service sends text to OpenAI API.
4. OpenAI returns insights and recommendations.

5. Results displayed on UI and optionally stored in DB.

Security Design

- **Spring Security** for authentication and authorization.
- Roles:
- **Admin:** Manage users and view all results.
- **User:** Upload and analyze resumes.
- Passwords encrypted with BCrypt.

Docker Configuration

- Multi-stage Docker build for optimized deployment.
- Services:

- `app` (Spring Boot backend)
- `mysql` (Database container)
- Environment variables for DB credentials and JPA settings.

Benefits of Using AWS Beanstalk

- Simple deployment & scaling.
- Handles EC2 provisioning automatically.
- Integrated monitoring and logging.
- Supports Docker out-of-the-box.

Future Improvements

- Integrate **RDS** for persistent DB.
- Add **S3** for resume storage.
- Improve AI prompts for job-specific screening.
- Add **CI/CD pipeline** with GitHub Actions.

Summary

- End-to-end AI-driven resume screening platform.
- Cloud-native, containerized, and scalable.
- Built with modern Java stack and AWS services.

Thank You

Questions?
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