Project Synopsis

AI-Powered Resume Screener

Problem Statement:

Recruitment processes are often overwhelmed by the large volume of resumes received for each job opening. Manually screening resumes is time-consuming, prone to human bias, and often inconsistent in evaluating candidate-job fit. HR professionals spend a significant amount of time shortlisting candidates, which delays hiring decisions and increases organizational costs.

Proposed Solution:

The AI-Powered Resume Screener is a **backend system built with Spring Boot** that leverages **Natural Language Processing (NLP) and Machine Learning models** to automate resume screening. The system extracts text from uploaded resumes (PDF formats), compares the extracted content against a provided job description, and assigns a **relevance score** to each candidate. A **dashboard built in React** provides recruiters with ranked candidate lists, reducing manual effort and improving decision-making efficiency.

Objectives:

- To automate the resume shortlisting process, saving time and reducing costs.
- To ensure fair and consistent candidate evaluation based on job requirements.
- To enable HR professionals to focus on quality interviews rather than resume scanning.
- To integrate AI-driven insights for smarter hiring decisions.

Methodology:

- **Backend (Spring Boot):**
  - Develop REST APIs for resume upload, text extraction, scoring, and ranking.
  - Implement authentication and role-based access for HR users.
- **NLP & AI Model:**
  - Use spaCy / Hugging Face transformers / TensorFlow for extracting skills, experience, and keywords.
  - Match resumes against job descriptions using semantic similarity scoring (e.g., cosine similarity, BERT embeddings).
- **Resume Parsing:**
  - Integrate libraries like Apache Tika / PDFBox for text extraction from resumes.
- **Database**:
  - Use **MongoDB** to store candidate data, job descriptions, and scoring results.
- **Frontend (Angular/React)**:
  - Dashboard to view ranked candidates with filters (skills, score, experience).

Expected Outcome:

- A fully functional AI-powered recruitment tool that ranks candidates based on job fit.
- Significant reduction in manual screening time for HR professionals.
- Consistent and unbiased evaluations powered by NLP models.
- A scalable foundation that can be extended with advanced features like chatbot-assisted interviews, video resume analysis, or predictive candidate success models.