Project Title: Project Title:"AI-Driven Intelligent Skill-Based Role Recommendation Model for Optimized Recruitment"

Abstract

The AI-Driven Resume and Job Matching System for Optimal Talent Acquisition is designed to enhance the recruitment process by intelligently connecting candidates with the most relevant job opportunities. Utilizing advanced machine learning algorithms and natural language processing, the system analyzes job requirements and candidate profiles to identify the best-fit opportunities. By leveraging data-driven insights and predictive analytics, it ensures a seamless and efficient hiring experience for both employers and job seekers. This system optimizes talent acquisition by fostering meaningful connections, reducing hiring complexities, and improving overall workforce alignment.

Problems in the Existing System

1. Time-Consuming Manual Screening – HR professionals spend excessive time reviewing resumes.
2. Mismatch in Job Selection – Candidates often apply for roles that do not match their skills.
3. Lack of Data-Driven Insights – Traditional hiring processes do not leverage predictive analytics.
4. Inefficient Talent Acquisition – Employers struggle to find the best-fit candidates efficiently.
5. Bias in Recruitment – Human-led screening can lead to unconscious bias in hiring.

Purpose of the Project

- To automate and optimize the recruitment process using AI-driven algorithms.
- To provide accurate job recommendations for candidates based on their profiles.
- To enable employers to quickly identify the best-fit candidates.
- To enhance data-driven decision-making in hiring.
- To minimize bias and increase fairness in the recruitment process.

Functional Requirements

1. Resume Parsing & Analysis – Extract key skills, experience, and qualifications from resumes.
2. Job Matching Algorithm – AI-based matching of candidates with job postings.
3. Job Posting & Management – Employers can create, edit, and manage job listings.
4. Recommendation System – Personalized job recommendations for candidates.
5. Feedback & Review System – Employers can provide feedback on applications.

System Modules

1. AI Job Matching Module – NLP-based resume analysis and job compatibility scoring.
2. Application Module – candidate applications and employer responses.
3. Recommendation System – Provides job suggestions based on user behavior and data.

System Requirements

Hardware Requirements:

- Processor: Intel i5 or higher
- RAM: 8GB minimum
- Storage: 250GB SSD or more
- Internet Connectivity: Stable broadband connection

Software Requirements:

- Operating System: Windows
- Pycharm , python
- Required AI Libraries

Front End and Back End of System

- Front End (Client-Side): StreamLit
- Back End (Server-Side): Python , Machine Learning Models , AI models