

AI RESUME SCREENING & CANDIDATE RANKING SYSTEM

AICTE INTERNSHIP ON AI: TRANSFORMATIVE LEARNING WITH TECHSAKSHAM
'AJOINT CSR INITIATIVE OF MICROSOFT & SAP'

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OVERVIEW

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INTRODUCTION

The Resume Ranking System is an AI-powered application designed to automate and optimize the hiring process. It analyzes resumes against job descriptions using NLP techniques like TF-IDF and BERT, ensuring efficient and fair candidate evaluation. This system helps recruiters quickly identify the most suitable candidates, reducing manual effort and improving decision-making accuracy.



PROBLEM STATEMENT

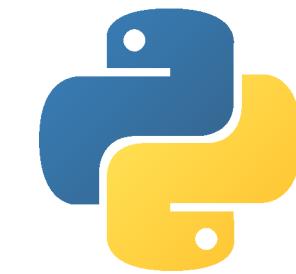
Recruiters often struggle with manually screening a large number of resumes, leading to inefficiencies, biases, and missed potential candidates. Traditional methods are time-consuming and lack accuracy in matching job requirements with candidate skills. This project aims to develop an AI-powered Resume Ranking System that automates resume screening using NLP techniques, ensuring fair, efficient, and accurate candidate evaluation. By ranking resumes based on job descriptions, this system streamlines hiring and enhances recruitment decision-making.

PROPOSED SOLUTION

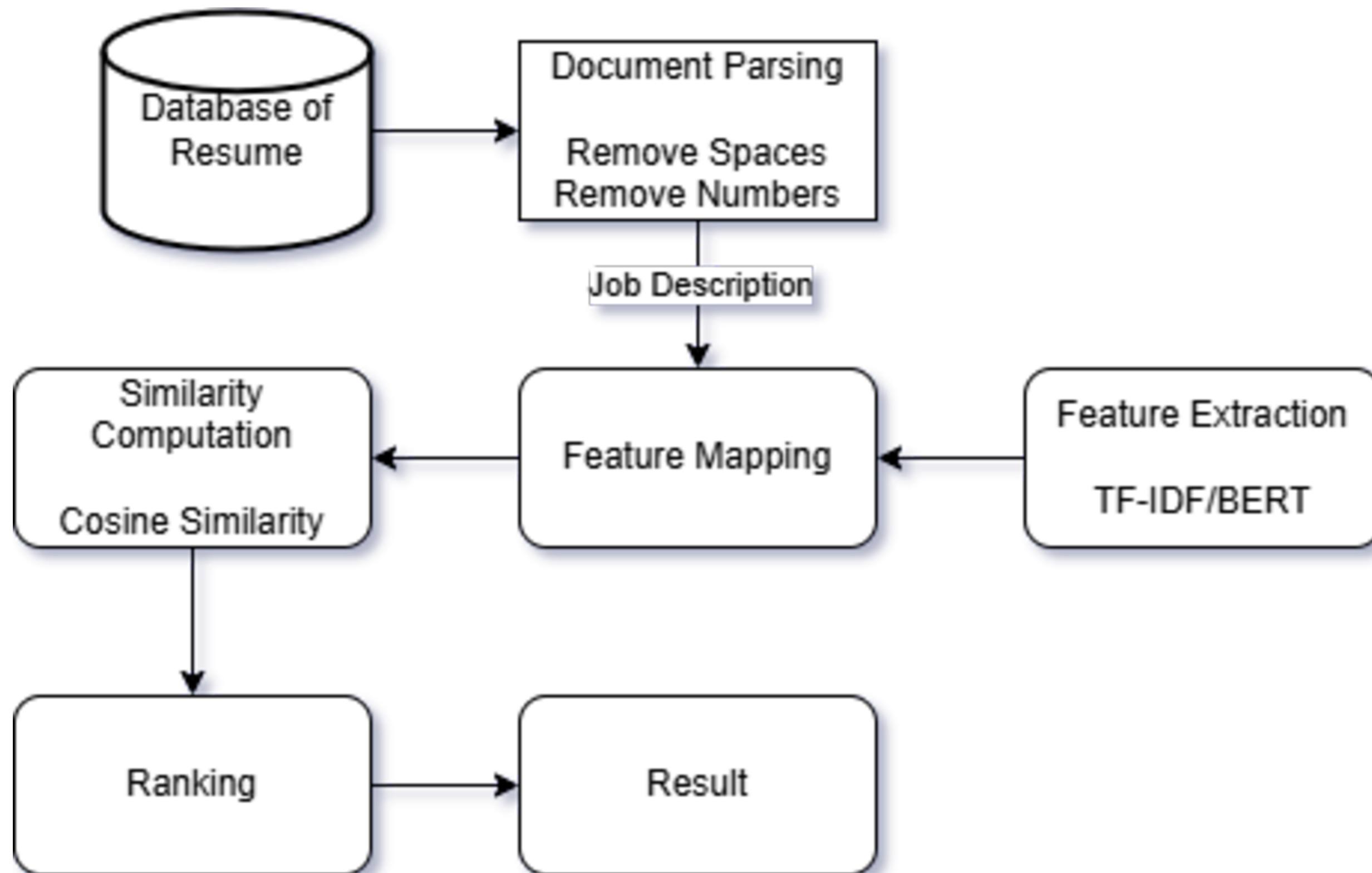
- **Automated Resume Screening** – Develop an AI-powered system that analyzes and ranks resumes based on job descriptions.
- **Natural Language Processing (NLP)** – Utilize NLP techniques to extract and compare key skills, experience, and qualifications.
- **Similarity Matching** – Implement TF-IDF, Word Embeddings, or BERT to measure the relevance of resumes to job requirements.
- **Scoring Mechanism** – Assign weighted scores based on skill match, experience, and keyword relevance.
- **Efficient and Unbiased Hiring** – Reduce manual efforts, eliminate biases, and ensure fair candidate selection.
- **User-friendly Interface** – Provide an intuitive interface for recruiters to upload job descriptions and receive ranked resumes.

SOFTWARE REQUIREMENT

- **Frontend:**
 - Streamlit (for UI and user interaction)
- **Backend:**
 - Python (for processing and ranking resumes)
- **Libraries:**
 - Natural Language Processing (NLP) libraries (e.g., spaCy, NLTK, or transformers)
 - Scikit-learn (for text vectorization and ranking algorithms)
 - Pandas (for data handling)
- **Hosting:** Streamlit Cloud



SYSTEM ARCHITECTURE



PROJECT PLAN

Phase 1: Requirement Analysis & Data Processing

- Identify project goals and software requirements.
- Collect resumes and job descriptions.
- Perform document parsing (removing spaces, numbers, and stopwords).

Phase 2: Model Development & Feature Engineering

- Extract features using TF-IDF (Term Frequency-Inverse Document Frequency).
- Implement Cosine Similarity for similarity computation.
- Use KNN (K-Nearest Neighbors) Algorithm for ranking resumes.

Phase 3: System Development (Frontend & Backend)

- Develop the frontend using Streamlit for a user-friendly interface.
- Implement the backend using Python to process resumes and job descriptions.
- Integrate both components for smooth functionality.

Phase 4: Testing, Deployment & Documentation

- Test the system with real-world resumes and job descriptions.
- Evaluate performance and optimize ranking accuracy.
- Deploy the project and prepare documentation & PPT for presentation.

FUTURE SCOPE

- **Integration with ATS (Applicant Tracking System):** Automate resume ranking for real-world hiring processes.
- **Machine Learning-Based Ranking:** Implement deep learning models like BERT for better semantic understanding.
- **Multi-Criteria Ranking:** Consider additional factors like work experience, skills, and certifications for more accurate ranking.
- **Support for Multiple File Formats:** Extend compatibility to PDFs, DOCX, and other resume formats.
- **Real-Time Feedback for Applicants:** Provide instant suggestions for improving resumes based on job descriptions.
- **Scalability & Cloud Deployment:** Deploy the system on cloud platforms for large-scale processing.
- **Multilingual Support:** Extend the system to rank resumes in different languages for global job markets.

CONCLUSION

The Resume Ranking System efficiently streamlines the hiring process by automatically ranking resumes based on job descriptions. By leveraging TF-IDF for feature extraction and cosine similarity for ranking, it provides recruiters with the top-matching resumes, reducing manual effort and improving decision-making. With further enhancements like machine learning models, multi-criteria ranking, and real-time feedback, this system has the potential to revolutionize recruitment processes, making them more accurate, scalable, and time-efficient.

THANK YOU

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