RESUME ANALYSER

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Abstract - The Resume Analyzer is an advanced web-based platform designed to streamline and enhance the recruitment process by leveraging intelligent resume assessment. The system provides separate interfaces for admins (recruiters) and job seekers, fostering an efficient and interactive environment for both parties.

For admins, the system allows the creation and management of job descriptions, enabling them to evaluate resumes uploaded by job seekers. Admins can analyze the content of resumes, provide personalized suggestions for improvement, and assign an accuracy percentage, reflecting how well a resume aligns with the requirements of the specified job role.

Key Words: Description, Admins, Job seeker

1. INTRODUCTION

The Resume Analyzer project is a comprehensive platform designed to simplify and optimize the recruitment process by providing intelligent resume evaluation. With the increasing competition in the job market, job seekers often struggle to tailor their resumes effectively to meet job-specific requirements.

Simultaneously, recruiters face challenges in sifting through large volumes of resumes to identify the best candidates.

2. LITERATURE REVIEW

A. Resume Parser and Analyzer Using NLP:

Authors: S. S. Kulkarni, S. S. Patil, and S. S. Joshi
Published in: International Research Journal of Modernization in Engineering Technology and Science (IRJMETS), April 2023
This paper presents a system that enables recruiters to analyze resumes in simple file formats with ranking. It focuses on parsing resumes for field extraction and provides suggestions to enhance resume quality.

B. Resume Screening using Machine Learning:

Authors: Dr. Sandeep Tayal, Ankit Kumar, and Anshul Gupta

Published in: International Journal of Scientific Research in Computer Science, Engineering and Information Technology (IJSRCSEIT), April 2024

This study explores the utilization of Machine Learning (ML) and Natural Language Processing (NLP) in automating the resume screening process. Traditional methods, often manual and subjective, fail to efficiently manage the volume and variety of resumes. By employing NLP techniques like named entity recognition and part-of- speech tagging, coupled with ML classifiers such as K-Nearest Neighbors and Support Vector Machines, the authors propose a system that enhances the precision of candidate selection while significantly reducing time and effort.

C. Automated Resume Parsing-A Natural Language Processing Based Approach:

Authors: S. Thangaramya and T. Logeswari
Published in: 2022 International Conference on Intelligent Computing and Control Systems (ICICCS)

This paper introduces a resume parser that integrates two methodologies: a Named Entity Recognition (NER) model approach and a Keyword and Pattern Matching model approach. The system is designed to extract relevant information from resumes, facilitating efficient candidate selection processes.

3. METHODOLOGY

The proposed method for a resume analyzer project involves a multi-stage pipeline designed to ensure efficiency and accuracy in the recruitment process. The first stage involves data ingestion, where resumes are uploaded in diverse formats, such as PDF, Word, or plain text. Optical character recognition (OCR) techniques are employed to extract text from image-based resumes. Once the data is extracted, a preprocessing phase follows, which standardizes the content by removing noise, such as special characters, and correcting inconsistencies like irregular formatting. This ensures uniformity and prepares the data for further analysis.

Next, the system uses natural language processing (NLP) techniques to extract relevant information. Named Entity Recognition (NER) is employed to identify and categorize key entities such as names, educational qualifications, professional experiences, skills, and certifications. In addition, keyword extraction algorithms and dependency parsing are used to identify role-specific skills and achievements. To enhance contextual

understanding, pre-trained language models like BERT or ROBERT are fine-tuned on recruitment-related datasets to capture nuanced relationships between job descriptions and resume content.

A critical part of the proposed method is the matching and ranking mechanism. Using semantic similarity measures, the system compares the extracted features from resumes against the job requirements. Algorithms like cosine similarity, combined with embeddings generated from advanced NLP models, are used to calculate compatibility scores. Machine learning classifiers, such as random forests or support vector machines (SVM), are trained on labeled datasets to predict candidate suitability. For ranking, the system implements multi-criteria decision analysis, which weighs various factors like experience, skills, and education to provide a comprehensive evaluation.

4. RESULTS

The Resume Analyzer successfully streamlines the recruitment process by offering a structured platform for resume evaluation. The outcomes of the project include:

Job seekers receive detailed feedback and suggestions to optimize their resumes based on job-specific requirements, leading to improved alignment with industry standards. Admins can efficiently evaluate resumes with the aid of an automated accuracy percentage and suggestions, significantly reducing the time spent on manual screening. By analyzing resumes against job descriptions, the system ensures better matches, enhancing both the quality of applications received and the job seekers' chances of success. The platform provides intuitive interfaces for both job seekers and admins, ensuring seamless navigation and interaction. The accuracy percentage metric introduces a fair, consistent, and objective method to assess resumes, minimizing biases in the recruitment process. Overall, the Resume Analyzer effectively bridges the gap between job seekers and employers, offering a robust tool to refine recruitment workflows and improve employment outcomes.

5. CONCLUSIONS

The Resume Analyzer project successfully leverages advanced technologies like machine learning and natural language processing (NLP) to automate and optimize the recruitment process. By analyzing resumes, extracting key information, and matching candidates to job descriptions, the system significantly reduces the time and effort required for manual screening, while ensuring a more objective and data-driven approach to candidate selection. With features like skill matching, candidate

ranking, and real-time feedback, the Resume Analyzer enhances recruitment efficiency, helps recruiters make informed decisions, and provides valuable insights to improve the overall hiring process.

The project demonstrates the potential of AI to transform traditional recruitment practices by minimizing human biases, streamlining candidate evaluation, and improving the quality of hires. While the system performs well in its current form, there is ample scope for further improvements and additions, such as AI-driven feedback for candidates, multilingual support, and integration with emerging technologies like video resume analysis and blockchain for data security. Overall, the Resume Analyzer project represents a significant advancement in how recruitment can be automated, offering an innovative solution to meet the growing demands of the modern hiring landscape.

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