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Job Screen AI – Automated Resume Screening system

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Abstract
This paper presents an Automated Resume Screening System utilizing AI model to enhance recruitment efficiency. The system automates the process of evaluating resumes against job descriptions, reducing manual effort and improving hiring accuracy. By leveraging AI for analysis, the system provides timely feedback to applicants and assists employers in selecting the most suitable candidates. The paper discusses the literature survey, methodology, and potential enhancements for AI-driven recruitment systems.
Keywords: *Automated Resume Screening, AI in Recruitment, Applicant Tracking System (ATS), Machine Learning in Hiring, Natural Language Processing (NLP), Candidate Evaluation, AI-Powered Screening, Recruitment Automation, Resume Matching, AI-Based Hiring System.*

1. Introduction
The hiring process is often lengthy and requires significant effort from employers to review numerous job applications. Traditional resume screening methods are not only time-consuming but can also be inconsistent and prone to bias. Many applicants do not receive feedback on why they were not selected, making it difficult for them to improve their resumes and job prospects. To address these challenges, an Automated Resume Screening System can help streamline the recruitment process by providing a more efficient, objective, and structured approach to candidate evaluation. This system aims to reduce the manual workload for employers while ensuring that applicants receive constructive feedback to enhance their chances of success in future job applications. The system works by allowing employers to post job openings, collect applications, and send resumes for automated screening. Applicants can browse job listings, submit applications, and receive updates on their status. This system evaluates resumes based on their relevance to the job description. Applicants who meet the required criteria are shortlisted, while others receive suggestions for improving their resumes. Additionally, the system ensures that job applications are processed in a timely manner and that applicants receive prompt notifications regarding their application status. By making the recruitment process faster, fairer, and more transparent, this system benefits both employers and job seekers, ultimately leading to better hiring decisions and improved career opportunities

2. Literature Survey
The use of artificial intelligence and automation in recruitment has greatly enhanced the efficiency of resume screening by minimizing manual effort and improving candidate selection accuracy. Studies on AI-driven applicant tracking systems highlight their ability to optimize the hiring process through automated candidate assessments and reduced human bias. Comparisons between rule-based models, machine learning techniques, and deep learning methods indicate that natural language processing models significantly improve the extraction of candidate skills, experience, and qualifications, leading to more precise job matching. Machine learning algorithms such as random forests, decision trees, and neural networks have demonstrated candidate-job matching accuracies exceeding 90%.

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However, challenges such as inconsistent resume formats, missing information, and keyword optimization strategies employed by applicants can impact system accuracy. To address these issues, hybrid models that combine machine learning with recruiter feedback loops have been suggested, enhancing candidate recommendations and overall system performance.

3. Methodology

The method of implementation of the Automated Resume Screening System involves integrating various components to facilitate job posting, application submission, resume screening, and feedback generation. The system is built with a structured workflow that ensures a seamless experience for both employers and applicants. It follows a step-by-step process where employers create job postings, applicants submit their resumes, and an AI-driven screening model evaluates the applications. The entire implementation focuses on automation, efficiency, and user-friendliness, ensuring that hiring decisions are made based on structured and data-driven analysis. The project is implemented using Django.

3.1. Job Posting and Application Submission

The first step in the system's workflow is job posting. Employers can log in to their dashboard and create job postings with relevant details such as job title, description, and required qualifications. These postings are stored in the Django's SQLite3 database and made available to applicants. Applicants, on the other hand, can browse through job openings and submit their applications by filling out forms and uploading their resumes. The system ensures that all submitted applications are securely stored and linked to the respective job postings, making it easier for employers to review them.

3.2. AI-Powered Resume Screening

Once applications are received, employers can initiate the screening process. The system uses the AI-based model Gemini prompted in such a way that it acts like an ATS to analyze resumes and compare them with the job description. The model compares the text in the resume and the job description and computes the similarity. Candidates who meet the predefined similarity threshold are marked as eligible, while others receive constructive feedback on how to improve their resumes. This automated screening eliminates the need for manual resume shortlisting, reducing bias and ensuring a fair and objective evaluation.

3.3. Task Scheduling and Processing

To manage multiple screening requests efficiently, the system uses a task scheduling mechanism. This ensures that the resume evaluations are processed systematically without delays, even when handling a large number of applications. The scheduling mechanism prioritizes tasks, processes resumes asynchronously, and ensures that employers receive screening results in a timely manner. By automating this process, the system minimizes wait times and optimizes resource utilization. The task scheduling is done using Celery and Redis.

3.4. Automated Notifications and Feedback

A key feature of the system is its automated notification and feedback mechanism. Once the model completes the screening, applicants receive an email informing them about their selection status. If a candidate is shortlisted, they receive an approval notification. If not, the system generates an automated response outlining the reasons for rejection along with suggestions for improvement. This structured feedback helps applicants enhance their resumes and increases their chances of success in future job applications.

Conclusion

This system enhances the efficiency and fairness of the hiring process by leveraging AI to analyze resumes and match candidates with job descriptions. By automating the screening process, the system reduces the manual workload for employers, ensures objective candidate evaluations, and provides applicants with valuable feedback to improve their job prospects. The integration of AI-driven decision-making, task scheduling, and automated notifications creates a seamless recruitment experience for both employers and job seekers. While the system significantly improves hiring efficiency, future enhancements could include refining the AI model for better accuracy, incorporating additional data sources for candidate evaluation, and ensuring transparency to mitigate bias. Overall, this system

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represents a step forward in modernizing recruitment by making it more efficient, data-driven, and applicant-friendly.

Results

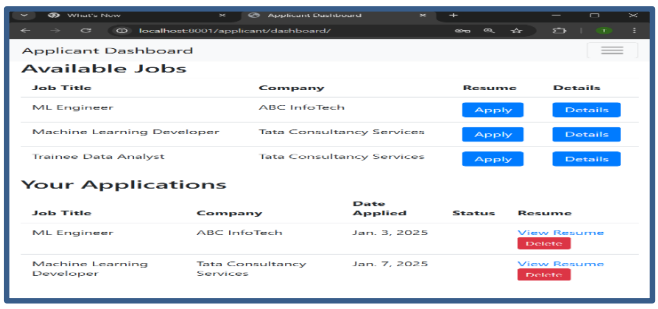

Figure 1 Applicant Dashboard

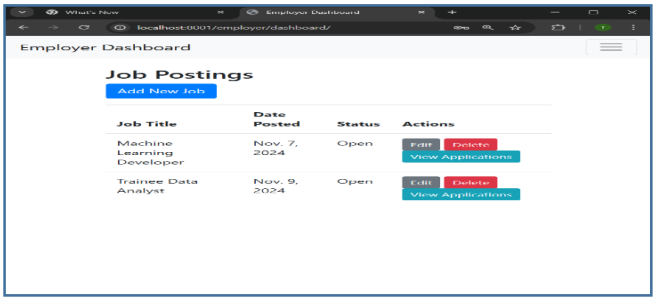

Figure 2 Employer Dashboard

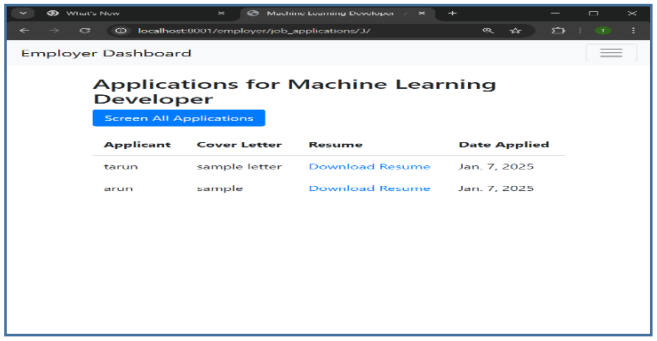

Figure 3 Applications Ready for Screening

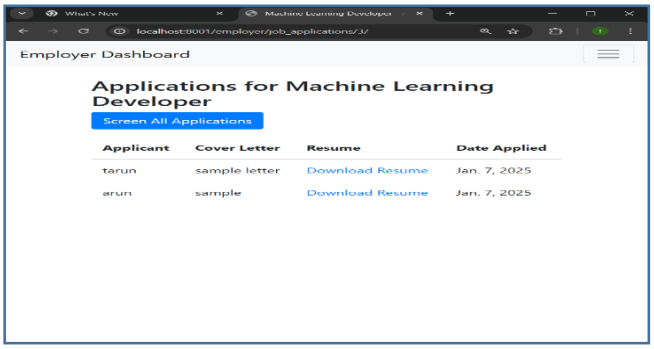

Figure 4 Screening Status with Match Percentage

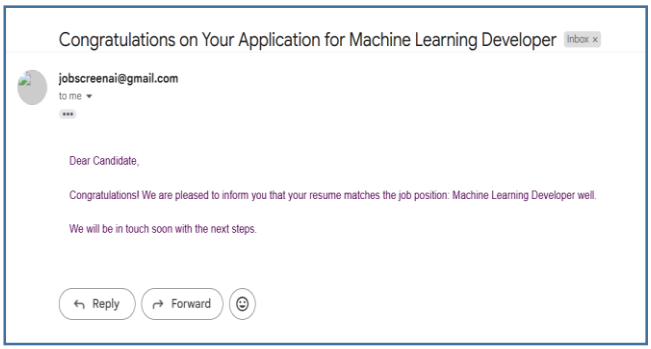

Figure 5 Notification for Selected Candidate

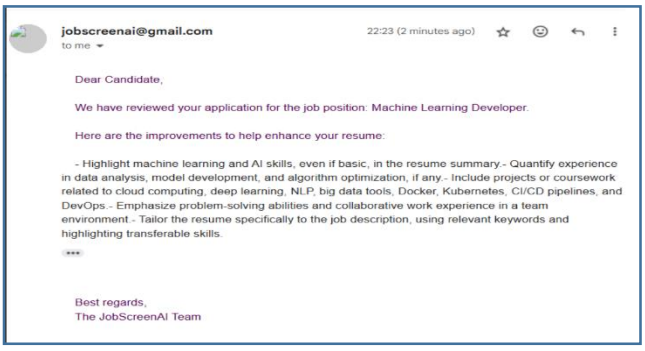

Figure 6 Notification for Unselected Candidate

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