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Resume Parsing Web-App Using AI

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ABSTRACT: Agencies and various high-level firms must deal with a large number of new jobs seeking people with various resumes. However, managing large amounts of text data and selecting the best-fit candidate is more difficult and time-consuming. This paper provides an overview of an ongoing Information Extraction System project that helps recruiters in identifying the best candidate by extracting relevant information from the resume. This project presents a system that uses Natural Language Processing (NLP) techniques to extract minute data from a resume, such as education, experience, skills, and experience. The recruiting process is made easier and more efficient by parsing the resume. The proposed system is made up of three modules: an administration management system, File upload and parser system, and an information extraction system. The administrator will upload the applicant's resume into the system, and the relevant information will be extracted in a structured format. Using the parsed information from the Resume, HR can select the best candidate for the job based on the company's needs.

KEYWORDS: AI-Powered Resume Parsing, Information Retrieval, Entity Recognition, Keyword Extraction, Text-Analysis.

I. INTRODUCTION

Daily, corporate firms and recruiting agencies have to process a large number of resumes. Working with a large volume of text data is usually time consuming and stressful. Data gathered from different resumes can be in a various form, including .pdf, .docx, single column resumes, double-column resumes, free formats, and so on. And these formats might not be suitable for the particular application. So, questions may arise in our mind that, what is resume parsing? The process of converting the unstructured form (.pdf/ .docx / .jpeg etc.) of resume data into a structured format is known as resume parsing.

Subsequently, converting a resume into prepared text or structured information makes studying, analyzing, and comprehending easier. As a result, many organizations and institutions depend on Information Extraction, where unstructured data and vital information are extracted and converted to make information more readable and organized data forms. The completion of this task takes a long time for humans. So, it is necessary to develop an automated intelligent system that can extract all relevant information to determine whether an applicant is suitable for a particular job profile (Kurama, 2021).

The foundation of this project is a resume automation system. Concerning the project, there will be an admin panel at first, into which the administrator must initially log in. Following that, there will be a section for uploading gathered CVs, which the admin will manage. After that, Regex, NLTK, and Spacy's phrase matcher will extract necessary information such as Name, Address, Email, phone number, Nationality, Skills [Hard Skills, Soft Skills], Education, Experience, Experience Year, Languages etc. in json format. Finally, the extracted information or dump JSON file is saved in the database by admin if necessary.

II. SYSTEM MODEL AND ASSUMPTIONS

The system model for the "Resume Parser App Using AI" encompasses several key components and processes to efficiently extract and manage information from resumes. At its core, the system receives resumes in various formats such as PDF, DOC, or TXT as input. These resumes are then processed by a parser module equipped with artificial intelligence and machine learning algorithms. The parser module employs natural language processing (NLP) techniques to analyze the content of resumes, extract relevant information such as personal details, education history, work experience, and skills, and organize it into a structured format. This structured data is then stored in a database for

easy access and retrieval. The system also includes an output interface that allows users to access the parsed resume data in a convenient format, such as JSON or CSV, for further analysis or integration with other applications.

Assumptions underlying the system model include the expectation of consistent formatting within resumes, ensuring that the parser module can effectively extract information regardless of minor variations in layout or structure. Additionally, it assumes that the text quality of resumes is sufficiently high, with legible content and minimal noise or formatting issues that could hinder the parsing process. The system operates under the assumption that resumes are primarily in the English language, though provisions may be made to support other languages in future iterations. It also assumes the availability of a suitable amount of training data for the AI and ML models powering the parser module, enabling accurate extraction of information across a diverse range of resumes. Finally, the system is designed with scalability in mind, capable of handling a large volume of resumes efficiently to meet the demands of users processing resumes in various contexts, such as recruitment agencies or human resources departments.

III.EFFICIENT COMMUNICATION

Incorporating the theme of "Efficient Communication" into the development of your "Resume Parser App Using AI" entails optimizing the interface and functionality to streamline communication between users and the application. One approach could involve implementing real-time feedback mechanisms within the app to guide users through the resume parsing process, offering suggestions for improving readability, formatting, and alignment with job descriptions. Customization options for output formats can further enhance efficiency, allowing users to tailor the presentation of parsed resume data to their specific needs, whether for internal use or external sharing.

Integration with communication tools is another avenue to explore, enabling seamless sharing of parsed resume data directly from the app to email clients or messaging platforms. This feature facilitates swift collaboration among team members, recruiters, and hiring managers, enhancing the efficiency of communication workflows throughout the recruitment process. Moreover, the app can leverage AI-driven automation to generate personalized responses to candidates based on the parsed resume data, facilitating prompt and relevant communication without manual intervention.

Overall, by integrating these features and functionalities into your resume parser app using AI, you can enhance communication efficiency throughout the recruitment process, enabling smoother collaboration, faster response times, and more informed decision-making.

IV.SECURITY

In developing your "Resume Parser App Using AI," security considerations are paramount to safeguard sensitive data and ensure the integrity of your application. To achieve this, robust encryption mechanisms should be implemented to secure data both at rest and in transit, ensuring that data stored in databases is encrypted and that communication between the app and external services is encrypted using protocols like SSL/TLS. Access control measures, such as role-based access control (RBAC), should be enforced to restrict access to sensitive functionalities and data based on user roles, with authentication mechanisms like multi-factor authentication employed to verify user identities.

Secure file handling practices should also be a priority, including upload restrictions, file format validation, and malware scanning to prevent unauthorized access to uploaded resumes and parsed data. Additionally, implementing data masking and anonymization techniques can protect personally identifiable information (PII) in parsed resumes, mitigating the risk of data breaches while still allowing for meaningful analysis. Adherence to secure coding practices is essential to mitigate common vulnerabilities like injection attacks, with regular code reviews and security audits conducted to identify and address potential risks.

V. RESULT AND DISCUSSION

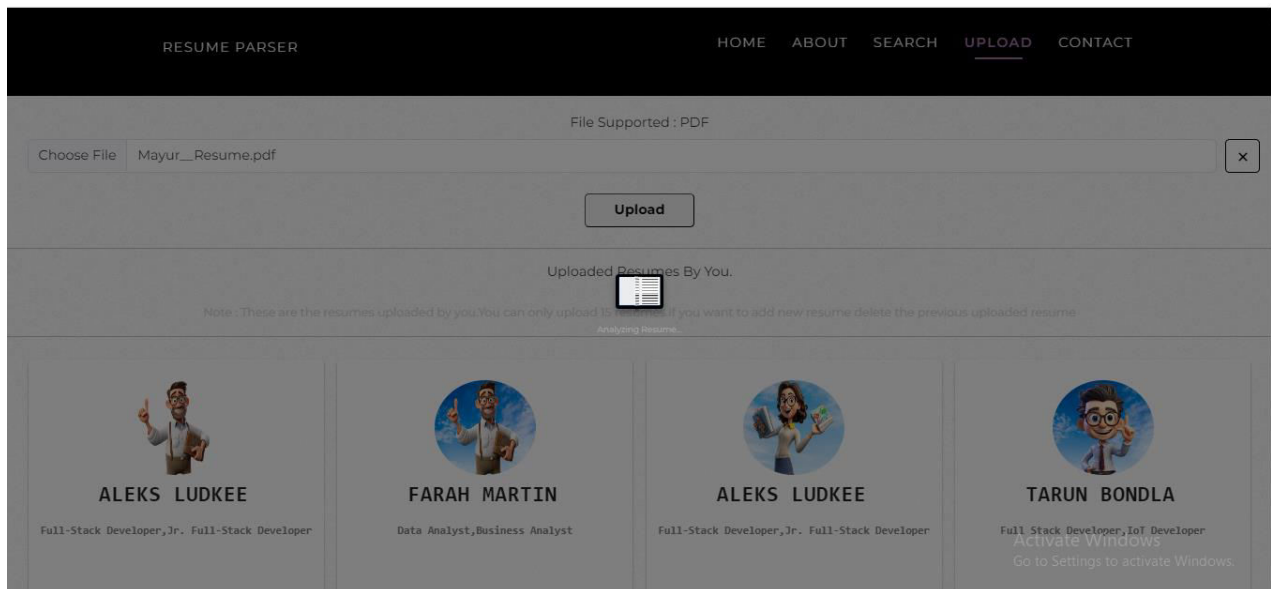


Fig: Upload Page

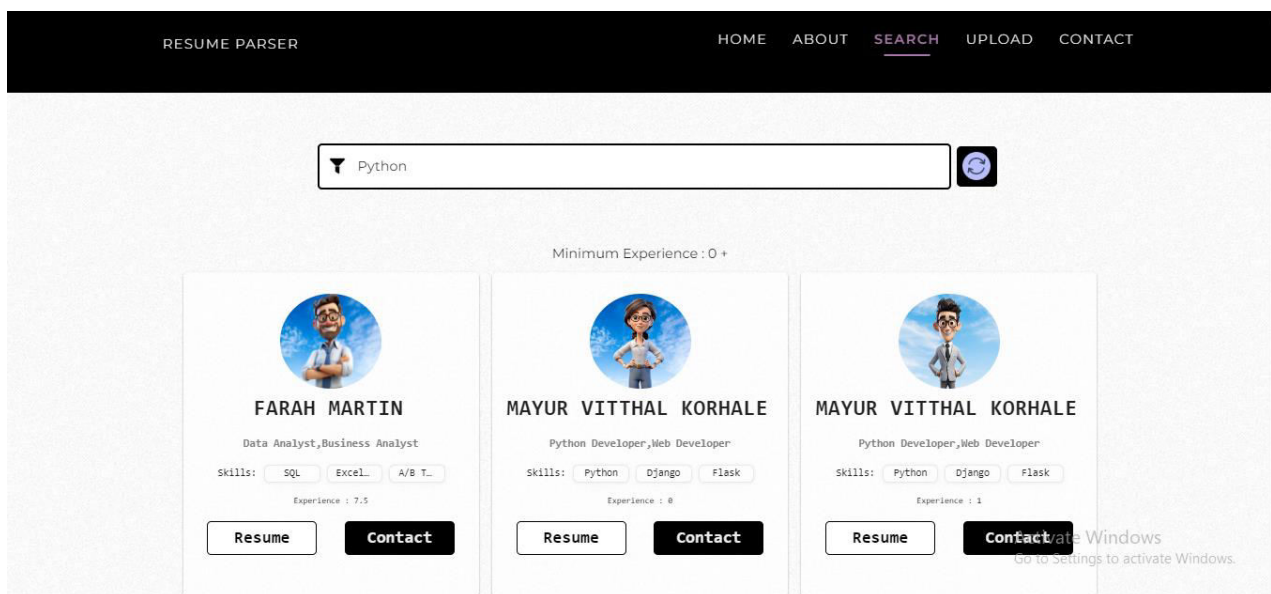


Fig: Filter Page and Final Output

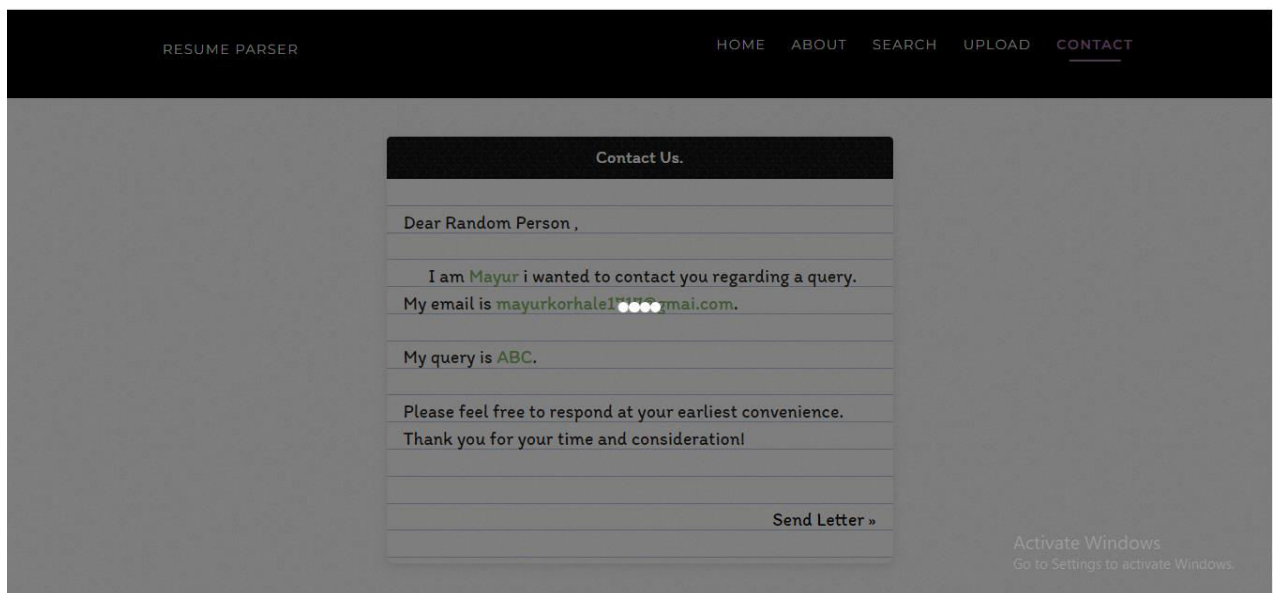


Fig: Contact Us Page

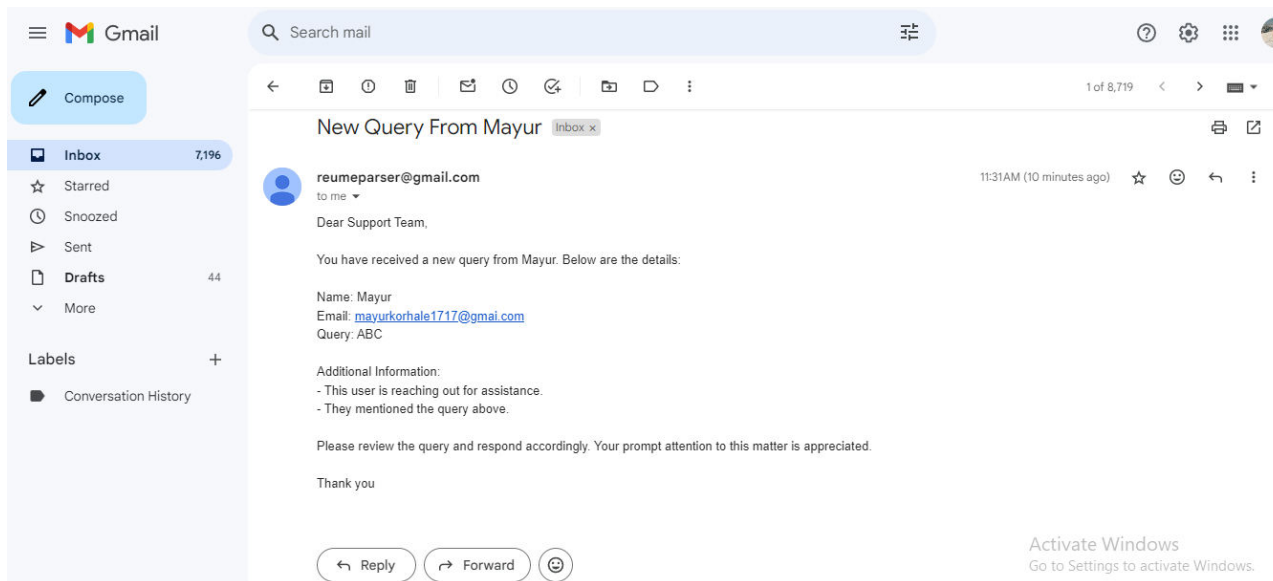


Fig: Query Mail

VI.CONCLUSION

In conclusion the Resume Parser App using AI stands as a transformative solution that streamlines the hiring process, saving time and resources for employers while providing job seekers with a fairer chance. By automating resume analysis, extracting key information, and matching skills to job requirements, it accelerates and enhances recruitment, ultimately leading to more informed and efficient hiring decisions in today's competitive job market.

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