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Automated Resume Scoring and Course Recommendation

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ABSTRACT
The AI-powered Automated Resume Scoring and Course Recommendation system analyzes resumes and makes suggestions for improvement. The system, which uses machine learning algorithms to detect areas that require improvement, assists job seekers in crafting resumes that can successfully navigate the screening procedures of job interviews. In addition to analyzing the layout, language, and spelling to make sure industry standards are fulfilled, the system uses methods like natural language processing, text mining, and sentiment analysis to collect insights from the candidate's achievements, education, experience, and abilities. To close skill gaps, the algorithm might suggest appropriate courses or certifications in addition to resume analysis. This technique helps both recruiters and job seekers: recruiters can identify the best applicants, which promotes the hiring process, while job seekers may improve their resumes to better match job requirements, enhancing their chances of obtaining interviews.

Keywords: Parsing, resume, AI, ML, and Evaluation.

I. INTRODUCTION

In today's highly crowded job market, it can be quite challenging for job seekers to stand out from the many other applicants. It can be challenging to write a CV that effectively highlights the applicant's skills, experience, and qualifications, even though it is one of the most essential components of a successful job search. In addition, job seekers are disqualified from consideration regardless of their qualifications if their resumes do not pass the screening procedure, which is frequently automated by applicant tracking systems. The Automated Resume Scoring and Course Recommendation system is a creative solution developed out of this difficulty. Using machine learning techniques and artificial intelligence (AI), this system scans resumes and provides beneficial recommendations for improving them. Helping job searchers build resumes that are more likely to make an impression on recruiters and make it through the screening process is its primary goal. A candidate's experience, education, accomplishments, and talents are among the many elements of their resume that are assessed by the Automated Resume Scoring and Course Recommendation system. The system generates valuable insights from the content using sentiment analysis, text mining, and natural language processing. The formatting, punctuation, and spelling are also checked to make sure the resume complies with industry standards.

The system's feedback can assist job searchers in identifying areas that want development. The machine learning system may suggest, for example, that a candidate's job history be modified to be simpler and

powerful or that important abilities be highlighted more prominently. A candidate's resume gaps can also be used by the system to suggest particular certifications or courses that might improve their qualifications. By using these personalized suggestions, job seekers can improve their chances of getting recruited by designing resumes that more accurately highlight their abilities.

All things considered, the Automated Resume Scoring and Course Recommendation system is a successful tool made to help job searchers in the highly competitive employment market of today. The technology provides customised feedback to assist job searchers maximize their resumes and improve their chances of success by utilizing AI and machine learning.

II. METHODOLOGY

The Automated Resume Scoring and Course Recommendation system's methodology section includes multiple stages of the system's design and deployment. This section aims to give readers an in-depth knowledge of the study design, data gathering, and analysis methods that were employed during the system's development.

Research Design

Machine learning and natural language processing underpinned the study design for the Automated Resume Scoring and Course Recommendation system. A significant sample of resumes was gathered and examined as part of the design in order to find trends and characteristics that were essential for assigning grades and suggesting appropriate courses. In order to train the system to identify particular patterns pertaining to abilities, credentials, and professional development routes, annotated resumes were utilized in the supervised learning technique.

Data Collection

Resumes have been obtained from a variety of methods, including educational websites, professional social networking connections, and job portals, as part of the data collection process. Resumes were acquired in a variety of formats, such as plain text files, Microsoft Word, and PDF. Personal metadata was eliminated during pre-processing to protect privacy and data security, allowing the priority to stay on career-related content like experience, education, and skills.

Data Analysis

The Automated Resume Scoring and Course Recommendation system's data analysis was completed in stages. To extract important information including work experience, education, and professional skills, the pre-processed resumes were first examined using natural language processing algorithms. Following that, resume scores based on job fit were produced by analyzing these features using machine learning algorithms. By identifying skill gaps and recommending appropriate educational resources to enhance the candidate's qualifications, the system also suggested courses. To assess the system's functionality and pinpoint areas for improvement, a sizable sample of resumes was used for testing.

Evaluation

A test dataset of labeled resumes was used to evaluate the system's performance. These resumes were categorized based on the way they fit different employment roles. The accuracy with which the algorithm scored the resumes and suggested suitable courses to fill in gaps in skills was the basis for its evaluation. The evaluation's findings showed that the system was very precise in recommending courses that matched professional development objectives and evaluating resumes.

In conclusion, the Automated Resume Scoring and Course Recommendation system's methodology section explains the systematic study design, data gathering, and analytical techniques used. By utilizing

machine learning and natural language processing methods, the system was able to effectively evaluate resumes and provide customized course recommendations, improving both professional development and job preparation. According to the study, the system did a good job of predicting job fit and recommending relevant learning resources.

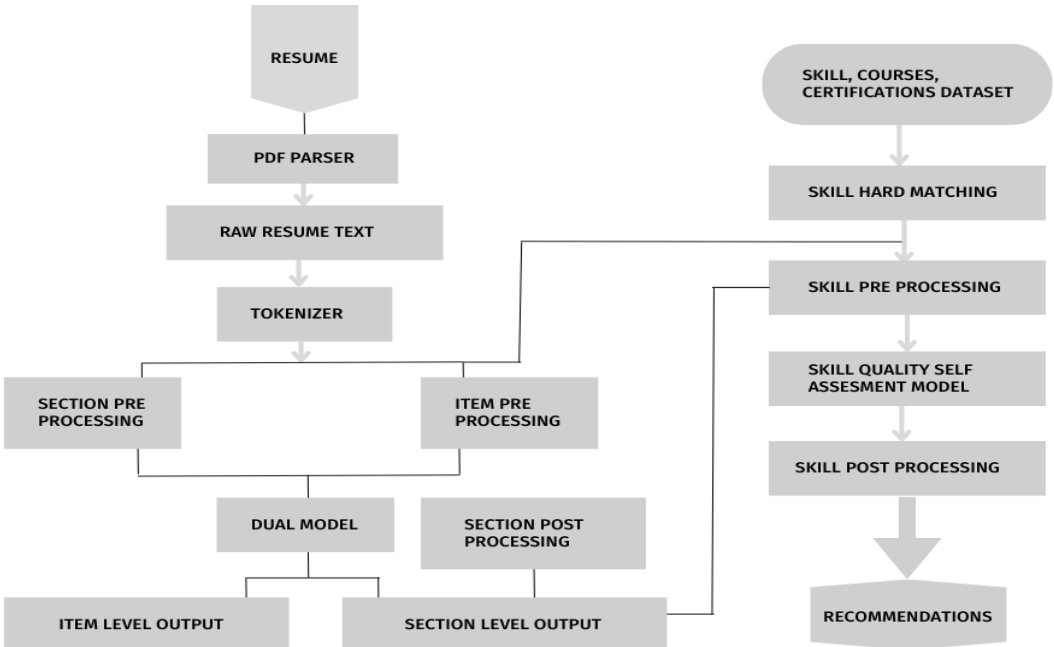
III. MODELING AND ANALYSIS

Modeling and analysis perform a major role in the Automated Resume Scoring and Course Recommendation system. By recommending appropriate courses, this system analyzes resumes using natural language processing (NLP) and machine learning techniques to give individuals customized input on how to improve their career prospects and resumes.

The approach begins with building a model of the labor market and analyzing job advertisements to figure out the necessary abilities, credentials, and work history needed for different positions. Following that, resumes are evaluated using this model in relation to job requirements, and candidates receive comments on how to better customize their resumes to meet company expectations. In addition, the system evaluates resumes using advanced statistical methods to identify areas of strength and opportunities for development in terms of education, work experience, and abilities. The goal of this customized guidance is to help applicants improve their resumes and improve their chances of securing a job.

Additionally, the system uses machine learning techniques to improve its analysis and feedback skills over time. The algorithm gains better at recognizing trends and patterns in the job market as more resumes and job listings are examined. This allows the system to improve its capacity to offer informative and relevant input, such as recommendations for courses to help candidates fill in skill gaps and match their skills with what the industry requires.

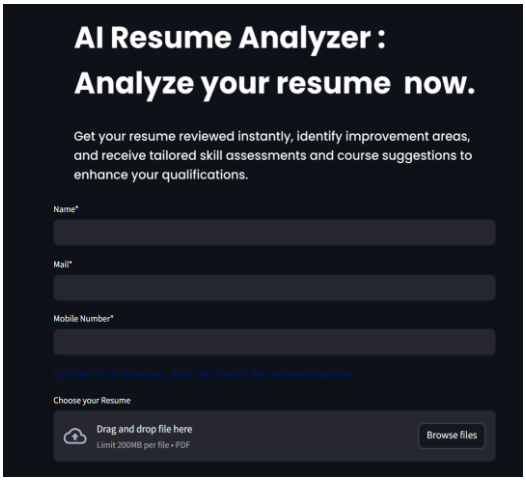
All things considered, the Automated Resume Scoring and Course Recommendation system depends significantly on modeling and analysis. Through job market analysis and the use of advanced NLP and machine learning algorithms, the system offers job seekers customized resume feedback and course recommendations, supporting them in improving their resumes and opportunities for advancement in their careers.



System workflow (Figure 1)

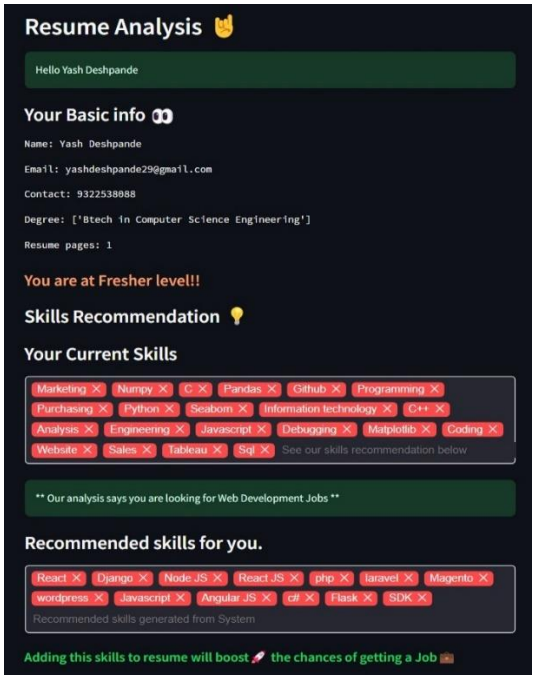
IV. RESULTS AND DISCUSSION

Advanced modeling and analysis form the basis of the Automated Resume Scoring and Course Recommendation system. The system scans resumes and offers beneficial recommendations to assist job seekers improve their skills and resumes by utilizing strong natural language processing and machine learning techniques.



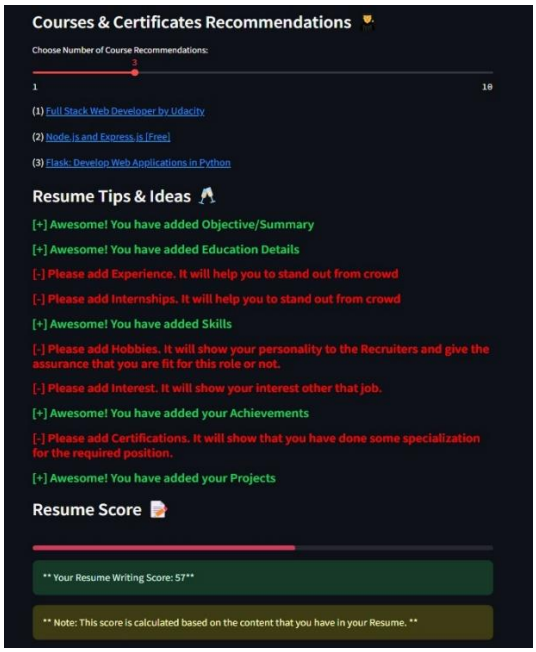
System User Interface (Figure 2)

The system first builds a model of the labor market by examining job postings to figure out the basic abilities, credentials, and work history needed for different positions. This methodology is used with resumes to provide candidates with tailored input on how to improve their resumes to better suit the needs of companies. The advanced analytical features of the system assess the format and content of resumes, calling out areas for growth and areas of strength in terms of education, work experience, and talents. The system provides customized comments and course recommendations based on this research to help job searchers improve their opportunities in the competitive employment market.



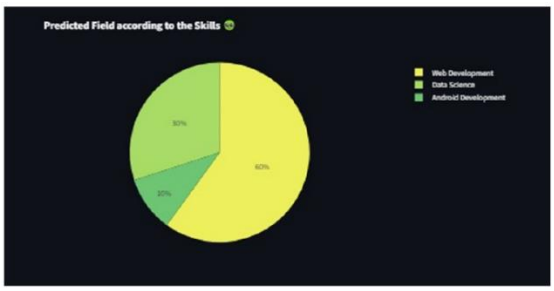
Resume Analysis Result Page 1 (Figure 3)

Additionally, the system uses machine learning techniques to constantly improve its feedback and analytical abilities. The algorithm improves the quality of the feedback it gives job seekers by growing more skilled at detecting patterns and trends in the labor market as more resumes and job postings are analyzed.



Resume Analysis Result Page 2 (Figure 4)

In conclusion, the Automated Resume Scoring and Course Recommendation system focuses significantly on modeling and analysis. The technology provides job seekers with customized input on improving their resumes and career prospects through advanced natural language processing and machine learning techniques, increasing their competitiveness in the job market.



Result at admin side (Figure 5)

V. CONCLUSION

In conclusion, the technique for automating resume scoring and course recommendations is an effective instrument that helps job searchers polish their resumes and improve their qualifications. The system offers customized feedback to improve resume quality and recommend appropriate training to close skill gaps using AI and machine learning techniques. By using this strategy, job seekers can build the abilities required for success in the job market and produce resumes that have a higher chance of clearing the hiring process.

The research design, gathering data, and analysis techniques used in the system's development were described in the methodology section. Annotated resumes were utilized in an approach to supervised learning to teach the algorithm to identify significant patterns associated with course recommendation and resume assessment. The system's ability to predict whether resumes would be suitable for particular employment categories and to suggest valuable courses for professional growth were the basis for its evaluation.

Finally, the Automated Resume Scoring and Course Recommendation system could completely alter the way job seekers write resumes and work toward advancement in their careers. In an increasingly competitive job market, the technology gives candidates a major competitive advantage by allowing them to better match their qualifications with job market demands through specific feedback and course recommendations.

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