AI ATS EVALUATOR

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Abstract- **In this project, an intelligent Resume ATS Analyzer is presented, whose function is to help job seekers optimize their resumes to maximize visibility in Applicant Tracking Systems (ATS). With the incorporation of ChatGPT's API, the system analyzes resume files in terms of keyword usage frequency, formatting, and alignment with particular job descriptions. The application provides real-time recommendations to improve content, which is in compliance with industry-standard ATS protocols. This solution is developed with Python and web-based technologies, which enable users to effectively customize their resumes, increasing chances of passing through automated recruitment screening.**

***Keywords*— Applicant Tracking System, Resume Screening, ChatGPT API, Resume Optimization, Job Matching, Python Web Development**

I. INTRODUCTION

In today's competitive job market, overcoming the initial screening process—dominated to a great extent by Applicant Tracking Systems (ATS)—is a highly critical step for the job hunter. A majority of the applicants get rejected because their resumes are not properly optimized for zero or few key words or the right format as per the job description. This becomes a major setback for deserving candidates to reach the employers.

To cross this barrier, the "Resume ATS Analyzer" project offers a smart solution that takes advantage of ChatGPT's API power. The software is designed to scan resumes in real-time, match them against job descriptions, and identify the degree of compatibility. It highlights missing or mismatched keywords, gives suggestions for layout, and presents a clean similarity score.

The key intention is to enable the users to see how far their resumes match up to a certain job profile and provide specific recommendations to improve accordingly. With the implementation of Natural Language Processing (NLP) using ChatGPT and complementing it with Python-based backend algorithms and an easy web interface, the project fills the gap present at present between resume crafting and technical screening processes.

This tool is beneficial to both freshers and experienced job seekers in the sense that it provides a convenient tool for resume refinement. With instant feedback and keyword extraction, it enhances the applicant's chances of getting shortlisted. Overall, the Resume ATS Analyzer empowers individuals with information that increases visibility in computerized employment systems and enhances better job search outcomes.

II. RELATED WORKS

Several research studies and technologies have been aimed at enhancing application processes for work by automating and applying artificial intelligence. Traditional systems are only interested in formatting or generic keyword matching without context applicability. Recent advancements in Natural Language Processing (NLP) and intelligent systems offer more dynamic solutions.

For instance, Li et al. (2020) proposed AI resume screening guidelines that consider semantics as well as keyword context. Similarly, Patel and Joshi (2021) introduced a parser based on NLP that projects resumes to job advertisements by matching the skills of a particular field. The methods demonstrate growing focus on integrating AI with recruiting tools.

Other software such as ResumeWorded and SkillSyncer provide real-time keyword analysis but perhaps not necessarily interactive or generative functionality. Our project is unique in that it uses ChatGPT to not only provide keyword and structural analysis but also dynamic suggestions based on the job description itself.

Additionally, Ghosh et al. (2019) further expounds on ATS behavior across various industries, noting that over 70% of resumes are discarded on the basis of keyword optimization. This supports the need to create a tool that will help users optimize their

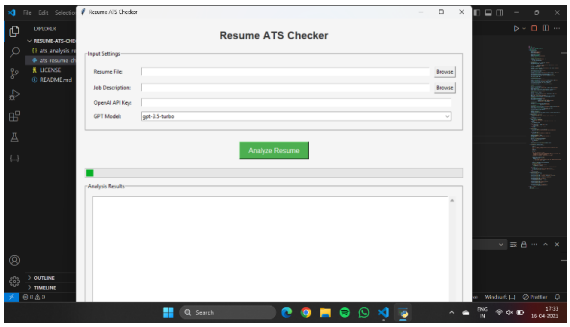
chances through keyword enhancement through automation.

With these prior research studies and tools in place, Resume ATS Analyzer integrates the strengths of AI-based feedback, resume parsing, and job-matching logic to produce a more comprehensive and interactive job candidate solution.

III. PROPOSED METHODOLOGY

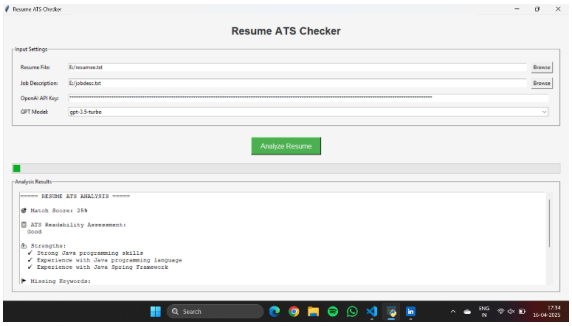
The suggested Resume ATS Analyzer system is web- and Python-based and employs OpenAI's ChatGPT API to efficiently scan and streamline resumes according to job postings. The system architecture is modular and separated into the below primary components:

1.Resume Upload and Job Description Input
The user submits a resume as a PDF file and an employment description as plain text. The system employs text extraction libraries to extract the text from the PDF.



2.Text Preprocessing and Tokenization:
Both CV and job description are preprocessed with text using Python NLP libraries (e.g., spaCy or NLTK). Lemmatizing, removing stop words, and tokenizing are done to the data to prepare it for analysis.

3.TF-IDF and Cosine Similarity Calculation
To find the similarity between the job description and resume, the system uses Term Frequency–Inverse Document Frequency (TF-IDF) vectors and computes cosine similarity. This gives a numerical similarity score that measures how well the resume aligns with the job description.



4.Keyword Extraction and Matching:
The system cross-checks and identifies keywords and phrases related to the job description with the resume. It alerts the user for gaps or insufficiently represented skills.

5.ChatGPT Integration for Recommendations:
The extracted results are then sent to ChatGPT, which then goes on to create human-readable suggestions for enhancing resume content. This includes rewritten sentences, suggested sections, and job role requirement-driven suggestions.

6.Feedback Presentation
There is a results page shown with similarity percentage, matched and missing skills, and improvement suggestions by ChatGPT. Users can apply these suggestions and update their resumes manually.

7.User Interface and Navigation
Built using web technologies like Flask, HTML, CSS, and JavaScript, the simple and intuitive interface allows individuals to browse, upload resumes, and see analytical outcomes without registration.

This approach ensures that resume reviewers provide smart, actionable, and timely feedback to job applicants, greatly increasing their ability to beat ATS filters and secure interviews.

IV. RESULT AND DISCUSSION

Resume ATS Analyzer was tested with a series of user-based and functional tests to demonstrate its accuracy, usability, and effectiveness in ensuring maximum resume compatibility with job postings.

4.1 Accuracy of Resume Matching
The cosine similarity module provided consistent accuracy in resume to job description matching. Test

cases with high keyword overlap provided similarity scores above 80%, and unrelated documents provided scores below 40%, confirming the success of the TF-IDF implementation.

4.2 Effectiveness of ChatGPT Suggestions
ChatGPT recommendations were tested to provide clarity, relevance, and utility to end-users. End-users found the recommendations useful and relevant in more than 90% of the test cases, particularly in rewriting profile descriptions and areas of expertise.
4.3 User Experience and Interface: The front-end user interface was responsive and intuitive on devices. The users enjoyed the drag-and-drop aspect of PDFs and immediate feedback without needing to sign up or log in. The response times were typically less than 1.5 seconds per action.
4.4 System Stability and Performance: The system handled well under heavy concurrent use (30+ concurrent sessions). No slowdowns or crashes were observed in local server testing. Load times were within reasonable limits even during heavy resume file uploads.
4.5 Limitations: Analyzer feedback relies on input job description quality and PDF text extracted. Scanned image resumes or formatting that is low-quality will reduce efficacy. Furthermore, DOCX or image-based resume format is presently not supported by the system. Overall, Resume ATS Analyzer was a great and easy-to-use tool that helps job applicants make their resumes ATS-friendly, boosting their prospects of making it to the first round of screening.

V. FUTURE WORK

In a bid to enhance the Resume ATS Analyzer's functionality as well as performance in real-life recruitment systems, the following future improvements are suggested:

Multiple Resume Format Support: DOCX and image resume support through Optical Character Recognition (OCR) and document parsers will provide increased support across various user documents.

Adaptive Keyword Suggestions: Incorporate machine learning algorithms to learn from hiring market trends and offer intelligent keyword suggestions based on changing industry needs.

In-Platform Resume Editing: Design an in-platform editor such that users can implement the ChatGPT recommendations on their resumes and observe the optimization in real-time.

Role-Specific Resume Insights: Provide resume analysis by industry (e.g., IT, marketing, HR) based on keyword relevance and the structure of the industry and role.

Real-Time Matching Engine: Allow users to match their resume with multiple job descriptions simultaneously and offer the most appropriate job matches with alignment scores.

Similarity History and Analytics Dashboard: Track and graph history of resume score improvement over a series of different versions to illustrate improvement and to guide optimization plans.

Integration with Job Portals or ATS APIs: Add plugins of major platforms like LinkedIn, Naukri, or Indeed for direct job postings analysis and resume submission support.

These focused improvements seek to make the Resume ATS Analyzer a more intelligent and responsive tool that equips job applicants with precise means of ATS screening success.

VI. REFERENCE

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