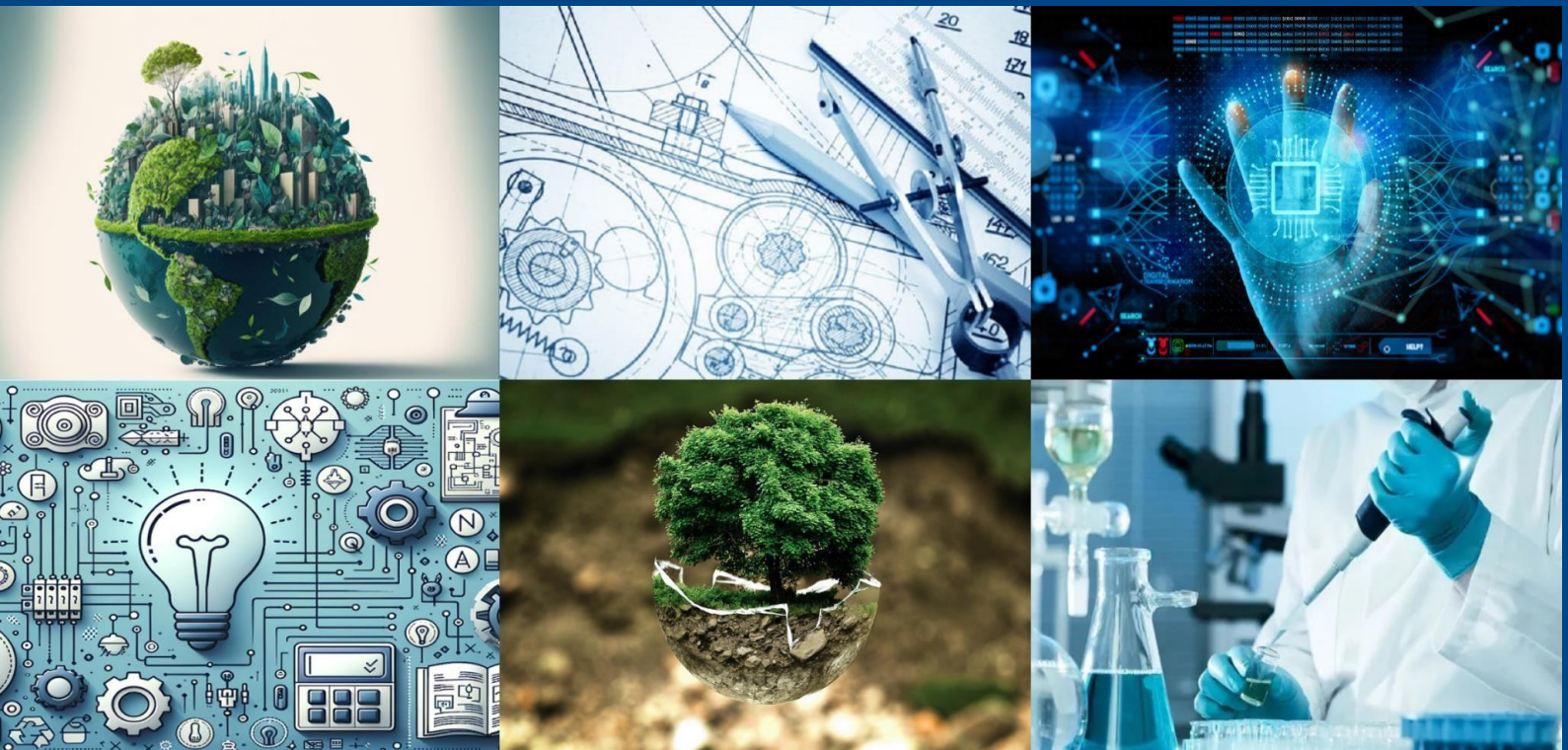# International Journal of Multidisciplinary
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CVFIT ANALYZER: AN AI DRIVEN RESUME JD COMPATIBILITY TOOL

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ABSTRACT: In today's competitive job market, aligning the right candidate with the right job role has become increasingly complex due to the overwhelming volume of resumes recruiters receive. Manual resume screening is time-consuming, inconsistent, and prone to human bias. This paper presents CVFIT analyzer, an AI-driven tool designed to streamline and enhance the recruitment process by evaluating the compatibility between a candidate's resume and a given job description. By leveraging Natural Language Processing (NLP) and machine learning algorithms, the system extracts key skills, qualifications, and experience from resumes and compares them with the requirements outlined in job postings. The tool provides a compatibility score along with visual insights to help recruiters make more informed decisions quickly and efficiently. Unlike conventional applicant tracking systems, CVFIT analyzer focuses on semantic relevance rather than keyword matching, offering a smarter and more accurate method of candidate assessment. This innovation not only reduces the workload for HR professionals but also ensures a fair and merit-based screening .

I. INTRODUCTION

The recruitment landscape has undergone significant transformation in recent years, with organizations receiving hundreds to thousands of applications for a single job opening. While this influx of candidates increases the talent pool, it also creates a major bottleneck in the hiring process—manual resume screening. Human evaluation of resumes is not only time-consuming but also prone to bias, inconsistency, and oversight. In fast-paced hiring environments, companies often struggle to efficiently identify candidates who best fit the job requirements. With the rise of artificial intelligence (AI) and natural language processing (NLP), there is a growing opportunity to address this challenge through automated and intelligent screening solutions. The goal is not merely to match keywords, but to understand the context and relevance of information presented in resumes relative to the job description. This shift from traditional keyword-based filtering to semantic analysis can bring about a more accurate and unbiased method of candidate shortlisting.

II. LITERATURE SURVEY

The integration of artificial intelligence into recruitment processes has been a growing area of research, particularly in automating resume screening and candidate-job matching. Traditional recruitment systems primarily rely on keyword-based Applicant Tracking Systems (ATS), which often overlook the contextual meaning of skills, job titles, and qualifications. This limitation has driven the need for smarter, AI-enhanced solutions.

Several studies have explored the application of Natural Language Processing (NLP) to parse and understand the unstructured content found in resumes and job descriptions. Tools like TextRank, TF-IDF, and BERT (Bidirectional Encoder Representations from Transformers) have shown promise in extracting meaningful insights from text documents. For instance, researchers have used semantic similarity measures to assess how closely a candidate's experience aligns with job expectations, moving beyond simple keyword matching.

Moreover, platforms such as Heretical and Hiretelligence have implemented AI-driven solutions that leverage machine learning for talent acquisition, but these are often proprietary and lack transparency in how compatibility is evaluated. Academic models like the one proposed by V. Singh et al. (2020) introduced a resume ranking algorithm based on similarity scoring, yet these models were limited in their ability to visualize candidate-job fit or provide interpretable results.

EXISTING SYSTEM

In most conventional recruitment processes, companies rely heavily on Applicant Tracking Systems (ATS) to filter resumes based on predefined keywords. These systems scan documents for exact word matches related to skills, qualifications, or experience. While they help reduce the recruiter's workload, they often ignore the semantic context of a candidate's profile, leading to the rejection of potentially suitable candidates who may have used different terminologies or formats.

Manual resume screening, although more flexible, is time-consuming, inconsistent, and highly prone to human error and bias. It becomes increasingly inefficient when dealing with a large volume of applications. Some existing AI-based platforms have been introduced to automate screening, but many of them are either too generic, lack customization for specific job roles, or operate as black-box systems with limited transparency in how compatibility scores are calculated.

PROPOSED SYSTEM

The CVFIT Analyzer is a smart, AI-powered application designed to overcome the shortcomings of traditional recruitment tools. Unlike basic keyword-based systems, the proposed tool uses Natural Language Processing (NLP) to understand the semantic meaning of resumes and job descriptions. It performs deep parsing to extract core attributes such as skills, education, experience, and domain relevance.

The system compares these extracted features against the job description using intelligent matching algorithms, ultimately generating a compatibility score that reflects how well the resume fits the job role. Additionally, it includes visual feedback and highlights key matching and missing areas, offering transparency to both recruiters and candidates

III. SYSTEM ARCHITECTURE

The CVFIT Analyzer follows a streamlined and modular architecture that enables efficient analysis of resumes and job descriptions. The process begins at the user interface, where recruiters upload resumes and job descriptions in supported formats. These documents are then sent to a preprocessing stage, where the system extracts raw text and removes unnecessary formatting or irrelevant content to ensure accurate interpretation. The cleaned text is processed by a natural language processing engine, which identifies and structures key information such as skills, work experience, education, and certifications from resumes, while extracting requirements and responsibilities from job descriptions.
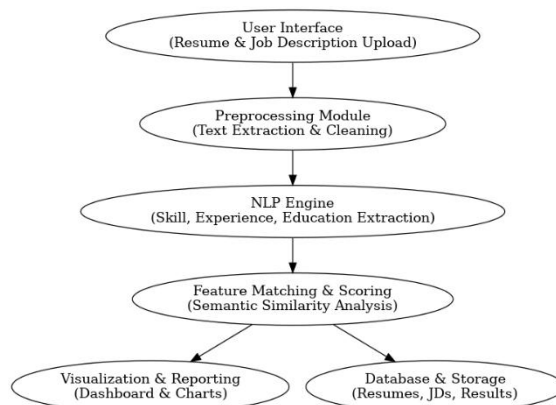

Fig 3.1 System Architecture

IV. METHODOLOGY

The methodology of CVFIT Analyzer is structured to transform unstructured textual data from resumes and job descriptions into meaningful insights that facilitate recruitment decisions. The process begins when a user uploads a resume and the corresponding job description through the system's interface. Once received, the documents undergo a text extraction and cleaning process, which removes unnecessary formatting, symbols, and irrelevant data to prepare the input for analysis.

Next, the cleaned text is processed by a natural language processing module that identifies and structures essential information such as skills, work experience, education history, and certifications from the resume, while extracting role requirements, qualifications, and responsibilities from the job description. These structured datasets are then fed into a semantic feature comparison module, where advanced algorithms determine the degree of alignment between candidate attributes and job requirements.
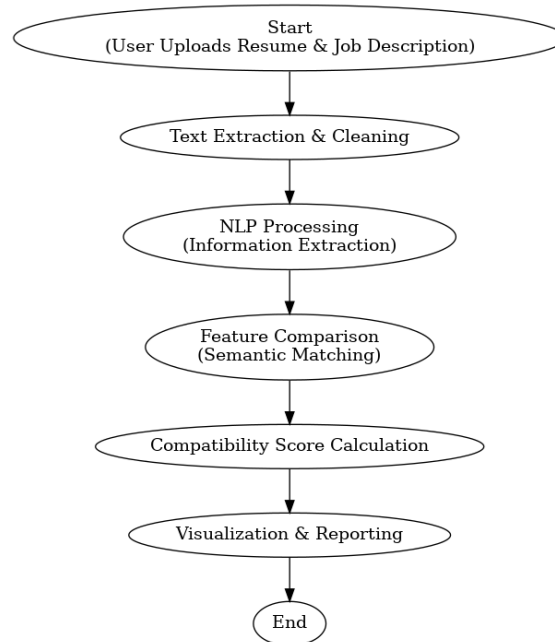

Fig 4.1 Methodology

V. DESIGN AND IMPLEMENTATION

The design of CVFIT Analyzer follows a modular architecture to ensure scalability, maintainability, and ease of integration with existing recruitment systems. The application begins with a user interface that enables recruiters to upload resumes and job descriptions. These inputs are directed to the preprocessing module, where text is extracted from uploaded files and cleaned to remove formatting inconsistencies and non-relevant content.

The cleaned data is passed to the natural language processing engine, which identifies and structures relevant features such as skills, qualifications, work experience, and certifications from the resumes, as well as required attributes from the job descriptions. The extracted features are then sent to the matching and scoring module, where semantic similarity algorithms compare candidate profiles against job requirements
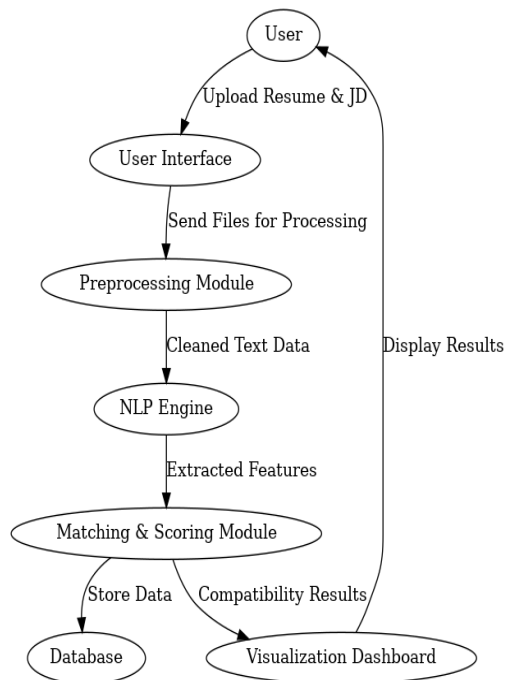
Fig 5.1 Sequential Diagram

The results are stored in a secure database for future reference and also sent to the visualization dashboard. The dashboard presents recruiters with interactive charts, highlighting matching skills, missing skills, and the overall compatibility score, enabling quick and informed decision-making. This design guarantees a recruitment process that is clear, streamlined, and dependable

VI. OUTCOME OF RESEARCH

The developed AI Health and Diet Recommender successfully generates personalized meal plans and workout suggestions based on individual user inputs such as age, gender, dietary preferences, fitness goals, and activity level. By integrating machine learning with nutrition datasets, the system delivers accurate and adaptable recommendations that cater to diverse lifestyles.

Testing with multiple user profiles demonstrated that the system can dynamically adjust its recommendations to suit varied health objectives, such as weight loss, muscle gain, or maintaining overall wellness. The AI model proved capable of suggesting balanced diets with proper macro- and micronutrient distribution while aligning with specific dietary restrictions like vegetarian, vegan, or high-protein diets.

VII. RESULT AND DISCUSSION

The implementation of the CVFIT Analyzer has shown promising results in streamlining the recruitment process by enhancing the compatibility between job descriptions and resumes. The tool, which utilizes artificial intelligence and natural language processing (NLP), was designed to objectively assess the alignment between a candidate's qualifications and the specific requirements of a job listing. Following several tests and evaluations, the tool has demonstrated its ability to accurately assess job-fit potential, producing compatibility scores that reflect how well a resume matches a given job description.

In terms of performance, CVFIT Analyzer showed a high level of accuracy in matching resumes to job descriptions. The AI was able to interpret and analyze not only keyword matches but also contextual relevance, offering a more comprehensive evaluation than traditional keyword-based systems. This semantic understanding allowed the tool to

identify relevant skills and experience even if the exact wording differed between the resume and the job description. This enhanced functionality was particularly beneficial for resumes that did not directly mirror job listings but still possessed the qualifications required for the role.

From the perspective of job seekers, CVFIT Analyzer provided significant value in improving resume quality. By offering actionable feedback on how to optimize a resume to better align with specific job roles, the tool helped candidates enhance their chances of standing out to recruiters. The system highlighted areas for improvement such as missing keywords, underrepresented skills, and overall readability. Many users reported that they felt more confident after refining their resumes based on the suggestions provided by the tool. This feedback not only helped applicants make their resumes more competitive but also empowered them to understand how recruitment algorithms might view their profiles.

Employers and recruiters also found the CVFIT Analyzer to be a valuable tool in their hiring processes. The tool's ability to automate the initial screening of resumes allowed recruiters to focus on a smaller, more relevant pool of candidates, significantly reducing the time spent reviewing resumes manually. With the compatibility score provided by the tool, recruiters could quickly identify candidates whose qualifications best matched the job requirements, making the decision-making process faster and more data-driven. The AI-powered feedback on resumes also provided valuable insights into areas where applicants could improve, potentially increasing the quality of future job applications.

VIII. CONCLUSION

The development of CVFIT Analyzer marks a significant step in enhancing the recruitment process by leveraging artificial intelligence to improve the match between resumes and job descriptions. Through the use of advanced natural language processing (NLP) and machine learning algorithms, the tool provides an efficient and objective method for evaluating candidate-job compatibility. The results of its implementation have shown that CVFIT Analyzer not only enhances the efficiency of recruiters by automating the initial resume screening but also empowers job seekers with actionable feedback to optimize their resumes.

The feedback from both recruiters and candidates demonstrates the tool's value. Job seekers have reported increased confidence and improved chances of landing job interviews after refining their resumes with the tool's suggestions. For recruiters, CVFIT Analyzer has reduced the time spent reviewing resumes and provided a more data-driven approach to candidate selection. The AI-powered compatibility score offers a quick, objective assessment of how well a candidate fits the job, enabling recruiters to focus on the most promising candidates.

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