Placify: An AI Based Online Campus Recruitment System

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Abstract— **The Campus Recruitment System is a web-based platform that streamlines recruitment by using Natural Language Processing (NLP) for precise skill-to-job matching. It connects student competencies with industry requirements through three main roles: Students, Admin, and Companies.Students can create profiles, upload resumes, access skill development resources, and complete assessments. Admins manage content, generate assessments, and evaluate performance scores. Companies post job openings with specific skill criteria, and the system uses NLP for resume parsing and keyword matching to identify suit- able candidates.By integrating skill development with automated candidate matching, the platform enhances student readiness, improves recruitment accuracy, and simplifies the hiring process for companies.**

Index Terms— **Natural Language Processing(NLP), Campus Recruitment, Web Based Platform, Skill Development**

I. INTRODUCTION

In today's competitive labor market, both educational institutions and businesses face significant hurdles in narrowing the skills gap between students and industry standards.Traditional school recruitment processes include manual resume screening and subjective evaluation, which are time-consuming, uneven, and prone to error. As a result, there is a growing desire for an intelligent and automated system that can evaluate students' skills and connect them to suitable job possibilities. The Campus Recruitment System, a web-based platform,

uses Natural Language Processing (NLP) to automate key recruitment processes. This technique provides a rigorous and efficient framework for assessing prospects, honing abilities, and making hiring decisions. The platform offers distinct functionalities for three key user roles: Students, Admin, and Companies.

System of education employed by the learners include developing their own profiles, sharing the resume in the format of PDF or DOCX and also go through a collection of handpicked video that adds value to their skills. The videos contain different dimensions that are purely technical, it is safe to say that through videos the learners should be able to grasp knowledge or improve what they already know about specific domains. The video materials learned can be further tested with the given task to check one's understanding and to explore one's possible gray areas of knowledge. The tests are scored automatically, and students are given feedback.

The Admin manages the system by uploading skill de- velopment videos and creating evaluation questions that are relevant to those resources. This ensures that the assessments are directly related to important technical concepts, giving students a clear learning path. To keep the platform operating, the administrator maintains system users, job advertisements, and assessment configurations.

Companies can sign up on the platform to post job open-

ings with specific skill requirements. To increase recruitment accuracy, the system uses NLP algorithms to examine job descriptions. Simultaneously, the system pulls skills, qualifications, and experience information from students' resumes using resume parsing algorithms. The technology uses cosine similarity and semantic matching techniques to successfully compare extracted resume content to job requirements, resulting in a streamlined list of acceptable candidates.

By incorporating test performance ratings from students, the system's automated applicant matching process becomes more efficient, in that it checks that only those with matches to the required capabilities are under consideration by the employer. This process also reduces manual work, improves the candidate selection accuracy and speed up the recruitment process. The Campus Recruitment System overcome the difficulties of current recruitment by the use of NLP driven resume processing, skill development resources, and automated job matching. Hence, the students are given the platform to obtain industrial skills, while the employers can get and retain their respective top talent through this channel. One last feature of this system is that it implies a connection between the academic and business worlds, giving students better job options and improving the recruiting outcomes for the companies involved.

II. LITERATURE SURVEY

[1] The dedicated job portal, by being connected with the state-of-the-art hiring technology, helps the students of Nepalese Pul-chowk Campus in their employment pathways. In particular, it renders real-time notifications, personalizes the way of getting job offers through attributes, and utilizes multi-criteria level. Students are suggested one-on-one job options according to their talents and future aspirations, and the companies can both easily review the candidates and make a final decision with the use of the extended selection criteria. In this way, the system architecture has been portrayed in Figure 1. This system, by means of simplifying the selection of the most suitable candidates in the context of the recruitment process, serves in shaping the future of employees and the labor market as a whole thus making the system the students' survival kit in wandering through the new job world and guiding the companies in selecting the relevant persons.

[2] This paper aims at an online platform that automates the training and job placement processes by transforming them into the digital format. Training placement officers (TPOs) and Admission officers can look after the placements, check the
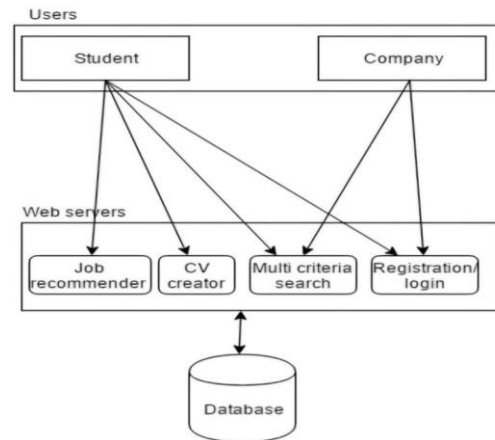

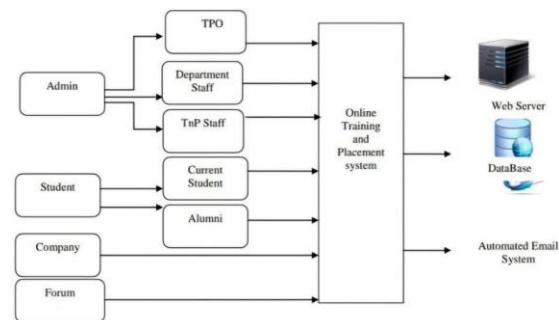Fig. 1. System Architecture [1]

Fig. 2. Block diagram [2]

data, see how the students are progressing, and generate the reports. The system allows for the role-based student, alumni, TPOs, staff, and recruiters interactions. TPOs are the ones who give the green light and communicate with the recruiters, and send notifications, while the companies manage the profiles, publish vacancies, and view the applications. An automated email capability will enable the communication that is fast, and positively useful and that in turn is the pointer to the placement being time and effort saving. Fig 2 depicts the block diagram.

[3] Due to the number of graduates increasing and the advent of remote hiring, automated recruitment systems have become an integral part of the recruitment process, making it more efficient and accurate. In this study, a machine learning-based platform is introduced which is based on Logistic Regression, Linear Regression, and Random Forest algorithms and is designed for the matching of profiles of students with

job posts. It has emerged as a web application in Python-Django, which provides the option of logging in to fill the students' skill assessments and receive immediate feedback. The platform is just indispensable for company requirements management, application tracking, and candidate selection by the administrator. The system empowers HL programmers for software development that follows Python, Java, and C language for exams and also considers other factors including aptitude test results and internship experiences.

[4] In the year 2023, there were as high as 58 percent of those Indian graduates who were the most likely engineers and they were still jobless because of a shortage of skills. Employability is the research area that uses machine learning (ML) algorithms like SVM, KNN, Decision Trees, Random Forest, and Logistic Regression to evaluate academic performance, aptitude scores, and skills then it is necessary to predict the employability of that person in a given job. In addition to that, machine learning (ML) enables job matching that results in optimizing placements, reducing hiring costs, and streamlining recruitment. Fig 3 is used to describe graphically the difference between the number of students who went to school and the number of students who took the aptitude exam and the results were positive.
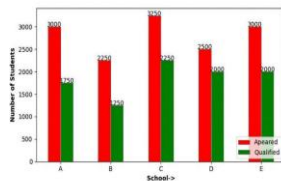

Fig. 3. No of students in school vs number of students who qualified aptitude [4]

[5] Traditional keyword-based systems lack precision, and single-resource semantic techniques have knowledge gaps. This paper describes a method that combines WordNet, YAGO2, and statistical-based relatedness measures to improve job-resume matching. It uses NLP approaches to extract and connect concepts using semantic networks, handling relationships such as synonymy and hypernymy. When primary resources fail, statistical methods bridge semantic gaps and improve word recognition. The algorithm ranks candidates based on job relevance, which results in higher accuracy but presents issues for experience-based matching. .Figure 4 depicts the architecture.
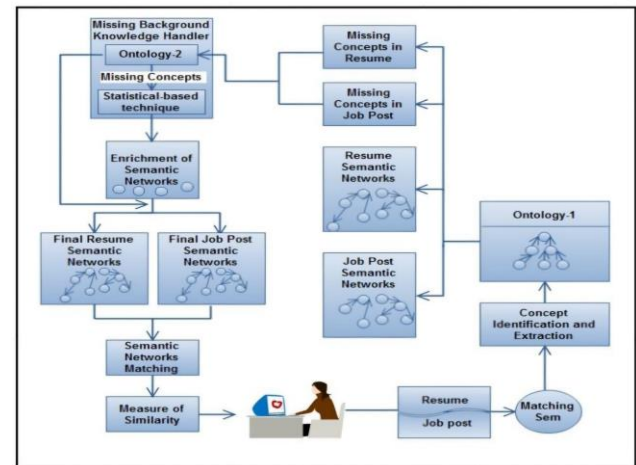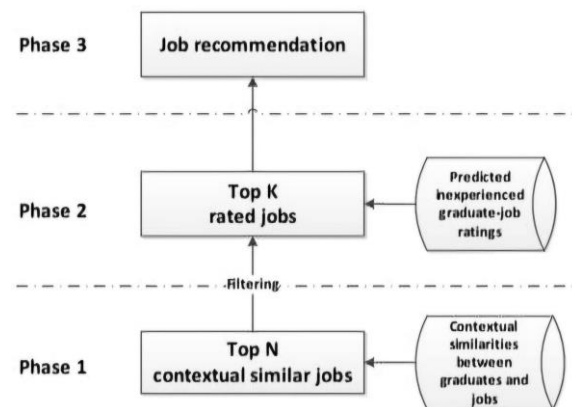

Fig. 4. Architecture [5]

Fig. 5. Hybrid Job Recommendation System[6]

[6] The research outlines an innovative employment referral system enabling young specialists to find the most matching employers based on the TF-IDF contextual similarity method and direct feedback from the working experts. It consists of the next three cycles: job profiles matching, top-rated positions filtering, and finally customized recommendations. Figure 5 represents the job recommendation system. The fact-finding exercise has confirmed the fact that this content-based filtering method is more effective in terms of precision when used in combination with the rating-based approach, thus becoming an indispensable instrument for the university sector in case only public job rating data is available.

[7] A study of Jagdamba Polymers indicates that 45 percent of the workforce are regular users of e-recruitment, which

emphasizes its increasing popularity. Still, a few obstacles such as the availability of correct online tests and data management tools are to be cleared. E-recruitment boosts HR and organizational efficiency, but a hybrid strategy embracing traditional ways of recruiting would be more comprehensive.

[8] Traditional recruitment struggles to keep up with the growing job market, as businesses receive overwhelming applications that are difficult to process manually. While automated hiring systems exist, they often suffer from low precision due to keyword-based matching, which ignores semantic meaning in resumes and job descriptions. To address this, the proposed system integrates multiple semantic resources and statistical concept-relatedness measures to improve matching accuracy. Empirical validation through a precision-recall framework confirms its effectiveness, offering more relevant job recommendations and streamlining the hiring process for employers.

[9] The "Recruitment System with Placement Prediction" benefits from a data-driven and web-based technology that is the latest advance in the world of university recruitment. The system presented here is completely different from the legacy HR practices as it uses the Random Forest Regressor to nest the d to work with two different methods which are real-time prediction at the time of interview and static evaluation for the candidates who are already registered. In case anything changes on the line between the candidate's status and the manager's, the change will only reflect on the Flask API making it a simple, adaptable and dynamic system.

[10]This recruitment platform, built with MyEclipse, JSP, and MySQL, smoothens the hiring process by allowing students to register, explore employment opportunities, and submit applications . Employers can manage job postings and review candidate profiles. Additionally, the platform has an administrator module with full supervision features to ensure smooth operations, job posting approvals, and user administration. It improves recruitment efficiency by encouraging real-time interactions and eliminates geographical barriers, allowing companies to more effectively find competent individuals while boosting career opportunities for graduates.

III.   METHODOLOGY

To expedite and improve the employment process , Campus Recruitment System uses cutting-edge technology , mainly machine learning and natural language processing (NLP). Students can upload their resumes to the system, and it uses SPACY , a robust open-source NLP library , to pro-

cess them using NLP techniques. The system can extract important information from the resumes , such as skills , education, work experience, and certifications , thanks to SPACY's assistance with Named Entity Recognition (NER) , dependency parsing , and part - of - speech tagging. The system guarantees that candidate profiles are appropriately represented for subsequent processing by effectively arranging this data. The system matches the abilities extracted from the resumes with the requirements listed by employers in their job postings by using the cosine similarity algorithm once the resumes have been parsed. Cosine similarity , a widely used text similarity measure , calculates the cosine of the angle between two vectors in a multi -dimensional space , where the vectors represent the skill set of the student and the employer's job requirements. A higher cosine similarity score indicates a stronger alignment between the candidate's qualifications and the job description , enabling an efficient and automated shortlisting process. By eliminating the need for manual resume screening, this increases the accuracy of candidate selection and reduces hiring time.

Companies use the system to advertise open positions and include the relevant education , training , and work experience. By automatically comparing these job descriptions with the student profiles using cosine similarity , the computer evaluates the applicants based on their suitability. This ranking enables employers to access a curated list of the most relevant candidates without manually reviewing countless resumes. The recruitment process is further enhanced through a skill development program designed to equip students with additional knowledge and competencies. This program comprises a structured set of video lectures and corresponding assessments, which students can access to improve their skills. The system ensures that students engage with relevant learning materials, after which they can take tests to evaluate their proficiency. These tests, curated and conducted by the administrator, help assess the effectiveness of the learning process, allowing students to refine their abilities before applying for jobs. The skill development component is crucial for improving students' qualifications and marketability , even though it has nothing to do with NLP.

The student module allows users to register , upload their resumes , and apply for jobs. Students can browse and apply for jobs posted by employers based on their qualifications. To increase their employability, students can also view skill-development videos that are divided into academic and technical categories. After watching these films , they can then
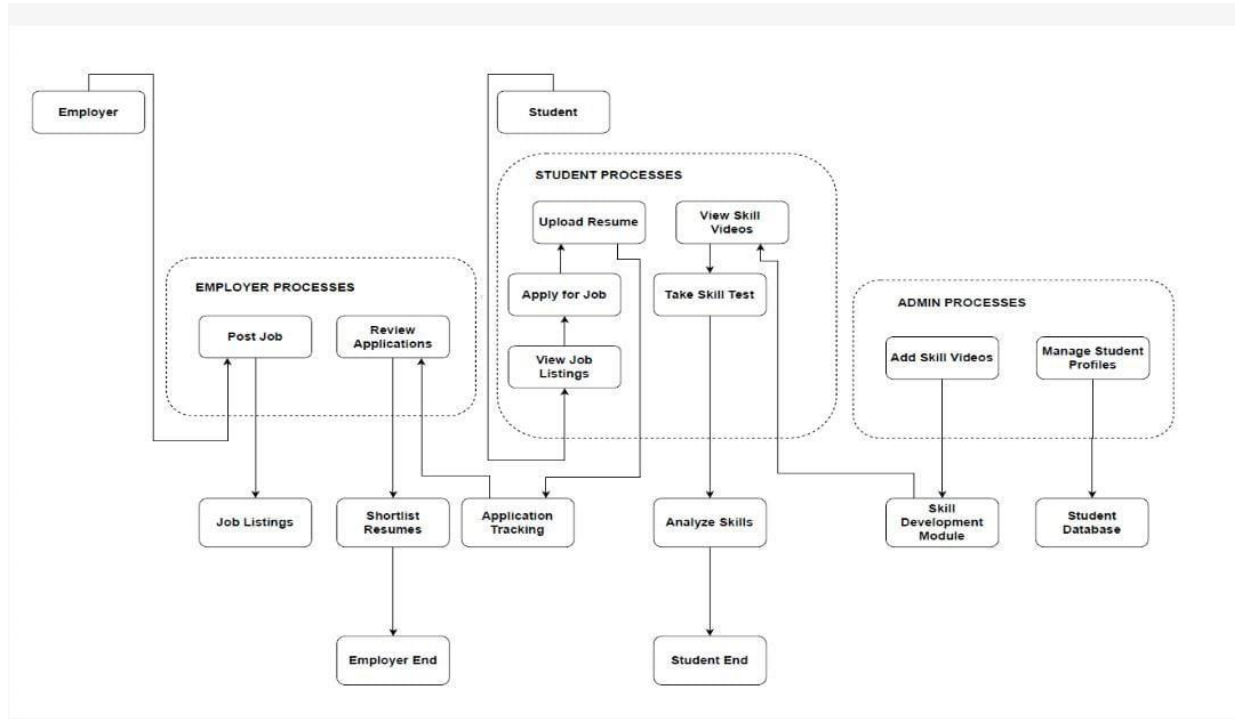
Fig. 6. System Architecture

take relevant skill-based tests that evaluate their knowledge and assign scores based on their performance. These scores are then used to establish their appropriateness for work possibilities and are stored in the database.By advertising job opportunities that include job descriptions , necessary skills , and requirements , employers play a critical role in the hiring process. Students can apply for relevant employment as soon as job postings are made accessible. The system analyzes student resumes and compares them to job criteria using Natural Language Processing (NLP) techniques. The technology creates a shortlist of the best applicants by extracting important CV data , including experience , education , and skills. After that , employers can examine applications , monitor the development of candidates , and choose possible recruits based on resume matching. The admin module is in charge of monitoring employer and student activity in order to maintain the system. Administrators generate and oversee assessment questions , submit films for skill development , and guarantee data integrity.They also monitor student performance, maintain a student database, and oversee the skill development module, ensuring that learning resources remain relevant and up-to-date.

The system's overall workflow adheres to a methodical procedure. The first step is for students to upload their resumes , which are then analyzed and saved in the database. After

watching skill videos , they take tests, and their results are saved for later use. Employers , meanwhile , publish job openings with the necessary qualifications. Using NLP-based text analysis algorithms , the system compares student resumes with job descriptions and ranks students according to their qualifications , test results , and resume content. The employment process can then be made more data-driven and efficient by allowing businesses to evaluate applications and shortlist applicants.

By automating the screening of resumes, skill evaluation, and job matching, the Campus Recruitment System is an effective and systematic way of employing people. It allows students to develop their skills and makes it possible for employers to select the most appropriate candidates, thereby closing the gap between academic education and working life.
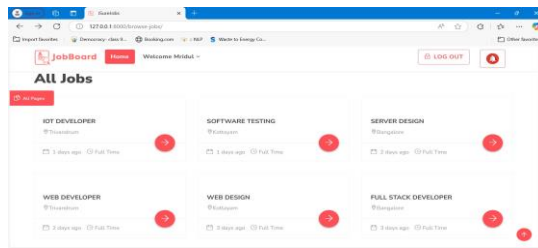
IV. RESULTS

Fig. 7. Candidate Home
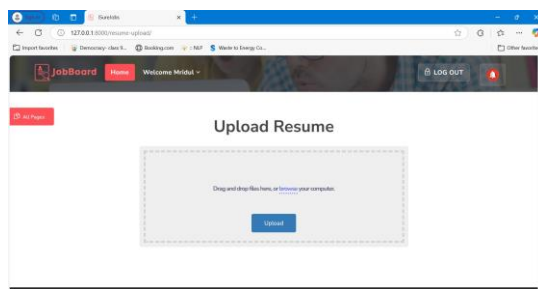Candidate can view their profiles and the Jobs posted by the companies.

Fig. 8. Resume Upload Page
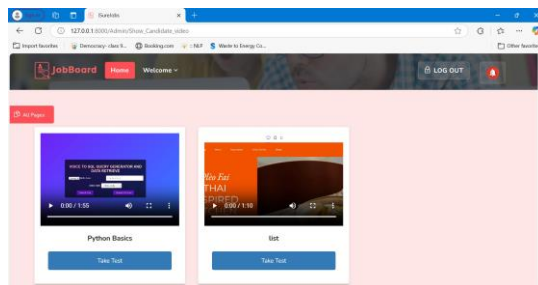Candidates can upload their resumes.

Fig. 9. Skill development video page
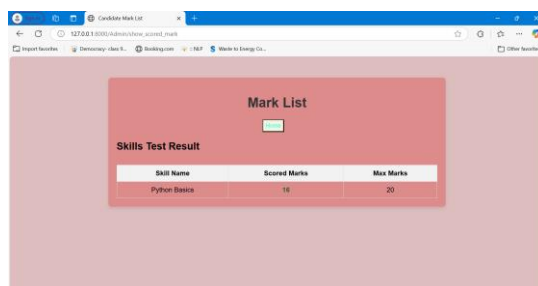Candidate can watch skill development videos.

Fig. 10. Assessment Score
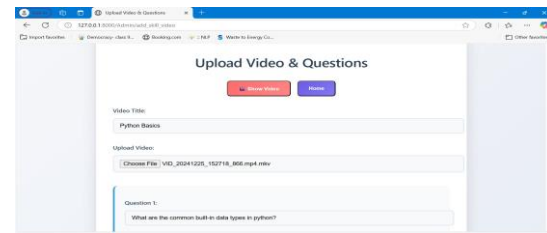Admin can view the marklist of candidates who attend the test.

Fig. 11. Upload skill development videos
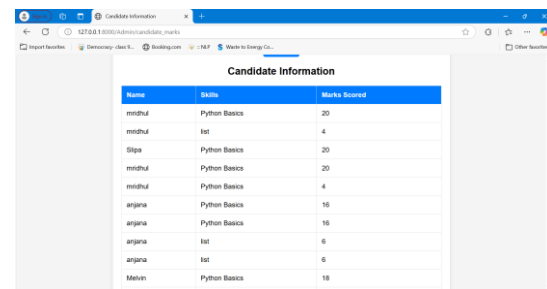Admin can upload skill development videos.

Fig. 12. Candidate Mark List
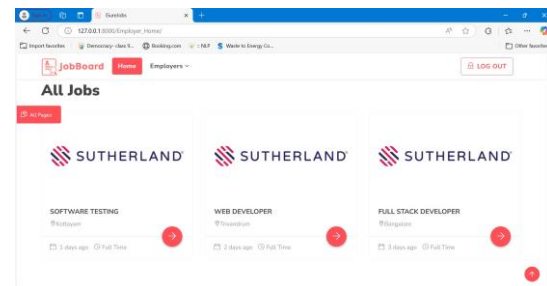Admin can view the marklist of candidates who attend the test.

Fig. 13. Employer Home
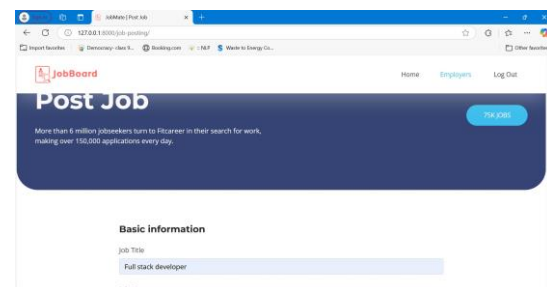Employer can post job opening and can manage the applications of candidates.

Fig. 14. Job Posting
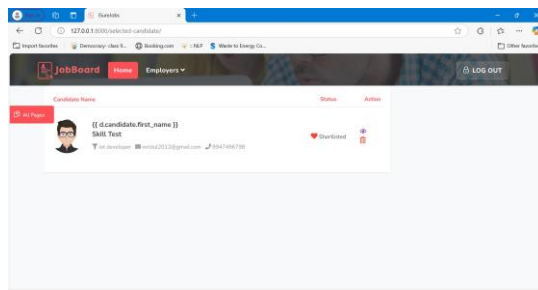Employer can post job opening with required skills,qualification,and year of experience.

Fig. 15. Shorlisted Candidates

Employers can view the list of shortlisted candidates with their resume and their test scores.

V. CONCLUSION

The Campus Recruitment System improves the recruitment process by giving it a formal and streamlined platform for students and employers. It makes resume processing easier , decreases manual labor , and facilitates a better systematic way of choosing candidates. The inbuilt skill development program also enables students to develop their capabilities with learning tools and evaluation , which makes them job-ready. By creating a harmonious relationship between employers and students , the system enhances accessibility , efficiency , and overall performance in campus hiring , resulting in an improved streamlined and reliable recruitment ecosystem.

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