



Smart Placement System with Integrated Feedback Mechanism

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Abstract— This project presents a web-based placement management system designed to streamline the recruitment process for companies, students, and Training and Placement Officers. The system enables companies to register, post job opportunities, and create assessment questions, while students can register, update profiles, and receive personalized job recommendations based on their skills using a KNN-based matching approach. Students can apply for jobs, attend online tests, and track their application status. The platform also allows students to provide feedback, which can be reviewed by the TPO for continuous improvement. By integrating multiple user roles and automating key placement activities, the system improves efficiency, reduces manual effort, and enhances the overall recruitment experience for all stakeholders.

Keywords—Placement management system, web-based application, recruitment automation, KNN algorithm, job recommendation, student portal, company portal, online assessment, application tracking.

I. INTRODUCTION

The rapid growth of technology has transformed traditional recruitment processes into more efficient digital systems. Educational institutions often face challenges in managing campus placements due to manual handling of student data, job postings, and communication gaps between stakeholders [2][3]. This project introduces a web-based placement management system that simplifies and automates the entire placement workflow. It connects students, companies, and Training and Placement Officers (TPO) through a unified platform. The system allows users to perform various tasks such as registration, job posting, application tracking, and feedback submission. By digitizing these processes, the platform reduces paperwork and improves accessibility. It ensures that all users can interact with the system easily through a user-friendly interface. This approach not only saves

time but also increases transparency and accuracy in the placement process, making it more reliable and efficient for educational institutions [2].

Technology has significantly changed the way recruitment is carried out today, replacing many manual processes with digital solutions. In many educational institutions, managing campus placements is still a challenging task due to scattered data, manual coordination, and communication gaps between students, companies, and placement officers [2][3]. To address these issues, this project proposes a web-based placement management system that brings all stakeholders onto a single platform. It simplifies tasks such as registration, job posting, and application tracking, making the process more organized. Since all activities are handled digitally, it reduces paperwork and makes information easily accessible. The system is designed with simplicity in mind, so users can interact with it without difficulty. As a result, the placement process becomes faster, more transparent, and easier to manage.

One of the key features of the system is its ability to provide personalized job recommendations to students based on their skills and qualifications. The system uses a K-Nearest Neighbors (KNN) algorithm to match student profiles with job requirements, ensuring relevant opportunities are suggested [4]. This intelligent recommendation mechanism helps students focus on jobs that best fit their capabilities, improving their chances of selection. Companies benefit by receiving applications from candidates whose skills align closely with job roles. This reduces the time spent filtering unsuitable candidates. Additionally, students can apply for jobs directly through the system and participate in online assessments created by companies. These features make the recruitment process more structured and efficient. Overall, the system enhances the interaction between students and recruiters by ensuring better matching and reducing unnecessary efforts from both sides [3][4].



The platform supports multiple user roles, including companies, students, and TPOs, each with specific functionalities. Companies can register, post job openings, and create test questions to evaluate candidates. Students can create profiles, upload resumes, and update their academic and professional details. They can also attend online tests and track their performance and job application status. The TPO plays an important role in monitoring the system by reviewing student feedback and identifying challenges faced during the placement process. This multi-user architecture ensures that all stakeholders have access to relevant features tailored to their needs. It promotes better coordination and communication among users. By centralizing all placement-related activities in one system, the platform minimizes confusion and improves overall management. This structured approach ensures that the placement process is smooth, organized, and beneficial for everyone involved [2][3].

Another important aspect of the system is its feedback mechanism, which allows students to share their experiences and challenges during the recruitment process. This feedback is accessible to the TPO, who can analyze it to improve placement strategies and address common issues. The system also ensures that students do not receive duplicate job recommendations once they have applied, making the process more efficient. The inclusion of online tests with automated evaluation further enhances the system by providing immediate results to students. This helps in quick decision-making for both students and companies. The overall design of the system focuses on usability, efficiency, and scalability. It can be easily adapted to different institutions and expanded with additional features in the future. By combining automation, intelligent recommendations, and user-friendly design, the system provides a modern solution to traditional placement challenges [3][4].

II. RELATED WORK

Rao et al., [2019] [4] The study focuses on predicting student placements using data mining techniques within an outcome-based education system. The author highlights the importance of analyzing academic performance and skill sets to estimate placement chances. Various classification methods are discussed to improve prediction accuracy. The model helps institutions identify students who need additional training. It also supports decision-making for placement preparation strategies. The research emphasizes the role of historical data in improving prediction outcomes. By using structured datasets, the system provides better insights into student capabilities.

The findings suggest that data-driven approaches can enhance placement success rates. Overall, the study contributes to improving recruitment efficiency in educational institutions.

Yadav et al., [2019] [3] This research presents an automated job recruitment system that connects universities with industry requirements. The authors propose a platform that reduces manual intervention in the hiring process. It allows companies to post job requirements and students to apply efficiently. The system improves communication between stakeholders. Automation helps in reducing errors and saving time. The study also highlights the importance of aligning student skills with job expectations. It enhances transparency in recruitment activities. The proposed system supports better coordination between institutions and recruiters. The research concludes that automation significantly improves placement processes.

Dalal et al., [2020] [2] The paper introduces a campus recruitment system designed to manage student and company interactions effectively. It focuses on simplifying the registration and job application process. The system provides a centralized platform for managing placement activities. Students can create profiles and apply for suitable jobs. Companies can filter candidates based on required skills. The research emphasizes reducing paperwork and manual workload. It also ensures better data organization and accessibility. The system improves efficiency in handling large volumes of student data. The study concludes that digital solutions enhance the overall recruitment experience.

Feinkohl et al., [2021] [6] This study explores the relationship between intelligence in early adulthood and cognitive performance in later life. The authors analyze how education and occupation influence long-term cognitive abilities. The research highlights the role of IQ as a significant contributing factor. It provides insights into how intellectual abilities impact career outcomes. The study uses statistical analysis to establish correlations. The findings suggest that early cognitive ability affects professional growth. It also emphasizes the importance of education in shaping cognitive development. The research contributes to understanding the long-term impact of intelligence. Overall, it provides valuable insights into human cognitive progression.

Jiang et al., [2020] [1] The research examines gender differences in predicting intelligence using connectome-based models. It focuses on brain connectivity patterns to estimate intelligence scores. The study uses advanced computational



techniques for prediction analysis. It highlights variations in prediction accuracy between genders. The research contributes to neuroscience and cognitive science fields. It emphasizes the importance of personalized prediction models. The findings show that brain structure plays a key role in intelligence estimation. The study also discusses the limitations of generalized models. Overall, it provides a deeper understanding of intelligence prediction using neural data.

III. DATASET DETAILS

The dataset used in this project is composed of structured and semi-structured information collected from three main user roles: students, companies, and Training and Placement Officers (TPO). Student data includes personal details, academic qualifications, technical skills, experience, and uploaded resumes. Company-related data contains registration details, job descriptions, required skills, and eligibility criteria for various job postings. Additionally, the system stores test-related data such as questions, multiple-choice options, and correct answers, which are maintained in a separate file for evaluation purposes. The dataset is dynamically updated as users interact with the system through registration, profile updates, and job postings. This continuous data collection helps in maintaining up-to-date information. The structured nature of the dataset ensures easy retrieval and processing, enabling efficient system performance. Overall, the dataset plays a crucial role in managing and organizing placement-related information effectively.

The dataset is also used to support the job recommendation functionality, where student skills are matched with job requirements using a K-Nearest Neighbors (KNN) approach. For this purpose, both student profiles and job descriptions are transformed into comparable formats based on skill attributes. The system calculates similarity scores to identify the most relevant job opportunities for each student. Additionally, the dataset includes application records, test scores, and feedback provided by students after the recruitment process. This information helps in tracking student progress and evaluating their performance. Feedback data is particularly useful for the TPO to identify common challenges faced by students during placements. The dataset is designed to avoid redundancy, ensuring that once a student applies for a job, it is not recommended again. By integrating multiple data types, the system achieves accurate recommendations and efficient placement management.

IV. PROPOSED METHODOLOGY

The proposed system follows a structured web-based approach to manage placement activities for students, companies, and TPO. Initially, all users register into the system and provide relevant details such as skills, academic information, and job requirements. The backend processes and stores this data in an organized format. Companies can post job openings and create assessment questions, while students can update profiles and apply for jobs. The system ensures secure login and role-based access for each user. It integrates all modules into a single platform, allowing smooth communication and efficient handling of placement tasks without manual intervention.

The system is designed to handle placement activities in a structured and practical way. Users begin by registering and entering their relevant details, including skills and academic information. This data is stored and processed at the backend, which supports different operations for each user role. Companies can add job openings and define requirements, while students can update their profiles and apply for suitable positions. The system maintains secure access for each user and ensures that all operations are handled smoothly. By bringing all modules together, it reduces manual dependency and improves overall coordination between users.

The system uses a K-Nearest Neighbors (KNN) algorithm to recommend jobs based on similarity between student skills and job requirements. Student profiles and job descriptions are compared to calculate matching scores. Based on these scores, relevant job opportunities are displayed to students. Once applied, the system prevents duplicate recommendations. Students must complete online tests, and their performance is automatically evaluated. Selection decisions are based on test scores and matching criteria. Additionally, feedback collected from students is analyzed by the TPO to improve placement strategies. This methodology ensures accurate recommendations, fair evaluation, and efficient recruitment management.



Figure [1] : Online Placement System Architecture with Job Matching

Figure[1] illustrates an online placement system that integrates multiple modules such as Student, TPO, and Company through a centralized web server and database. Students can update profiles, take tests, and receive job recommendations, while companies post jobs and manage applications. The system uses a KNN algorithm for job matching and evaluates online tests automatically. It also tracks applications and analyzes student feedback for better decision-making. Finally, the system generates outputs like job suggestions, test scores, and placement reports.

V. RESULT AND DISCUSSION

After implementation, the system performed as expected across all modules. Students were able to create profiles, explore job opportunities, and apply without facing complications. The job recommendation feature showed relevant results in most cases, as it matched student skills with job requirements effectively. Companies could easily post jobs and manage applications, while the test module evaluated answers instantly and displayed scores without delay. The feedback feature also worked well, allowing students to share their experiences. Overall, the system handled data efficiently and provided a smooth user experience.



Figure [2] : AI-Based Job Recommendation and Application Interface

Figure[2] This screen displays job recommendations generated using a KNN-based machine learning algorithm. It shows detailed job information such as company name, role description, salary, and required skills. The recommendation probability indicates how well the job matches the student's profile. Students can directly apply for suitable jobs through the provided "Apply" option, making the process efficient and personalized.



Figure [3]: Student Feedback Viewing Module

The Figure[3] allows administrators or TPOs to view feedback submitted by students. It displays student names along with the challenges they are facing during the placement process. The feedback helps identify common issues like difficulties in aptitude tests or technical preparation. This information can be used to improve training programs and enhance student performance.

DISCUSSION

The system demonstrates how combining automation with simple machine learning techniques can improve placement management. The use of the KNN algorithm helped in suggesting more relevant job options, reducing unnecessary applications. At the same time, automation reduced the workload involved in managing job postings and evaluations. However, the system largely depends on the accuracy of the data entered by users. If the input is incomplete, the results may not



be fully reliable. There is also scope to enhance the system further by adding more advanced features such as real-time alerts or improved analytics. Even with its current design, the system offers a practical solution for handling placement activities more effectively.

VI. CONCLUSION

The developed placement management system provides an efficient and organized solution for handling campus recruitment activities. It successfully integrates students, companies, and TPO into a single platform, reducing the need for manual processes and improving communication among all users. The system allows companies to post job opportunities and evaluate candidates, while students can easily apply for jobs, take tests, and track their progress. The use of a KNN-based recommendation approach helps in suggesting relevant job opportunities based on student skills, increasing the chances of selection. The system also ensures proper data management, secure access, and smooth workflow across different modules. Features like online test evaluation and feedback collection further enhance the overall functionality. The results show that the system performs reliably and meets the requirements of a modern placement process. With future improvements such as enhanced algorithms and additional features, the system can be made more robust and scalable. Overall, this project demonstrates a practical and effective approach to simplifying and improving placement management in educational institutions.

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