

Research Paper

Advanced Placement System with Real-Time Feedback Integration

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Abstract— This project focuses on developing a web-based placement management system that simplifies the recruitment process for students, companies, and Training and Placement Officers (TPOs). The platform allows companies to create accounts, post job openings, and design assessment tests. Students can register, update their profiles, and receive job recommendations tailored to their skills through a KNN-based matching method. They can also apply for positions, take online assessments, and monitor the progress of their applications. Additionally, the system includes a feedback feature where students can share their experiences, which TPOs can review to make improvements. By bringing together different user roles and automating important placement activities, the system reduces manual work, increases efficiency, and improves the overall recruitment experience for everyone involved.

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 advancement of technology has significantly improved recruitment practices, shifting them from traditional manual methods to more efficient digital systems. Despite this progress,

many educational institutions still face difficulties in managing campus placements due to challenges such as handling large volumes of student data, coordinating job postings, and maintaining effective communication between students, companies, and placement officers [2][3].

To address these issues, this project proposes a web-based placement management system that automates and simplifies the entire placement process. The platform connects students, companies, and Training and Placement Officers (TPOs) in a unified system, enabling activities such as registration, job posting, application tracking, and feedback submission. By digitizing these processes, the system reduces paperwork, improves accessibility, and ensures a user-friendly experience. As a result, the placement process becomes more transparent, accurate, and efficient [2].

In many institutions, placement activities often lack proper organization due to scattered data and insufficient coordination among stakeholders. This system resolves these issues by providing a centralized platform where all placement-related information can be easily managed and accessed. Tasks such as user registration, job posting, and application tracking are streamlined, making the overall process more structured. Since all operations are conducted digitally, users can quickly retrieve information without delays. The system is designed with simplicity in mind, allowing users with minimal technical expertise to interact with it comfortably. This approach not only saves time but also improves the overall management of placement

activities, making them more reliable and easier to handle [2][3].

A key feature of the system is its ability to provide personalized job recommendations based on students' skills and qualifications. This is achieved using the K-Nearest Neighbours (KNN) algorithm, which matches student profiles with job requirements to suggest the most relevant opportunities [4]. This intelligent recommendation system helps students focus on roles that align with their capabilities, thereby increasing their chances of success. At the same time, companies benefit by receiving applications from candidates whose skills closely match their requirements, reducing the effort needed to filter unsuitable applicants. In addition, students can apply for jobs directly through the platform and participate in online assessments created by companies. These features contribute to a more organized and efficient recruitment process, improving the interaction between students and recruiters [3][4].

Companies can register, post job openings, and create assessment questions to evaluate candidates. Students can build and update their profiles, upload resumes, and maintain their academic and skill-related information. They can also take online tests and track the progress of their job applications. TPOs play an important role by monitoring the system, reviewing student feedback, and identifying challenges in the placement process. This multi-user structure ensures that all stakeholders have access to features relevant to their needs, promoting better coordination and communication. By centralizing all placement-related activities, the system minimizes confusion and enhances overall efficiency, making the placement process more organized and beneficial for everyone involved [2][3].

II. RELATED WORK

[1] Jiang et al. (2020) This research explores how brain connectivity patterns can be used to predict intelligence levels, with a particular focus on differences between genders. The authors use connectome-based predictive modeling to analyze neural connections and their relationship with cognitive abilities. By examining large-scale brain network data, the study identifies patterns that are linked to intelligence scores and their subcomponents. One of the key contributions of this work is highlighting that prediction models may perform differently across male and female groups, suggesting the need for more personalized approaches. The study also demonstrates the effectiveness of combining neuroscience data with computational techniques for understanding human intelligence. In addition, it provides insights into how specific brain regions interact to influence cognitive performance. Overall, the research

advances the field by showing that brain-based data can improve the accuracy of intelligence prediction models and support further exploration in cognitive neuroscience.

[2] Dalal and Bondre (2020) This paper presents the design and implementation of a campus recruitment management system aimed at improving the efficiency of placement activities in educational institutions. The system focuses on reducing manual processes by providing a centralized digital platform for students, recruiters, and administrators. It enables students to create profiles, upload their academic details, and apply for job opportunities. Recruiters can post job openings and filter candidates based on required skills and qualifications. The system also helps administrators manage data more effectively and monitor placement activities. By automating tasks such as registration and application processing, it reduces errors and saves time. The authors emphasize the importance of data organization and accessibility in handling large volumes of placement-related information. The study concludes that implementing such a system can significantly enhance coordination among stakeholders and improve the overall recruitment experience within academic institutions.

[3] Yadav et al. (2019) This study introduces an automated recruitment framework designed to bridge the gap between universities and industry requirements. The proposed system focuses on improving the hiring process by reducing dependency on manual coordination and communication. It allows companies to post job opportunities and define their requirements, while

students can apply for positions through a structured and efficient interface. The framework emphasizes aligning student skills with job expectations, ensuring that recruiters receive applications from suitable candidates. Automation plays a key role in minimizing errors, saving time, and improving transparency throughout the recruitment process. The system also enhances communication between all stakeholders, making the process more organized and reliable. By integrating academic institutions with industry needs, the framework supports better placement outcomes. The authors conclude that such systems are essential for modern recruitment practices and can significantly improve the efficiency and effectiveness of campus placements.

[4] Rao (2019) This research focuses on the use of data mining techniques to predict student placement

outcomes within an outcome-based education system. The study highlights the importance of analyzing academic records, skill sets, and other relevant factors to estimate the likelihood of a student securing a job. Various classification algorithms are explored to improve the accuracy of predictions and provide reliable results. The model developed in this research helps institutions identify students who may require additional support or training to improve their placement chances. It also assists in planning targeted strategies for skill development and career preparation. By utilizing historical data, the system generates meaningful insights into student performance and potential. The study demonstrates that data-driven approaches can enhance decision-making and improve placement success rates.

[5] Goriounova et al. (2018) This study investigates the relationship between neuronal characteristics and human intelligence by analyzing brain cell properties. The researchers focus on how the structure and function of neurons contribute to cognitive abilities. Using experimental data, they examine factors such as neuron size, connectivity, and signal transmission efficiency. The findings suggest that certain neuronal features are closely linked to higher levels of intelligence, providing a biological basis for cognitive performance. The study bridges the gap between neuroscience and psychology by connecting microscopic brain properties with complex intellectual functions. It also highlights the importance of understanding brain mechanisms to gain deeper insights into human intelligence. By exploring these relationships, the research contributes to advancements in both medical and cognitive science fields.

III. DATASET DETAILS

The dataset used in this project consists of both structured and semi-structured data gathered from three primary users: students, companies, and Training and Placement Officers (TPOs). Student-related information includes personal details, academic records, technical skills, work experience, and resumes uploaded to the system. Company data covers registration details, job roles, required skills, and eligibility criteria for different openings. The system also maintains assessment-related information such as questions, answer choices, and correct responses, which are stored separately for evaluation. As users interact with the platform through activities like registration, profile updates, and job postings, the dataset is continuously updated. This ensures that the information remains current and reliable. Since the data is well-organized, it allows for quick access and efficient processing, which supports the smooth functioning

of the system. Overall, the dataset is essential for effectively managing placement-related activities.

In addition to basic management, the dataset plays an important role in enabling job recommendations. The system uses a K-Nearest Neighbours (KNN) approach to match student skills with job requirements. For this, both student profiles and job descriptions are converted into a comparable format based on skill sets. Similarity scores are then calculated to recommend the most suitable job opportunities. The dataset also includes details such as job applications, test results, and feedback shared by students after the recruitment process. This information helps track student progress and assess their performance. Feedback data is especially valuable for TPOs, as it highlights common difficulties faced by students. The system is designed to prevent duplication by ensuring that jobs already applied for are not recommended again. By combining different types of data, the platform delivers accurate recommendations and supports efficient placement management.

IV. PROPOSED METHODOLOGY

The proposed system adopts a structured web-based approach to efficiently manage placement activities for students, companies, and Training and Placement Officers. At the initial stage, all users register on the platform and provide necessary information such as academic details, skill sets, and job requirements. This data is securely stored and processed in the backend in an organized manner. Companies are able to post job openings and design assessment tests, while students can update their profiles and apply for relevant opportunities. The system ensures secure authentication and provides role-based access, allowing each user to perform only the actions assigned to them. The design of the system focuses on simplicity and efficiency in handling placement-related tasks. Once users complete registration, they can easily manage their activities based on their roles. Students can maintain updated profiles and explore suitable job opportunities, while companies can specify job requirements and shortlist candidates. The backend manages all operations seamlessly, ensuring that data is processed correctly and made available when needed. Security measures are implemented to protect user information and maintain system reliability. By centralizing all placement operations, the platform minimizes errors, reduces manual effort, improves coordination among stakeholders.

To enhance job matching, the system uses the K-Nearest Neighbours algorithm to recommend suitable positions to students. It compares student profiles with job descriptions based on skill

attributes and calculates similarity scores to identify the best matches. Relevant job opportunities are then suggested to students accordingly. Once a student applies for a position, the system ensures that the same job is not recommended again. Students are required to complete online assessments, and their results are automatically evaluated by the system. Final selection is determined based on performance in these tests along with matching criteria.

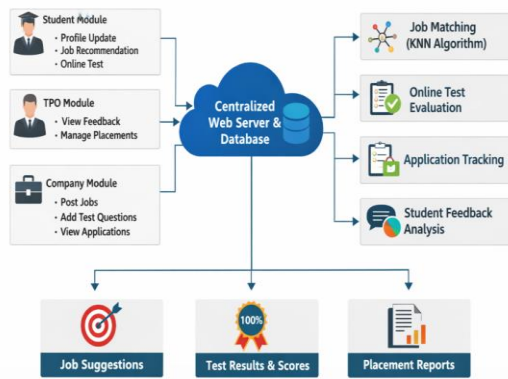


Figure [1] : Online Placement System Architecture with Job Matching

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

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.

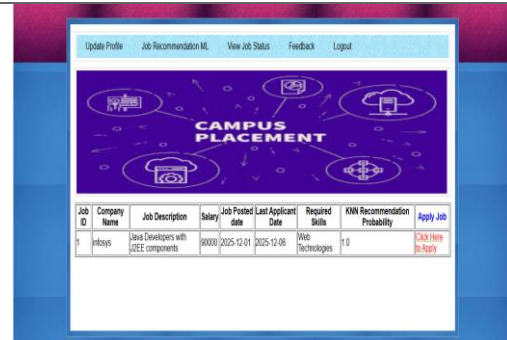


Figure [2] : AI-Based Job Recommendation and Application Interface

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.

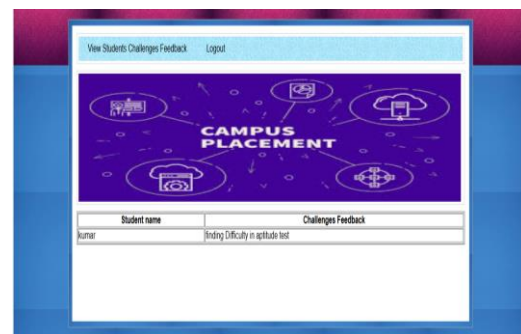


Figure [3]: Student Feedback Viewing Module

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 clearly shows how the combination of automation and basic machine learning techniques can make placement management more efficient and organized. By integrating the K-Nearest Neighbours algorithm, the platform is able to recommend job opportunities that closely match a student's skills and qualifications. This reduces the chances of students applying for irrelevant positions and helps

them focus on opportunities that suit their profile. As a result, both students and companies benefit from a more targeted and meaningful recruitment process. In addition to this, automation plays a major role in simplifying tasks such as job posting, application handling, and test evaluation. This reduces the manual effort required by placement officers and ensures that the process runs smoothly.

Despite these advantages, the system has certain limitations. Its performance depends heavily on the quality and accuracy of the data provided by users. If students or companies enter incomplete or incorrect information, the recommendations and results generated by the system may not be fully reliable. Therefore, maintaining accurate and updated data is essential for achieving the best outcomes. Another limitation is that the current system uses a relatively simple algorithm, which may not capture more complex relationships between skills and job requirements.

There is significant scope for future improvement. Features such as real-time notifications, advanced data analytics, and more sophisticated machine learning models can be added to enhance system performance. Even with these limitations, the system provides a practical and effective solution for managing placement activities, improving efficiency, and reducing manual workload in educational institutions.

VI. CONCLUSION

The developed placement management system offers a well-structured and efficient solution for managing campus recruitment activities. By bringing students, companies, and Training and Placement Officers onto a single platform, it minimizes the need for manual work and improves communication between all stakeholders. The system enables companies to post job openings and evaluate candidates effectively, while students can easily explore opportunities, apply for jobs, take online assessments, and monitor their application progress. One of the key strengths of the system is the use of a KNN-based recommendation method, which helps match students with suitable job roles based on their skills. This targeted approach increases the likelihood of better placement outcomes. In addition, the system ensures secure data handling, organized storage, and smooth operation across different modules. Features such as automated test evaluation and feedback collection further contribute to making the process more transparent and efficient. The results indicate that the system performs consistently and meets the essential requirements of a modern placement process. While the current implementation is

effective, there is potential for further enhancement through the use of more advanced algorithms, real-time features, and improved analytics.

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