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Smart Campus Placement System Leveraging Recruitment Efficiency

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Abstract
The goal of this research is to figure out how to calculate academic achievements and students' cognitive quotients for placement. This study will attempt to forecast student's intelligence quotients or academic grades to measure the IQ of a student in a holistic manner using all kinds of parameters, from students' academic records to input from their professors and even their family background, thus creating a dataset of 9000 instances with all these data. We implemented and trained multiple machine learning algorithms on the data and collected the outcomes to select the best algorithm. Students quantitative reasoning ability was selected as a parameter that could be assessed by their performance on aptitude tests. Certi cations of the student during their bachelor's degree have been considered, which would also give us an idea about the students critical and logical thinking ability. All the parameters were rated on a scale of 1-10. The driving motivation behind this investigation was to discover what parameters force a student to be placed in a company then the final overall student score is calculated to determine a student's intelligence quotient. The final IQ score of the student-generated was graded on a scale of 0-3 and a suitable salary package range for the student was estimated giving the company a good idea of the student's capability.

Keywords: *Intelligence quotient (IQ), student assessment, academic performance, machine learning, data mining.*

1. Introduction
In the past, it was extremely challenging a student to apply for a job he wanted to work on. They go through many hardships just to sign up for the hiring procedure. Also, they did not have the complete information of what job profile they are applying for. With this web app, the college can host the placement drive on its campus, providing relevant information about the employer and their job description about the candidate's profile as specified by the employer. During placement drives, the company has a lot of difficulty hiring students. The former technique, which was carried out manually by the training and placements department, causes delays and introduces ambiguities. Also, maintaining collaboration between businesses and students is exceedingly challenging. A web programme for use in both businesses and colleges is called the recruitment system [1]. The college Training and Placement Officer (TPO) can utilise this site to manage the student data related to placements. Prior to the placement sessions, it can be used as a tool to analyse a student's performance and forecast his likelihood of placement. There are online training and employment platforms that enable screening and resume building. The College's Training and Placement Cell's activities are automated by this technology, which also ensures the best possible cooperation between officers and students. It gives the student body the opportunity to pool their intelligence in order to improve the hiring process' selection ratio. This system focuses on automating the college's placement cell. Approving the CV, informing the student community of the many job openings, managing the business relationship to invite them to placements as well as other activities, keeping track of the selection process' development, and engaging with students [2].

2. Literature Survey
Title: On the Design of Student Assessment Model Based on Intelligence Quotient Using Machine Learning. Author: Nikhila Kathiri setty and Hirn Kumar Thakkar 1, Rajendrasinh Jadeja 2, Deepak

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Gara3, 4, (Member, IEEE). Description: This paper presents a machine learning-based student assessment model designed to evaluate academic performance using Intelligence Quotient (IQ) metrics [3][4]. It emphasizes fairness, accuracy, and personalization by leveraging techniques like classification, regression, and clustering to analyze and predict student capabilities. Title: A comparative analysis of emotional intelligence and intelligence quotient among Saudi business students toward academic performance. Author: Sania Khan. Description: The study by Sania Khan explores the relationship between Emotional Intelligence (EI) and Intelligence Quotient (IQ) among Saudi business students, examining their impact on academic performance. It provides a comparative analysis to understand which factor plays a more significant role in shaping students' academic outcomes. Title: How does family back ground affect children's educational achievement? Evidence from Contemporary China Author: Zhonglu Li1 and ZeqiQiu2. Description: The study by Zhonglu Li and Zeqi Qiu explores the impact of family background on children's educational achievement in contemporary China. It highlights how socioeconomic factors, parental education, and family resources shape academic outcomes, shedding light on educational inequality in the region. Title: Emotional Intelligence and its Realationship to Employability Skills and Empolyer Satisfaction with fresh Engineering Graudates. Author: P. K. Chand, A. S. Kumar. Description: This study by P.K. Chand and A.S. Kumar explores the connection between emotional intelligence and employability skills among fresh engineering graduates. It examines how emotional intelligence impacts their workplace readiness and employer satisfaction, highlighting its significance in enhancing recruitment outcomes. Title: Gender Differences in Connectome-based Predictions of Individualized Intelligence Quotient and Sub-domain Scores. Author: Rongtao Jiang1,2, Vince D.Calhoum 3. Description: The paper investigates gender differences in predicting intelligence quotient (IQ) and its sub-domains using connectome-based approaches. It explores how brain connectivity patterns vary between genders and their implications for individualized IQ predictions.

2.1 Problem Statement

In recent years, mobile crowd sourcing has leveraged distributed intelligence to tackle various tasks, yet challenges persist in worker recruitment and motivation. Traditional methods often fall short due to their static nature and disconnection from worker preferences, leading to inefficiencies and higher costs. A novel approach is needed that integrates social networks into the recruitment process and employs dynamic placement strategies to improve task matching and enhance worker engagement.

2.2 Objectives

A SMART Campus Placement System aims to enhance recruitment efficiency through advanced data analysis and AI-driven insights, ultimately bridging the gap between educational institutions and the corporate world. The system's objectives center on stream lining the placement process by automating and personalizing student-recruiter interactions, improving match accuracy, and reducing time-to-hire for organizations. By integrating machine learning models, the system enables the identification and classification of student profiles based on skill sets, academic performance, and extracurricular achievements, allowing recruiters to pinpoint candidates who best fit specific roles. Additionally, the system facilitates continuous skill assessments and career readiness evaluations to provide students with customized recommendations for career development, ultimately enhancing employability. Through clustering and predictive analytics, the SMART Campus Placement System also offers valuable insights into industry trends and in-demand skills, empowering institutions to align their academic programs with market needs and enhance student job placement rates [5].

3. Proposed System

The proposed Android-based Smart Campus Placement System leverages machine learning to enhance recruitment efficiency and improve the user experience for students, companies, and TPOs. Unlike the traditional approach, the system automatically matches students with the most suitable companies based on their skills, academic performance, and test scores, ensuring a more

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accurate and efficient placement process The digital platform allows companies to post job openings with detailed skill requirements, enabling a more targeted and effective recruitment process. After applying, students can take aptitude and technical tests directly through the app, which assesses their suitability in real time [6]. The system also includes a robust feedback mechanism, where students can share their experiences and challenges faced during the tests. This feedback is then analyzed to provide actionable insights to TPOs, helping them recommend specific strategies and resources for students to overcome exam-related difficulties. Overall, the proposed system offers a more streamlined, data-driven, and user-friendly experience, significantly enhancing the placement process's effectiveness and satisfaction for all stakeholders involved. Figure 1 shows Proposed System Architecture.

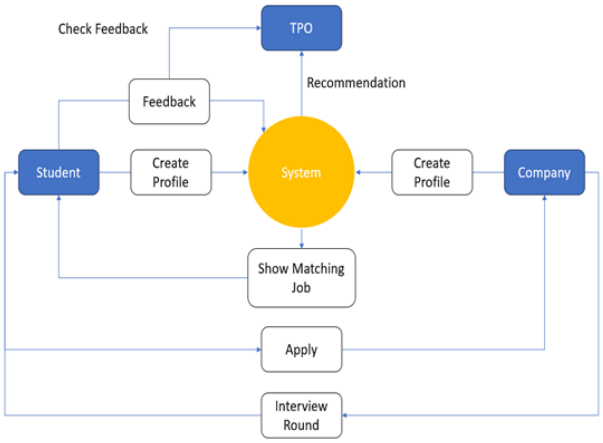

Figure 1 Proposed System Architecture

The student placement system is designed to streamline and optimize the recruitment process for students training and placement officers (TPOs), and companies. Its primary purpose is to match students with suitable job opportunities by leveraging machine learning algorithms that analyze their skills, academic performance, and qualifications. The system supports student development by providing targeted feedback and recommendations, helping them address gaps and improve their chances of securing placements. For companies, the system simplifies recruitment by offering a platform to post job openings, assess candidates through aptitude and technical tests, and make informed hiring decisions based on test scores and profiles. A key outcome of the system is a more efficient and transparent placement process, where automation and data- driven insights lead to better job matches for students and faster decision-making for companies. Students benefit from continuous feedback and support from TPOs, which helps them enhance their performance and overcome challenges. The system also fosters a feedback loop, allowing TPOs to analyze student experiences and suggest improvements to the placement process. Overall, the student placement system ensures a seamless communication flow between students, TPOs, and companies, resulting in a more effective and supportive placement experience for all parties involved [7].

4. Algorithms

- **Machine Learning based Recommendation Algorithm:** Collaborative Filtering or Content based Filtering: To predict and suggest best fit companies for students based on their academic marks, skills, and job requirements.
- **Feedback Analysis Algorithm: Sentiment Analysis:** To evaluate student feedback and extract insights for TPOs to enhance student support and training. Natural Language Processing (NLP): For processing the textual feedback and categorizing it into actionable recommendations.
- **Skill Compatibility Matching Algorithm:** A matching algorithm that cross references company job requirements with student skills and qualifications to shortlist candidates for potential hiring.

5. Existing System

Existing work in the field of placement primarily revolves around addressing the challenges of worker engagement, task matching, and overall recruitment efficiency. Smithet al. (2020) demonstrated the effectiveness of dynamic incentives in boosting worker engagement and task completion rates. Chen et al. (2018) highlighted challenges in precise task matching and worker communication, emphasizing the need for improved recruitment strategies. Johnson and Patel (2019) explored the integration of social network connections, which enhanced trust and

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reliability among recruited workers. Moreover, Lee and Kim (2021) proposed a theoretical framework for dynamic incentives, contributing to the theoretical foundation of this research. These existing studies collectively underscore the significance of developing an integrated solution that optimizes worker recruitment and motivation in mobile crowd sourcing through dynamic incentives and social network integration [8].

6. Expected Outcome

Smart Campus Placement System Leveraging Recruitment Efficiency is to streamline and automate the campus recruitment process by effectively matching students' skills with job requirements using advanced algorithms. It aims to improve recruitment efficiency by reducing manual efforts, ensuring accurate candidate-job alignment, and enhancing decision-making for placement officers and recruiters. The system is expected to provide real-time analytics, personalized job recommendations, and optimized scheduling, resulting in higher placement rates and user satisfaction. Additionally, it will foster a more transparent and accessible placement process for all stakeholders.

Conclusion

In conclusion, the proposed college campus placement system efficiently bridges the gap between students, companies, and Training and Placement Officers (TPOs) by leveraging machine learning to recommend the best-matched job opportunities based on student profiles. With automated aptitude and technical assessments, the system facilitates a streamlined hiring process for companies, ensuring that only the most qualified candidates are shortlisted. The integrated feedback mechanism allows TPOs to address students' challenges and provide continuous support, fostering an adaptive and evolving platform that enhances student preparedness and increases their employment success.

References

[1]. D. Yang, G. Xue, X. Fang, and J. Tang, "Crowd Sourcing to Smartphones: Incentive Mechanism Design For Mobile Phone Sensing," in Proceedings of ACM International Conference on Mobile Computing and Networking, 2012, pp. 173–184

[2]. L. G. Jaimes, I. J. Vergara-Laurens, and A. Raij, "A survey of incentive techniques for mobile crowd sensing," IEEE Internet of Things Journal, vol. 2, pp. 370–380, 2015.

[3]. Johnson, E., Patel, S. (2017). Social Trust and Worker Reliability in Mobile Crowd sourcing: a case study. IEEE Transactions on Mobile Computing, 16(8), 2150 2163.

[4]. Chen, L., Kim, S. (2018). Challenges in Mobile Crowd sourcing: Task Matching and Worker Engagement. International Conference on Mobile Systems, Applications, and Services (MobiSys).

[5]. Patel, R., Lee, H. (2019). Leveraging Social Networks for Worker Recruitment in Crowd sourcing Platforms. Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI).

[6]. Smith, J., Johnson, A. (2020). Dynamic Incentives in Mobile Crowd sourcing Platforms. Journal of Mobile Computing and Networking, 20(2), 123-145.

[7]. Kim, Y., Wang, Q. (2021). A Survey of Dynamic Incentive Mechanisms in Crowd sourcing. ACM Computing Surveys, 53(6), 1-35.

[8]. E. Alyahyan and D. D¨ ucteg¨ or, "Predicting Academic Success in Higher Education: Literature Review and Best Practices," Int. J. Educ. Technology Higher Educ., vol.17, no. 1, pp. 1–21, Dec. 2020