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DYP Connect: A centralized platform for placement infrastructure under one roof

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Abstract

In the rapidly evolving landscape of higher education, students often face frag- mented access to career opportunities, campus activities, placement support, and alumni net- works. DYPConnect is a designed to wrap these elements into a single environment that im- proves the academic and career trajectory of students. This research introduces DYPConnect as a centralized growth and placement platform for colleges, aiming to simplify Training and Placement Officer (TPO) coordination, provide real-time alerts for internships, competitions, and club activities, and offer a comprehensive dashboard for students to manage their progress. The platform is built using modern web development technologies and prioritizes scal- ability, realtime updates, and an intuitive user interface. Unlike conventional TPO portals, DYPConnect incorporates modular features such as event alerts, placement tracking, AI-ready career recommendations, and integration of student communities and clubs. The prototype demonstrates strong potential in improving student engagement, streamlining administrative workflows, and fostering holistic growth. This paper outlines the design, architecture, and potential impact of DYPConnect, positioning it as a next-generation digital solution for educational institutions.

INTRODUCTION

Students often face clashes while meeting the industry requirements just by studying the syllabus imposed by the universities. Also higher education institutions serve as critical bridges between academic training and professional employment. However, the lack of integration among various student-facing systems—such as placement portals, club activities, academic progress dashboards, and career notifications—creates friction that hinders optimal student engagement and preparation. This fragmentation often leads to missed opportunities, inefficient TPO workflows, and a lack of institutional transparency in student development metrics. DYP- Connect aims to address this problem by offering a centralized digital ecosystem that brings together placement tracking, event updates, club coordination, and career-building tools under a unified interface. Built as a full-stack application, the platform is responsive, modular, and scalable, offering features tailored to the needs of students, Training and Placement Officers, alumni, and student-led organizations.Its features allows student to improve their technical and analytical skills also makes it easier for the institution to identify students as entities to be worked on and manage placement eligiblity.

This paper presents the conceptual foundation, architecture, and early implementation of the DYPConnect platform. The solution not only improves accessibility to critical campus resources but also introduces an AI-compatible architecture for future predictive analytics and placement forecasting.The sucessful implementation of this platform will lead to major stress buster for all stakeholders in the placement process and overall growth of students.

SYSTEM MODEL AND ASSUMPTIONS

DYPConnect functions as a unified digital platform designed to streamline interactions between students, placement officers, and institutional entities within a college or university. The system adopts a client-server architecture where students, administrators, and contributors such as club coordinators and alumni representatives engage through distinct role-based interfaces. The platform's architecture is composed of a responsive front-end built using modern web technologies, coupled with a robust backend infrastructure that supports data exchange, user management, and access control. A centralized database is employed to securely store user information, placement records, activity logs, and event notifications. Additionally, real-time communication is enabled through technologies such as push notifications or WebSocket-based systems to ensure timely delivery of updates related to internships, competitions, and academic events.

Several foundational assumptions are made in the design of this system. It is presumed that users will access the platform through internet-enabled devices, and possess authenticated credentials provided by the institution or verified through secure login mechanisms. The system is intended to be accessed via commonly used platforms such as web browsers or mobile devices. Role-based access control governs the user experience, ensuring that each user interacts with the system in accordance with their designated privileges—for example, students can view placement updates, while TPOs can manage event postings and placement analytics. The accu- racy of event and placement data is dependent on institutional input, and the platform assumes that contributors will maintain the integrity of this information. Furthermore, optional inte- gration with third-party services such as calendar tools or professional platforms is considered feasible, provided that users grant the necessary permissions. To maintain the relevance and appropriateness of student-driven content, it is also assumed that club and community activities are moderated by authorized individuals. These assumptions guide the system's development and ensure its alignment with real-world institutional workflows.

PREDICTION MODEL

The placement prediction is the most crucial stage, and hence the prediction model must be chosen precisely.According to research Na¨ıve Bayes demonstrated the highest accuracy, correctly predicting placements in over 86 percent of the cases. This indicates its effectiveness in handling educational datasets with multiple input variables. The methodology involved data preprocessing, attribute selection, model training, and validation using 10-fold cross-validation to ensure robustness. Performance metrics such as precision, recall, and error rates were com- pared to evaluate the classifiers. The Na¨ıve Bayes model stood out not only for its accuracy but also for its low error rate and quick model-building time, making it highly suitable for practical implementation. The study underscores the value of predictive analytics in education, showing how academic and behavioral indicators can be used to anticipate student placement success. Such models can support academic institutions in tailoring their training programs and enhancing student preparedness for the job market.

USE OF ARTIFICIAL INTELLIGENCE

Artificial Intelligence enables tailored career suggestions by evaluating various aspects of a student's profile, including their academic records, skill sets, course enrollments, extracurricular activities, and hands-on experiences such as projects or internships. Using machine learning models, AI can detect meaningful patterns and align them with successful pathways taken by others or with emerging industry demands. This allows the system to propose career options, internships, specialized courses, or higher education programs that are most suited to the student's capabilities and preferences. As the student progresses, the system adapts its sug- gestions, offering dynamic and personalized guidance that evolves with the individual's growth and the job market landscape. In real world problems, observations are made on entities associ- ated with a problem so as to make inferences on the target value of those entities. This mapping is encompassed in a predictive model with the help of decision trees. This method of learning is referred to as Decision Tree Learning.[paper 2]. Decision Tree Rule Example: Example rule extracted from the J48 model: If Seminar = Good → Placement = Yes Else if Seminar = Aver- age AND Lab Work = Yes → Placement = Yes Else if Seminar = Poor → Placement = No This helps in interpreting human-readable rules from the model.[paper 4].

RESULTS

To evaluate the performance of the **DYP Connect** platform, a placement prediction model was developed using the *Na¨ıve Bayes* algorithm. The model was trained on a dataset of 289 student records, categorized into six placement outcomes: *Dream Company*, *Core Company*, *Mass Recruiters*, *Not Eligible*, *Not Interested*, and *Not Placed*. Table 1 presents the gender-wise distribution of these predicted outcomes[2].

Table 1: Predicted Placement Outcomes

Placement Category	**Girls**	**Boys**	**Total**
Mass Recruiter/Common Co.	35	63	98
Core Company	30	26	56
Dream Company	24	27	51
Not Eligible	6	23	29
Not Interested	5	9	14
Not Placed	14	27	41
Total	**114**	**175**	**289**

The model's accuracy was validated against a confidential dataset of 60 students provided by the placement cell. Out of these, 43 were correctly classified by the model, resulting in an accuracy of **71.66%**. The execution time for the prediction was approximately **10 seconds**, as shown in Table[2] **?**

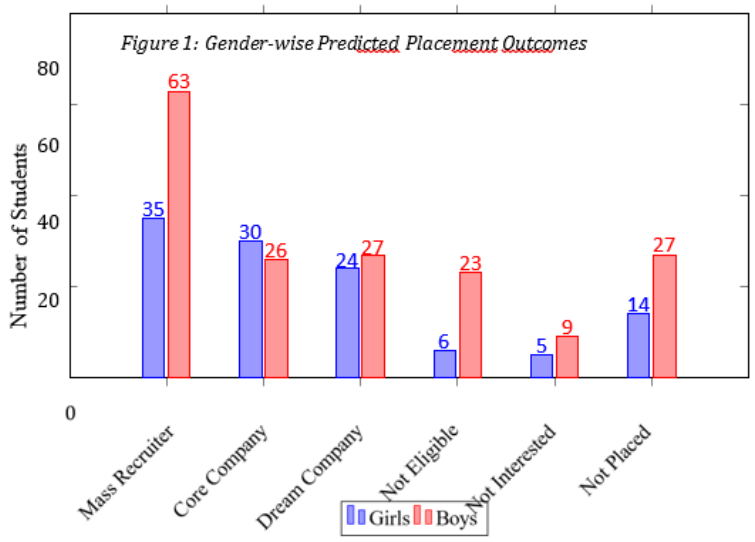

Table 2: Comparison with Data Analysis Tools

Tool	**Instances**	**Matching**	**Mismatching**	**Match %**
Datameer	289	197	92	68.16%
Weka	289	244	45	84.42%

To further evaluate the Na¨ıve Bayes classifier, we compared it with other machine learn- ing algorithms using Weka. Table 3 shows that although Na¨ıve Bayes had a lower accuracy

Table 3: Classifier Benchmarking on Weka

Algorithm	**Build(s) Time**	**Instances**	**Correct**	**Incorrect**	**Accuracy (%)**

Classification via Regression	0.49	289	148	141	51.21
Logistic Regression	0.19	289	145	144	50.17
Decision Tree	0.01	289	244	45	84.42
Metabagging Classifier	0.14	213	76	–	73.70
Na¨ıve Bayes	0.00	289	128	161	44.29

(44.29%), it was the fastest to execute, making it efficient for real-time deployment.

CONCLUSION

DYP Connect is the Platform on which all aspects of the campus placement process into a single, easy-to-use platform. From managing student profile and company requirements to tracking placement activities and schedules, this system organizes and simplifies all in one place. A point to point Analysis is performed based on Naive Bayes algorithm, that is one of the Machine learning algorithm. Using this algorithm we make the Placement Predictions correctly. So that Our students get help from this system.

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