100 PLACEPRO+: AI-POWERED PLACEMENT TRACKER FOR STUDENTS AND RECRUITERS

[1]Dr. E. ARUNA, [2]P. VAISHNAVI, [3]P. VAISHNAVI, [4]MD. SUFFIYAN,[5] P. NITHISH REDDY

[1]Assistant Professor,[2345]Students, Department of Information Technology, Teegala Krishna Reddy Engineering College, Medbowli, Meerpet, Balapur, Hyderabad-500097

ABSTRACT

The rapid growth of campus recruitment activities and increasing competition among students have created a strong need for an intelligent and automated placement management system. The "100 PlacePro+: AI-Powered Placement Tracker for Students and Recruiters" is designed to simplify and enhance the placement process by providing a centralized platform for students, recruiters, and placement officers. The system automates major placement activities such as student registration, resume management, job drive management, application tracking, and communication between stakeholders. Traditional placement systems rely heavily on manual operations, which often result in data redundancy, delays, communication gaps, and inefficiency in handling large volumes of student information. The proposed system addresses these limitations by integrating web technologies and machine learning techniques to provide a secure, efficient, and user-friendly environment. The platform includes separate modules for students, HR representatives, and placement officers, enabling role-based access and secure data management. Students can update profiles, upload resumes, apply for drives, and receive placement predictions using the Random Forest machine learning algorithm. Recruiters can search eligible candidates, view applications, and download resumes efficiently. Placement officers can manage drives, monitor applications, and maintain recruitment records in a centralized database. The system is implemented using HTML, CSS, JavaScript, PHP, MySQL, and machine learning integration. By improving transparency, automation, communication, and prediction capabilities, the proposed system enhances placement efficiency, reduces administrative workload, and improves student placement opportunities. Overall, PlacePro+ provides a scalable, reliable, and intelligent solution for modern campus recruitment management.

Keywords: Placement Management System, Machine Learning, Random Forest Algorithm, Recruitment Automation, Student Placement Tracker, Campus Recruitment, Web Application, Placement Prediction.

I. INTRODUCTION

Campus placement activities play a significant role in shaping the career opportunities of students and the reputation of educational institutions. In recent years, the increasing number of students and recruitment drives has made manual placement management highly inefficient and difficult to maintain. Traditional placement systems depend on spreadsheets, paper records, emails, and manual communication, which often lead to delays, data inconsistency, duplication, and lack of transparency [1]. Educational institutions face challenges in maintaining accurate student records, managing recruitment schedules, filtering eligible candidates, and providing real-time placement updates [2].

Students frequently experience uncertainty regarding job opportunities, eligibility criteria, and application status because manual systems fail to provide timely notifications and organized tracking mechanisms [3]. Recruiters also encounter difficulties in identifying suitable candidates from large datasets due to the absence of intelligent filtering systems [4]. To overcome these issues, automated placement management systems have become essential for institutions aiming to improve placement efficiency and communication [5]. Modern web technologies and database systems enable centralized management of student information, job drives, resumes, and applications [6]. The integration of artificial intelligence and machine learning techniques into placement systems further enhances decision-making and candidate prediction capabilities [7]. Machine learning algorithms can analyze academic performance, skills, certifications, and employability data to predict placement outcomes with improved accuracy [8]. Such intelligent systems help institutions reduce administrative workload and improve placement success rates [9]. The proposed "100 PlacePro+: AI-Powered Placement Tracker for Students and Recruiters" is developed to provide a comprehensive digital platform that simplifies placement management activities and improves collaboration between students, recruiters, and placement officers [10]. The system ensures secure role-based access, efficient communication, centralized data storage, and intelligent placement prediction features [11]. The project mainly focuses on automation, scalability, security, and user-friendly interaction to support modern recruitment requirements [12]. The system also minimizes human errors and provides faster access to recruitment-related information [13]. By implementing a centralized platform, institutions can improve transparency, efficiency, and productivity in placement operations [14]. The integration of machine learning-based placement prediction assists students in understanding their placement readiness and motivates them to improve their academic and technical skills [15].

The proposed system is developed using HTML, CSS, JavaScript, PHP, MySQL, and Random Forest machine learning algorithms to create a scalable and efficient placement management environment [16]. The system follows a three-tier architecture consisting of presentation, application, and database layers for better modularity and maintainability [17]. The student module allows users to register, manage profiles, upload resumes, apply for drives, and view placement predictions [18]. The HR module enables recruiters to search candidates, download resumes, and review applications based on eligibility criteria [19]. The placement officer module manages recruitment drives, monitors applications, and maintains communication with students and recruiters [20]. Role-based authentication mechanisms ensure secure access to sensitive information and prevent unauthorized operations [21]. Centralized database management improves data consistency, storage, and retrieval efficiency [22]. The Random Forest algorithm is integrated into the system to analyze factors such as SSC percentage, HSC percentage, degree percentage, work experience, employability scores, and specialization for placement prediction [23]. Machine learning integration improves the system's intelligence and assists students in career planning [24]. The application also supports resume management, certification tracking, and automated drive notifications [25]. Efficient communication mechanisms reduce delays and improve coordination among all stakeholders [26]. The use of modern web technologies ensures responsive design and accessibility across different devices and browsers [27]. Testing techniques such as unit

testing, integration testing, functional testing, white-box testing, and black-box testing are used to ensure reliability and system performance [28]. The proposed system improves recruitment transparency, minimizes paperwork, and enhances operational efficiency [29]. Overall, PlacePro+ serves as an intelligent, secure, and scalable solution that modernizes placement management and provides better opportunities for students and recruiters in educational institutions [30].

II. LITERATURE SURVEY

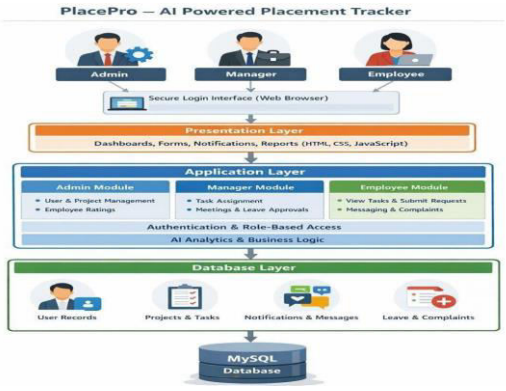
Several researchers and developers have proposed placement management and recruitment systems to automate campus placement activities and improve coordination between students, recruiters, and institutions. Traditional placement systems were primarily based on manual data handling methods such as spreadsheets, physical records, and email communication, which created issues related to data redundancy, delayed communication, and inefficient candidate management [1]. Early web-based placement systems focused mainly on digitizing student registration and job drive management processes [2]. These systems provided online forms, centralized student records, and job application management features to reduce manual paperwork [3]. However, most early systems lacked intelligent filtering and prediction capabilities, limiting their effectiveness in modern recruitment environments [4]. Research studies emphasized the importance of centralized databases for maintaining student academic records, resumes, and placement history efficiently [5]. Many systems introduced role-based modules for students, administrators, and recruiters to simplify access control and improve security [6]. Web-based recruitment portals developed using PHP and MySQL became widely popular due to their simplicity, scalability, and cost-effectiveness [7]. Several authors highlighted the benefits of automation in reducing administrative workload and improving placement transparency [8]. Existing recruitment systems also incorporated email notification features to inform students about placement drives and interview schedules [9]. Despite these improvements, many applications lacked real-time analytics and intelligent decision-making capabilities [10]. Researchers later introduced data mining and machine learning approaches for predicting placement outcomes based on student academic performance and technical skills [11]. Classification algorithms such as Decision Tree, Naïve Bayes, Support Vector Machine, and Random Forest were commonly used for placement prediction [12]. Among these algorithms, Random Forest demonstrated higher prediction accuracy and better handling of complex datasets [13]. Studies showed that machine learning-based placement systems help institutions identify placement-ready students and provide targeted training programs [14]. Researchers also emphasized the importance of secure authentication and centralized communication systems in educational recruitment platforms [15].

Recent advancements in artificial intelligence and web technologies have significantly improved the design and functionality of placement management systems [16]. Modern systems integrate machine learning models, resume analysis tools, cloud databases, and real-time notifications to enhance recruitment efficiency [17]. Several researchers proposed intelligent recruitment systems capable of automatically filtering candidates based on academic performance, technical skills, certifications, and aptitude scores [18]. The use of Random Forest algorithms in placement prediction became popular due to its ability to process large datasets and reduce overfitting problems [19]. Researchers observed that intelligent placement systems improve student confidence and help

placement officers monitor recruitment activities more effectively [20]. Studies also highlighted the role of responsive web applications in providing better accessibility through mobile and desktop platforms [21]. Security mechanisms such as encrypted passwords, role-based access control, and session management were identified as critical components for protecting sensitive student and recruiter information [22]. Cloud-based recruitment systems further improved scalability and storage efficiency [23]. Researchers proposed dashboard-based analytics for monitoring placement statistics, application trends, and recruiter activities [24]. Some systems integrated resume parsing and recommendation engines to improve candidate shortlisting processes [25]. Despite these advancements, many existing systems still face challenges related to scalability, data integration, prediction accuracy, and user experience [26]. The proposed "100 PlacePro+: AI-Powered Placement Tracker for Students and Recruiters" addresses these limitations by integrating centralized placement management, machine learning-based prediction, secure role-based access, and efficient communication modules into a single platform [27]. The system combines frontend technologies such as HTML, CSS, and JavaScript with backend technologies including PHP and MySQL to provide a scalable architecture [28]. The integration of Random Forest-based placement prediction enhances system intelligence and improves placement readiness analysis [29]. Therefore, the proposed system represents a modern and efficient approach for automating campus recruitment and improving overall placement management performance [30].

III. PROPOSED SYSTEM

The proposed system, "100 PlacePro+: AI-Powered Placement Tracker for Students and Recruiters," is designed to automate and optimize the campus placement process through a centralized and intelligent web-based platform. The system eliminates the drawbacks of traditional manual placement management by providing secure data storage, efficient communication, automated application handling, and machine learning-based placement prediction. The application includes separate modules for students, HR representatives, and placement officers, ensuring role-based access control and improved system security. Students can register, update profiles, upload resumes, add certifications, search for placement drives, and apply for jobs directly through the platform. Recruiters can search eligible students using filters such as academic percentage, branch, and certifications, while placement officers can manage recruitment drives, applications, and HR accounts efficiently. Centralized database management reduces data duplication and improves information accessibility. The proposed system also ensures faster communication through notifications, application tracking, and real-time updates regarding placement activities. The integration of machine learning improves the intelligence of the platform by predicting placement opportunities for students based on academic and employability-related parameters.

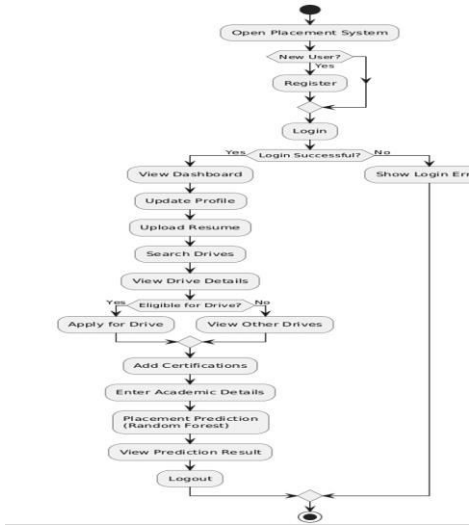


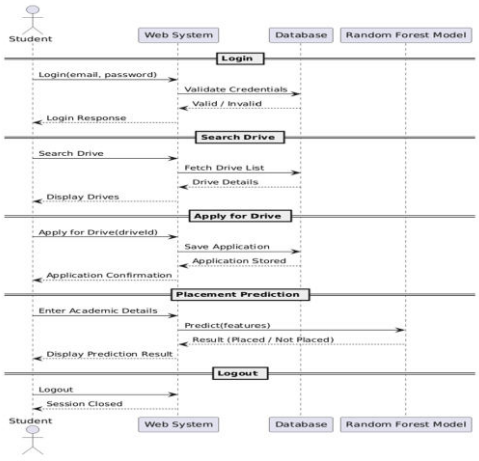
The system is developed using HTML, CSS, JavaScript, PHP, MySQL, and the Random Forest algorithm to ensure scalability, reliability, and high

performance. The frontend layer provides an interactive and responsive user interface, while the backend layer processes requests, validates data, and communicates with the database. The MySQL database securely stores information related to students, recruiters, placement drives, applications, and resumes. The Random Forest model analyzes features such as SSC percentage, HSC percentage, degree percentage, work experience, employability test score, and specialization to predict placement probability. The prediction results help students evaluate their placement readiness and improve their skills accordingly. The proposed system also includes authentication mechanisms, session management, and validation techniques to ensure secure operations. By automating placement management activities and integrating intelligent prediction techniques, the system improves operational efficiency, reduces administrative workload, enhances recruitment transparency, and provides better placement opportunities for students. Overall, the proposed system delivers a reliable and advanced solution for modern campus recruitment management.

IV. SYSTEM DESIGN

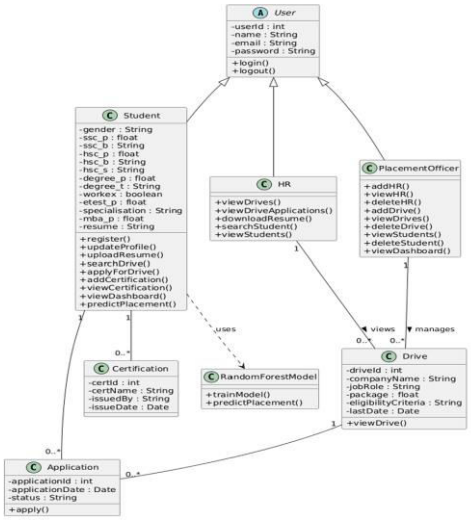
The system design of "100 PlacePro+: AI-Powered Placement Tracker for Students and Recruiters" follows a three-tier architecture consisting of the Presentation Layer, Application Layer, and Data Layer. The Presentation Layer is developed using HTML, CSS, and JavaScript and is responsible for providing an interactive and user-friendly interface for students, recruiters, and placement officers. It includes modules such as registration pages, login forms, dashboards, profile management, drive listings, and placement prediction pages. JavaScript is used for client-side validation and dynamic content updates to improve user interaction and responsiveness. The Application Layer is implemented using PHP, which processes user requests, performs business logic, validates input data, manages sessions, and handles communication between the frontend and database. The backend also manages authentication, role-based access control, job drive management, and placement prediction integration. The Data Layer uses MySQL to store and manage student records, HR details, applications, resumes, certifications, and placement drives. Proper table relationships and SQL queries ensure data consistency, efficient retrieval, and secure storage. The architecture supports scalability, modularity, and maintainability for future system enhancements.



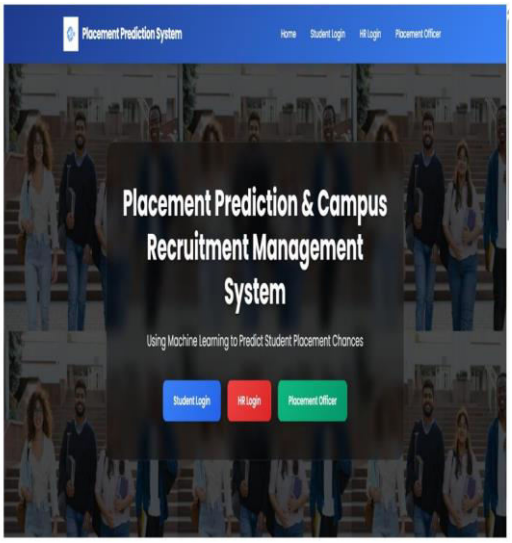


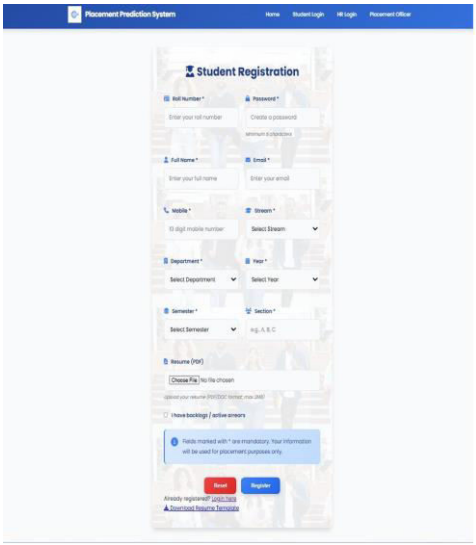
The system also integrates a Machine Learning module using the Random Forest algorithm to provide placement prediction functionality. The

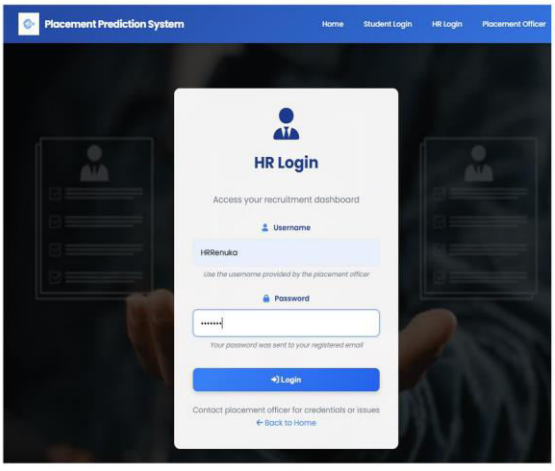
model processes academic and employability-related features such as SSC percentage, HSC percentage, degree percentage, specialization, work experience, and employability test scores to predict whether a student is likely to be placed. The prediction result is displayed on the student dashboard through the frontend interface. The system design also includes secure authentication mechanisms, session handling, and validation processes to prevent unauthorized access and ensure data integrity. UML diagrams such as Use Case Diagram, Activity Diagram, Sequence Diagram, and Class Diagram are used to visually represent system functionality, workflows, interactions, and structural relationships. The deployment architecture includes client systems, web servers, application servers, and database servers connected through a centralized network. Testing mechanisms such as unit testing, integration testing, functional testing, white-box testing, and black-box testing ensure reliability and smooth system performance. The modular design allows easy integration of additional features in the future without affecting existing functionalities. Overall, the system design provides a secure, scalable, efficient, and intelligent framework for modern placement management operations.

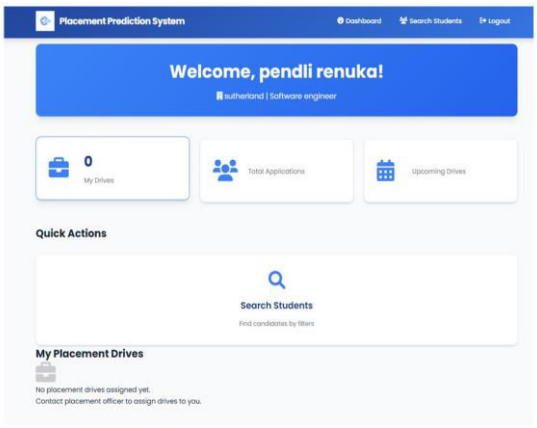


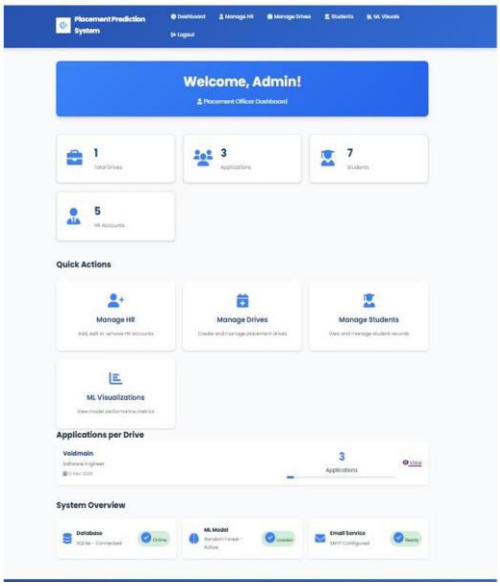
V. RESULTS

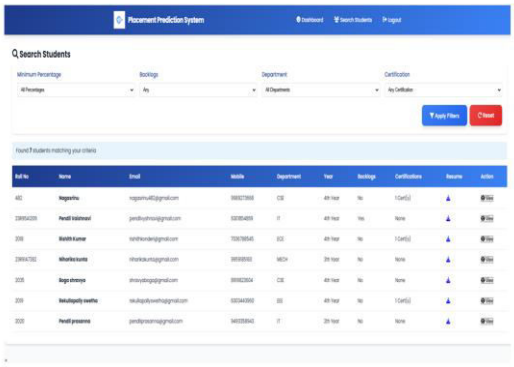


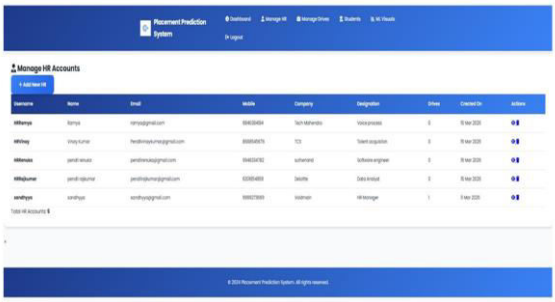


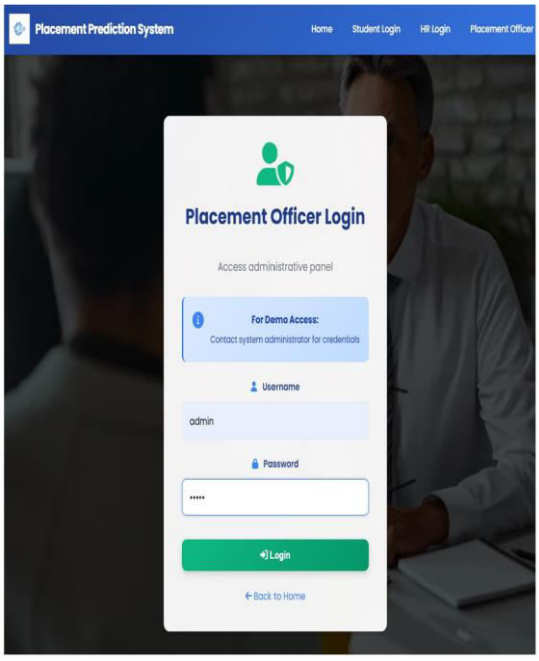



Placement Prediction System
Dashboard
Search Students
Logout
Welcome, pendli renuka!
sutherland | Software engineer
0
My Drives
Total Applications
Upcoming Drives
Quick Actions
Search Students
Find candidates by filters
My Placement Drives
No placement drives assigned yet.
Contact placement officer to assign drives to you.

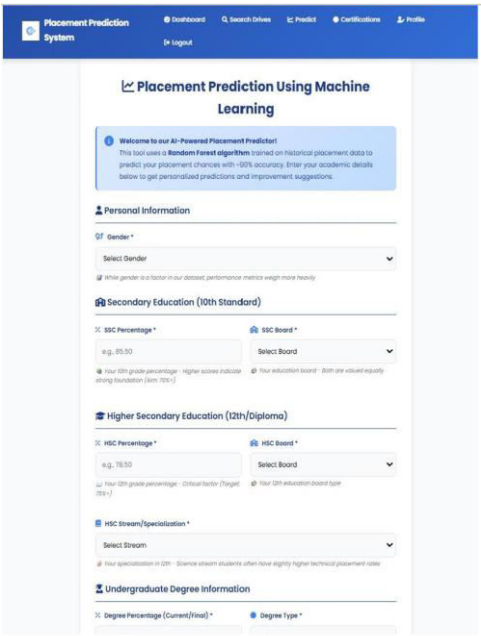

Placement Prediction System
Logout
Welcome, Admin!
Placement Officer Dashboard
1
3
7
5
Quick Actions
Manage HR
Manage Drives
Manage Students
ML Visualizations
Applications per Drive
Voidmain
3
Applications
View
System Overview
Database
ML Model
Email Service

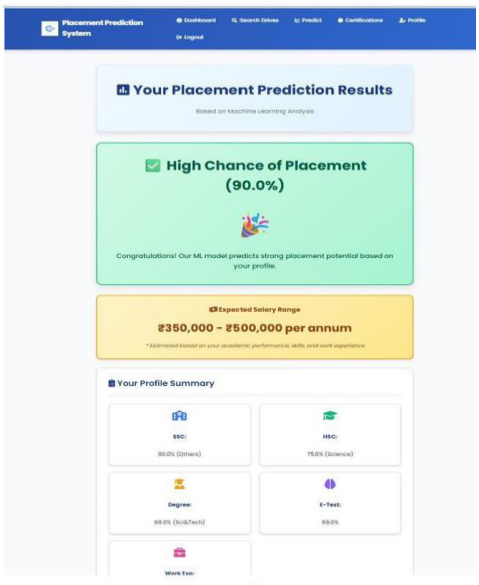

Placement Prediction System
Search Students
Minimum Percentage
Backlogs
Department
Certification
Apply Filters
Reset


Placement Prediction System
Logout
Manage HR Accounts
+ Add New HR


Placement Prediction System
Home
Student Login
HR Login
Placement Officer
Placement Officer Login
Access administrative panel
For Demo Access:
Contact system administrator for credentials
Username
admin
Password
Login
Back to Home


Placement Prediction System
Logout
Machine Learning Model Analytics
Deep dive into our Random Forest placement prediction model
Random Forest
ML Algorithm Used
~90% Accuracy
Prediction Accuracy
50+ Samples
Training Dataset
12 Features
Input Parameters
Model Accuracy
Feature Importance
Confusion Matrix
Training Progress





VI. CONCLUSION

The "100 PlacePro+: AI-Powered Placement Tracker for Students and Recruiters" successfully provides an advanced and centralized solution for automating campus placement management activities. The system addresses the major limitations of traditional manual placement systems, including data redundancy, communication delays, inefficient record management, and lack of intelligent analysis. By integrating web technologies with machine learning techniques, the proposed platform improves placement efficiency, transparency, and coordination among students, recruiters, and placement officers. The system offers separate modules for students, HR representatives, and placement officers, enabling secure role-based access and streamlined operations. Students can manage profiles, upload resumes, apply for drives, and receive placement predictions, while recruiters can efficiently search and evaluate eligible candidates. Placement officers can manage recruitment drives, monitor applications, and maintain centralized placement records effectively. The integration of the Random Forest algorithm enhances the system by predicting placement opportunities based on academic and employability-related parameters, helping students improve their career readiness. The use of HTML, CSS, JavaScript, PHP, and MySQL ensures a scalable, secure, and user-friendly application architecture. The system also supports efficient communication, secure authentication, responsive design, and centralized data management. Testing methodologies such as unit testing, integration testing, functional testing, white-box testing, and black-box testing ensure system reliability and performance. Overall, the proposed system reduces administrative workload, improves recruitment processes, minimizes manual errors, and enhances placement opportunities for students. The project

demonstrates how artificial intelligence and web technologies can be effectively integrated to modernize campus recruitment systems and support future educational placement requirements.

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