

An Automated System for Training and Placement Activities

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Abstract

The training and placement cell constitutes a vital component of any institution, playing a pivotal role in molding the career trajectories of students. This system allows students, companies, and admins to log in for campus recruitment purposes. The primary aim of this project is to create a platform for the college's placement cell, benefiting students, visiting companies, and the placement officer. The admin has access to student information, allowing for thorough monitoring. The system also consists of a company login where companies can post the job as per their requirements and view the list of students who applied for the job with their individual resumes. This system lets students view the companies that are looking for new hires. The administrator possesses comprehensive control over the system and can remove any information that doesn't comply with the college's placement policies. The system manages student and company data and presents this information in a professional manner to the relevant stakeholders. In this system, we have added practice tests for students to practice for their placements.

Keywords: Training and placement officer, TPO, student, admin, placement cell, coordinator module, web portal

INTRODUCTION

The main goal of our project is to create a web portal for the Training and Placement Cell, which will provide a web application that can be accessed by the institute with secure login credentials. This portal is designed to assist the college's training and placement officer (TPO) in efficiently managing student placement-related information. Authorized users, such as the TPO and designated coordinators, can access and search student-submitted information.

The system comprises three distinct modules: the TPO module, the T&P Coordinator module, and the student module. The TPO module provides comprehensive administrative control, enabling the TPO to register students and coordinators by department. Moreover, students have the capability to upload their resumes, academic records, and essential personal information required for campus placements using this module.

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The T&P Coordinator module allows training and placement coordinators to upload events and manage related activities. Our web portal also serves as a centralized platform for students to access information about placement providers and the opportunities they offer, allowing them to assess their placement prospects. The system includes a database to facilitate conventional student data management. The primary objective of the institute's Training and Placement Cell is to offer students employment prospects and training.

Our web portal plays a pivotal role in achieving this objective by offering students various programs that enhance their personality, including communication skills and other soft skills. Our Training and Placement Web Portal is a dynamic solution that streamlines the placement process, empowers students to showcase their skills, and provides valuable resources for career development, all within a user-friendly and secure digital environment.

METHODOLOGY

Survey of Existing System

Problems found in the existing system:

- *Overreliance on manual work:* The existing system heavily relies on manual intervention for various processes. Human intervention is required at every stage, leading to inefficiencies.
- *Increased error probability:* Due to the manual nature of the system, there is a higher likelihood of errors occurring in data entry, record keeping, and communication.
- *Excessive human interface:* The interaction between students and administrators is predominantly human driven, which can lead to delays and miscommunications.
- *Time-consuming procedures:* The problems mentioned above contribute to a slower pace of operations, making every procedure more time-consuming than necessary.
- *File-based storage:* Records are stored in modified access sheets, resulting in difficulties in sorting and organizing data effectively.
- *Lack of hierarchical structure:* Data is not stored in a hierarchical format, causing challenges in searching and retrieving specific information.
- *Complex record updating:* The existing system makes it challenging and ambiguous to update records due to its manual and disorganized nature.
- *Data duplication:* Because of the existing problems, data redundancy is common due to the duplication of records.
- *Lack of timely alerts:* Students may not receive timely information about training and placement activities, causing them to miss valuable opportunities.
- *Synchronization problems:* There are limited interfaces between students and the training and placement department, resulting in synchronization issues and potential misalignments of information.
- *Neglected alumni records:* Past student records, or alumni records, are not adequately maintained or accessible, potentially missing out on valuable connections and insights.

Problem Statement

The existing mechanisms for managing training and placement activities within educational institutions suffer from inefficiencies, a lack of transparency, and limited accessibility. These challenges create obstacles for students, administrators, and companies alike, hindering the achievement of successful career placements.

- *Lack of centralized platform:* Educational institutions often lack a centralized platform that can seamlessly connect students, placement officers, and recruiters. The absence of a unified system results in a disjointed and time-consuming process for managing student profiles, job postings, and placement events.
- *Tedious data management:* Current methods of managing student data and resumes are often manual and labor-intensive. This leads to errors, data redundancies, and difficulties in tracking and updating student information, hindering efficient placement processes.
- *Visibility of students:* Students frequently encounter challenges when it comes to effectively presenting their skills and qualifications to prospective employers. This limited visibility hampers their chances of securing suitable job opportunities.
- *Coordination challenges:* TPOs and coordinators face difficulties in coordinating placement events, workshops, and other activities. A lack of a digital platform for event management and communication exacerbates these challenges.

- *Missed placement opportunities:* Companies seeking to recruit talent from educational institutions may not have easy access to student profiles and campus placement events.
- *Insufficient soft skills training:* Students often lack exposure to crucial soft skills such as communication, interview preparation, and resume building. This deficiency can hinder their ability to secure job placements, even with strong academic qualifications.
- *Security and data privacy:* Ensuring the security and privacy of student data and placement-related information is of paramount importance. The absence of robust data security measures can compromise sensitive information.

Proposed System

The proposed Training and Placement Portal system has been designed to make a significant positive impact on both students and institutions, streamlining the data retrieval process. This initiative comes as a response to the challenges faced by the college in collecting data from individual students, which has been laborious and time-consuming. The new system is an online portal accessible within the institution and is divided into three main user roles: Admin (TPO), Company Coordinators, and Students.

- *Admin (TPO):* The Admin (TPO) has several responsibilities, including registering T&P Coordinators, uploading job opportunities, viewing the TPO dashboard, viewing student profiles, and applying filters based on SSC and HSC marks to refine student lists.
- *Company:* Company coordinators can register using unique company IDs, view a list of students, and upload vacancies.
- *Student:* Students have access to their profiles, where they can view recent vacancies on their dashboard and update their personal and academic information, including SSC, HSC, Diploma, and Graduation marks.

The proposed online training and placement web portal contains three distinct components that are as follows:

- *Aptitude test:* This section offers aptitude tests to students, helping them prepare for placement assessments and enhance their skills.
- *Practice sets:* Students can access practice sets to further hone their knowledge and skills, increasing their chances of success in placement tests and interviews.
- *Other material:* This segment provides various supplementary resources and materials, including guides, articles, and reference materials, to support students in their career development efforts.

The proposed online training and placement web portal aims to address the limitations of the existing system and introduce several key features. These include the following:

- *Improved data sorting and searching:* The system incorporates a search option, allowing efficient retrieval of student information. Additionally, the “apply filter” feature enables matching students with specific company criteria based on SSC and HSC marks, providing a list of relevant candidates.
- *Elimination of data duplication:* Student data is organized department-wise, eliminating data duplication and ensuring a streamlined database.

Technology Stack Used

The system under consideration is built using the following technologies: Python, Django, HTML, CSS, JavaScript, and MySQL.

Our goal is to create a system that will update the training and placement procedures, improve data handling, and offer a more effective and user-friendly experience for administrators, coordinators, and students. This portal represents a significant step toward achieving these goals and improving the overall efficiency of the placement process.

LITERATURE REVIEW

The following literature has provided valuable insights into different approaches and strategies for developing our project.

Title: Placement Management System for Campus Recruitment—*Authors:* Aneena Felix, Ajeena Sunny, and Angelin Saji—*Year:* 2020 (May)—*Limitation:* In this study, the placement management system is employed as a tool for the TPO to oversee and coordinate activities related to placement. Students can also update their profiles on the student dashboard, but it is suggested that there should be a feature allowing students to view specific companies based on their academic criteria [1].

Title: Training and Placement Management System—*Authors:* Akshata Bhalgat, Ina Datta, Abhishek Kolkar, and Aditya Mate—*Year:* 2017 (Dec)—*Limitation:* This system employs three algorithms: K-Means Clustering, Naive Bayes classifier, and ID3 Algorithm. K-Means Clustering is used to group untagged datasets into different clusters. The process of training and placement involves analyzing the connections between words in categories and training documents, as well as between categories and the entire set of training data. Calculations based on Bayes' Theorem, a principle in Bayesian statistics, are utilized. The ID3 Algorithm models the classification process, constructing a decision tree from the dataset and applying it to classify tuples in the database [2].

Title: Smart Training and Placement System—*Authors:* Rahul Kumar Modi, Dr. S.B. Vanjale, Akshit Jain, and Supreet Raj—*Year:* 2017 (June)—*Limitation:* This system incorporates features such as automated mailers used by TPOs and Training and Placement Coordinators (TPC) for communicating with companies and students in need of job opportunities [3].

Title: Student Analysis System for Training and Placement—*Authors:* Praneeth Ambiti, Navaneeth Kumar B, K Hema, Vamsi Kandula, and Kishore Buddha—*Year:* 2020 (Mar)—*Limitation:* This system provides facilities for the admin (TPO), students, and recruiters to manage tasks according to their requirements. The Student Dashboard offers recruitment exam analyses, such as Cocubes and Amcat, in a graphical format. The Admin Dashboard displays placement results on a year-by-year basis in a graphical format and also provides a feature to search for individual student details. The Recruiter Dashboard allows recruiters to filter students based on their specific needs. This system addresses existing issues effectively [4].

Title: Online Training and Placement Management System—*Authors:* Mrs. Srividhya V R and Santhosh Kumar H—*Year:* 2016—*Limitation:* The system includes various dashboards: Admin, Student, and HR. The HR dashboard provides features like assigning companies, student mapping, and generating reports. The admin module enables administrators to verify students' eligibility [5].

Title: A Review of Placement Management System—*Authors:* Spoorthi M S, Kavana V, Koushik S N, and Veena M—*Year:* 2021 (July)—*Limitation:* This system streamlines processes such as registration, updates, and searches. This offers students a platform with a user interface that grants them access to virtual resources and commentary. The Android app includes an admin login and placement UI. Users can access this app both on the web and Android platforms [6].

Title: Study of Implementation of Online Placement System—*Authors:* C. K. Patil and K. G. Patel—*Year:* 2016 (Mar)—*Limitation:* This system utilizes the Struts 2 framework, known for its mature web application design based on the MVC (Model-View-Controller) pattern. It incorporates features like mail notifications, forums, and report generation [7].

Title: Online Training and Placement Portal with Android Application—*Authors:* Sandeep S. Chorge, Ganesh A. Bhabad, Balaji D. Chate, Rahul T. Take, and Nitin R. Shinde—*Year:* 2017—*Limitation:* This Android application caters to various users, including TPO, Training and Placement

Staff, Students, Department-wise Staff, and Companies. TPO can access vacancy information through flexible forms. The application also offers automated email functionality [8].

Title: A Study of Student Information Management Software—*Author:* FU Yue—*Year:* 2016—*Limitation:* This research paper outlines phases essential for developing student information management software, covering areas such as survey and analysis, data modeling, database system selection, functional design, network system architecture, database access technology, code design, testing, application release, maintenance, and upgrades. The paper briefly discusses database design functions and concept structure, as well as database demand analysis [9].

Title: Student Information Management System—*Authors:* Dipin Budhrani, Vivek Mulchandani, and Yugchhaya Galphat—*Year:* 2018—*Limitation:* This system comprises various sections, including student, faculty, exam section, placement cell, and administrator. The system employs the TSFS security algorithm to protect sensitive information such as passwords, grades, and addresses [10].

Title: Training and Placement Cell Application—*Authors:* J. Swathi, K. Priya Tharsini, S. Suganya Janani, and Associate Prof Dr. G. Vinoth Chakkaravarthy—*Year:* 2018 (Mar)—*Limitations:* It features a login module, a student module, and an administrator module. In the Student module, students can update their personal details and view placement-related information. The administrator module allows administrators to generate an eligible student list based on company criteria in the form of an Excel sheet [11].

Title: Web-based Placement Management System—*Author:* Anubala R, Anjali V, Jeyalakshmi PR, Ranjini V, and Sri Mathura Devi G—*Year:* 2016—*Limitations:* This is an application for managing placements, developed using PHP for the frontend and MySQL for the backend. The OTAP system is composed of three primary modules: admin, student, and company. It offers features such as registration, updating, and searching for automation across all modules [12].

Title: CABAL-Training and Placement Departmental Portal—*Author:* Payal Gothi, Jidnyasa Raut, Prof. Nileema Pathak, Komal Patil, and Riddhi Kamat—*Year:* 2019 (Aug)—*Limitation:* This CABAL portal is equipped with seven key features: report generation, a forum, SMS notifications, resume building, and admin, company, and student modules. Various technologies and tools are utilized in its operation, including Microsoft Visual Studio, the ASP.NET framework, and a software application called SQL Server Management Studio (SSMS). SSMS is employed for managing, configuring, monitoring, and administering all SQL infrastructure [13].

Title: Review of Training and Placement Cell System—*Author:* Prof. Teshu Gaurav Singh, Monika Devi, and Godawari Chouhan—*Year:* 2018 (Mar)—*Limitation:* This system offers a variety of additional features, such as conducting Skype interviews, telephonic interviews, direct messaging, and providing guidelines. It is developed using a range of technologies, including Android, Asp.net, Java, and Python. The system adheres to a fully modular architecture, meaning that it allows for the modification or addition of content or modules in the future to enhance certain functionalities or adapt to new situations [14].

Title: Training and Placement Portal—*Author:* Pratiksha Gaikwad, Dr. Ram Joshi, Sheetal Kanthale, Mrinal Chaudhari, and Savani Kadam—*Year:* 2017 (Dec)—*Limitation:* This portal employs the Support Vector Machine (SVM) training algorithm. It determines whether test images fall within one class or another. The SVM requires a significant amount of training data to establish the boundary and computational cost. The SVM machine learning algorithm is utilized for both object detection and image classification challenges. The portal is constructed using the open-source application server Apache Tomcat and the MySQL database as shown in Table 1 [15].

SYSTEM MODULES

Admin Module

The TPO serves as the system's administrator. The TPO has the ability to view details of both students and companies and can communicate with them. Additionally, the TPO is responsible for sending out notifications about upcoming activities as shown in Figure 1.

Student Module

Students create a profile on the portal by providing personal and academic information. Students are notified about the upcoming placement drives, and important announcements are made on the platform as shown in Figure 2.

Company Module

Companies create a profile on the portal and post vacancies in their organization. They also have the ability to access and review student profiles and resumes as shown in Figure 3.

Table 1. Comparison between existing systems with proposed systems.

Parameters	Existing system	Proposed system
User Friendly	Yes	Yes
Database Record	Yes	Yes
Aptitude Test	No	Yes
Practice Sets	No	Yes
Data Sorting	No	Yes
Apply for Job	No	Yes
Mode of Interview	Offline	Online/Offline
Email Notification	Yes	Yes
Data Security	Yes	Yes

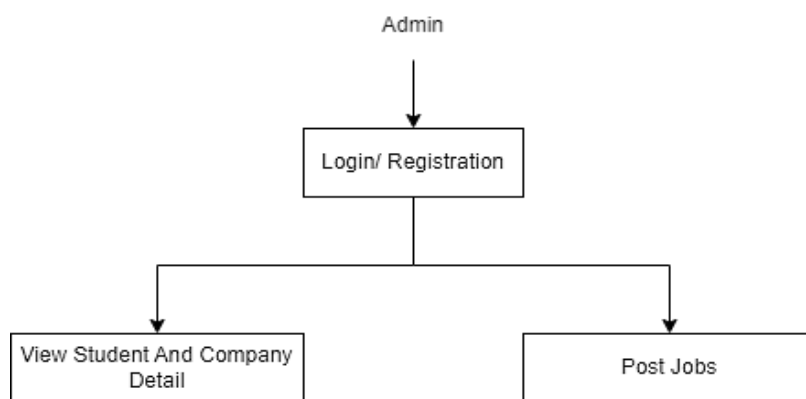


Figure 1. Admin module.

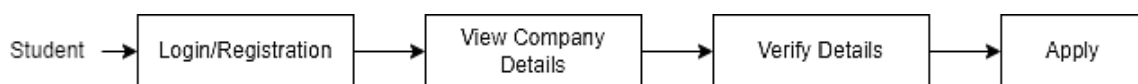


Figure 2. Student module.

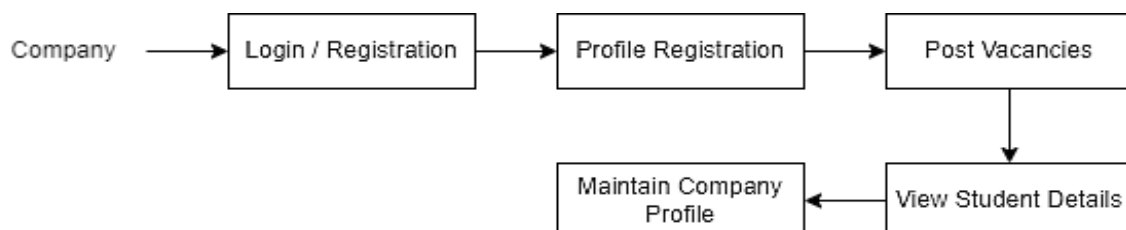


Figure 3. Company module.

CONCLUSION

The existing system heavily relies on manual processes, resulting in prolonged task durations. The TPO utilizes an automated web portal for student registration in campus placements, while students can also update their own information. The proposed system aims to automate all aspects of campus recruitment and streamline individual student data retrieval. The TPO can easily access and verify student information within the proposed system.

The new system effectively addresses issues such as student registration for upcoming placements and the addition of new users, presenting a comprehensive solution to the challenges faced in the existing system. The web portal is created with a focus on user-friendliness, ensuring accessibility for all students. In summary, the training and placement web portal is fully automated to enhance efficiency and reduce manual workload.

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