

Web-Based Placement Management System: A Digital Approach to Campus Hiring

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Abstract

Web-based management system for placement is a complete digital platform focused on optimizing and automating the activities of campus recruitment. Placement activities are generally manual in nature and require a lot of work, which brings about inefficiencies and time lags involving students, recruiters, and placement coordinators. Such challenges are faced by the above-mentioned system that provides a single point of convergence for all students and employers, as well as coordinators, who facilitate and integrate the entire workflow of placements. Student profile creation and management, resume uploading, and applications for employment opportunities are pretty much easy for students. Recruiters would be able to post job openings and effortlessly review candidate applications and schedule interviews. At the same time, placement coordinators monitor all the placement activities, track students and generate meaningful reports for informed decision-making. With features like student profile management, energized application tracking, job postings, resume parsing, interview scheduling, and real-time notifications, this portal provides transparency such that at any point in time, all the stakeholders can know the status of applications and recruitment activities in real-time. Developed using data analytical capabilities, the platform gives valuable insights into trends of placement, student performance, and engagement of recruiters, thus allowing institutions to shape their placement strategies better. This system would digitize traditional placement processes significantly and free appointment coordinators from the burden of administrative work into strategic planning. The system's scalability makes it flexible to therefore adjust to institutions by drastically reducing administrative load, lessened manual errors and enhanced operational efficiency.

Keywords: Training, placement, management, administrative, database

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Received Date: February 05, 2025

Accepted Date: February 23, 2025

Published Date: April 19, 2025

Citation: Aastha S. Joshi, Shravani U. Sable, Vinita V. Singh,
Saniya S. Randive, Prajakta Jadhav. Web-Based Placement
Management System: A Digital Approach to Campus Hiring.
Journal of Advanced Database Management & Systems. 2025;
12(2): 18–29p.

INTRODUCTION

Our project aims to develop campus recruitment which plays a vital role in bridging the gap between academic institutions and the corporate world. Traditional placement processes often involve manual record-keeping, extensive paperwork, and time-consuming coordination between students, recruiters, and placement officers. These inefficiencies can lead to missed opportunities, delays, and a lack of transparency in the hiring process.

A *Web-Based Placement Management System (WPMS)* offers a *digital solution* to streamline and automate campus hiring. By integrating *student databases, job postings, application tracking, interview scheduling, and recruiter interactions*

into a unified platform. This system enhances the efficiency and accessibility of placements. Institutions can manage placement activities more effectively, recruiters can find suitable candidates quickly, and students gain better visibility into job opportunities.

This study explores the architecture, features, and benefits of a *Web-Based Placement Management System*, highlighting its role in *improving placement rates, minimizing administrative burdens, and providing real-time insights* for decision-making. The adoption of such a system contributes to a *more organized, transparent, and scalable* campus recruitment process.

METHODOLOGY

Examination of the Existing System

Issues Identified in the Current System

- *Dependence on manual processes:* The current system heavily relies on manual interventions for various tasks, introducing inefficiencies at every stage.
- *Elevated probability of errors:* Manual procedures increase the likelihood of errors in data entry, record-keeping, and communication.
- *Human-centric interaction:* Interactions between students and administrators are predominantly human-driven, leading to delays and potential miscommunications.
- *Time-intensive procedures:* Manual processes contribute to slower operations, making each procedure more time-consuming.
- *File-based storage:* Records stored in modified access sheets result in challenges for effective data sorting and organization.
- *Absence of hierarchical structure:* Data lacks a hierarchical format, making it challenging to search and retrieve specific information.
- *Complex record updating:* Manual and disorganized record-keeping makes it difficult to update records seamlessly.
- *Data duplication:* Existing issues contribute to common data redundancy through record duplication.
- *Lack of timely alerts:* Students may miss valuable opportunities due to a lack of timely information about training and placement activities.
- *Synchronization issues:* Limited interfaces between students and the training and placement department result in synchronization challenges and potential information misalignments.
- *Neglected alumni records:* Past student records or alumni records are not adequately maintained or accessible, potentially overlooking valuable connections and insights.

Problem Statement

The prevailing methods for managing training and placement activities in educational institutions face challenges related to inefficiency, lack of transparency, and restricted accessibility. These issues pose obstacles for students, administrators, and companies, hindering the successful facilitation of career placements.

- *Absence of centralized platform:* Educational institutions lack a centralized platform connecting students, placement officers, and recruiters, leading to a disjointed and time-consuming process.
- *Laborious data management:* Manual and labor-intensive methods of managing student data and resumes result in errors, redundancies, and difficulties in tracking and updating information.
- *Limited student visibility:* Students struggle to effectively showcase their skills and qualifications to potential employers, limiting their job opportunities.
- *Coordination challenges:* Training and Placement Officers (TPOs) and coordinators encounter difficulties in coordinating placement events and workshops without a digital platform for effective management.
- *Missed placement opportunities:* Companies seeking talent from educational institutions may face challenges accessing student profiles and campus placement events.
- *Insufficient soft skills training:* Students lack exposure to critical soft skills, impacting their ability to secure job placements despite strong academic qualifications.

- *Security and data privacy concerns:* Ensuring the security and privacy of student data and placement-related information is crucial, and a lack of robust data security measures can compromise sensitive information.

PROPOSED SYSTEM

The proposed Training and Placement Portal system aims to make a substantial positive impact on both students and institutions by streamlining data retrieval processes. This initiative addresses the challenges faced by the college in collecting data from individual students, offering a more efficient and time-saving solution. The new system, an online portal accessible within the institution, features three main user roles: Admin (TPO), Company Coordinators, and Students.

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

Key Components

The proposed online training and placement web portal comprises three key components:

- *Aptitude test:* This section offers aptitude tests to aid students in preparing for placement assessments and enhancing their skills.
- *Practice sets:* Students can access practice sets to further refine their knowledge and skills, improving their chances of success in placement tests and interviews.
- *Other material:* This segment provides various supplementary resources, including guides, articles, and reference materials, supporting students in their career development efforts.

Key Features

The proposed online training and placement web portal aims to overcome the limitations of the existing system and introduces several key features:

- *Enhanced data sorting and searching:* The system incorporates a search option, facilitating efficient retrieval of student information. The “apply filter” feature allows matching students with specific company criteria based on SSC and HSC marks.
- *Elimination of data duplication:* Student data is organized department-wise, eliminating data duplication and ensuring a streamlined database.

Technology Stack Used

The system is developed using the following technologies: HTML, CSS, JavaScript, PHP and MySQL.

Our objective is to create a system that revolutionizes training and placement procedures, enhances data management, and provides an efficient and user-friendly experience for administrators, coordinators, and students. This portal represents a significant advancement toward achieving these goals and improving the overall efficiency of the placement process.

LITERATURE REVIEW

The following scholarly works have offered valuable insights into diverse methodologies and strategies relevant to the development of our project.

Title: Campus Recruitment Placement Management System

- *Authors:* Felix *et al.*
- *Year:* 2020 (May)

- *Limitation:* This study employs a placement management system as a tool for the Training and Placement officer to oversee and coordinate placement activities. Although students can update their profiles on the student dashboard, the study suggests the need for a feature allowing students to view specific companies based on their academic criteria [1].

Title: Training & Placement Management System

- *Authors:* Kolkar *et al.*
- *Year:* 2017 (Dec)
- *Limitation:* This system utilizes three algorithms: K-Means Clustering, Naive Bayes classifier, and ID3 Algorithm, for grouping untagged datasets, analyzing word connections, and constructing decision trees. The processes involve complex calculations based on Bayes' Theorem and may pose challenges in terms of comprehension [2].

Title: Smart Training & Placement System

- *Authors:* Modi *et al.*
- *Year:* 2017 (Jun)
- *Limitation:* This system incorporates automated mailers for Training and Placement Officers (TPO) and Coordinators, facilitating communication with companies and students seeking job opportunities [3].

Title: Student Analysis System for Training and Placement

- *Authors:* Ambiti *et al.*
- *Year:* 2020 (Mar)
- *Limitation:* The system offers facilities for Admin (TPO), students, and recruiters, addressing issues effectively. It provides graphical analyses for recruitment exams, placement results, and a recruiter dashboard for streamlined processes [4].

Title: Online Training and Placement Management System

- *Authors:* Srividhya and Kumar
- *Year:* 2016
- *Limitation:* The system features Admin, Student, and HR dashboards, with HR functions including company assignment, student mapping, and report generation [5].

Title: A Review of Placement Management System

- *Authors:* Spoorthi *et al.*
- *Year:* 2021 (Jul)
- *Limitation:* This system streamlines registration, updates, and searches, providing a user-friendly platform accessible on the web and Android platforms [6].

Title: Study of Implementation of Online Placement System

- *Authors:* Patil and Patel
- *Year:* 2016 (Mar)
- *Limitation:* Utilizing the Struts 2 framework, this system integrates features like mail notifications, forums, and report generation [7].

Title: Online Training and Placement Portal with Android Application

- *Authors:* Chorge *et al.*
- *Year:* 2017
- *Limitation:* This Android application caters to various users, offering features such as automated email functionality and flexible forms for TPOs to access vacancy information [8].

Title: A Study of Student Information Management Software

- *Author:* Yue
- *Year:* 2016
- *Limitation:* This research paper outlines essential phases for developing student information management software, covering areas such as survey and analysis, data modeling, and network system architecture [9].

Title: Student Information Management System

- *Authors:* Budhrani *et al.*
- *Year:* 2018
- *Limitation:* Employing the TSFS security algorithm, this system comprises sections for students, faculty, exams, placement cell, and administrators [10].

Title: Training and Placement Cell Application

- *Authors:* Swathi *et al.*
- *Year:* 2018 (Mar)
- *Limitations:* Featuring login, student, and administrator modules, this application allows students to update personal details and view placement-related information [11].

Title: Web-Based Placement Management System

- *Author:* Jeyalakshmi *et al.*
- *Year:* 2016
- *Limitations:* Developed using PHP and MySQL, this application features admin, student, and company modules with automation for registration, updates, and searches [12].

Title: CABAL: Training and Placement Departmental Portal

- *Author:* Raut *et al.*
- *Year:* 2019 (Aug)
- *Limitation:* Equipped with features like report generation, a forum, SMS notifications, and resume building, this portal utilizes various technologies, including Microsoft Visual Studio and ASP.NET [13].

Title: Review of Training & Placement Cell System

- *Author:* Chouhan *et al.*
- *Year:* 2018 (Mar)
- *Limitation:* Developed using Android, Asp.net, Java, and Python, this system offers additional features like Skype interviews, telephonic interviews, direct messaging, and guidelines [14].

Title: Training and Placement Portal

- *Authors:* Gaikwad *et al.*
- *Year:* 2017 (Dec)
- *Limitation:* Utilizing the Support Vector Machine (SVM) training algorithm, this portal aims to classify test images based on specific classes, enhancing object detection and image classification [15].

Comparison between existing systems with the proposed system is given in Table 1.

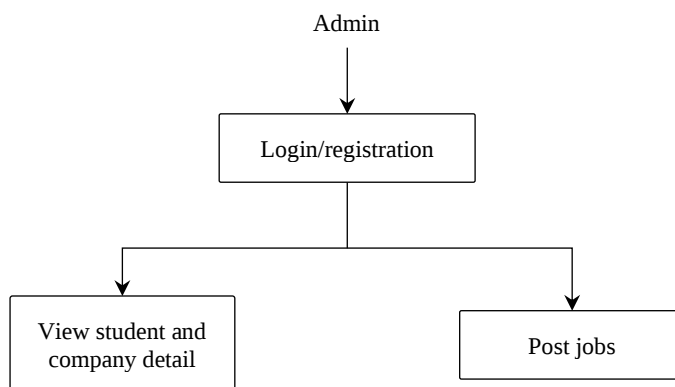
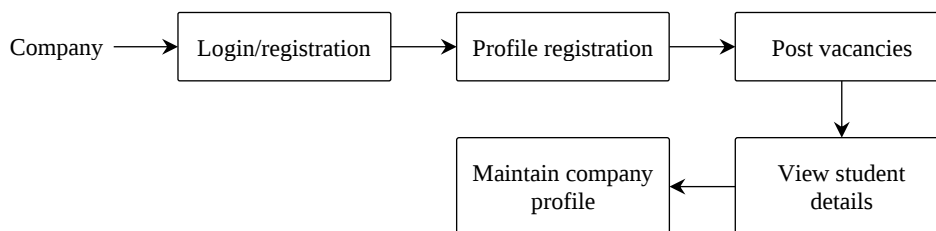
SYSTEM MODULES

Admin Module

The system's administrator is the Training and Placement Officer (TPO), who possesses the capability to access information related to both students and companies and engage in communication with them. Furthermore, the TPO is tasked with sending notifications regarding upcoming activities (Figure 1).

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.

Student Module

Upon registering on the portal, students furnish personal and academic details to create their profiles. The platform notifies students about upcoming placement drives, and crucial announcements are disseminated through the system (Figure 2).

Company Module

Organizations establish profiles on the portal to post job vacancies within their company. Additionally, they possess the capability to review and access student profiles and resumes (Figure 3).

REQUIREMENT ANALYSIS

1. DFD

- Level 0:* The flow chart for DFD Level 0 is mentioned in Figure 4.
- Level 1:* The flow chart for DFD Level 1 is mentioned in Figure 5.

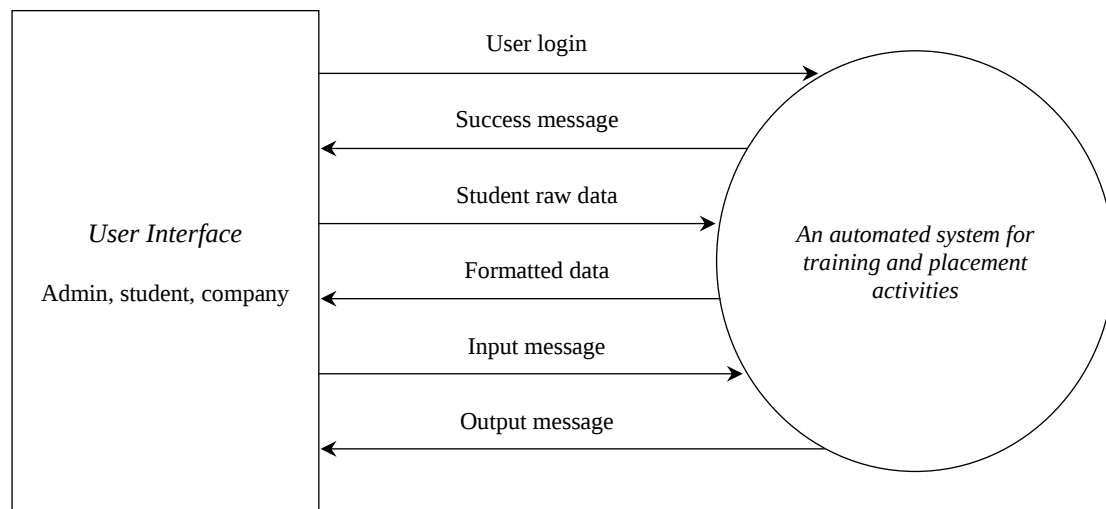


Figure 4. DFD level 0.

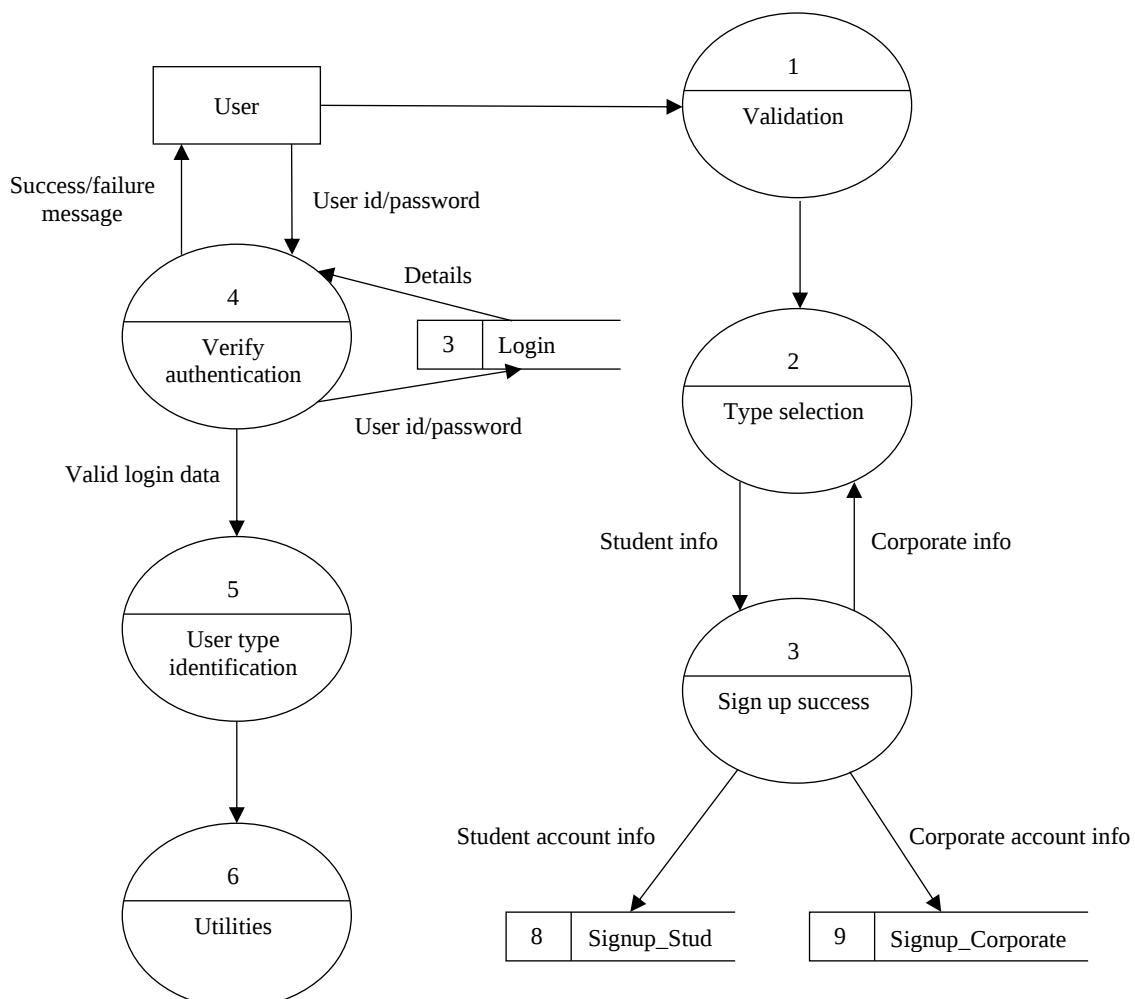


Figure 5. DFD level 1.

2. *Use case diagram:* Figure 6 mentions use case diagram of student, admin and company.
3. *E-R diagram:* Figure 7 mentions the E-R diagram of college, company and student.
4. *Sequence diagram:* Figure 8 explains the sequence diagram.
5. *Architecture diagram:* Figure 9 explains about the flow chart of the architecture.

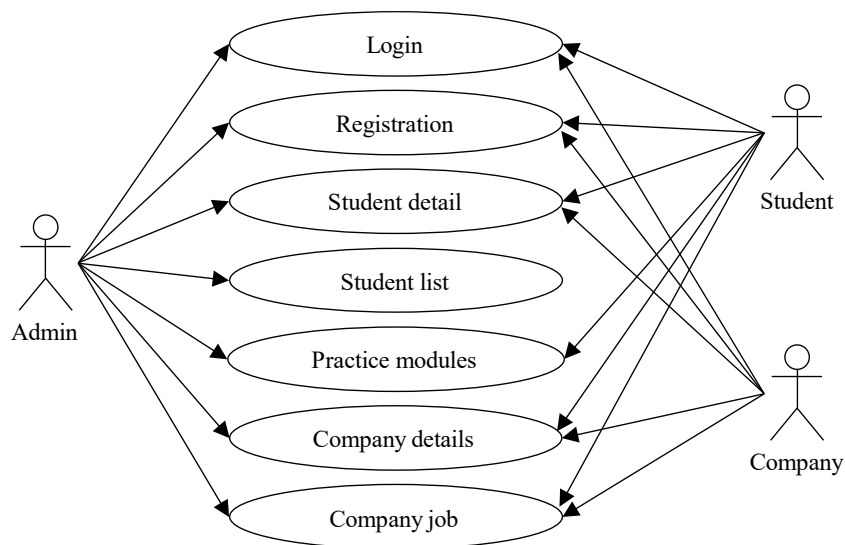


Figure 6. Use case diagram.

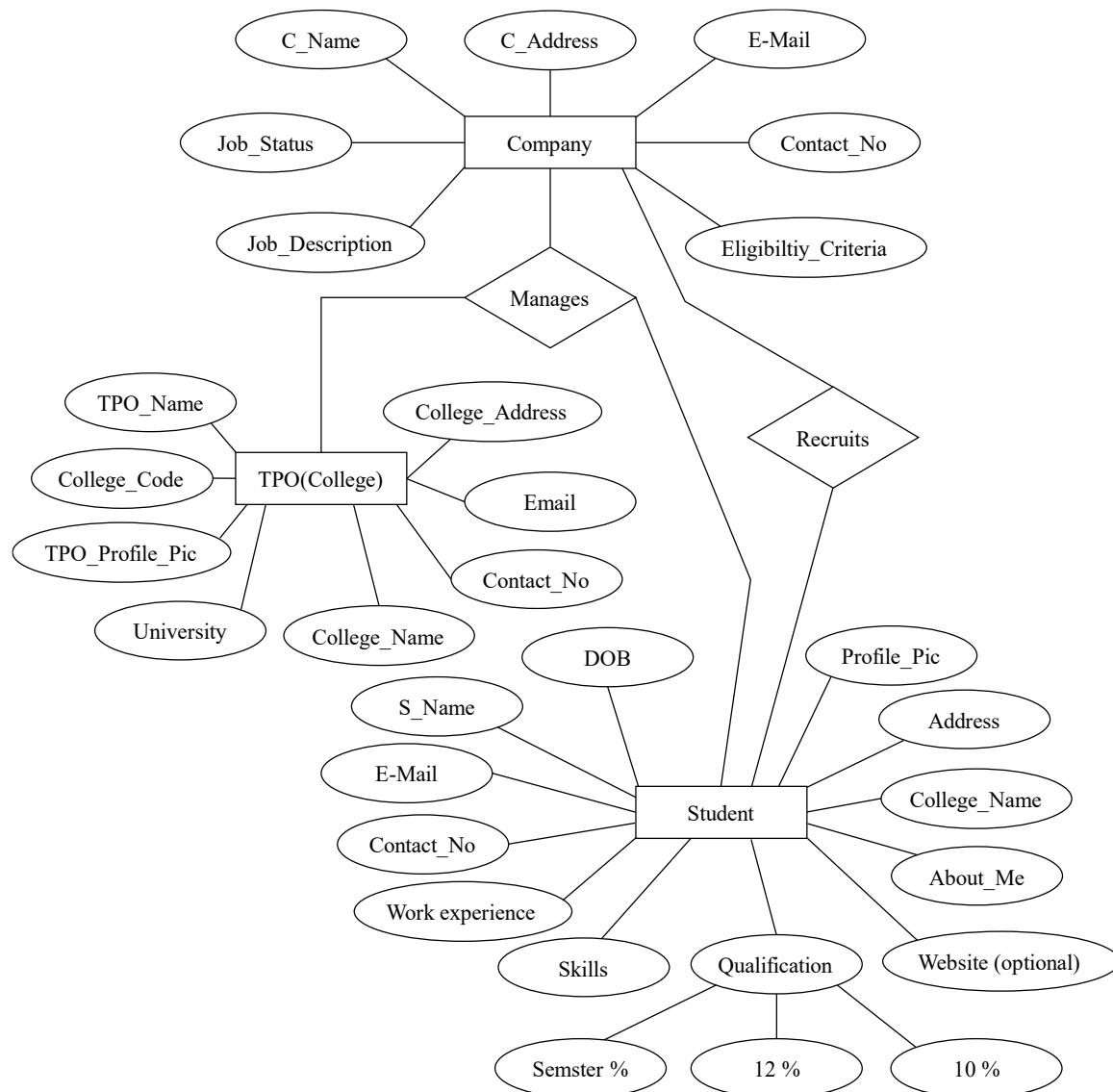


Figure 7. E-R Diagram.

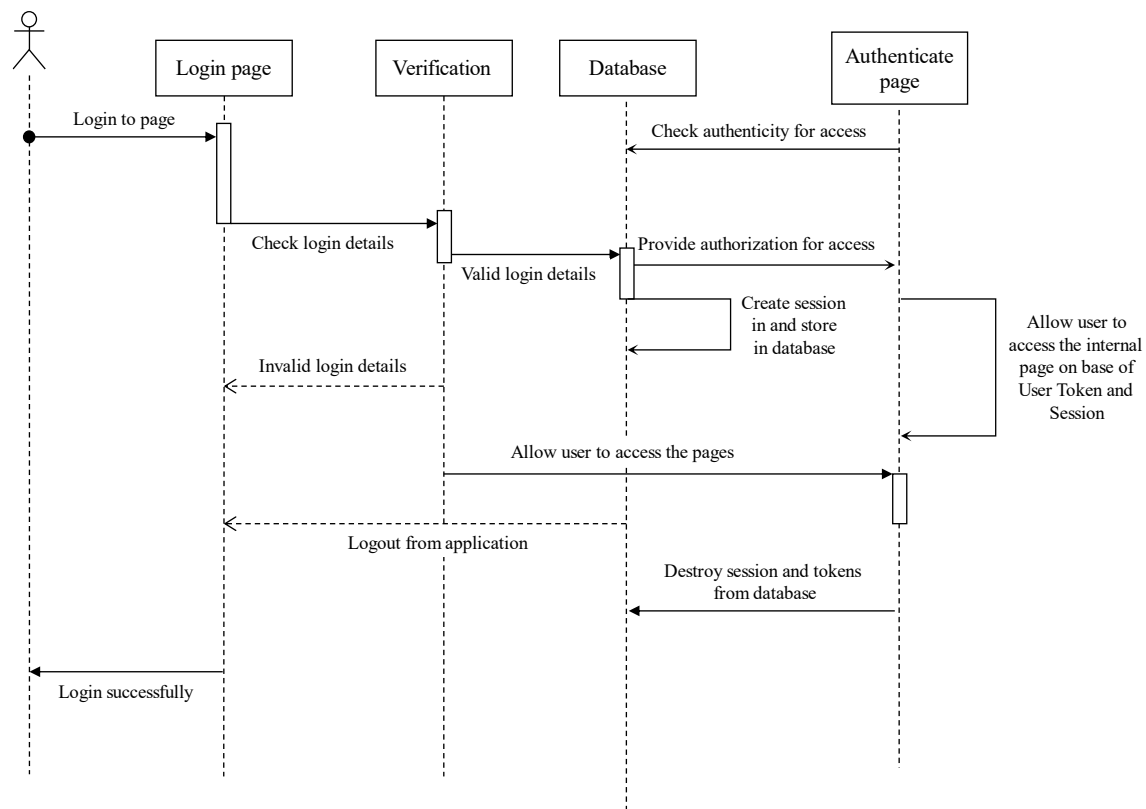


Figure 8. Sequence diagram.

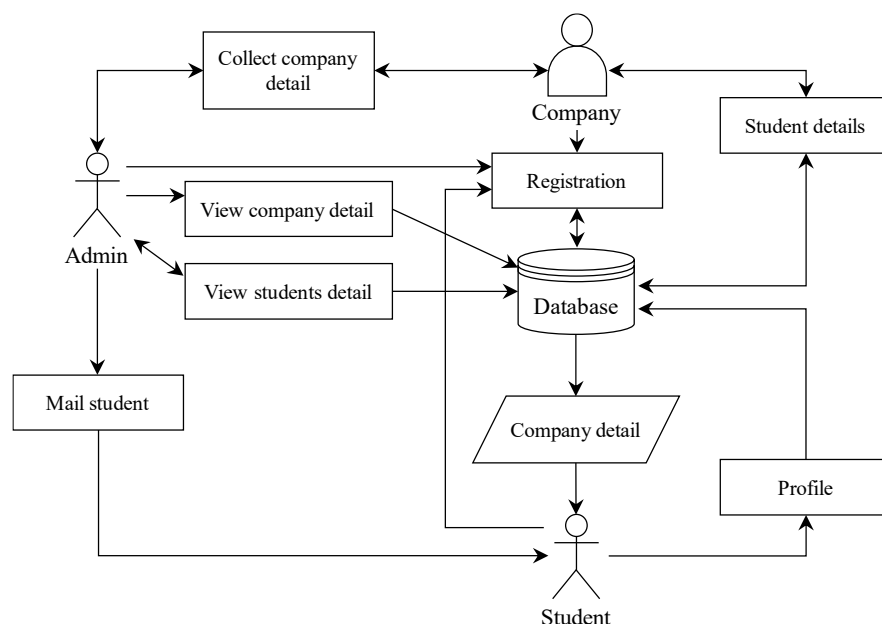


Figure 9. Architecture diagram.

OUTPUT

1. *Admin login*: Figure 10 shows the page that appears while doing admin Login.
2. *Student login*: Figure 11 shows the page that appears while doing student Login.
3. *Admin dashboard*: Figure 12 shows about the appearance of Admin Dashboard.
4. *Student dashboard*: Figure 13 shows about the appearance of Student Dashboard.
5. *Company dashboard*: Figure 14 shows about the appearance of Company Dashboard.

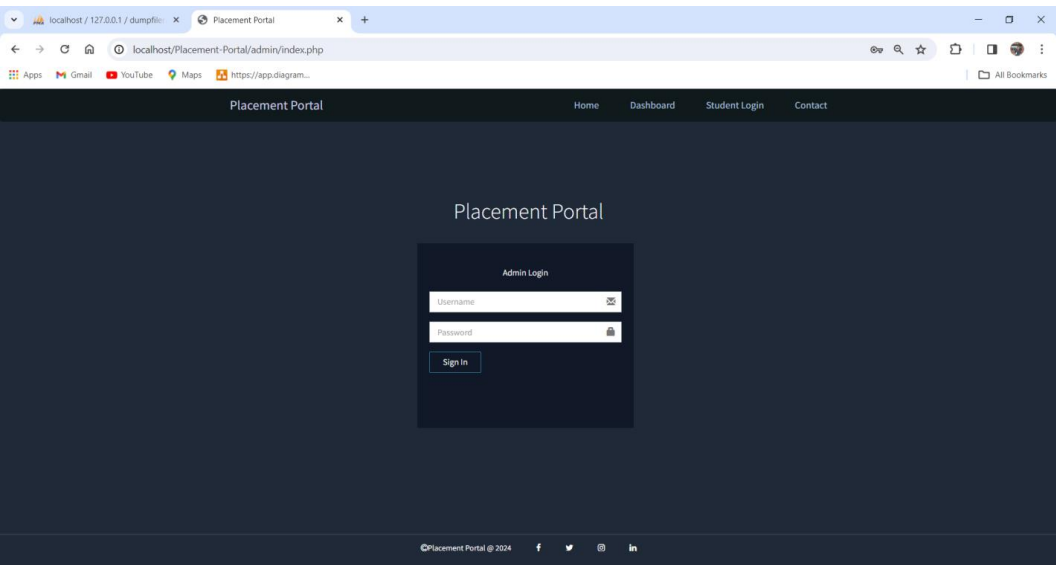


Figure 10. Admin login.

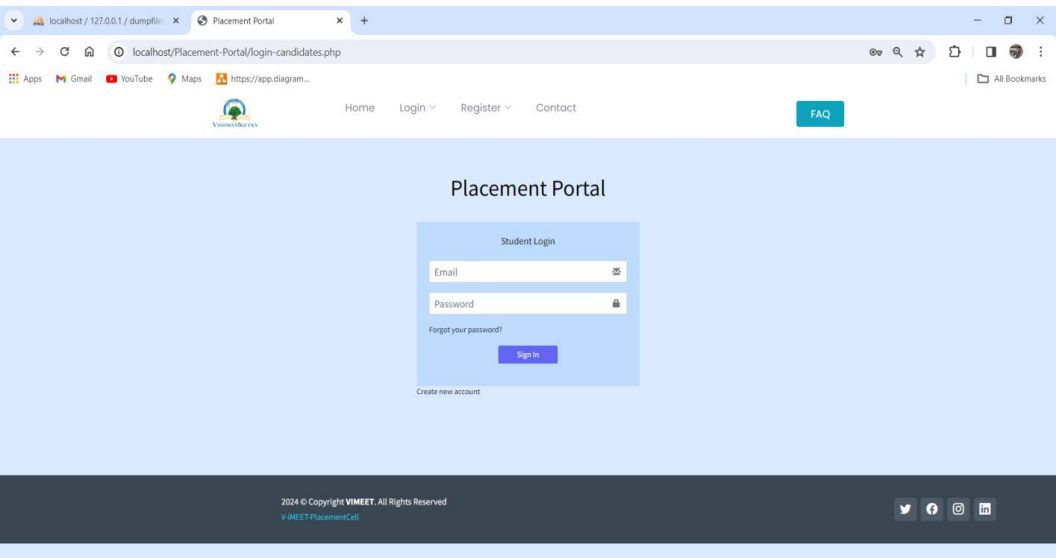


Figure 11. Student login.

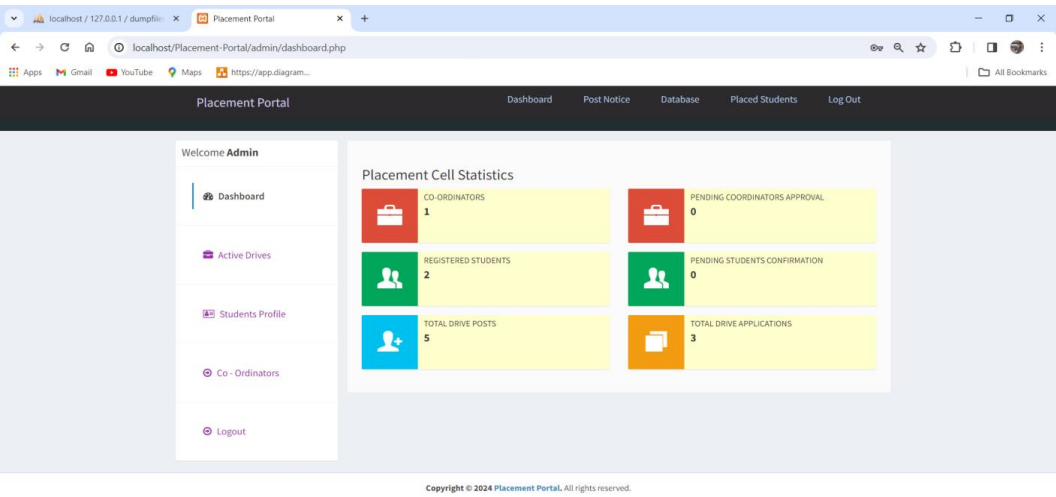


Figure 12. Admin dashboard.

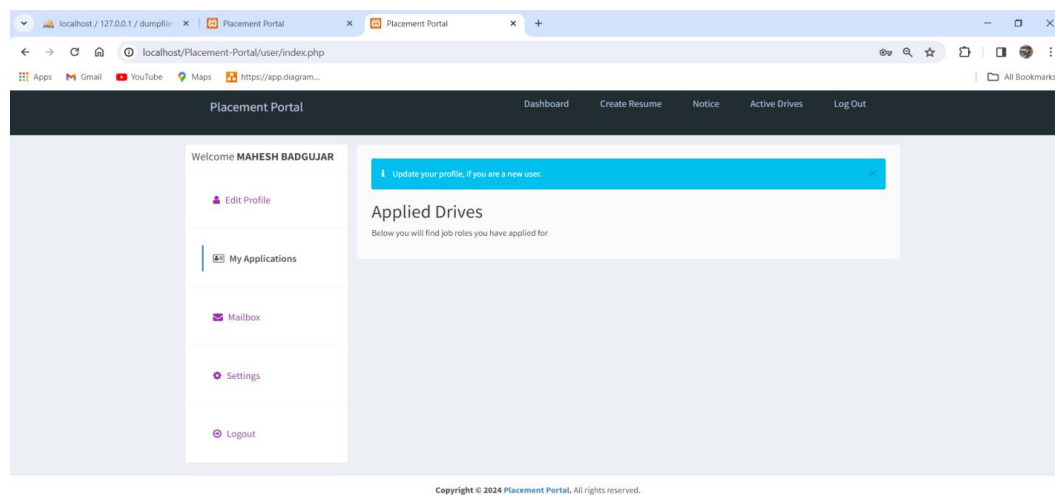


Figure 13. Student dashboard.

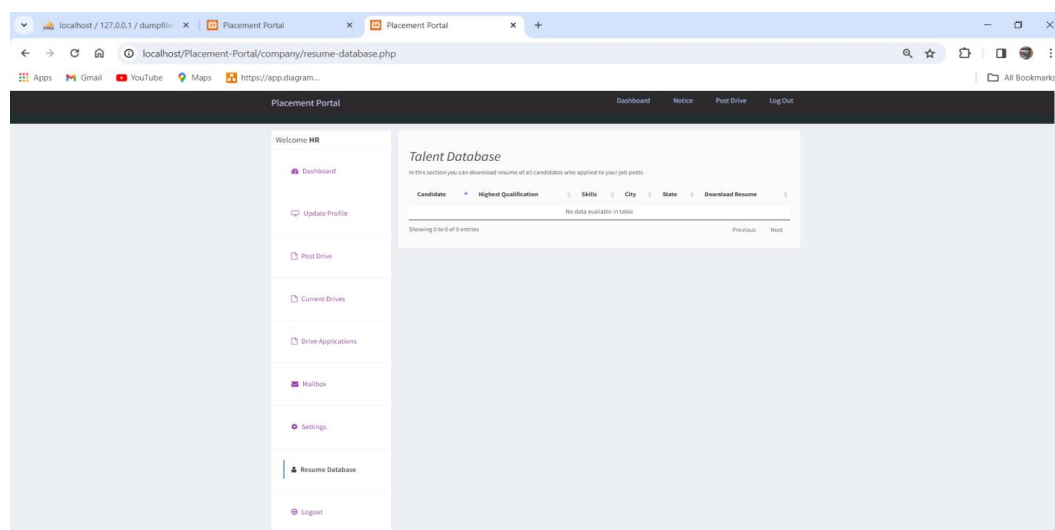


Figure 14. Company dashboard.

CONCLUSION

In summary, the current system heavily depends on manual procedures, leading to prolonged task durations. The Training and Placement Office (TPO) employs an automated web portal for student registration in campus placements, with students also having the ability to update their information. The proposed system seeks to automate all facets of campus recruitment, streamlining the retrieval of individual student data. Within this proposed system, the TPO can effortlessly access and verify student information. The new system effectively tackles challenges such as student registration for upcoming placements and the addition of new users, providing a comprehensive solution to the issues inherent in the existing system. The web portal is designed with a strong emphasis on user-friendliness, ensuring accessibility for all students. To sum up, the training and placement web portal is fully automated, aiming to enhance efficiency and alleviate the manual workload.

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