A

Report of Major Project

"An Automated System for Training and Placement Activities"

Submitted in Partial Fulfillment of the Requirements of
University of Mumbai for the Degree of

Bachelor of Engineering (B.E. Computer Engineering)

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Major project

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AcademicYear:2023-24

CERTIFICATE

This is to certify that the Major Project work **"An Automated System for Training and Placement Activities"** done by Mahesh Badgujar, Aarti Kate, Shrushti Salunke, Vishruta Zinje student of "**Department of Computer Engineering"** is a record of bonafide work carried out of them. This Project is done as the part of syllabus of Fourth Year Computer Engineering, for partial fulfillment of obtaining "Bachelor **of Computer Engineering"** degree to be awarded by "**Vishwaniketan's Institute of Management, Entrepreneurship and Engineering Technology, University of Mumbai".**

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Date:

DECLARATION

We declare that this written submission represents our ideas in our own words and where others' ideas or words have been included, I have adequately cited and referenced the original sources. I also declare that we have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in our submission. I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

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Names and Signatures of Students

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ACKNOWLEDGEMENT

We are profoundly grateful to **Prof. Babeetta Bhagat** for his expert guidance and continuous encouragement throughout to see that this project rights its target since its commencement to its completion.

I would like to express a deepest appreciation towards **Dr. B.R. Patil (Principal, ViMEET)** and Prof. Charusheela Pandit, (**Head, Department of Computer Engineering, ViMEET)** whose invaluable guidance and support in completing this project.

We express our sincere gratitude to all the staff members of the computer engineering departmentwho helped us directly or indirectly during this course of work.

ABSTRACT

The training and placement cell is an essential part of any institution and plays a crucial role in shaping the careers of students. It is a college campus recruitment system that consists of a student login, a company login, and an admin login. The objective of this project is to develop a system that can be used by the placement cell of a college.

This system is beneficial for college students, various companies visiting the campus for recruitment, and even the college placement officer. The admin can check each student's details. 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 a list of companies that have posted vacancies.

The administrator has overall rights over the system and can delete any details not permitted by college placement rules. The system handles student and company data and professionally displays all this data to the respective sides. In this system, we have added practice tests for students to practice for their placements.

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CHAPTER 1

INTRODUCTION

1.1 INDRODUCTION

Our project's primary objective is the development of a web portal for the Training and Placement Cell, offering a web application accessible institute-wide 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 for 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. Additionally, students can upload their resumes, educational details, and personal information necessary for campus placements through this module.

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 overarching goal of the institute's Training and Placement Cell is to provide students with employment opportunities 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.

1.2 OBJECTIVE

The objective for a training and placement web portal is to create a platform that effectively connects students, job seekers, and educational institutions with potential employers, facilitating the seamless transition from education to employment. Here's a more detailed objective statement:

To develop a comprehensive training and placement web portal that serves as a bridge between students, job seekers, educational institutions, and employers, aiming to provide valuable resources, opportunities, and support for career development, job placement, and skill enhancement. This portal will empower individuals to make informed career choices, access relevant training, and connect with suitable job opportunities, while offering employers a platform to discover and recruit qualified talent efficiently.

1.3 METHODOLOGY

Developing a training and placement web portal requires a well-structured methodology to ensure that the platform is effective, user-friendly, and meets its objectives. Here's a basic methodology you can follow:

1. **Project Initiation:**

- Define the project scope, objectives, and stakeholders.
- Establish a project team with roles and responsibilities.
- Create a project plan with timelines and milestones.

2. **Market Research and Needs Assessment:**

- Research the job market to understand current trends and demands.
- Identify the needs and expectations of students, job seekers, educational institutions, and employers.

3. **Requirement Analysis:**

- Gather specific requirements for the web portal.
- Create a detailed list of features and functionalities needed.
- Define user personas and user journeys.

4. **Design and Prototyping:**

- Develop wireframes and mockups of the web portal.
- Design the user interface (UI) and user experience (UX).
- Create interactive prototypes for user testing and feedback.

5. **Development:**

- Choose the technology stack for web development.
- Build the core functionality of the portal, including user registration, job listings, resume uploads, search features, etc.
- Implement security measures to protect user data.

6. **Testing:**

- Perform unit testing, integration testing, and user acceptance testing (UAT).
- Identify and fix any bugs or issues.
- Ensure the platform is responsive and works on various devices and browsers.

7. **Content Creation:**

- Develop content for job listings, educational resources, and guidance materials.
- Ensure the content is SEO-friendly to enhance search engine visibility.

8. **User Training:**

- Provide training for administrators, support staff, and any users who need guidance on how to use the portal.

9. **Launch and Deployment:**

- Deploy the web portal on a reliable hosting server.
- Configure domain settings and ensure SSL for secure connections.
- Monitor the portal's performance and address any issues that arise during the initial launch phase.

10. **Marketing and Promotion:**

- Develop a marketing strategy to attract users to the portal.
- Utilize social media, content marketing, and other channels to reach the target audience.
- Collaborate with educational institutions and employers for promotion.

11. **User Support and Feedback:**

- Offer user support through chat, email, or a dedicated helpline.
- Collect user feedback and make continuous improvements based on their suggestions.

1.4 EXISTING SYSTEM

Before transitioning to an automated training and placement web portal, it's crucial to understand the existing manual system to identify its strengths and weaknesses:

1. Job Placement Services:

- In-person career counseling and guidance for students and job seekers.
- Job listings are often posted on bulletin boards or in physical locations within educational institutions.
- Students submit their resumes and applications in person or through physical documents.

2. Communication:

- Communication between educational institutions and employers is primarily done through phone calls, emails, or physical meetings.
- There may be delays and inefficiencies in coordinating placements.

3. Resume Management:

- Resumes and CVs are typically submitted in hard copy.
- Educational institutions maintain physical records of student profiles, including resumes, academic achievements, and other relevant information.

4. Skill Enhancement and Training:

- Educational institutions may offer physical training programs or workshops to prepare students for job interviews and skill development.

5. Record Keeping:

- Manual record keeping involves paper documents, making it susceptible to loss, damage, and disorganization.

6. Feedback and Evaluation:

- Gathering feedback from both students and employers is time-consuming and often relies on physical surveys or forms.

7. Matching and Placement:

- Placement officers manually match students with job opportunities based on their qualifications, and this process can be time-intensive and prone to human error.

8. Reporting:

- Generating reports on placement statistics, success rates, and other data requires manual data entry and calculations.

CHAPTER 2
LITERATURE REVIEW

2.1 SURVEY PAPER

We read different research papers, manuals and documents that are correlated to our project idea. The following are some literatures that are useful to recognize different ways or strategies to build this project.

Title: Placement Management System for Campus Recruitment
Author: Aneena Felix, Ajeena Sunny, Angelin Saji
Year: 2020 (May)
Limitation: Although in this paper, the placement management system is used as an application for Training and Placement officer manages the placement-related activities and the student can be able to update their profile on the student dashboard there should be such a facility that student can also see the specific companies based on their academic criteria. Laravel framework is used to expand this application along with the Model-View-Template (MVT) pattern.

Title: Training & Placement Management System
Author: Akshata Bhalgat, Ina Datta, Abhishek Kolkar, Aditya Mate
Year: 2017 (Dec)
Limitation: This system focuses on three algorithms K-Means Clustering, Naive Bayes classifier, and ID3 Algorithm. Using K-Means Clustering they combine the untagged dataset into different clusters. The training and placement process evaluates the relationship between words in the categories and training documents, and then categories and the entire training set. The feasible facts are gathered using calculations based on Bayes' Theorem. While the ID3 Algorithm models the classification process, a tree is constructed using the decision tree technique from that dataset. Once a tree is produced, it is applied to every tuple in the database leading to classification for that tuple.

Title: Smart Training & Placement System
Author: Rahul Kumar Modi, Dr. S.B. Vanjale, Akshit Jain, Supreet Raj
Year: 2017 (June)
Limitation: This system includes main features like automated mailers which are used by TPO and TPC for mailing every company and student who is suffering from a frustrating job.

Title: Student Analysis System for Training and Placement

Author: Praneeth Ambiti, Navaneeth Kumar B, K Hema, Vamsi Kandula, Kishore Buddha

Year: 2020 (Mar)

Limitation: This proposed system provides all the facilities to Admin (TPO), Student and Recruiter to manage their task according to their requirement. In the Student Dashboard, there is a facility for several recruitment exam analyses like Cocubes, and Amcat in the form of a diagrammatical view. On the other hand, in the admin dashboard, there are some facilities like year-wise placement results in graphical form and searching of individual student details. In the recruiter dashboard, the recruiter can filter the students based on their necessity. It gives the exact solution to the existing system issue.

Title: Online Training and Placement Management System

Author: Mrs. Srividhya V R, Santhosh Kumar H

Year: 2016

Limitation: In this portal, various dashboards are available like Admin, Student and HR. In the HR dashboard, there are some main features available like assigning company, student mapping, and reports. In the admin module admin can verify the students according to their eligibility.

Title: A Review of Placement Management System

Author: Spoorthi M S, Kavana V, Koushik S N, Veena M

Year: 2021 (July)

Limitation: This system provides automation in all processes like registering, updating, and searching. In this system, students have access to virtual resources, commentary, and a platform that works as a user interface. This Android app also has an admin login option and placement UI. Users are convenient to view this app on the web as well as on Android view.

Title: Study of Implementation of Online Placement System

Author: C. K. Patil, K. G. Patel

Year: 2016 (Mar)

Limitation: The framework Struts 2 is a famous and mature web application which is based on the Model-View-Controller (MVC) design pattern. Struts 2 is the combination of the webwork framework of Struts 1 and open symphony. This system includes main features like mail notification, forums, and report generation.

Title: Online Training and Placement Portal with Android Application

Author: Sandeep S. Chorge, Ganesh A. Bhabad, Balaji D. Chate3, Rahul T. Take, Nitin R. Shinde

Year: 2017

Limitation: This android application consists of six types of users TPO, Training and Placement Staff, Students, Department wise Staff, and Companies. In this, TPO can investigate any vacancies in the system through some flexible forms. It also provides features like an automated email system.

Title: A Study of Student Information Management Software

Author: FU Yue

Year: 2016

Limitation: This analytical research paper concludes some phases are important for the development of student information management software like survey and analysis, data modeling, selection of database system, functional design, selection of network system architecture, selection of database access technology, code design, testing, release of application, maintenance and upgradation. In this, they briefly discussed the topics namely the designing of database functions and concept structure, and database demand analysis.

Title: Student Information Management System

Author: Dipin Budhrani, Vivek Mulchandani, Yugchhaya Galphat

Year: 2018

Limitation: This system consists of various sections like student, faculty, exam section, placement cell, and administrator. In this TSFS security algorithm is used to protect the sentient data like passwords, marks and addresses.

Title: Training and Placement Cell Application

Author: J. Swathi, K. Priya Tharsini, S. Suganya Janani, Asso.Prof Dr.G. Vinoth Chakkaravarthy

Year: 2018 (Mar)

Limitations: It includes a login module, a student module, and an administrator module. In the Student module students have the facility of updation of their personal details. They can also see details about the placement of interested students in that module. Whereas in the administrator module admin can get the eligible list of students based on the company’s criteria in the form of an Excel sheet by simply clicking the shortlist button. This application is designed using various tools like Android Studio and phpMyAdmin.

Title: Web-Based Placement Management System

Author: Anbubala.R, Anjali.V, Jeyalakshmi.PR, Ranjini.V, Sri Mathura devi. G

Year: 2016

Limitations: This is a placement management application that is designed using PHP for frontend development and MySQL for backend development. This OTAP system consists of three main modules admin, student, and company. It provides features such as registration, updation and searching for automation in all the modules.

Title: CABAL-Training and Placement Departmental Portal

Author: Payal Gothi, Jidnyasa Raut, Prof. Nileema Pathak, Komal Patil, Riddhi Kamat

Year: 2019 (Aug)

Limitation: This CABAL portal consists of 7 important features like

Generation of report, forum, SMS notification, resume building, admin, company, student. In this various technology and tools are used like Microsoft Visual Studio, ASP.NET framework and one software application SQL Server Management Studio (SSMS). SSMS is used for handling, configuring, monitoring, configuring and administering every SQL infrastructure.

Title: Review of Training & Placement Cell System

Author: Prof. Teshu Gaurav Singh, Monika Devi, Godawari Chouhan

Year: 2018 (Mar)

Limitation: In this system various extra features are available such as Skype interviews, telephonic interviews, direct messaging, provide guidelines. This system is developed using various technologies like Android, Asp.net, Java and Python. It follows the complete modular architecture means this modularity of architecture provides us the facility of changing or adding the content or modules in the forthcoming to improve certain functionalities of situations.

Title: Training and Placement Portal

Author: Pratiksha Gaikwad, Dr. Ram Joshi, Sheetal Kanthale, Mrinal Chaudhari, Savani Kadam

Year: 2017 (Dec)

Limitation: Support Vector Machine (SVM) training algorithm is used in this portal. For both object detection and image classification challenges SVM machine learning algorithm is used. This portal is built using an open-source application server Apache Tomcat and MySQL database.

2.2 COMPARISON TABLE

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

CHAPTER 3
SYSTEM REQUIREMENT

3.1 SOFTWARE REQUIREMENT

1. **Web Development Technologies:**

- Front-end Development: HTML, CSS, JavaScript, and frameworks like React, Angular, or Vue.js for creating the user interface.
- Back-end Development: A server-side language such as Python, Ruby, PHP, or Node.js, along with frameworks like Django, Ruby on Rails, Laravel, or Express.js.

2. **Database Management:**

- A relational database management system (RDBMS) like MySQL, PostgreSQL, or Microsoft SQL Server for storing user data, job listings, resumes, and other information.
- NoSQL databases like MongoDB may also be used for specific purposes.

3. **Web Hosting and Server Technologies:**

- Cloud platforms like Amazon Web Services (AWS), Microsoft Azure, Google Cloud Platform (GCP), or dedicated hosting services to host the web portal.
- Web servers like Apache, Nginx, or Microsoft IIS to serve web pages.

4. **Programming Languages and Frameworks:**

- Additional programming languages and frameworks may be used for specific functionalities, such as Python and Django for building job recommendation algorithms.

5. **Development Tools:**

- Integrated Development Environments (IDEs) like Visual Studio Code, PyCharm, or WebStorm.

3.2 HARDWARE REQUIREMENT

1. Web Server:

- A dedicated web server is essential to host the web portal.
- CPU: A multi-core processor (e.g., quad-core or more) for handling concurrent requests.
- RAM: At least 8 GB of RAM for smooth operation.
- Storage: SSD storage is preferred for faster data access.
- Bandwidth: Sufficient bandwidth to handle expected user traffic and data transfers.

2. Database Server:

- A separate database server for storing user data, job listings, and other portal-related information.
- CPU: A multi-core processor with good processing power.
- RAM: 16 GB or more, depending on the database size and complexity.
- Storage: SSD storage for faster database access.
- Consider high availability and data backup solutions for data integrity.

3. Networking Infrastructure:

- Fast and reliable internet connection to ensure minimal downtime.
- Network security measures, such as firewalls and intrusion detection systems, for data protection.

4. Backup and Redundancy:

- Regular data backups to prevent data loss in case of hardware failure.
- Redundant hardware components (e.g., RAID configurations) to ensure uptime

5. Power Backup:

- Uninterruptible Power Supply (UPS) or backup generators to ensure continuous operation during power outages.

CHAPTER 4
PRAPOSED SYSTEM

4.1 PROPOSED SYSTEM

- The proposed Training and Placement Portal system is design to bring a useful impact on student as well as on institutions and to solved problems found in existing system. This module is divided into six parts, which is given below –

    1. Admin (TPO)
    2. Company
    3. Student.
    4. Aptitude Test
    5. Practice Sets
    6. Other Material

- The admin can upload jobs, view student, admin can also apply filter using SSC, HSC, Degree, Diploma marks.
- The proposed online training and placement web portal is implemented to avoid the disadvantages of existing system which will bring more features to proposed system.
- Student can practice for their aptitude test on our web portal.
- Student can edit, delete, update their personal data as per requirement.
- Admin can also take practice test of student on our portal using LMS.
- Technology used: Java, HTML, CSS, JavaScript, MySQL, Frameworks.

4.2 SYSTEM ARCHITECTURE

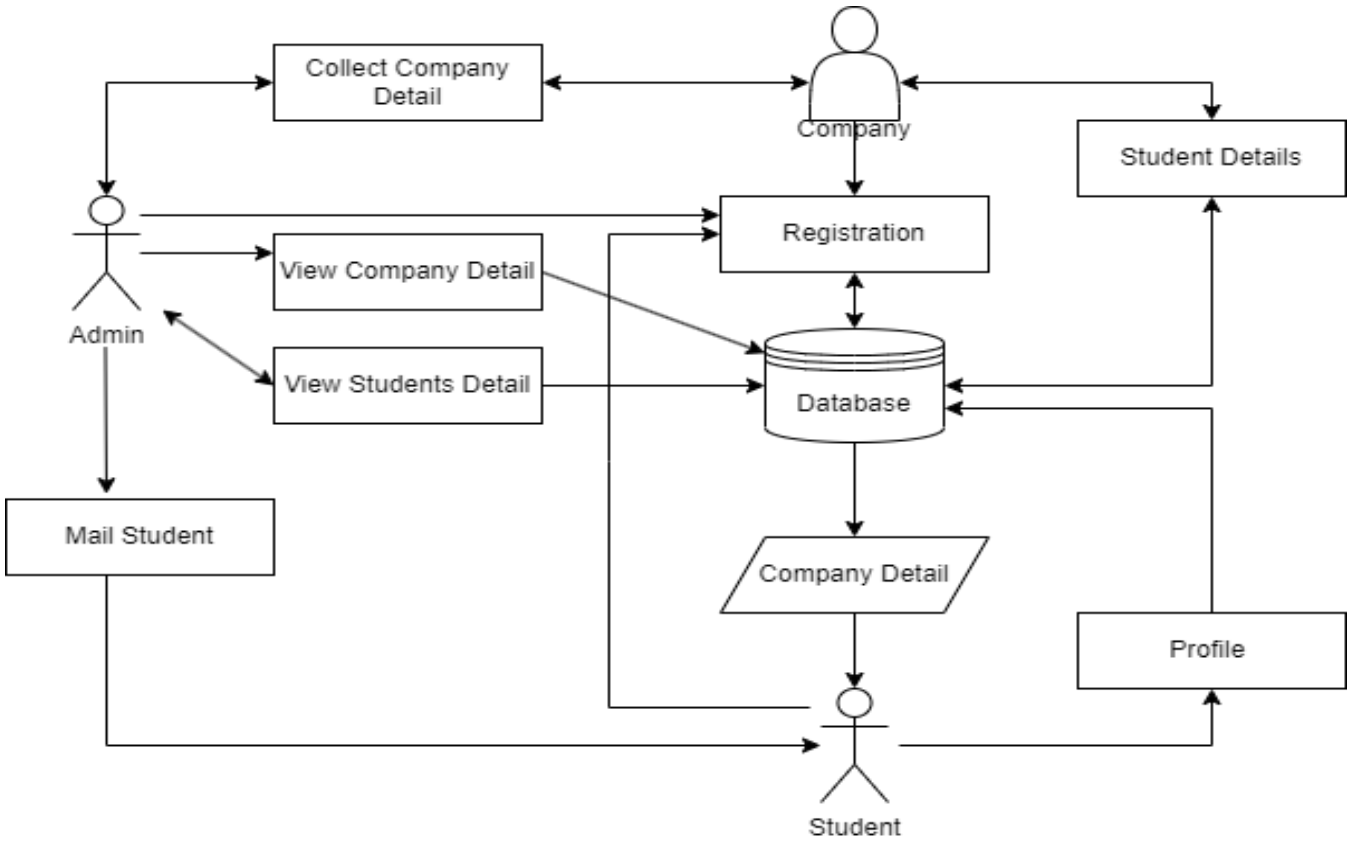


Fig. 4.2 System Architecture

4.3 DATA FLOW DIAGRAM

LEVEL 0 –

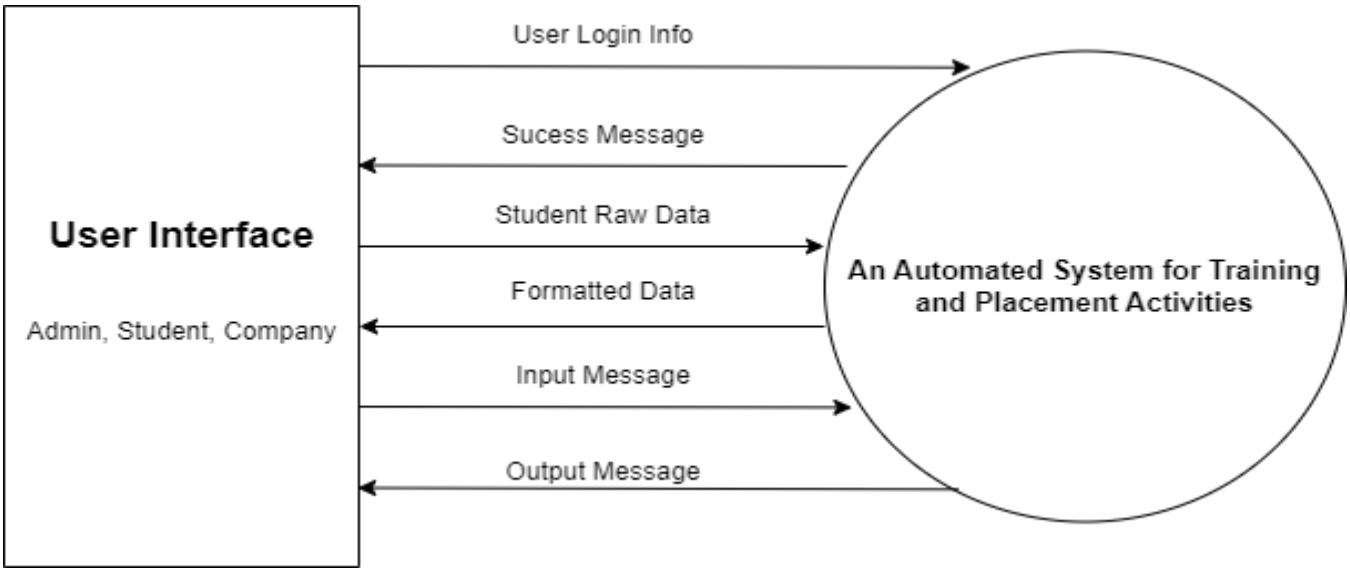


Fig. 4.3.1 Level 0 DFD

LEVEL 1 –

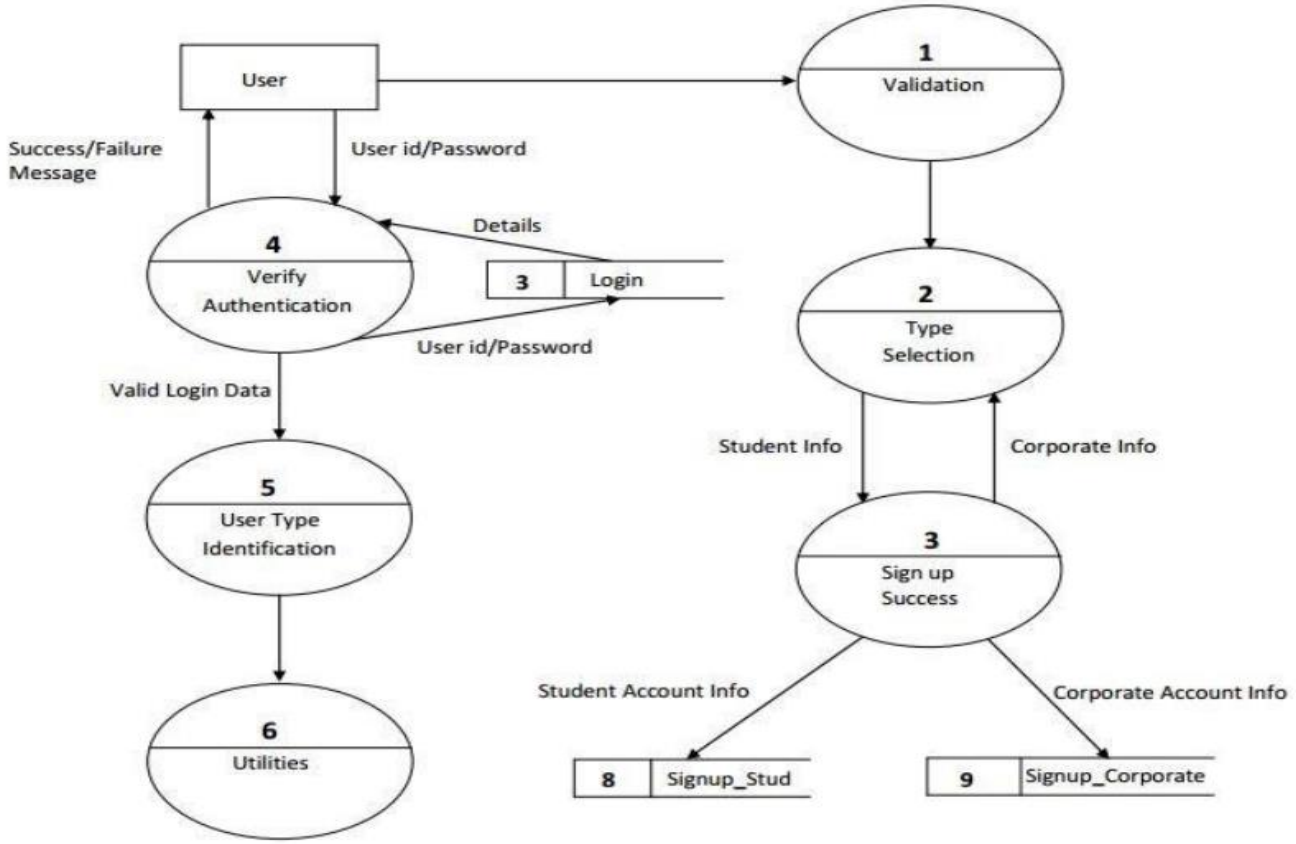
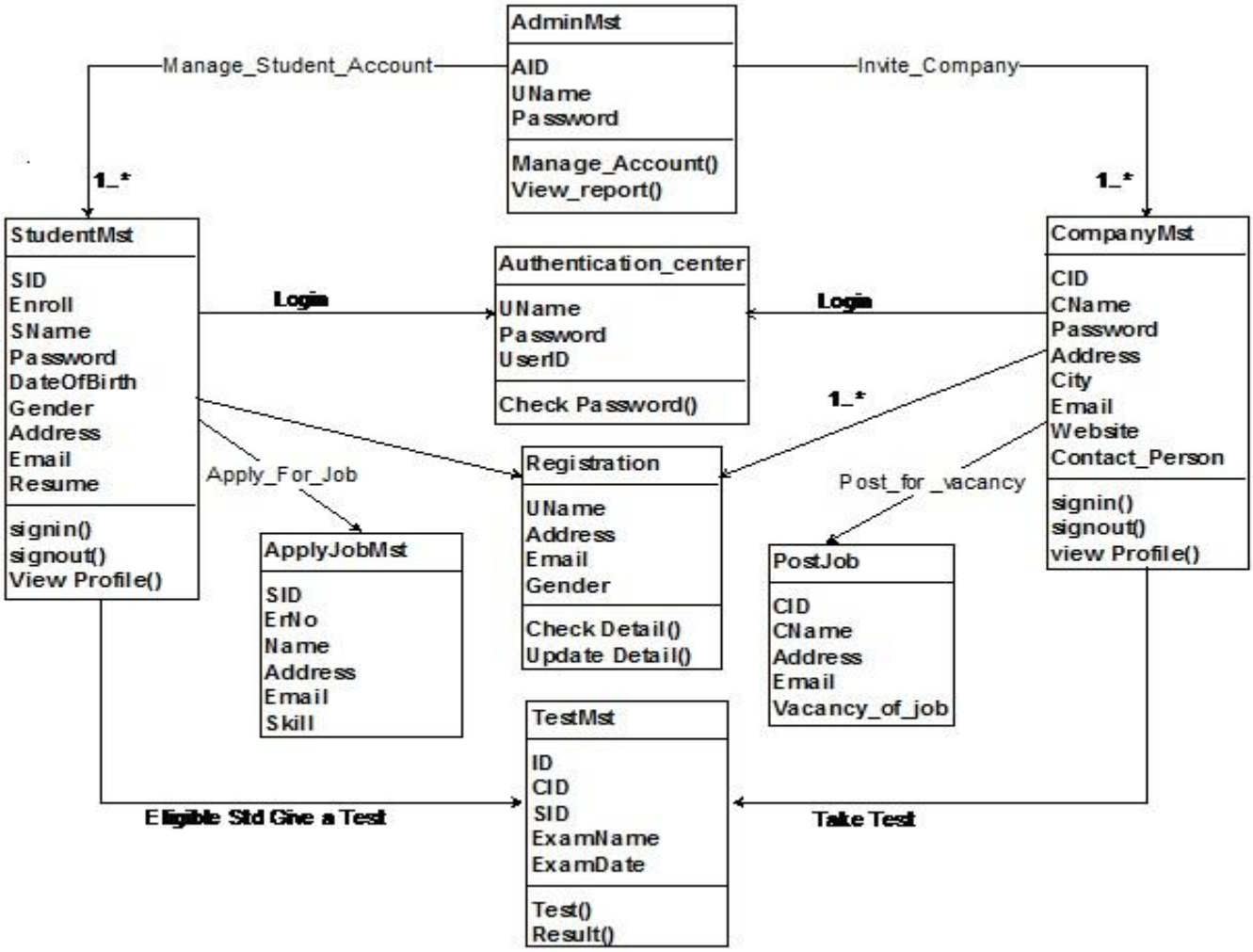
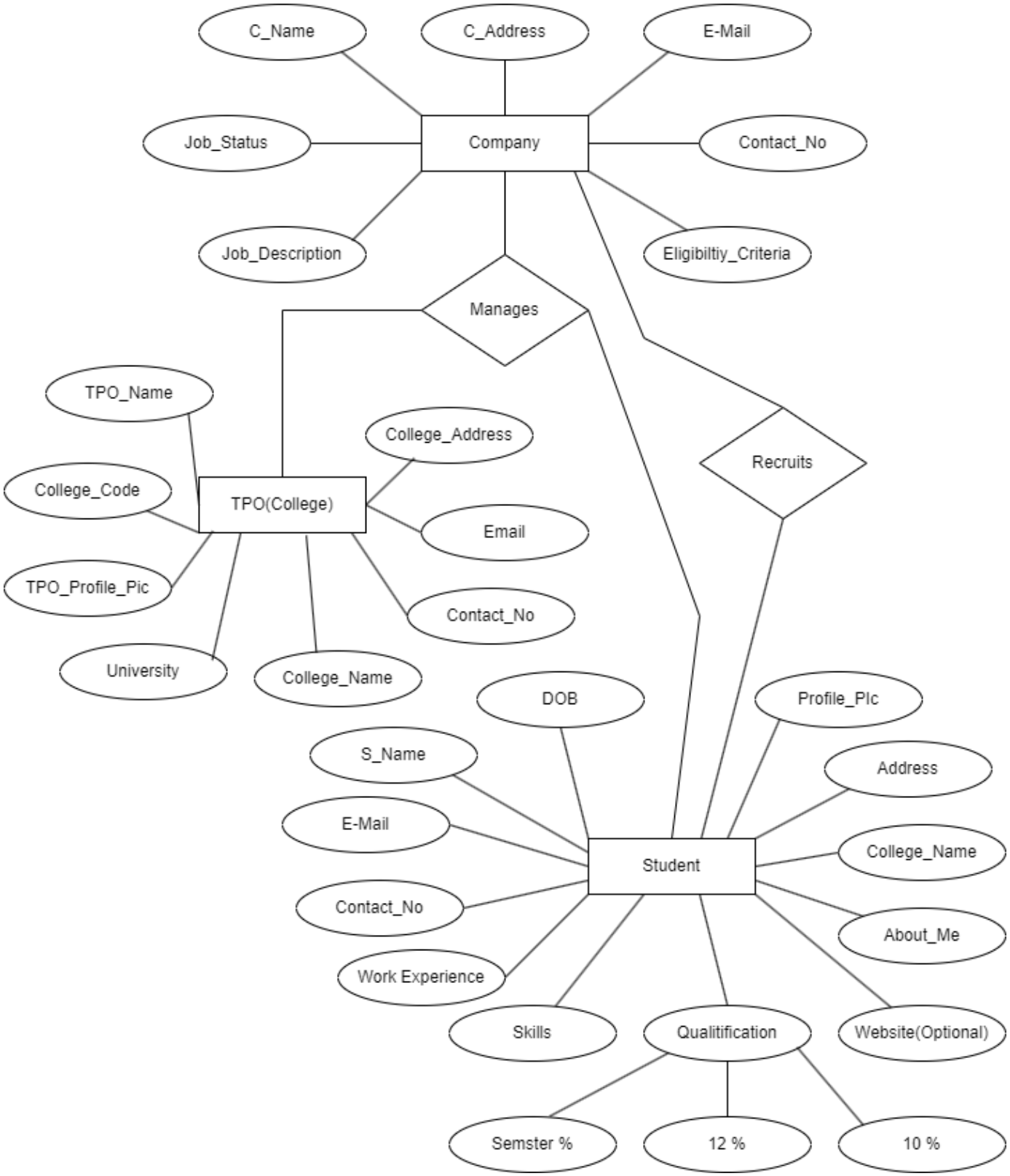


Fig. 4.3.2 Level 1 DFD

4.4 CLASS DIAGRAM



4.5 E-R DIAGRAM



CHAPTER 6

FUTURE SCOPE

6.1 FUTURE SCOPE

The future scope for a training and placement web portal is promising, as technology continues to evolve, and the demands of the job market and education sector change. Here are some potential avenues for growth and development in the future:

1. **Artificial Intelligence (AI) and Machine Learning Integration:**

- Implement AI-driven recommendation systems to match job seekers with suitable job opportunities based on their skills and preferences.
- Use AI for resume parsing and analysis to provide feedback on resume quality and highlight areas for improvement.

2. **Data Analytics and Predictive Insights:**

- Utilize data analytics to provide insights on job market trends, in-demand skills, and salary expectations.
- Offer predictive analytics to help students and job seekers make informed career decisions.

3. **Global Expansion:**

- Expand the portal's reach to a global audience, offering job opportunities and educational resources from around the world.
- Address the needs of international students and job seekers.

4. **Blockchain for Credentials Verification:**

- Implement blockchain technology for secure and tamper-proof verification of academic and professional credentials, enhancing the trustworthiness of user profiles.

5. **Skill Development and Online Courses:**

- Partner with online learning platforms to provide access to a wide range of courses and skill development programs.
- Offer personalized learning paths based on users' career goals and skill gaps.

CHAPTER 7
CONCLUSION

7.1 CONCLUSION

The existing system heavily relies on manual processes, resulting in prolonged task durations. The Training and Placement Office (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.

CHAPTER 8
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