K. K. Wagh Education Society's

K. K. WAGH POLYTECHNIC

HirabaiHaridasVidyanagari,Amrutdham, Panchavati, Nashik – 422003

Department of Computer Technology
(Academic Year 2023-24)

CAPSTONE PROJECT PROPOSAL (SYNOPSIS)

PROJECT TITLE: A holistic approach to campus recruitment and student profile analysis for placement.

o **PROJECT GROUP MEMBERS:**

Sr. No.	Name of Student	Class & Roll No.	E-mail ID	Mobile No.
1.	**Leader:** Dhakane Aditya Arun	TYCM-Lin 15	dhakaneaditya502@gmail.com	9309298067
2.	Bangar Kalyani Hemant	TYCM-Lin 08	kalyanibangarcm1@gmail.com	9075861187
3.	Gaidhani Shraddha Punjaram	TYCM-Lin 19	shraddhagaidhani216@gmail.com	8329462459
4.	Salunke Ashwini Ashok	TYCM-Lin 45	ashwinisalunke685@gmail.com	8468972391

o **NAME OF INTERNAL GUIDE:** Mr. S.H. Sangale

o **SPONSOR DETAILS:**

Company/Industry/Organization Details	Contact Persons Details at Sponsor
Name: K. K. Wagh Polytechnic, Nashik	Name: Mr. P.M.Mohan
Address: Hirabai haridas vidyanagari, Amrutdham, Panchvati, Nashik - 422003	Designation: TPO Officer Department: Electrical Engineering
Office Phone No: 253 2512876 253 2512867	Mobile No: 9421229303
E-mail ID: principal-poly@kkwagh.edu.in disp-poly@kkwagh.edu.in	E-mail ID: pmmohan@kkwagh.edu.in
Website: https://www.poly.kkwagh.edu.in	

Place: Nashik
Date: / /2023

<u>Abstract</u>

The ICRPT (Integrated campus recruitment, placement and training analysis) is a comprehensive software solution designed to streamline the process of connecting students with job opportunities and facilitating effective communication between teachers (TPO), students, and HR professionals. The system is organized into three main entities: Teachers (TPO), Students, and HR Personnel, each with their specific roles and functionalities. The ICRPT designed to improve the efficiency of job placement processes for educational institutions and organizations alike. It promotes transparency, simplifies data management, and facilitates effective communication among teachers, students, and HR professionals, ultimately enhancing the employability of students and the recruitment process for companies.

The ICRPT is a sophisticated and user-friendly software solution aimed at seamlessly connecting students with potential job opportunities, enhancing their skills, and simplifying the recruitment process for organizations. This system consists of three primary entities: Teachers (also known as Training and placement Officer), Students, and HR Personnel, each playing pivotal roles within the platform. The ICRPT is a powerful tool for educational institutions and organizations, fostering transparency, efficiency, and effective communication. It empowers students to enhance their skills, enables HR professionals to streamline the recruitment process, and supports teachers (TPO) in guiding students towards successful career opportunities. With its comprehensive features, ICRPT bridges the gap between education and industry, ultimately contributing to the growth and development of both students and organizations.

ICRPT addresses the critical need to bridge the gap between education and industry by providing a centralized platform for students and HR professionals. It enhances employability and simplifies recruitment. officer can manage student and company profiles, act as HR professionals, and release assessment scores. Students can maintain profiles, participate in quizzes, take aptitude tests, and access recorded assessments. HR personnel can post vacancies, create quizzes, review recorded assessments, evaluate candidates, extend job offers, and release scores.

ICRPT leverages modern web development technologies and databases to create an intuitive user interface. It incorporates features such as profile management, quiz participation, aptitude testing, video/audio recording, vacancy posting, quiz creation, video review, candidate evaluation, and offer letter generation.

The project anticipates improved student employability, efficient recruitment processes, and transparent assessments. Students can monitor their performance, and HR professionals gain valuable insights into candidates' skills and suitability.

Keywords: *Data-Driven, Recruitment Strategy, Career Readiness, Data Visualization, Transparent Assessments*

Project Title : A holistic approach to campus recruitment and student profile analysis for placement.

Rationale:

ICRPT addresses the pressing need for a system that facilitates student-employer connections, enhances employability, streamlines recruitment processes, fosters transparency, and supports educators in guiding students toward successful careers. By bridging the gap between education and industry, ICRPT contributes to the growth and development of students and organizations alike. Our college's training and placement division currently collects placement information using Google Forms and manually manages student's records using Excel sheet. Here, TPO and his staff handle all work. Due to the human labor involved and the length of the procedure, there is a considerable potential for error. Therefore, we have chosen to work with the T&P department to develop a web-based training and placement tool. The T&P department suggestions are being used to build the project.

Introduction:

In a world where the job market is constantly evolving at a rapid pace, the alignment between education and industry stands as a pivotal concern. Educational institutions today are entrusted with the responsibility of preparing students not only with the foundational knowledge but also with the practical skills necessary to thrive in their chosen careers. Simultaneously, organizations are on the hunt for the most qualified and competent candidates who can seamlessly integrate into their dynamic and ever-evolving workforce.

However, despite the shared goal of preparing students for the workforce, the transition from academia to the professional world is often marked by numerous challenges for both students and employers. Graduates may find it challenging to translate their educational experiences into practical job skills, and employers may struggle to identify the most suitable candidates who align with their evolving needs and industry demands.

To address these intricate challenges and to foster a harmonious connection between students and potential employers, we are proud to introduce the "Integrated Campus Recruitment, Placement, and Training Analysis" (ICRPT) system. Developed with the specific needs and aspirations of our college students in mind, ICRPT represents a cutting-edge solution designed to bridge the gap between the academic realm and the professional landscape. With ICRPT, we embark on a journey to revolutionize the way our students prepare for their future careers and how employers identify the best-fit talent.

This innovative system leverages the power of data-driven analysis, comprehensive student profiling, and a holistic approach to campus recruitment, placement, and training. It not only helps students gain a clearer understanding of their strengths, weaknesses, and career potential but also empowers our institution to tailor educational experiences that align with the demands of the job market. On the employer's side, ICRPT streamlines the recruitment process by offering insights into the most promising talent pool among our students, thereby saving valuable time and resources.

With ICRPT, we embark on a transformative journey that puts our students at the forefront of industry readiness and ensures that the knowledge and skills they acquire during their time at our college are directly applicable in their future careers. We invite you to explore this dynamic system and join us in shaping a brighter and more prosperous future for our students and the organizations that seek their talents.

This innovative system represents a pivotal shift in the way we prepare and connect our students to the professional world. It's a strategic move towards nurturing well-rounded, job-ready graduates who are not just academically accomplished but also equipped with the skills and insights needed to thrive in today's competitive job market. Through this system, we reaffirm our commitment to empowering students and ensuring the long-term success of our educational institution.

Literature Survey:

Research paper 1: Online Training and placement system.
Authors: Gunjan Jewani, Swati Sahare, Trupti Kamble, Ritu Kathalkar, Ashwini Unhale.
Description: The analysis in this paper main goal is to narrow or close the growing gap between students and the job market. The research looks at various job training programs offered on college campuses in an effort to shape our students into marketable human resources. The article also seeks to figure out how students should be actually encouraged to apply the lessons learned on college campuses to actual placement. Students can track status of their placement. Students can also update personal and academic information such as their email address, current semester, correspondence address and their grade across various semesters, a functional line of contact using modern technologies like email and SMS between the training and placement department and student it is helpful to have the most recent information on the companies visiting the campus.

Analyzing the students strength and weakness in order to develop a commitment that will be effective for the educational institutions training and placement activities based on the students query-specific report for various companies recruiting.

Research paper 2 : TNP portal using web development and machine learning.
Authors: Prasad Khalkar, Aditya Muthal, Sujit Khopade, Lokesh Ghule, Prof. Tushar A. Rane
Description: The placement of a student on campus has a big impact on a college. Companies visit colleges during campus placement to identified qualified candidates before they graduate. The most important factors for successful placement can be found by analyzing patterns and qualities in the massive volumes of student's information that schools retain. The placement of engineering students beginning in their second year can be predicted, which can aid in the student's correct development. Students may be given access to an interface that enables them to submit applications to several businesses with a single click. Obviating the need to update information that is already in the system. This can cut-down on the time and work needed to verify the information given by the pupils.

The other proposed subsystem uses predictive analytics with machine learning classification algorithms to determine the likelihood of placement in a given industry, such as fintech, startup, products and services. Additionally, it can identify key characteristics that influence a candidate's chance of landing a job in that industry, benefiting both the college and the student.

Conclusion:

After a comprehensive analysis of IEEE papers and thorough research in the realm of Training and Placement application, We will introduce significant enhancements beyond the existing systems. User engagement can be limited, leading to incomplete profiles and reduced overall effectiveness. Additionally, handling sensitive personal and academic data raises concerns about data privacy and security breaches, which could have legal and reputational consequences.

Global Opportunities: Connect users with international job opportunities, promoting global career mobility.
Reduced Unemployment: By efficiently matching job seekers with relevant job openings and providing training opportunities, your application can contribute to reducing unemployment rates.
Increased Job Satisfaction: Job seekers are more likely to find positions that align with their skills and interests, leading to higher job satisfaction.

Project Concept and Proposed Working:

Purpose:

The Integrated campus recruitment, placement and training analysis (ICRPT) is a comprehensive software solution designed to bridge the gap between educational institutions, students, and potential employers. TPMS aims to streamline the process of student placement by providing a centralized platform where students can enhance their skills, access job opportunities, and receive guidance, while employers can efficiently recruit suitable candidates. The core concept revolves around empowering students, simplifying recruitment for HR professionals, and offering valuable tools for educators/administrators.

The system operates in a secure and transparent environment, with features like video and audio recording to ensure integrity during assessments. It also employs modern web development technologies and databases for a seamless user experience.

ICRPT provides a holistic solution for training and placement needs, promoting student employability, simplifying recruitment processes, and fostering transparency and efficiency in the education-to-employment transition. It supports students, educators, and HR professionals in their respective roles, ultimately contributing to the growth and development of students and organizations.

Project Description:

The ICRPT (Integrated campus recruitment, placement and training analysis) is a comprehensive software solution designed to streamline the process of connecting students with job opportunities and facilitating effective communication between teachers (TPO), students, and HR professionals.

Goal:

To facilitate job placement for trained individuals by connecting them with suitable employment opportunities.

Objectives:

1. Promote diversity and inclusion by ensuring that placement opportunities are accessible to individual from various background and demographic.
2. Students create professional resumes to show their qualification.
3. Focus on developing soft skills such as communication, problem-solving and teamwork Which are crucial for workplace success.

Proposed Methodology:

Conceptualization: Understand the unique requirements and objectives of the ICRPT. Clearly define the scope of the application, specifying features and functionalities required for efficient training and placement processes. Engage with key stakeholders such as educational institutions, students, employers, and career advisors to gather input and ensure alignment with their needs.

Research and Analysis: Conduct research to understand existing training and placement solutions in the market and identify gaps and opportunities for improvement. Analyze historical placement data and performance metrics to identify trends and employment.

Maintenance and Continuous Improvement:

Implementing monitoring tools means setting up software that keeps an eye on how well your application is working. These tools track things like how fast your app responds, if there are any errors, and how much people are using it. By collecting this data, you can make smarter decisions about how to improve your app and make it work better for users. Establish a feedback mechanism to gather input from users and stakeholders for continuous improvement.

Benefits:

Access to a wider talent pool:
For students the application can provide access to a larger and diverse pool of potential candidates, expanding their option for recruitment.

Skill Enhancement:
It can offer training modules and resources that help students improve their skills and employability, making them more competitive in the job market.

Scalability:
Application can become a scalable platform that connects a large amount job seekers. creating a robust ecosystem.

Real-Time Notifications:
Students can receive real-time notifications about new job opening and relevant training opportunities keeping them informed and engaged.

Area of Project:

1. Web based Applications using Machine Learning

Features:

1. **User Authentication and Authorization:**
   Secure login and user role management for students, teachers (TPO), and HR professionals.
2. **Student Profile Management:**
   Creation and maintenance of comprehensive student profiles, including personal information, academic records, and skills.
3. **Job Posting and Management:**
   Posting, updating, and removal of job vacancies by HR professionals.
4. **Resume Upload:**
   Students can upload their resumes making easy for employers to view their qualifications.
5. **Communication:**
   send and receive functionality to facilitate communication between students and HR & notification and email alerts to keep students informed about job opening.
6. **Admin panel:**
   An administrative dashboard for managing users accounts, job listing and application data.
7. **Mobile compatibility:**
   Ensure the application is available on both Android and iOS platform for wider accessibility.
8. **Skill assessment:**
   Users can take skill assessment tests or quizzes to showcase their expertise in specific area to potential employers.
9. **Video and audio assessment:**
   Students can show their communication skills and confidence through video and audio assessment.
10. **Job Matching Algorithm:** Match students with jobs based on skills and preferences.
11. **Analytics and Reporting:** Track applications, view metrics, and assess recruitment effectiveness.
12. **Job Application Tracking:** Enable students to track the status of their job applications, including whether they are under review, shortlisted, or rejected.
13. **Alumni Success Stories:** Highlight success stories of alumni who have found employment through the platform, inspiring current students and showcasing the system's effectiveness.
14. **Candidate Selection Notification:** Automatically send offer letters via email to eligible candidates upon selection, and notify others if they are not eligible.

Design Concept and Block Diagram:
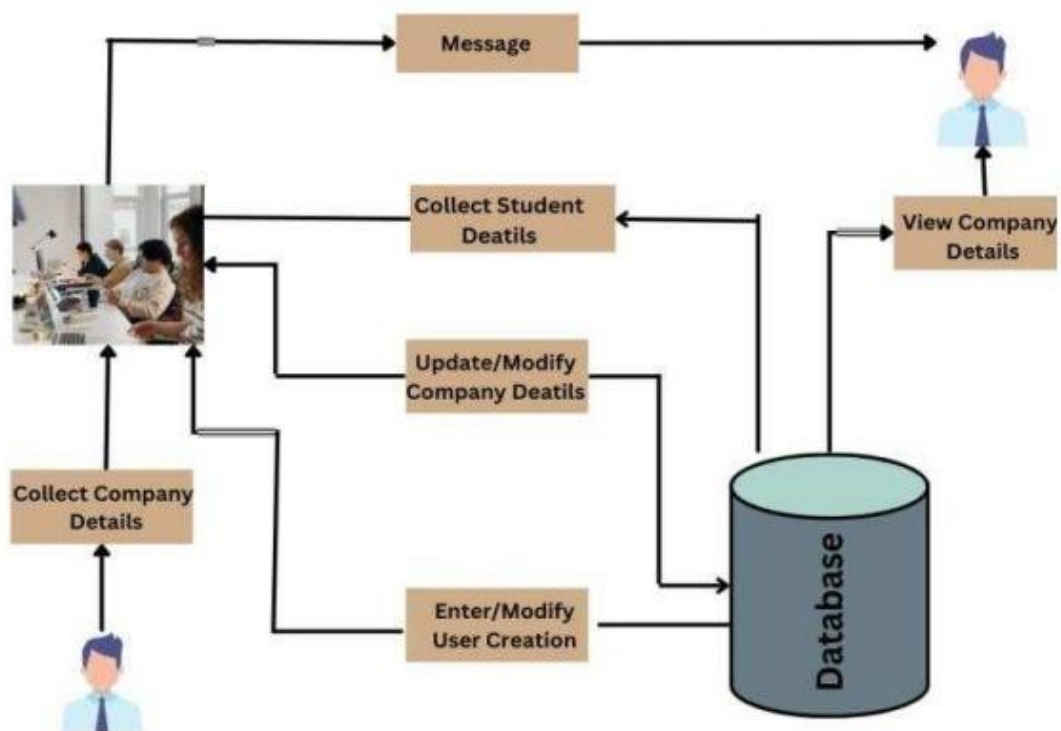
1. Proposed System Architecture:

Fig. Structure Diagram

Above figure explains the working of the proposed system. Next, The ICRPT Application represents the core software system. Users interact with the application through different modules, including the "Student Module," Admin Module, and HR Module.

The Core System Features encompass essential functionalities of ICRPT, including user profiles, job posting, assessments, comparison tools, notifications, data management, security, reporting, and analytics.
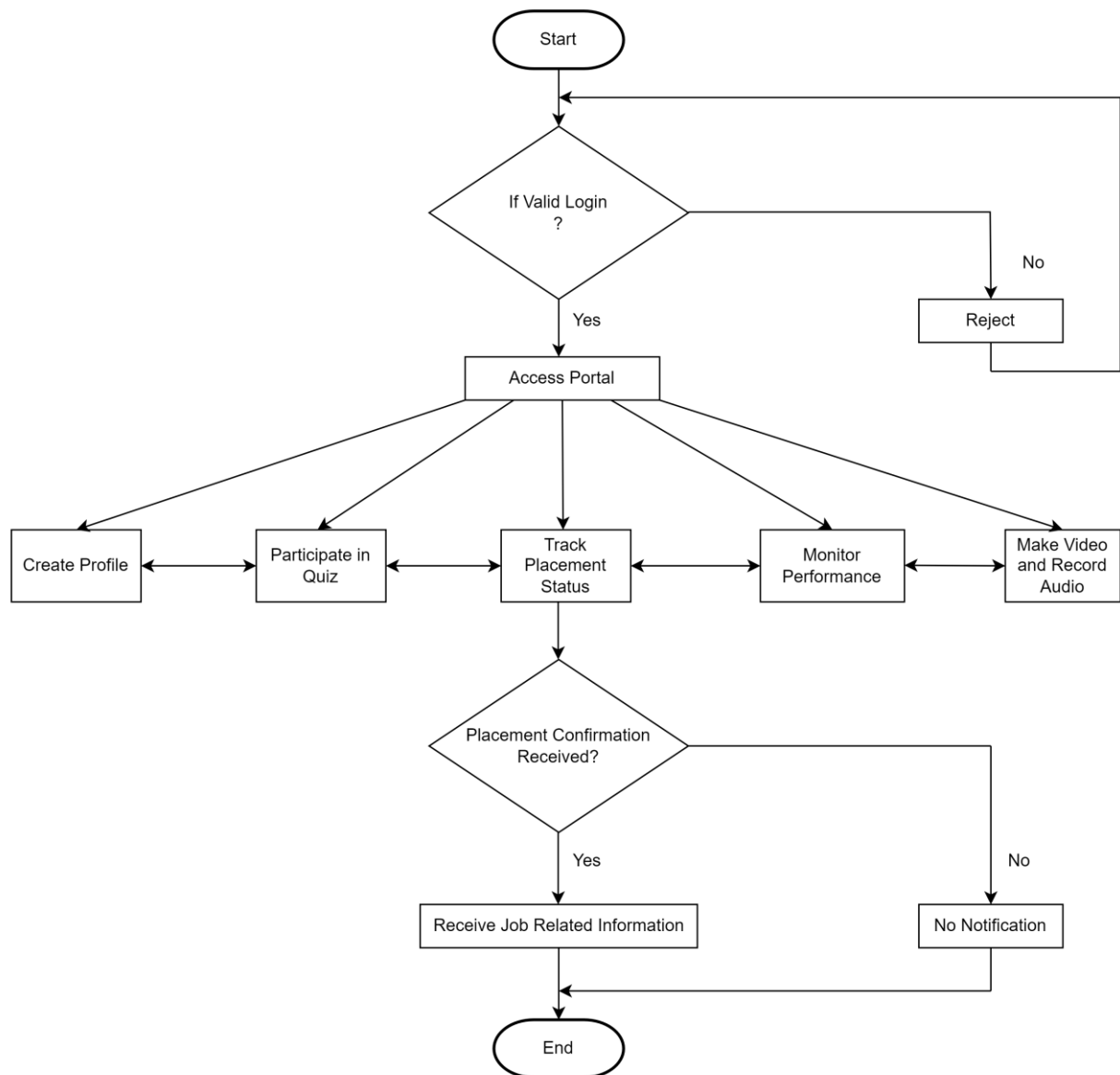
Teacher(TPO) : Teacher can create and manage students profiles. They can also post job related information. Teacher can communicate with students to provide guidance, feedback, or additional information regarding job placements. Access to analytics and reports related to student performance, job placement and the effectiveness of their recommendations.

Student: Students can create detailed profiles, including their education history, skills, achievements and career aspirations. Access to job listings posted by teachers or HR personnel. Students can apply for jobs, track application statuses. They can also receive updates on application statuses, interview invitations and other relevant information. Optional assessments or quizzes to evaluate and show their skills.

HR: HR personnel can create and manage company profiles including company information job listing and contact details & post job opening for students to apply. view and manage application from students including reviewing resume and profile. They can also communicate with students and teachers regarding job listing and selection processes. Provide feedback on the platform usability and the quality of candidates

The application design should ensure a seamless and efficient interaction between these modules to facilitate successful job placements.

2. Flowchart:
Student Module:


```
                            ┌─────────┐
                            │  Start  │
                            └─────────┘
                                 │
                                 ▼
                          ◇ If Valid Login ? ◇ ──── No ──→ [ Reject ]
                                 │
                                Yes
                                 │
                                 ▼
                          [ Access Portal ]
```

Start

If Valid Login ?

No

Reject

Yes

Access Portal

Create Profile   Participate in Quiz   Track Placement Status   Monitor Performance   Make Video and Record Audio

Placement Confirmation Received?

Yes

No

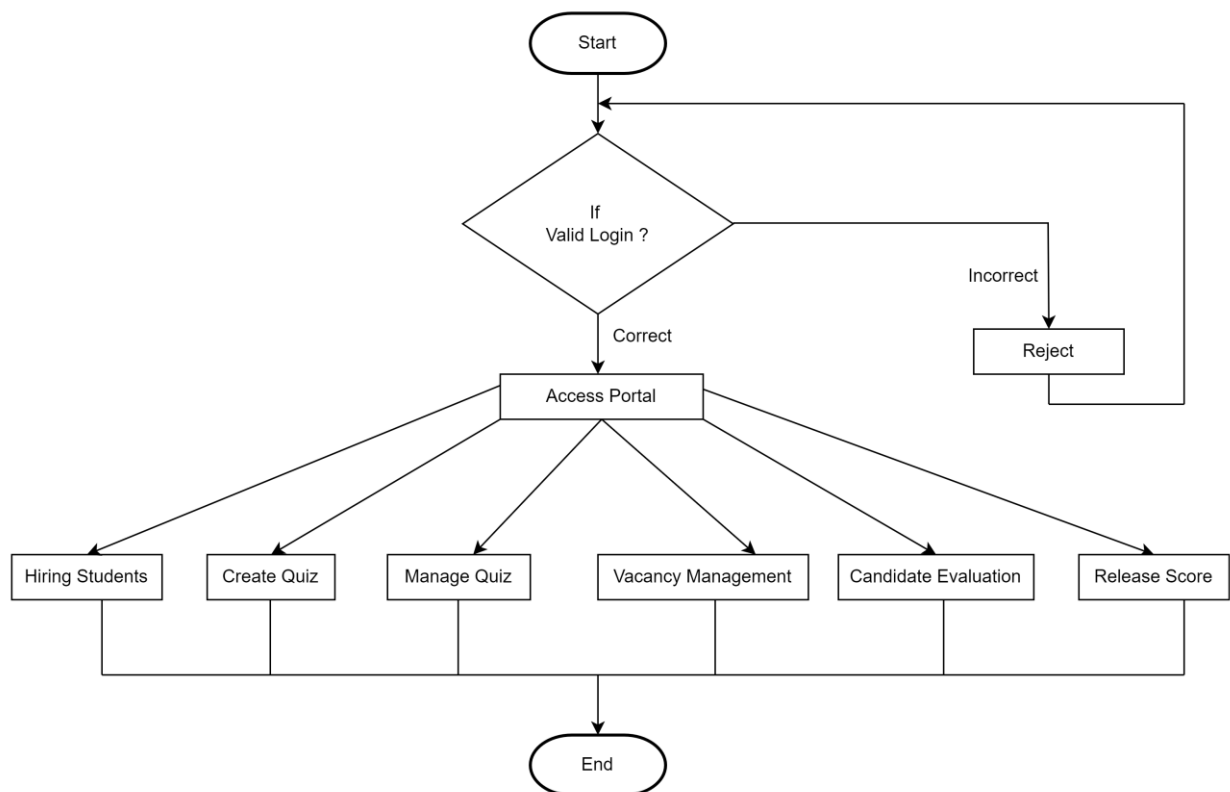Receive Job Related Information

No Notification

End

Student Module: Students can create and manage profiles, search for jobs, build resume, receive notifications, access skills.

Admin Module:
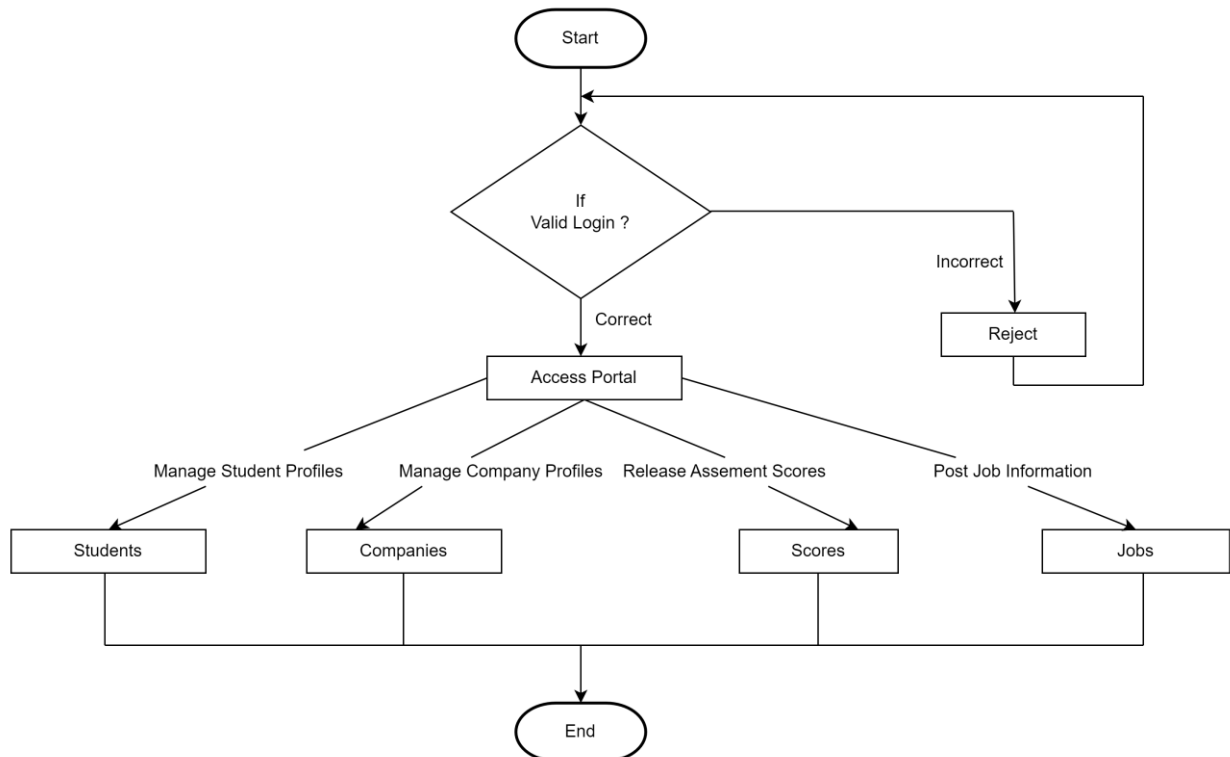
Teacher (TPO) Module: Teachers can manage profiles, post job opportunities, provide recommendations and communicate with students.

HR Module:

HR: HR personnel can manage company profiles, post job listing, handle candidate application, access analytics and reports, communicate with students and teachers and provide feedback.

The above flowchart depicts the system flow. Flowchart for ICRPT can help visualize the sequential steps and decision points in the application workflow. Uses start by logging into the application. After logging in, they reach the dashboard. Depending on their roles, they can access specific modules. User can logout when they are done using the application. This flowchart provide a high-level overview of the application workflow showing how different users roles interact with the various modules and functionalities. In a real-world scenario each of these modules would have its own detailed flowchart to outline the specific actions and interactions within that module
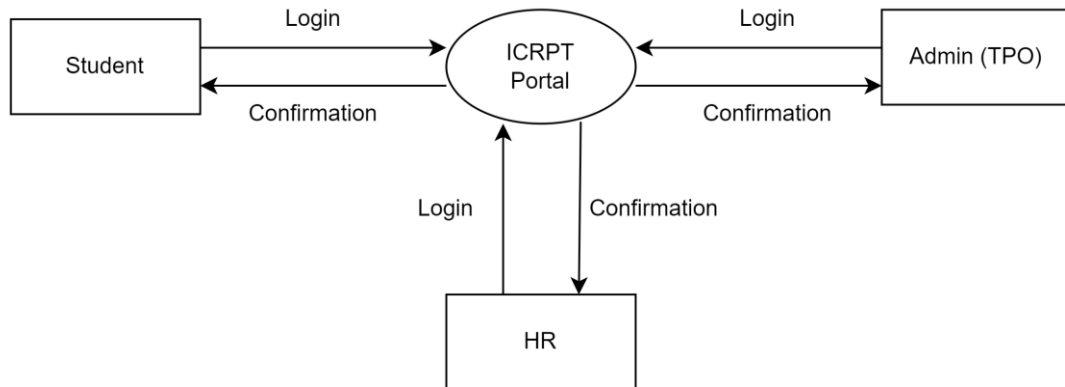
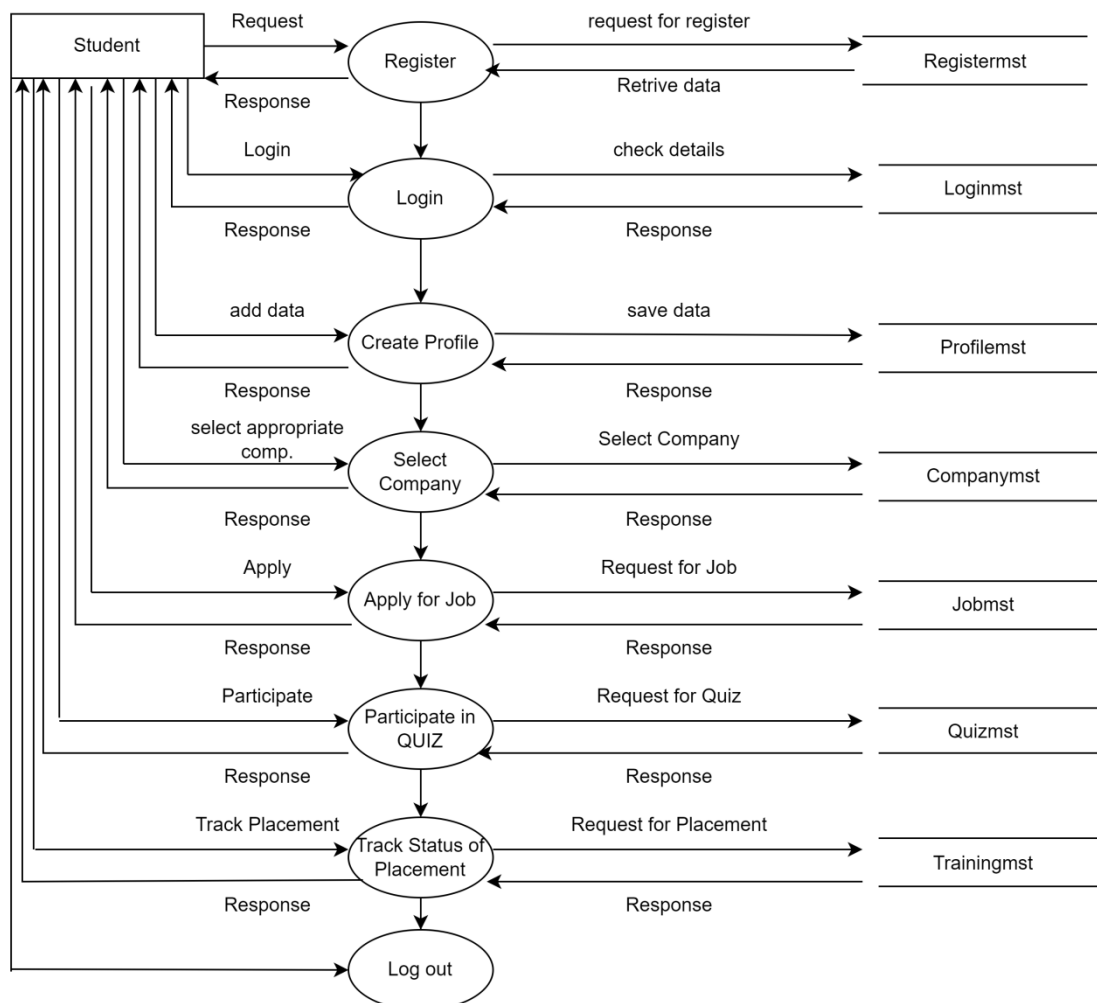### 3. DFD Diagram:

Fig. DFD Level 0

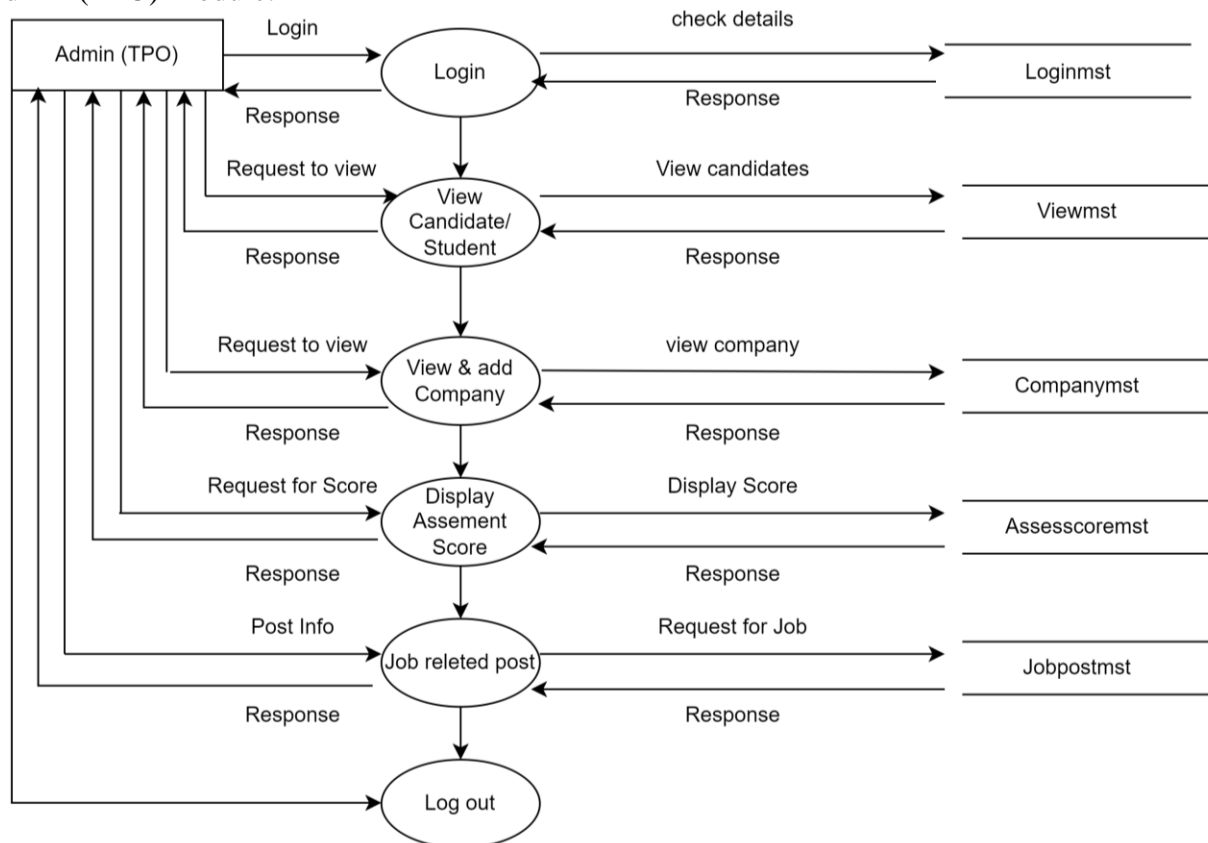Student Module:

Fig. DFD Level 1

Admin (TPO) Module:

Fig. DFD Level 1

HR Module:
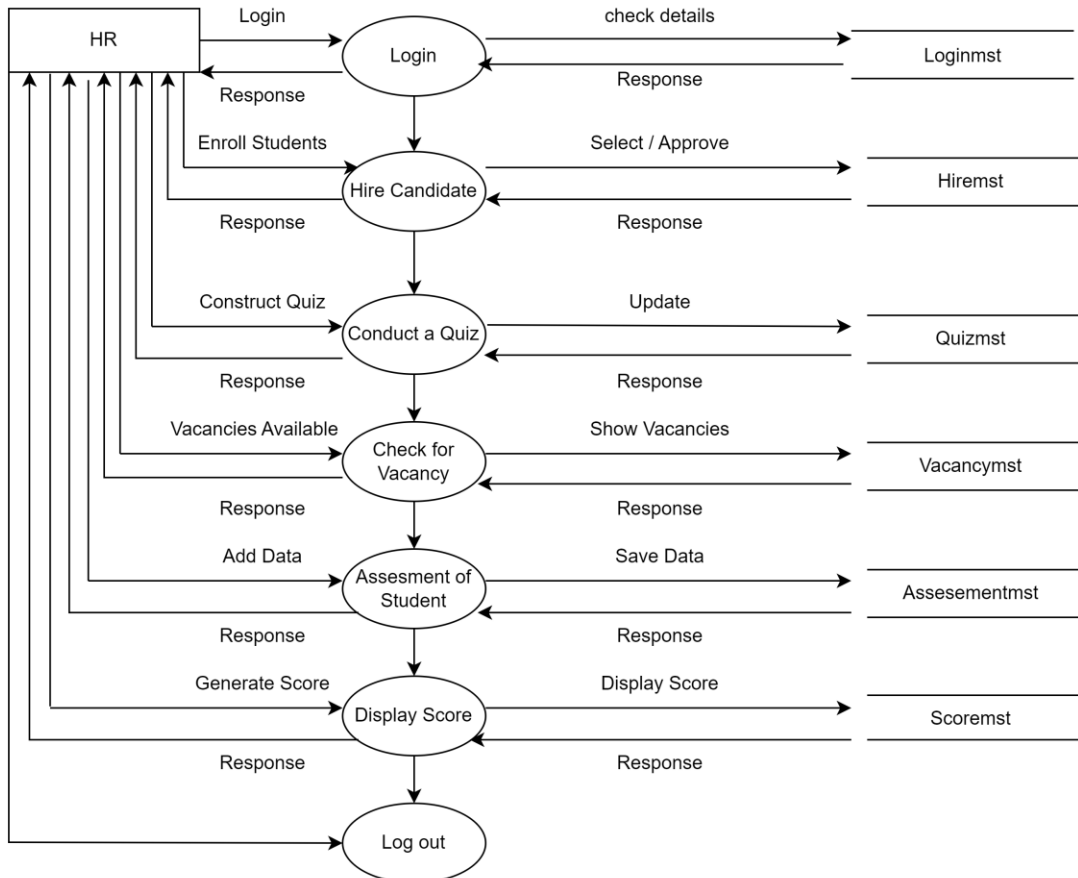
Fig. DFD Level 1

Hardware Requirements for Development of Project: (minimum)

Sr.	Resource Name	Specification
1.	Computer Processor	Intel core 5 or higher
2.	Microphone	Mini Collar mic
3.	Camera	Good Quality 3MP
4.	Storage Space	60GB or higher
6.	Memory (RAM)	Minimum 4GB
7.	Operating System	Windows 8+

Software Requirements for Development of Project: (minimum)

Sr.	Software Name	Specification
1.	Visual Studio Code	Version 1.82
2.	Chrome	Version 117.0.5938.92
3.	Firebase	Version 10.4.0
4.	Bootstrap	Version latest 5.3

Limitations:

1. **Limited job Opportunities:** The availability of job listing on these platform depends on the companies and organizations using the service. Therefore, there might be a limited number of job opportunities.
2. **Competition:** Due to the wide accessibility of these platforms, there can be intense competition among students applying for the same job listings. This can make it challenging for some students to secure placement.

Applications:

1. **Education institutions:**
   These application help educational institutions manage job placement services for their students, enhancing the employability of students.
2. **Corporate organizations:**
   Companies can use these platform to streamline their hiring processes, contact with potential candidates and manage job posting and organization can advertise internship opportunities and select intern through these platform.
3. **Government initiatives:**
   Government agencies can utilize training and placement application to provide job placement services and match job seekers with employers.
4. **Startups and small Businesses:**
   Smaller companies may benefit from these platform as cost-effective solutions for finding and recruiting talent.
5. **Global employment**:
   Some platforms have a global reach, connecting job seekers with opportunities worldwide facilitating international career development.
6. **Diversity and inclusion:**
   Application can be tailored to promote diversity and inclusion by offering equal opportunities to candidate from various background.

Action Plan

Sr. No.	Description of Activity to be performed	Start date of Activity	Completion date of Activity	Major Lead from the Group
1	Project Selection (Approval form)/ Problem Identification Project Proposal Submission.			
2	Project Proposal Preparation (Synopsis) & Submission.			
3	Preparation & Submission of SRS (System Requirements & Specification)			
4	Detailed Design & Modeling of Project			
5	Project Report Completion (5th sem.)			
6	Project Seminar-I			

Conclusion:

In the rapidly evolving landscape of education and employment, Integrated campus recruitment, placement and training analysis (ICRPT) emerges as a transformative solution that bridges the gap between learning and professional opportunities. This dynamic system, designed to cater to educational institutions, organizations, and individuals alike, has the potential to reshape how we approach training, placement, and skill development. Throughout this discussion, we have explored the core concepts, advantages, design principles, and applications of ICRPT, shedding light on its far-reaching impact.

ICRPT play a pivot role in bridging the gap between job seekers and employers, facilitating career development and streamlining the recruitment process. They empower individuals to explore opportunities enhance their qualifications and connect with relevant job openings. These application have diverse applications across education, industry and workforce development, contributing to economic growth and fostering inclusivity in the job market. Their adaptability to changing workforce trends makes them essential tools in today's dynamic employment landscape.

Book References:

1. D. K. Arun, V. Namratha, B. V. Ramyashree, Y. P. Jain and A. Roy Choudhury, "Student Academic Performance Prediction using Educational Data Mining," 2021 International Conference on Computer Communication and Informatics (ICCCI), Coimbatore, India, 2021.

2. T. R. Kumar, T. Vamsidhar, B. Harika, T. M. Kumar and R. Nissy, "Students Performance Prediction Using Data Mining Techniques," 2019 International Conference on Intelligent Sustainable Systems (ICISS), Palladam, India.

3. E. N. Ogor, "Student Academic Performance Monitoring and Evaluation Using Data Mining Techniques," Electronics, Robotics and Automotive Mechanics Conference (CERMA 2007), Cuernavaca, Mexico.

4. Fahim, A.M., Salem, A.M., Torkey, F.A. et al. An efficient enhanced k-means clustering algorithm. J. Zhejiang Univ.

5. Python Machine Learning by Sebastian Raschka and Valid Mirjalili.

6. Deep learning by Lan Goodfellow, Yoshua Bengio and Aaron Courville.

7. Interaction Design: Beyond human-computer interaction by Jenny Preece, Yvonne Rogers and Helen Sharp.

Web Reference:

- https://www.iitms.co.in/higher-education-erp/training-and-placement/
- https://www.ijert.org/online-training-and-placement-management-system
- https://www.ijsdr.org/papers/IJSDR2004064.pdf

Mr. S. H. Sangale	Mr. S. H. Sangale	Prof. G. B. Katkade
(Guide)	**(Project Coordinator)**	**(HOD-CM)**