# Campus Recruitment System

**PROJECT REPORT**

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# BONAFIDE CERTIFICATE

Certified that this project report **" CAMPUS RECURITEMENT SYSTEM "** is the Bonafide work of **" Brijesh Kalakoti (21BCS5376), Harshit Bisht(21BCS5431), Manish Saini (21BCS5413), Ronaldo (21BCS5403), Saurav Singha (21BCS5421),"** who carried out the project work under my/our supervision.

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**INTERNAL EXAMINER**

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# CHAPTER 1

# INTRODUCTION

## 1.1 Identification of Client /Need / Relevant Contemporary issue

Campus Recruitment System aims to make placement process efficient and time saving for the students. There are three types of logins in this system: admin, company, and student. It is advantageous for college students, the numerous employers who visit the campus to recruit, and even the placement officer for the college. Students can build their profiles and submit all of their information, including their grades, using the software system. The administrator can look over each student's information and delete any invalid accounts. The system also includes a company login so that different companies visiting the college can access a list of students there as well as each student's individual resume. Students can examine a list of businesses that have listed job openings using the system. The admin can censor and delete any information not related to college placement requirements because they have full control over the system.

### 1.2 Identification of Problem

Because they lack a suitable method of advertising their openings, several organisations struggle to attract applicants under the existing system. Additionally, the process of manually shortlisting individuals for interviews wastes a lot of time. In the current system, every single process is done by hand. Even small matters required the college training and placement officer to consult all of the prior years' records. It is used to be time-consuming and tedious to do this. As the number of pupils grows every year, it gets increasing. Therefore, there is a greatest likelihood of mistakes. The files are not organised in a hierarchy. As a result, finding a certain file becomes difficult. The difficulty and ambiguity of updating some information might cause data redundancy since there is a probability that some information will be updated twice. Not every student is aware of the placement updates provided by the college's training and placement officer, so they may miss their chance to get a seat at an interview.ly challenging. The current system also has other drawbacks. All tasks in a manual placement management system are carried out by humans.

## 1.3 Identification of Tasks

**a) To assist students in finding employment**

The strategic plan of an institution must place a high priority on student recruiting because it is essential to the school's long-term viability and success. The long-term viability of an institution depends on the Training and Placement office having the tools necessary to hire the correct number and quality of students. IT plays a key part in this process.

**b) Coordinating and setting up various campus recruitment drives**

Students should take advantage of the expo to learn what employers are searching for in candidates and what competencies are essential for their future roles. Career/Job Fairs offer a beneficial chance to develop networking skills and practise explaining your value to a potential employer.

## 1.3 Timeline (Gantt Chart)

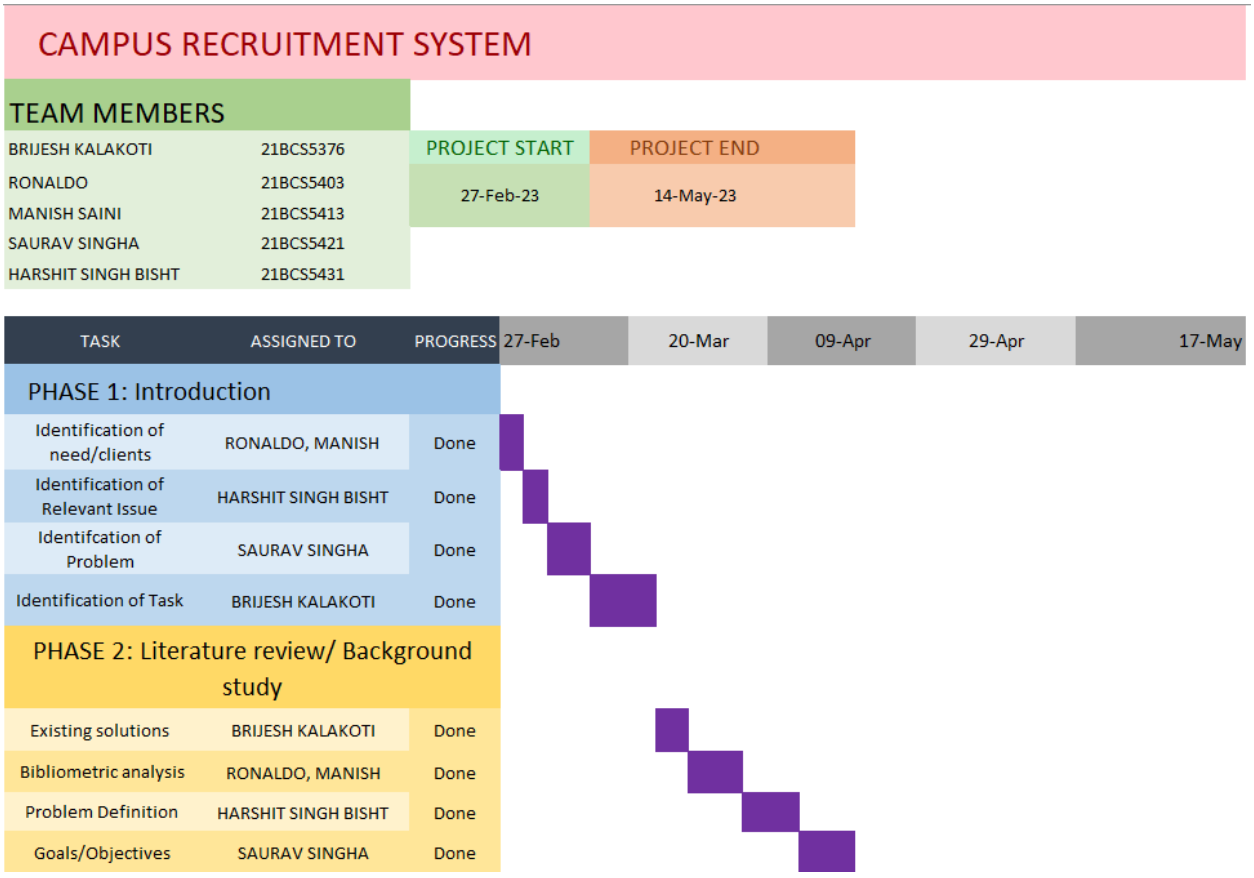


Fig. 1.1 Phase 1 & 2 Gantt Chart

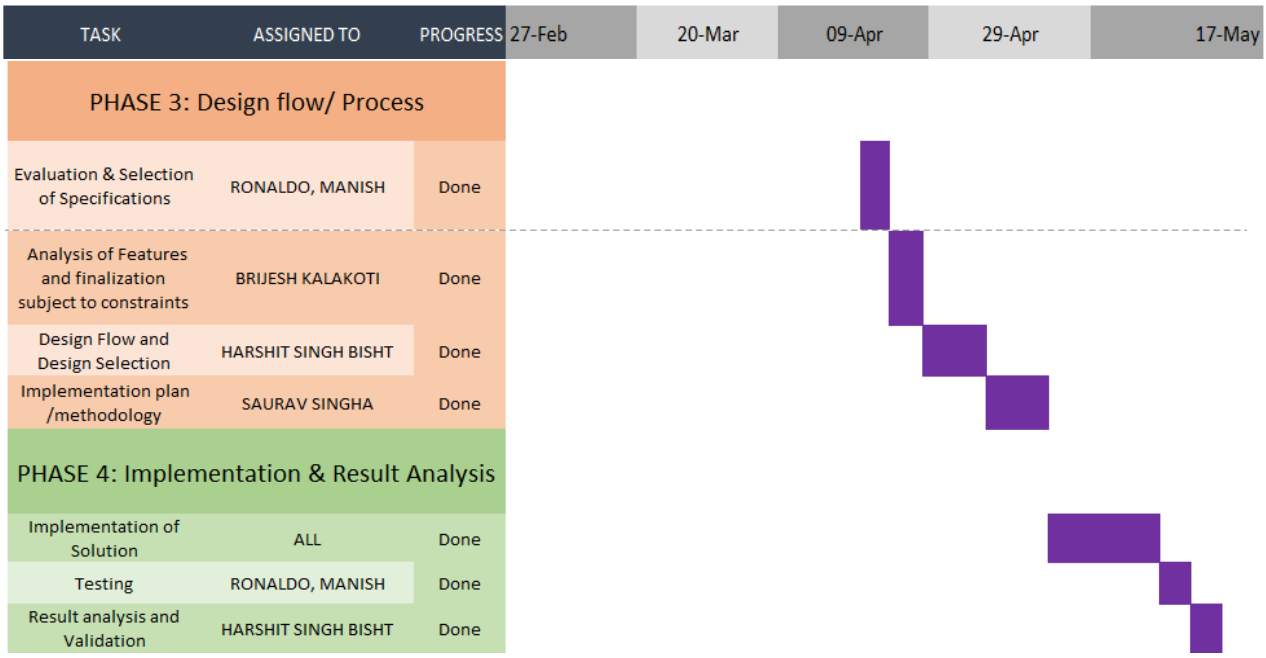


Fig. 1.2 Phase 3 & 4 Gantt Chart

## 1.4 Organization of Report

In Chapter 1, we have discussed about the underlying issues that faced by students, our main focus is on students who are going to appear for placements, and their needs. We have built or Campus Recruitment System for these students where they can have ease in this process. We have made a simple user interface, so students can easily get results based on their research.

In Chapter 2, we have done Literature review. It closes by summarising the main results of the literature review, emphasising the significant contributions of the current literature, and emphasising the topic's value for future study and understanding. In this chapter we have outlined gaps or limitations in the available literature that have been discovered. These gaps show areas that require further investigation or discrepancies and contradictions in the current knowledge base.

In Chapter 3, we summarise the general conclusions of the design flow/process review. It emphasises areas of strength, such as good usability and graphic design, while also making suggestions for development, such as improving navigation or introducing more interactive components. A design flow/process evaluation of an e-learning platform entails evaluating the platform's entire design and development process, with an emphasis on its effectiveness, efficiency, and user experience.

In Chapter 4, we described a thorough evaluation of our website's operation, usability, compatibility, performance, security, and accessibility. We discovered and solve any flaws, bugs, or usability concerns during this process, resulting in a high-quality and user-friendly website and application. A website's result analysis, validation, and testing are critical processes in guaranteeing its functioning, usability, and quality.

In Chapter 5, In this we have discussed about Conclusion and Future scope of our Platform. Future enhancement and extension work on our platform may encompass several areas of enhancement and extension in order to improve the learning experience for users. Seeking regular feedback from users such as learners, teachers, and administrators to identify areas for development and eliminate any pain points. Surveys, user testing, and measuring levels of user engagement and satisfaction can help with this.

# CHAPTER 2

# LITERATURE REVIEW/BACKGROUND STUDY

## 2.1 Timeline of the reported problem

Recruiters used to keep prospective applications in filing cabinets or piled up on desks before the advent of applicant tracking systems (ATSs). The introduction of applicant tracking systems (ATSs) to the market in the 1990s marked a turning point in the administration of the hiring process for the businesses that adopted this solution into their procedures, even though the initial versions were very basic. primarily because it made it easier for recruiters to keep track of applications and arrange information about each candidate.

Since then, both HR technology and the hiring procedure itself have advanced significantly. Online applications grew in popularity during the early 2000s as a result of the pervasive use of the Internet and the explosion of social media platforms. The job market also changed to be candidate-centric in recent years, and new factors like company brand and applicant experience, for example, became crucial components of the hiring process.

All of these factors helped the ATSs grow continuously, adding new features to meet all recruitment needs. "Hiring people is by far the most important thing companies do," said Josh Bersin in his report on "HR Technology Disruptions for 2018". Features like automatic matching ofcandidates to job requirements are essential to help recruiters optimise the recruitment cycle, discover the best candidates, and make the best hiring choice given the massive influx of online applications.

**Applicant Tracking Systems**

An applicant tracking system, also known as an ATS, is a piece of software that controls the hiring procedure. It compiles and organises candidate data and offers a preliminary screening of all incoming applications, enabling recruiters to concentrate only on the profiles that most closely match the requirements in order to maximise their efficiency.

Additionally, ATSs have additional features and functions that increase the productivity of the recruiter, such as integrated email templates for applicant communication and job posting on numerous job boards.The truth is that an ATS analysing a CV is, in most cases, more efficient than having a recruiter, who is overloaded by the absurd number of applications received for a specific

job, look at it for a few seconds. This is true even though some people are still resistant or suspicious about the use of ATSs in recruitment, especially for automatic screening of candidates. There is a hunt for particular standards to certify the application in both situations. While a software conducts the search action in accordance with the keyword set for that particular position, without the prejudice of unconscious bias, it is common for recruiters to unconsciously look for reasons to reject applicants.


Fig. 2.1 ATS Working

**Campus Recruitment System**

It is a type of applicant tracking system (ATS) that is used on college campuses to find deserving and qualified applicants. A software system called a "Campus Recruitment System" helps to simplify the hiring procedure in a straightforward manner. The training and placement cell officers, companies, and candidates all played a role in the creation of this software system. Students can register by entering all of their information into the system, and then they can apply for college drives. Additionally, it enables businesses to publish job openings and all relevant information about incoming drives. It makes it simpler for the placement officer to manage or access student information with regard to Placed student because students can see all details about the total number of companies registered and companies can see how many students get registered or not as well as their qualifications. Both sides' contact information is also available, allowing users to post their queries with ease

## 2.2 Existing solutions

Many colleges are currently using campus recruitment systems that include a student login, a company login, and an admin login. College students, various employers who visit the campus for recruitment, and even the college placement officer can all benefit from it. Students can build their

profiles and submit all of their information, including their grades, using the software system. The administrator can review each student's information and delete any invalid accounts. The system also includes a company login so that different companies visiting the college can access a list of students there as well as each student's individual resume. Students can examine a list of businesses that have posted job openings thanks to the software system. The admin can censor and delete any information not related to college placement requirements because they have full control over the system. The system manages both student and business data and effectively presents both to the appropriate parties.

But the major shortcomings of the already applied Campus Recruitment System is that when we have sent our resume or application to any company for some job posting, we are not in the position to undo our request or edit our application mid-way. So, we will address that issue in our system.

Features in our system are

a) Admin dashboard has full functional privileges
b) Student login
c) Company login
d) Student login
e) Company can view student data
f) Student can view company data
g) Appropriate data processing and handling

## 2.3 Bibliometric analysis

**a) Specialized recruiting processes**

Set up a hiring process with specific steps that work with your plan. Additionally, you can designate hiring teams that can be directly integrated into the procedure and work together on their assigned duties.

**b) Management of Vendors**

In order to work seamlessly with your internal teams on college employment, the recruitment software also has features that let you add outside vendors, like specialised campus recruiters. Vendors are capable of carrying out a variety of tasks on their own, including accessing a candidate's state and uploading resumes.

**c) Analytics for Recruitment**

Freshteam can also produce reports that enable you to monitor the effectiveness of your recruiters and evaluate the effectiveness of your general hiring processes, thereby accelerating your campus hiring process.

**d) Forms for Applications**

You may get all the necessary information from candidates up front using application forms. You can set up an efficient screening procedure to automatically sort through all the applications in accordance with your recruiting criteria if you have a consistent data set from all candidates. This also frees up your recruiters to concentrate on more high-impact tasks, greatly speeding up and improving the quality of your hiring process.

**e) Preliminary tests**

By using tests from vendors like HackerRank, Codility, HackerEarth, etc., you may drastically speed up technical rounds in a college recruitment workflow. These tests may be launched in bulk from the platform itself and are quick and impartial. As soon as a candidate completes a test. Freshteam's integrated testing workflow may automatically alert them and record their results.

**f) Astute interview planning**

It might be a pain to coordinate the schedules of the many panellists to set up interviews. The challenge is made worse by the large number of applicants generally seen in a university recruitment operation. By integrating with the most widely used calendar apps used by businesses, Freshteam simplifies this procedure. It is simple to locate available times that work for interviews and reserve them in advance. Furthermore, you can plan numerous interviews from a single interview scheduling screen.

Due to its many benefits for both employers (job providers) and students, the campus recruitment system is quite effective.

i. Functionality of an integrated application tracking system
ii. Automated matching of applicants with available vacancies
iii. Chatbots that can respond to common queries
iv. Features of the campus recruitment system to keep qualified applicants in contact with the hiring team

v. Integration of calendar software, such as Microsoft Office 365, and automated scheduling of interviews
vi. Integration with social media, job boards, and other HR systems Advanced dashboards and reports
vii. Standard letter, communication, and request templates
viii. The capability of incorporating outside recruiters
ix. Tracking candidate sources (employee referrals, job boards, etc.)
x. Greater data security due to the data being stored in a single system.
xi. Reminders to hiring team members and suitable candidates
xii. Employment contracts that are unique to each candidate and include information from the job requisition
xiii. Support for digital signatures when using software like DocuSign
xiv. Regional or national branding and improving the appearance of job listings
xv. Integration with recruitment support tools, such as assessments and background checks.

## 2.4 Review Summary

Considering the issues that the students in our campus were having, we made the decision to develop this electronic recruitment method. It was primarily intended to aid students in closing the communication gap with the recruiters.

Every student on campus deserves a fair chance from the employers to demonstrate their abilities and seize any employment opportunities that present themselves. And in order to do this, we considered developing a system that would connect businesses and students on a single platform so that they could communicate effectively.

Many of this system's objectives are achieved. But as nothing is flawless, this approach also has some drawbacks, which we intend to address in the near future. Instead of requiring new users to manually fill out the information, we can include a feature that allows the system to read CV information that is uploaded in PDF form. We may build it as a social centre where people can assist one another in seeking employment by adding a blogging element with advanced functionality. To validate the talents listed by students in their profiles, we can add tools for online tests. With the help of some sophisticated machine learning algorithms, we can enhance the job recommendation. The features for notifying students of the employment match might be improved.

It is possible to include some built-in data analysis tools to offer insights into the existing job environment. Additionally, a function allowing for CV sharing on various platforms via this platform can be introduced.

## 2.5 Problem Definition

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### 2.5.1 Prevalent problems in traditional Campus Recruitment

Companies wanting to secure their share of the newest generation of top talent may find hiring fresh graduates from university or college to be a very competitive game. In order to promote their brand and corporate values and attract the finest and brightest students to join the workforce, companies invest a significant amount of money in recruiter time, travel, and set-up expenses for career fairs and campus visits. Even while it can be difficult to stand apart in a sea of businesses doing the same thing, finding the time to thoroughly screen and interview each applicant after your

talent pipeline is filled can be difficult. As a result, businesses frequently overlook some of the greatest prospects because of volume restrictions, ineffective or outmoded hiring practices, and time restraints.

### 2.5.2 Problems with traditional campus recruiting system

**a) Missing out on talent opportunities may be due to a lack of staff and time constraints**

The manual or "traditional" hiring process is frequently drawn out, confusing, and unsuccessful in finding the finest candidates. It may be difficult for campus recruiting teams to find the time to effectively reach out to and engage enough prospects to meet their hiring goals. Not only do talent acquisition teams not have enough time to screen and interview enough candidates in-person, but they are also frequently reluctant to reach out to broader audiences and end up relying excessively on their core institutions, missing out on qualified hiring opportunities as a result.

**b) The Efficiency of the Current Campus Recruitment Process is Deficient**

The new generation of students and workers have different expectations and need greater flexibility, openness, and versatility in the interview process. Students are no longer interested in speaking with recruiters only from Monday through Friday between the hours of 9 and 5.

**c) Diversity is now a requirement for Gen Z and Millennial hiring, and it's no longer just about being fair**

In fact, studies have shown that businesses that support diversity and inclusivity in the workplace frequently experience immediate benefits. A 2015 Deloitte survey found that 83% of millennials report being more engaged at work when their organization actively promotes inclusion.

**d) Making sure you hire the proper individuals is the first step in ensuring a diverse and inclusive workplace.**

The easiest approach to achieve this is to set up a hiring procedure that is entirely impartial and objective and that enables you to connect and interact with the appropriate audiences, wherever they may be. The truth is that without the proper framework and resources in place, the

traditional recruitment process has its limitations and frequently invites personal and/or unconscious prejudice, regardless of how much effort your recruiters make to be fair.

To deal with the shortcomings of traditional campus recruitment, we are developing Campus Recruitment System that will eliminate all the shortcomings listed above.

Ways in which our Campus Recruitment System is going to help campus drives in college

a) **Put communication first** The amount of time the TnP office needed to gather and organise the data before sending it to the businesses was almost completely eliminated. As a result, we do not need to follow up with the coordinators in regards to statistics and student communication. Additionally, an automated recruiting platform sends SMS, emails, mobile, and web notifications to qualified students to inform them of the status of their placement. These automated reminders assist students in not missing any interviews.

b) **Video/virtual interviews**

Job auditions are similar to virtual interviews. Due to the epidemic, there has been a sharp rise in distant work, which has accelerated the focus on online interviews. It's true that the idea isn't entirely new; it's just one aspect that has assisted students and employers in choosing bettercandidates with less effort and expense. It gives you a place to communicate, screen-share, and record the live interview process as automated recruiting software. Proxy servers are reportedly widely used in the market, too. It takes pictures of the candidate during registration, testing, and theinterview to get rid of these. The AI-based matching tool also aids in preventing impersonation and preventing students from trying to tamper with the results.

c) **Scheduling the interview properly**

When done manually, scheduling the interview is the most arduous step. It can be automated to benefit the students' learning experience. Students can apply for a job on our website, and when they do, an automated system notifies them of the time and day of the interview and assigns them a virtual space for further conversation. Students can now access the designated virtual environment as the TPO's communication barrier has been removed.

d) **Monitor overall placement development**

Automation provides insightful placement data that can aid universities in making wiser decisions. To evaluate the effectiveness of the placements and later make wise decisions, our platform offers year-over-year placement stats and a real-time dashboard.

**e) A successful corporate outreach**

The first step is to locate potential placement possibilities and contact employers. When it is worthwhile, track the overall placement performance and gauge the outreach to help you decide what to do next.

## 2.6 Goals/Objectives

a) To identify the key factors that contribute to the success of campus recruitment programs.
b) To analyse the current literature on campus recruitment systems and identify best practices.
c) To determine the most effective strategies for attracting and retaining top talent fromcollege campuses.
d) To identify the challenges and potential drawbacks of campus recruitment systems and devise strategies to mitigate them.
e) To evaluate the impact of technology and social media on campus recruitment anddetermine the most effective tools to use.
f) To benchmark the campus recruitment process against industry standards and identify areas for improvement.
g) To establish clear metrics and measurements for assessing the success of the campus recruitment program.
h) To develop a comprehensive understanding of the needs and expectations of both employers and job seekers in the campus recruitment process.
i) To determine the most effective channels for communicating with and engaging college students and recent graduates.
j) To design a campus recruitment system that is aligned with the company's overall strategic goals and objectives.

# CHAPTER 3

# DESIGN FLOW AND PROCESS

## 3.1 Evaluation and Selection of Specifications/Features

Considerations for Creating a Recruitment Solution

The main goal of recruitment is to inform students about available jobs across the college campus. Finding the right candidates will depend on how well you can communicate the following ideas in your job postings and student relations efforts

a) Experience and knowledge
b) Educational background
c) Certificates for students
d) Workplace Company Values

Similar to acquiring people, system design depends on how well it aligns with industry and workforce. Pay attention to features and capabilities that will enhance internal procedures and help the recruiting team perform their best. Therefore, systems should be created so that they provide answers to the talent requirements.

**a) Integration**

The majority of businesses and recruitment firms use platforms for internal and external communication. The solution ought to be compatible with job boards, social media platforms, mobile apps, and the organization's careers page. In order to facilitate simplicity of use and flexibility while ensuring a smooth transition, this method should operate seamlessly with current systems.

**b) User-friendliness**

You don't want to waste time trying to figure out how to use the various features and functionalities. A thorough training program or technical expertise shouldn't be necessary for the ideal recruitment solution. You should create a system solution that is simple and intuitive.

**c) Support**

Unavoidable challenges await you, and you'll need a team of allies that can respond to your inquiries fast. Any delays in your hiring procedure lengthen the time it takes to fill positions and create obstacles to achieving goals within a certain time frame. When starting an employee

training program or troubleshooting a problem, the system's capacity to do so quickly and effectively is what sets it apart.

**d) Deployment**

In order to operate the system with on premise deployment, you need servers, software licences, integration, and IT assistance. On-premise solutions will provide you greater flexibility, but cloud- based recruiting software can save you money on infrastructure upkeep and support, making it the more popular choice for many companies.

### 3.1.1 Top criteria to consider while developing a campus recruitment system

**a) Candidate monitoring**

The core functionality of most recruiting software solutions is often the centralization of critical candidate data and documents, including as contact information, resumes, and CVs, in one location. A robust system tracks conversations, screens resumes, and arranges possible candidates according to skill sets and experience. Process automation and artificial intelligence are brought to the table by applicant tracking technologies, allowing you to quickly screen hundreds of applicants. Throughout the hiring process, from the job posting to the final hiring decision, evaluate prospective employees. The tool stores and automatically evaluates resume data. Employer specs can be used to filter candidates, automate communication, and distribute critical updates.

**b) Candidate Evaluation and Assessment**

Candidate evaluation and assessment is a crucial component of recruitment. Select the most qualified candidates using screening forms and pertinent questions. Pre-hire evaluation tools assist speed up the interview process by separating candidates based on technical and soft abilities, which can be added to your recruiting strategy. To determine attributes or skill sets appropriate for the job while projecting future performance and the chances of retention, use cognitive and behavioural assessments.

**c) Management of Interviews and Offers**

Through the interview management module, you can schedule live or asynchronous video interviews. The interviewers are given the freedom to choose the date and time of the interview depending on availability, eliminating scheduling complications or double-booked appointments. Utilise interview guides to carry out organised interviews. To create or modify

offer letters, use templates. Professional offer letters should be sent to increase acceptance rates. Accept digital signatures from candidates using a built-in electronic signing tool. Utilise scorecards to evaluate candidates according to their talents, qualities, credentials, and experience. Chat functionality can be used to facilitate talks with recruiting managers.

**d) Orientation**

Send new workers automated reminders to complete online forms for compliance, benefits enrolment, confidentiality agreements, and other things. Utilise an on boarding gateway to finish paperwork and other processes and provide a seamless experience. With the help of step-by-step wizards, simple dashboards, and built-in forms, you can create new hire procedures. Create personalised workflows for employees, such as learning objectives or job completion, with step-by- step instructions, contextual aid, and notifications to guarantee completion before the due date.

## 3.2 Design Constraints

We always have several limitations when we accomplish something, and the same was true when building this campus recruitment system. But design limitations provide hints. They save designers valuable time by helping them triangulate between the issues, resources, and criteria that are inherent in every project.

Every design project is constrained by variables that restrict creative decision-making, whether it bea one-off banner ad or a multichannel marketing campaign. Design limitations are the terms used todescribe these ties. Constraints are the key to unlocking long-term design solutions, despite the fact that they could appear to hamper innovation**.**

### 3.2.1 Limitations on compliance

Designers may be required to abide by rules, norms, or regulations depending on the project:

a) Packaging and labelling specifications
b) Rules for data privacy
c) Requirements for accessibility in both physical and digital contexts

It's tempting for designers to conduct online research when faced with new or obscure compliance requirements in order to avoid "losing face" with clients. Although useful, independent research is insufficient. The majority of clients are happy to offer their extensive market knowledge:

a) Why there are restrictions in the first place
b) How the limitations are usually handled or whether other interpretations exist
c) Ideas to enhance the design effect of the restrictions

### 3.2.2 Functional Limitations

Every design brief specifies the elements or functionalities that are necessary:

a) Text for a one-page marketing document Icons for a SaaS platform
b) Images of products for a storefront display
c) Functional restrictions should not be viewed as a checklist item.

A superior strategy? Before projects start, find out why certain features and functionalities are required. By doing this, designers may learn that clients aren't firmly committed to specific requests, enabling them to make relevant alternate suggestions.

### 3.2.3 Non-operational Restrictions

Non-functional restrictions refer to characteristics that designs should have; terms like straightforward, quick, user-friendly, and reasonably priced are frequently used. Again, it's important to comprehend the justification for the inclusion of these descriptors by clients. Clients can make irrational comparisons between actual situations and the qualities they desire in designs. It is the designer's responsibility to explain the parallels the client is attempting to draw and pointout disparities when correlations aren't rational, for example, if the client wants their banking app tobe simple and mentions a note taking app as the benchmark.

### 3.2.4 Sensory Restrictions

Modern design, especially digital design, which places a lot of focus on sight, drastically ignores sensory issues. It's uncommon for creative briefs to include restrictions on the use of certain senses, but designers who do so harm both themselves and their clients.

As more businesses try to shift experiences away from screens by incorporating technology into wearables and the built environment where sounds, scents, tastes, and textures are in abundance sensory design will flourish in the coming years.

### 3.2.5 Style Restrictions

Style guidelines, component libraries, and other documents that are used to make design decisions frequently share stylistic constraints that are based on aesthetic considerations. Sometimes clients urge designers to incorporate ambiguous adjectives (such fun, lively, compassionate, etc.) into their designs, which blurs the distinction between stylistic and non-functional limitations. Designers must ultimately inquire about context. What are stylistic restrictions intended to convey, and why are they in place? In this approach, designers are given the authority to take action when, as is inevitable, creative choices result in issues not covered by style guides.

## 3.3 Analysis of Features and Finalization Subject to Constraints

The corporate sector has long had a serious problem with recruitment. In order to ensure that the difficulties connected with hiring are significantly reduced, many strategies have been used. One such strategy is the use of online recruitment platforms. The utilisation of job boards like Jobberman, Glassdoor, and others is one of the many media that are employed in the recruitment process. The literature study for this project includes an explanation of how this site functions. The system design and methodology used to construct the recruitment management system are presented in this chapter.

### 3.3.1 Information Requirements

The goal of this research project is to create a web application that will help users, including college placement administrators, job searchers, employers, and students, make informed decisions.

### 3.3.2 System Analysis

The study of a business issue domain with the goal of prescribing improvements and identifying the commercial requirements and demands for the solution can be characterised as system analysis. System analysis, according to Simon Bennet, is a process of looking for comprehend the organisation, taking into consideration and showing its needs. Examining a system and all of its parts is crucial to the design of the system. The outcome of this analysis process is what determines the proposed system's requirements-based decisions. System analysis is crucial to the professional advancement of a system and is a component of the fundamental building phase of programming improvement. The outcome of this analysis process is what determines the proposed system's requirements-based decisions. System analysis is crucial to the professional advancement of a

system and is a component of the fundamental building phase of programming improvement. System analysis entails acquiring precise data, comprehending the procedures, detecting issues, and identifying potential solutions for increasing the system's utility. Focusing on the business forms, acquiring operational data. Comprehending the data stream, identifying stops, and constantly seeking solutions to overcome system flaws are all necessary in order to achieve authoritative goals. The actual goals of systems analysis are to identify solutions for each business process, which entails providing answers to questions like, "What is being done?" How is it carried out? Who is responsible? And for what purpose? For this reason, it requires both fundamental and creative intuition if itis to succeed. To do this, it attempts to develop a new, efficient system that meets the client's current needs while also providing room for future growth within established boundaries. A cohesive system design is the result of this process.

### 3.3.3 Functional Requirements

A system's functional requirements outline what the system should be able to achieve. These requirements are dependent on the type of software being developed, the typical software users, and the organization's overall requirements-writing technique. When expressed as user requirements, the needs are frequently presented in a genuinely speculative light. However, functional system requirements show the system's capacity in subtle detail, along with its inputs and outputs, special cases, etc. 2011 (Somerville)**.** The non-functional requirements enforce requirements on the design and implementation, supporting the functional requirements. User requirements and software requirements are two categories of a system's functional requirements. Natural language declarations of user requirements are supported by diagrams of the services the system offers and its operational limitations that are written for clients. It is the most crucial element in the creation of a system. A system has failed if it does not satisfy user needs. The system requirements are a structured document that list the features, services, and operational restrictions of the systems that need to be created. These are some of the functional requirements for this research project:

a) The system ought to give potential employees information about open positions that is simple to comprehend.
b) The system must correctly distinguish between job providers and applicants.
c) Based on the user's input, the system should be able to search for employment.

d) The technology should make it possible for employers to view applicants' resumes.
e) Based on the information entered by the job providers, the system need to be able to look for applications.

### 3.3.4 Non-Functional Requirements

Non-functional needs are those that are not particularly related to the functions the system conveys. They may be able to relate to evolving system characteristics like dependability, response time, and storage capacity. On the other hand, they might refer to system constraints, such as the capabilities of I/O devices and the information representations used in system interfaces. Non-functional criteria can relate to certain system characteristics. These criteria may suggest or compel the system's dominant characteristics. They may then decide how the system is executed, how secure it is, how accessible it is, and other emerging qualities. This means that they are frequently more fundamental than certain functional requirements. System users can typically find ways to get around a system feature that doesn't usually solve their problems. As a result, failing to satisfy a non-functional need may indicate that the system as a whole is unworkable.

The following are the non-functional requirements for the research work:

**a) Quickness:** The system should be able to give users results quickly based on the settings they have chosen.
**b) Size:** The system shouldn't consume a lot of memory on the users' computers.
**c) Usability:** The system must be simple to use and have a clear user interface.
**d) Reliability:** There should be very little downtime and extremely few faults produced by the system.
**e) Robustness:** The system must be capable of swiftly and effectively recovering from errors.
**f) Portability:** The System must be portable and work well on a variety of gadgets.
**g) Scalability:** The System must function effectively as its size increases.

### 3.3.5 System Architecture

Software architecture is the discipline used to create these structures, as well as the documentation of these structures, that make up a software system. To rationally discuss the software system, these structures are required. Each structure includes software elements, connections between them, attributes of the elements and connections, as well as the justification for the creation and

configuration of each element. The following diagram illustrates the RMS software's system architecture.

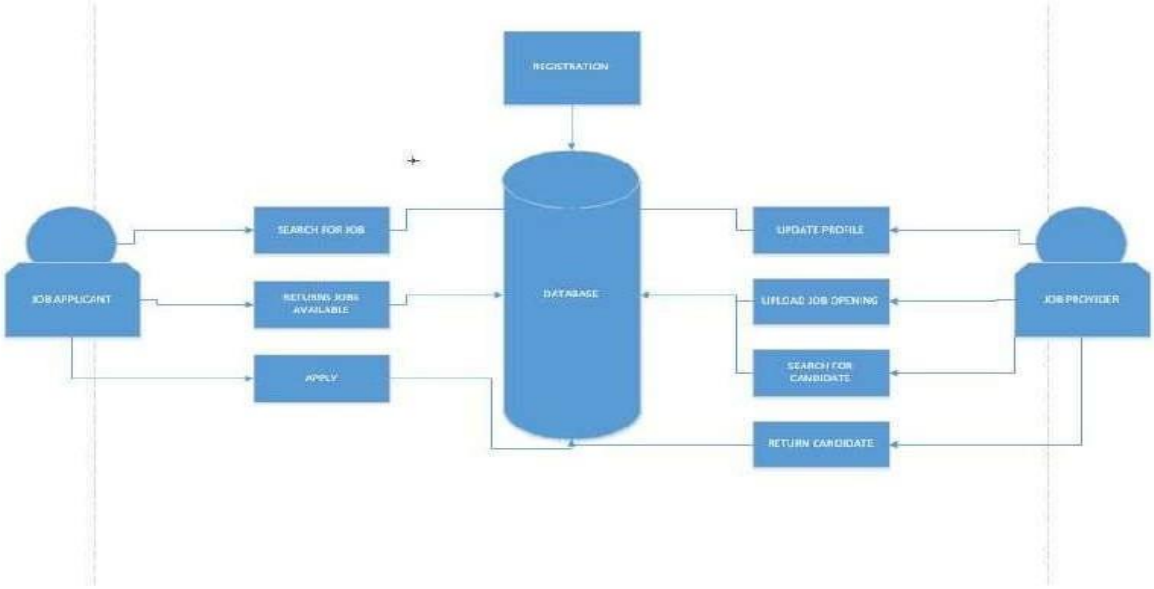


Fig. 3.1 System Architecture

## 3.4 Design Flow

### 3.4.1 System Design

System design is the process of creating a customised, PC-based solution for business requirements identified during system analysis. Its main goal is to manage complexity by dividing the system into smaller sections, making it easier to maintain. To realise their motivation, pay attention to how well these portions work together and function. Displaying or drawing one or more graphical representations of a system is part of system design in order to better depict the system. An appropriate definition of business requirements, the ability to represent the business process, and analysis and grasp of the problem and how the system is to understand it are all necessary for developing an appropriate system model.

### 3.4.2 System Modelling

A system model is a visual representation that shows and illustrates how a system works. It is useful in determining how the system carries out its functions. Making a system representation is what is meant by modelling. A model represents reality; it is a special representation of a few constituent parts of a whole component.

### 3.4.3 Use Case Diagram

Use cases are a discrete unit of interaction between a user and a system, which can be either a human or a machine. Use case modelling explains the intended functionality of a system in a way that users can comprehend. A use case overview shows the functionality provided by a system in terms of actors, the goals they are pursuing in terms of use cases, and any relationships between those use cases. Use cases are a result of the system's disintegration on a larger scale. The use case name appears above or inside a horizontal eclipse to depict it graphically. The use case outlines a series of tasks and user-system interactions aimed at achieving the system's objectives. Use cases have shown to be a great tool for better understanding and capturing system needs. Use cases are employed to model the functioning of the system and to model the problem during the discovery and definition of a system's needs. Use cases serve as a starting point for identifying the system's. data and objects. They explain the system's behaviour as it appears to the actors, which is known asexternal behaviour.

### 3.4.4 User authentication use case narrative

This section displays the user authentication use case narrative alongside the use case diagram for the userauthentication module

| | |
|---|---|
| **Use Case 1** | User Authentication |
| **Brief Description** | This singular module is for getting access into the system by theuser. |
| **Actor(s)** | Users |
| **Flow Of Events** | **Basic Flow:**<br>The use case begins when the user accesses the webpage<br>a) The user enters the URL to the page.<br>b) The user inputs his or her login details.<br>c) System Displays Homepage<br>**Alternative Flow:**<br>If user information is incorrect he or she is not granted access to therecruitment platform. |
| **Level** | User use case |

| | |
|---|---|
| **Parameters** | **Input:** user login details<br>**Output:** The recruitment platform homepage |
| **Pre-Conditions** | All users must:<br>a) Have valid user account.<br>b) Have working Internet connection. |
| **Post-Conditions (Success End)** | If use case is successful, user is granted access to the System. |
| **Post-Conditions (Failed End)** | If use case is not successful, access is not granted |
| **Trigger** | Loading the URL into the web browser |
| **Extension points** | None |

Table 3.1 User Authentication use case Narrative

### 3.4.5 Job provider use case narrative

This section displays the job provider use case narrative alongside the use case diagram for the job provider module.

| | |
|---|---|
| **Use Case 3** | Job provider information page |
| **Brief Description** | This module gives the job provider the ability to view his or herinformation and also to edit it. |
| **Actor(s)** | Job providers |

| | |
|---|---|
| **Flow Of Events** | **Basic Flow:**<br>The use case begins when the user has successfully logged in to thesystem.<br>a) The Job provider is directed to the homepage from thelogin page where he/she can decide to direct to his/herinformation page.<br>b) The job provider can decide to update the information which he/she initially inputted when he/she registered.<br>c) System displays job seeker information.<br>d) Job provider can decide to post a job opening.<br>**Alternative Flow:**<br>If the job provider is not logged in he or she is redirected to thelogin page. |
| **Level** | User use case |
| **Parameters** | **Input:** session values<br>**Output:** the job provider information page. |
| **Pre-Conditions** | The job provider must have been successfully authenticated. |
| **Post-Conditions (Success End)** | If use case is successful, the job provider information page is displayed. |
| **Post-Conditions (Failed End)** | If use case is not successful, an error page is returned or in some cases the user is redirected to the login page. |
| **Trigger** | Webpage getting the correct session values |
| **Extension points** | None |

Table 3.2: Job provider

### 3.4.6 Sequence diagram

UML sequence diagrams are typically used for both inspection and configuration reasons. They visually depict the process of reasoning within your system, enabling you to report and approve your reasoning. The most well-known UML antecedent for element displaying, which focuses on identifying the behaviour of your system, is the sequence diagram.

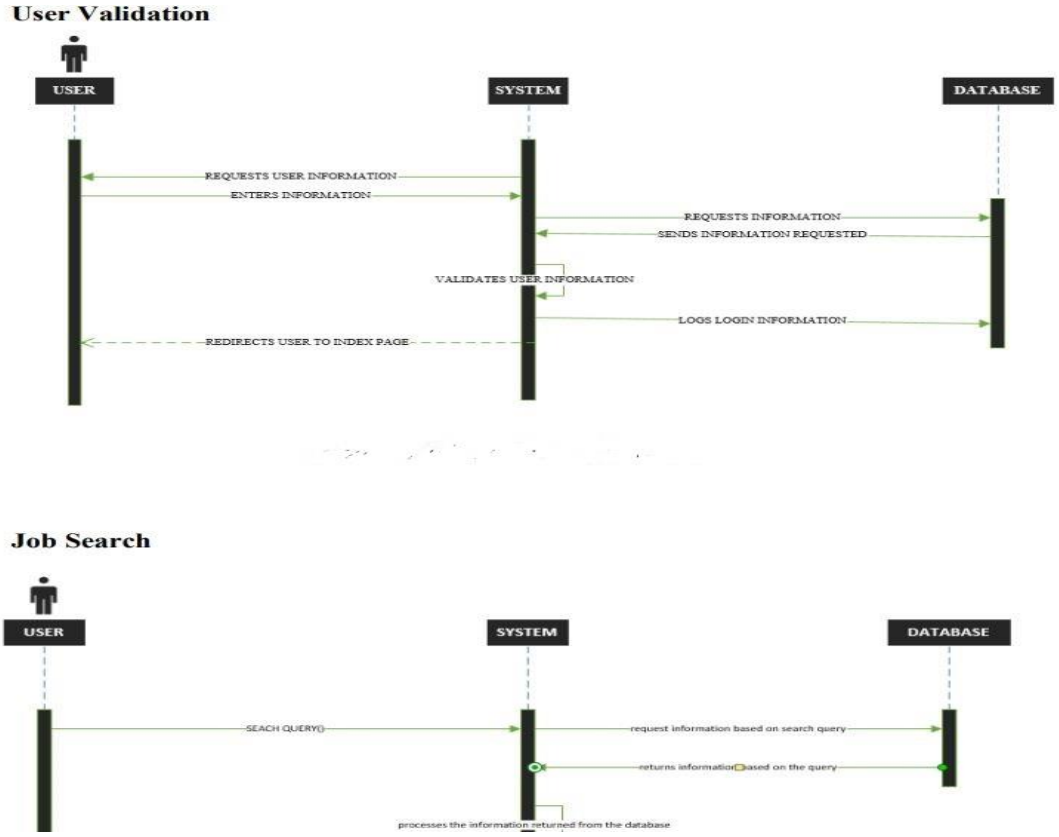


Fig. 3.2 Sequence Diagram

## 3.5 Design selection

The two basic forms of diagrams used in software development to model and visualise various parts of a system are data flow diagrams (DFDs) and class diagrams. Data flow diagrams (DFDs) are used to model data flow through a system. They demonstrate the flow of data between processes, how it is altered or saved, and how various system components use it. DFDs are helpful for understanding a system's high-level structure and spotting potential data flow bottlenecks or inefficiencies. Class Diagrams, on the other hand, are used to simulate the structure of a system. They display the various classes or types of objects that are present in the system, their relationships to one another, and their characteristics and behaviours. Class Diagrams are helpful

for designing or revising object-oriented code as well as for comprehending the connections and interconnections between various system components.

Although both DFDs and Class Diagrams are useful tools for software development, their functions are different. Class Diagrams are useful for modelling the structure of the system, but DFDs are excellent for understanding the flow of data through a system. One or both types of diagrams may be employed, depending on the specific requirements of the project. Data Flow Diagrams (DFDs) are helpful in designing project for a number of reasons, including:

a) **Visualize Data Flow**

   DFDs let you see how data moves throughout a system. This might assist you in figuring out how various system components handle, modify, and consume data. This is particularly useful for identifying potential inefficiencies or data flow bottlenecks while planning or revamping a system.

b) **Reduce Complexity:** DFDs can aid in reducing a system's complexity. You can more easily comprehend how the system functions as a whole by disassembling it into smaller, easier to manage components.

c) **Document System Requirements:** DFDs can be used to record system requirements. You may make sure that all needs have been found and are being satisfied by identifying the various data inputs and outputs for each component of the system.

d) **Support for Testing and Maintenance:** DFDs can be used to support system testing and maintenance. Understanding the data flow through the system can help you see potential issues and how to correct them.

## 3.6 Implementation Plan/Methodology

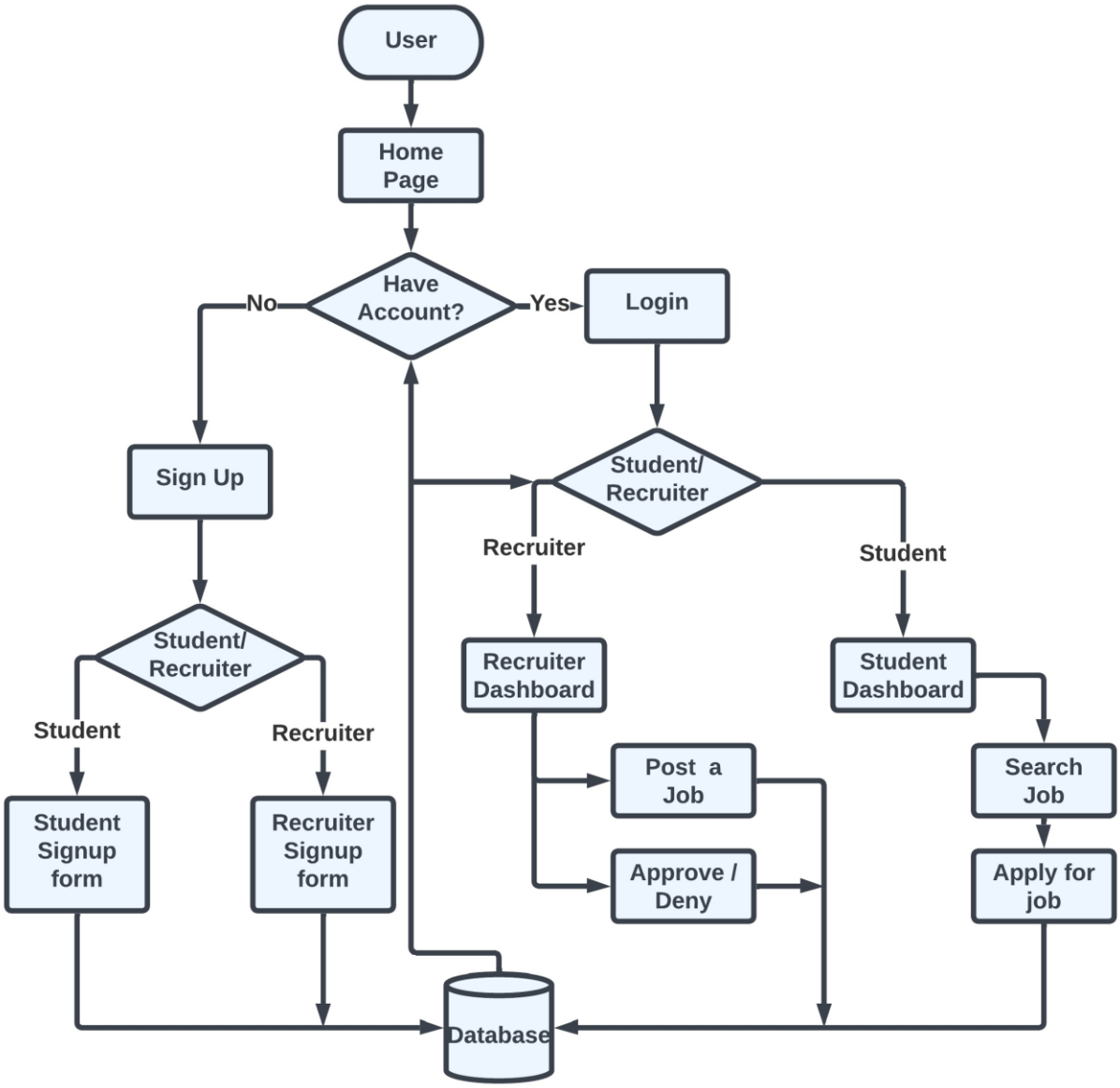


Fig. 3.3 Project Flow Chart

# CHAPTER 4

# RESULTS ANALYSIS AND VALIDATION

## 4.1. Implementation of solution

### 4.1.1 Implementation tools

The Tools implemented in the system include

**a) HTML**

The markup language known as HyperText Markup Language instructs web browsers on how to organize the online pages you view. It can be as complex or straightforward as the site developer desires. HTML consists of a number of elements that you may employ to enclose, wrap, or markup various content components to alter how they seem or behave.

**b) CSS**

CSS, also referred to as cascading style sheets, is a crucial component of contemporary web development. By separating information from design, this HTML tool offers simple control over the organization and display of website pages.

**c) JavaScript**

A small, interpreted, or just-in-time compiled programming language containing first-class functions is called JavaScript (JS). Many non-browser contexts, like Node.js, Apache CouchDB, and Adobe Acrobat, employ it even though it is best recognized as the scripting language for Web pages. JavaScript is a dynamic, prototype-based language that supports object-oriented, declarative (like functional programming), and imperative programming paradigms.

**d) MongoDB**

The database management system MongoDB offers a NoSQL substitute for conventional databases like SQL. Non-relational databases are particularly helpful for developers who work with unstructured, distributed data, even if SQL is wonderful when used with structured data. MongoDB is a useful collection of features and tools that can handle text and document management, data archiving, and quick transmission and retrieval.

**e) NodeJS**

Developers can run JavaScript code on the server-side using NodeJS, an open-source, cross-platform JavaScript runtime environment. It is based on the V8 JavaScript engine from Google.

For the purpose of developing real-time applications, NodeJS offers an event-driven, non-blocking I/O paradigm that is both extremely scalable and effective.

### 4.1.2 Interfaces and modules

**a) Landing Page**

When someone tries to access your website, they first arrive at a landing page. A landing page, but one without a form. The call to action button will be the only clickable element on this page. However, you must have an optimized landing page that complies with all landing page best practices in order for the conversion to really occur.

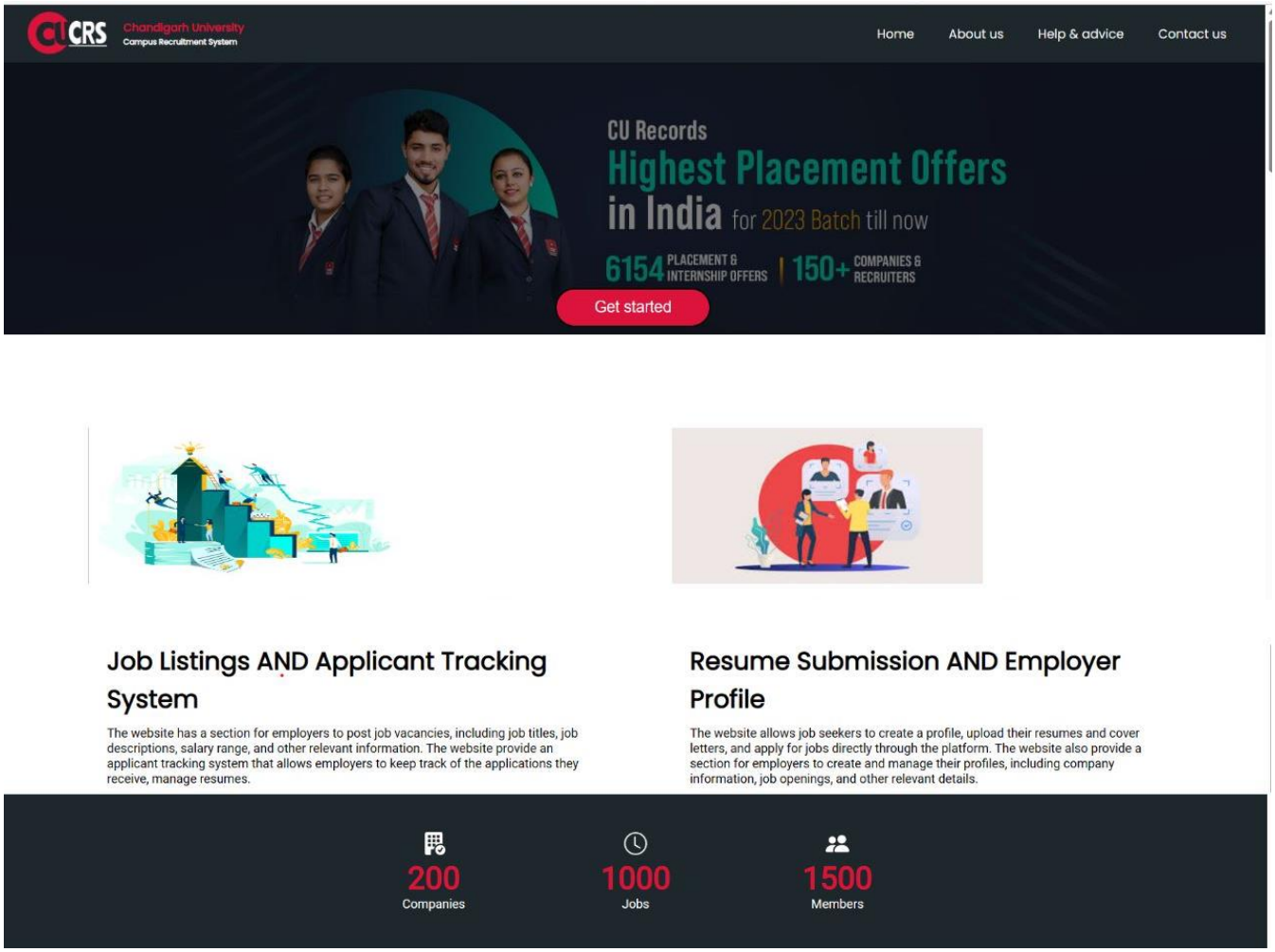


Fig. 4.1 Landing Page

**b) Login Page**

The login page is a staple of all secure applications and is frequently used online to verify user identity before displaying the secured sections of web apps. As an illustration, Facebook requires authentication before granting you access to their platform. A unique website page called Login Page is used for user authentication. You must first input your credentials into the Login screen, which the application will validate before presenting you with the secured portion of the application.

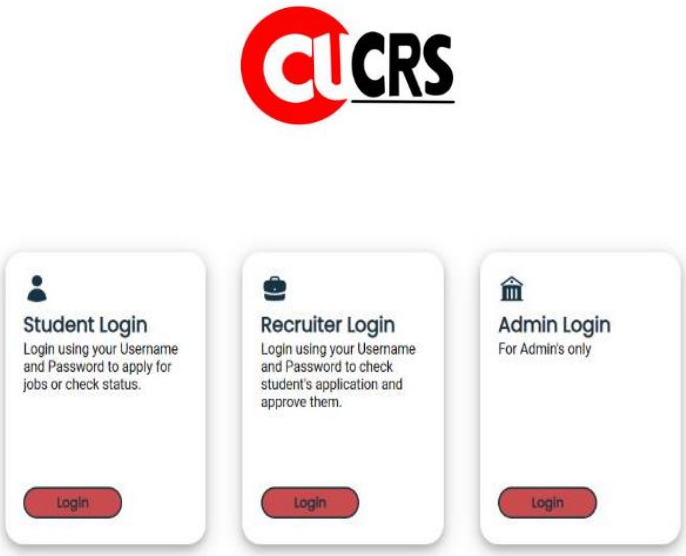


Fig. 4.2 Login Page

**c) Student's Dashboard**

After opening a candidate account and being successfully authenticated by the login platform for the application, the user is brought to this screen. The most recent job listings are shown on this page, which also includes a list of the information which is on the platform. This page also has a contact us section with information found on the platform.

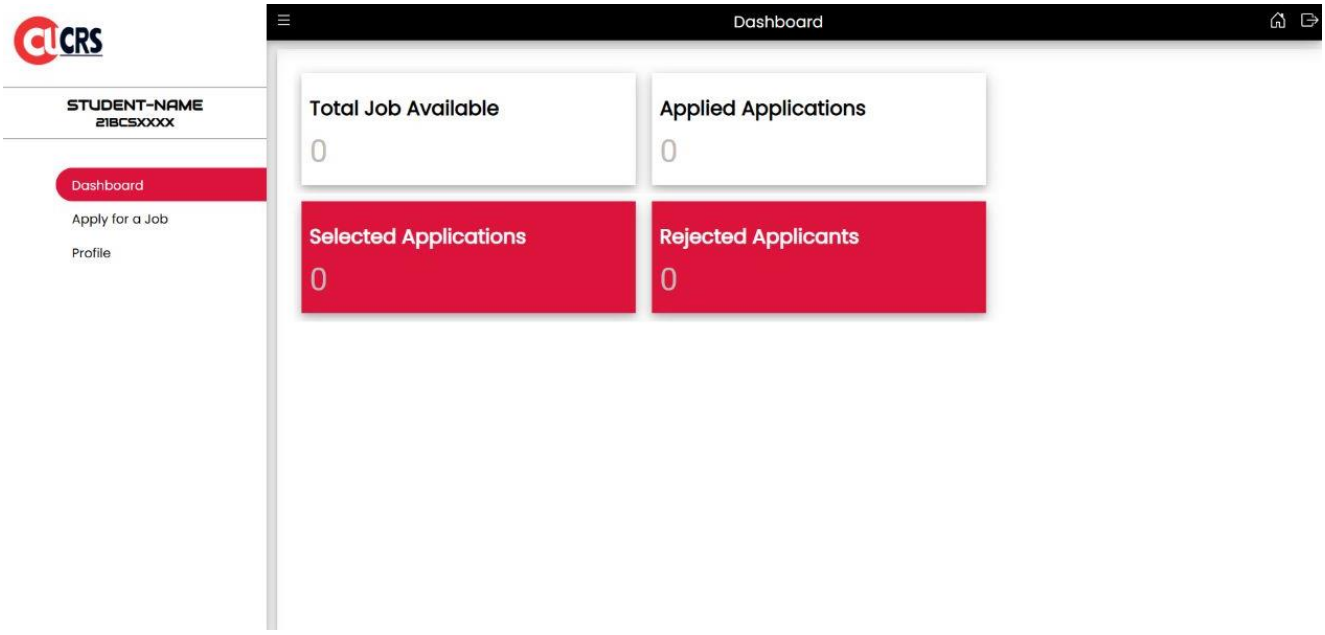


Fig. 4.3 Student's Dashboard

### d) Recruiter Dashboard

Only companies that have registered on the platform and are actively logged in to the platform are able to access this page, which is where the jobs that the candidate has viewed are created. The companies are able post.

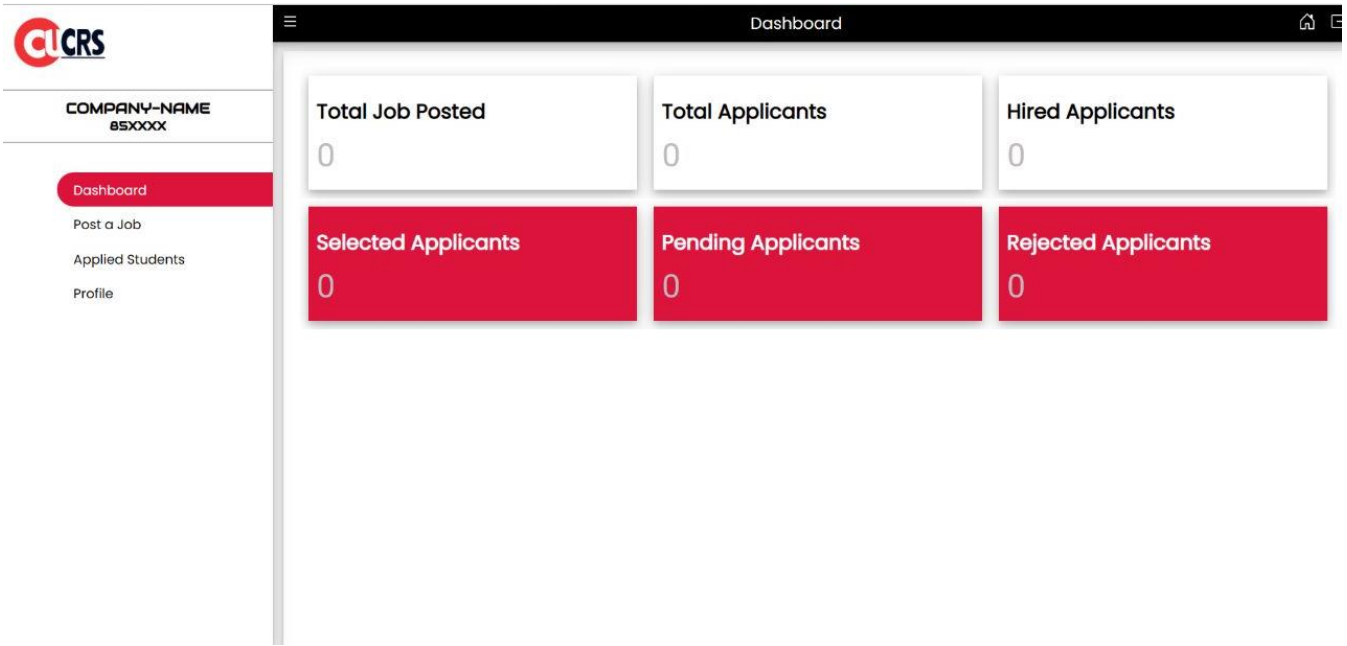


Fig. 4.4 Recruiter's Dashboard

**e) Registration Form**

The company and the students who are interested in joining the platform register on these pages, where they have the option of using their email as the username and can also enter the password they prefer to use to log in to our CUCRS platform.

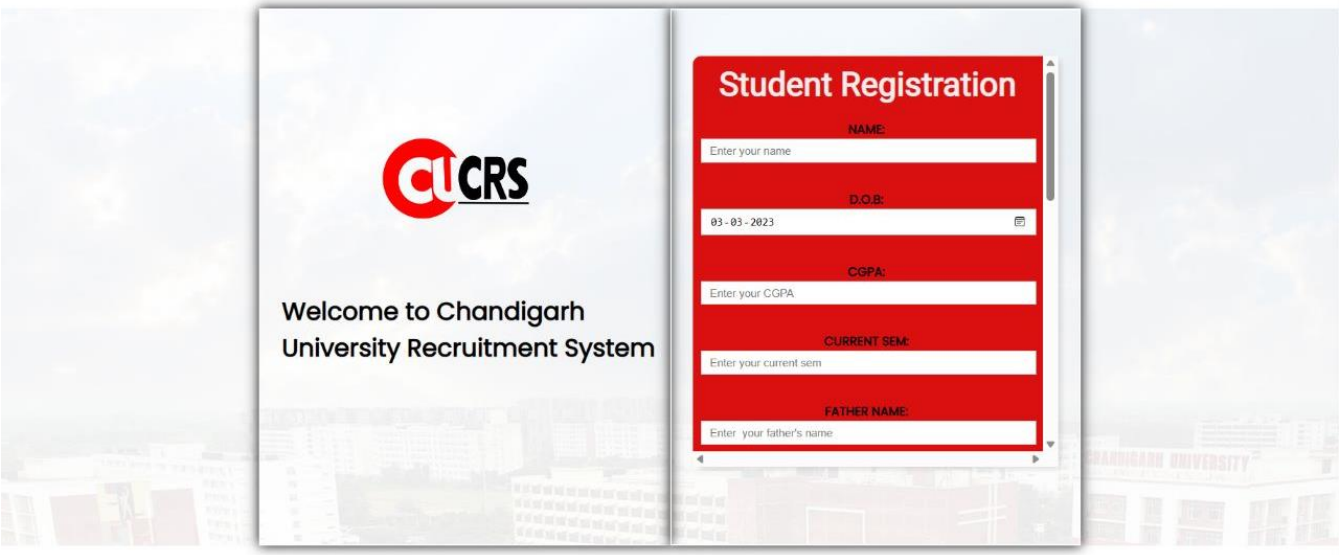


Fig. 4.5 Registration form

## 4.2 Testing

### 4.2.1 Unit Testing

Designing test cases for unit testing ensures that the core program logic is working correctly and that program inputs result in legitimate outputs. It is important to verify the internal code flow and all decision branches. It is the testing of the application's separate software components. Before integration, it is done following the completion of each individual unit. This is an invasive structural test that depends on understanding how it was built. Unit tests carry out fundamental tests at the component level and examine a particular configuration of a system, application, or business process. Unit tests make assurance that each distinct path of a business process adheres precisely to the stated specifications and has inputs and outputs that are well-defined. There are three techniques to accomplish this

**a) Black box testing:** This method of testing is used to cover input, user interface, and output unit tests.

**b) White box testing:** By providing input and examining the functionality output, including the

internal design structure and code of the modules, white box testing is a technique used to test the functional behaviour of a system.

c) **Grey box testing:** It is a way for running pertinent test cases, test methods, and test functions as well as for examining the performance of the code for the module

### 4.2.2 Integration Testing

Software components that have been merged are tested in integration tests to see if they genuinely operate as a single program. Event-driven testing is more interested in the fundamental consequence of screens or fields. Even though the individual components were successful in unit testing, integration tests indicate that the combination of the components is accurate and consistent. Integration testing is especially designed to highlight issues that result from combining components.

The ways by which we can perform integration testing are as follows-

a) **Bottom-Up Method:** With this approach, testing of the lower-level modules is necessary before moving on to testing of the higher-level modules. Up until each top-level module is tested, the procedure is repeated. The next level of modules is generated after all the lower-level modules have been successfully tested and integrated.

b) **Top-Down Approach:** The top-down strategy, in contrast to the bottom-up approach, evaluates the higher-level modules first before moving down to the lower-level modules. If any lower-level modules aren't ready, testers can use stubs.

c) **Hybrid Testing Method:** Another name for this approach is "sandwich testing." It entails integrating lower-level modules with top-level modules, testing top-level modules and lower-level modules simultaneously, and testing the system as a whole. So in essence, this procedure combines top-down and bottom-up testing methods.

### 4.2.3 Functional Testing

Functional tests offer methodical proof that the functions being tested are available in accordance with the technical and business requirements, system documentation, and user manuals. Focus of functional testing is on the following areas.

a) **Valid Input:** Recognized valid input classes must be accepted.

b) **Unacceptable Input:** Recognized categories of unacceptable input must be rejected.

c) **Functions:** It is necessary to use the listed functions.

d) **Output:** Specific application output classes must be put to use.

e) **Systems/Procedures:** It is necessary to call interacting systems or processes.

The planning and execution of functional tests are centred on requirements, essential operations, or unique test scenarios. Additionally, testing must take into account systematic coverage of data fields, established procedures, and subsequent processes as well as business process flows. Additional tests are found, and the usefulness of the existing tests is assessed, before functional testing is finished.

### 4.2.4 System Testing

System testing is a type of software testing done on an entire integrated system to determine whether it complies with the necessary requirements. Integration testing successful components are used as input during system testing. Integration testing's objective is to find any discrepancies between the integrated units. System testing finds flaws in the integrated modules as well as the entire system. A component or system's observed behaviour during testing is the outcome of system testing. System testing is done on the entire system under the guidance of either functional or system requirement specifications, or under the guidance of both. The design, behaviour, and customer expectations of the system are all tested during system testing. Beyond the parameters specified in the software requirements specification (SRS), it is used to test the system. In essence, system testing is carried out by a testing team that is separate from the development team and helps to objectively assess the system's quality. It has been tested in both functional and non-functional ways.

## 4.3 Unit Test Implementation

We started unit testing by starting with the functionality of our Landing Page(Home Page) in Isolation because in unit testing every module is to be tested individually independent of each other. We divided unit testing of each module of our website in three phases.

**Arrange** is a unit test application starts with this. Here, we will set up the test, in other words, we will complete the required test configuration. For instance, in order to run the test, we must first create an object of the desired class, and if necessary, we must also build dummy objects and initialize additional variables.

**Act** is a unit step application's middle step. We will run the test in this stage. In other words, we will perform the real unit testing, and the test application will provide the results. In essence, we will use the object we built in the previous step to call the specified function in this step.

**Assert** The unit test application comes to this stage at the end. This phase involves comparing the returned result to what was anticipated.

For unit test to run properly we followed FIRST principle within unit test methodology

**F-fast** Fast unit testing is the optimal kind anything less is not a unit test. Unit tests must swiftly evaluate the performance of the code without relying on external dependencies like databases or other services.

**I-isolation** for the unit tests to produce the desired results, they must run independently and without interfering with one another. Unit tests should be able to be executed by developers at any time and in any order.

**R-repeatable** Every time a unit test is performed, it must produce the same outcome.

S-self-validating: There is no need for the developer to manually evaluate the findings because unit tests must be designed to determine whether they pass or fail.

**T-timely** Unit tests should be created as soon as possible to verify the code once it's most necessary.

Following these 3 steps and FIRST principle we tested all of our modules and got satisfactory results.

Brief explanation of unit testing of individual modules

a) **Landing Page (Home Page):** It has logo of information about placement records of our college like highest placement and number of companies visited till now in this academic year. Then, benefits of choosing our website over others. Then, the page also contains testimonials of placement record of college. All the parameters that we have coded for this module are working fine and arranged in desired order.
b) **About Us Section:** It has all the information regarding our website and after implementing the codes we get what we wanted.
c) **Help and Advice:** Then we have help and advice desk which is intended to support help the visitors who are new to our website. So, that they can take benefit efficiently. After implementing the codes, we got the desired result.
d) **Contact Us:** Then there is contact us section so that when some user needs help from our side

they can contact us and take help from us through provided phone number, email or fax number on which mode they want to contact us. After executing the code, we were able to see on the website what our intended output was.

e) **Login Section:** Then we planned to build login for different types of user of our website (student, companies and admin). So, that they can login into their account and further work on their area like student can apply to companies, companies can post their job and admin can monitor the activities on the website. After executing the code, we were able to perform all the logins of different types of users. This unit worked as intended.

f) **Student Login:** Our next module is student login section in which we can login through UID and password. After login student can see their dashboard. In dashboard section they can see total job available, applied applications, selected applications and rejected applications. They have their profile section also where they can see their details which have been taken by the website through registration of the student which is a module present in the dashboard. They can also apply to job which have been posted by the companies. All the intended things were present and working fine so the testing of this unit is successful.

g) **Recruiter Login:** Then there is module of recruiter which are having login and registration option (for those companies which haven't registered yet) on our website. The recruiter can login through their registered email and password. The registration option has company name, owner name, company mailing address and city of their main office. With regarding to their company they can see how many students have registered for the job role they have posted. They can also see hired applicants, pending applicants and rejected applicants. Then there is option to post a job in the dashboard and they have to fill the further information regarding the job. They have to give title for the job, job type, job description, minimum qualification required, skills needed, job location, expected salary, entry date, last date to apply for the job and each and every details regarding to the job.

During testing we were able to first register and then login through email and password which we set. We were able to post a job and also see the applications which we received for the job. We got the desired output after implementing our code.

# CHAPTER 5

# CONCLUSION AND FUTURE WORK

## 5.1 Conclusion

In conclusion, the development and implementation of the campus recruitment website have proven to be a significant milestone in enhancing the efficiency and effectiveness of the recruitment process. Through this project, we have successfully created a user-friendly platform that connects job seekers and employers, streamlining the entire hiring process. The website offers several key features such as job posting, resume submission, and which provide a seamless experience for both recruiters and candidates. The intuitive user interface and comprehensive database enable recruiters to access a wide pool of talented individuals from various educational institutions, while candidates can explore diverse job opportunities and showcase their skills. Throughout the project, we faced various challenges, including database management, security measures, and ensuring a smooth user experience across different devices. However, with meticulous planning and continuous testing, we were able to overcome these obstacles and deliver a robust and reliable website. The campus recruitment website has immense potential to revolutionize the traditional recruitment methods by reducing manual paperwork, minimizing the time and cost involved in hiring, and facilitating better communication between recruiters and candidates. It also promotes equal opportunities for all students by providing a centralized platform for job openings, irrespective of their geographical location or institutional affiliations. As future enhancements, we recommend incorporating features such as AI-based resume screening, personalized job recommendations, and alumni engagement to further enhance the website's capabilities and provide a more tailored experience for both recruiters and candidates. Overall, the campus recruitment website project has been a remarkable success, and its impact on the recruitment process cannot be underestimated. It has opened up new avenues for collaboration between educational institutions and industries, fostering a seamless transition from academia to the professional world. We are confident that this website will continue to evolve and play a pivotal role in shaping the future of campus recruitment.

## 5.2 Future Work

The following could be included in upcoming work on a campus recruitment management (online) system

a) **Improved User Experience:** Constantly working to make the system easier to use, more accessible, and intuitive across a variety of platforms.

b) **Integration with Social Media Platforms:** The system will be integrated with well-known social media sites so that recruiters and students may connect, share job listings, and engage with one another.

c) **Advanced Analytics and Reporting:** Including data analytics capabilities to give information and reports on student performance, job placement rates, and other pertinent metrics, including recruiting patterns. Making data-driven decisions and streamlining the hiring process are both aided by this.

d) **AI-Powered Candidate Matching:** Employing algorithms that use artificial intelligence to match candidates' preferences, abilities, and qualifications with job needs, improving the likelihood of successful placements.

e) **Mobile Application:** The system will be developed as a mobile application, allowing recruiters and students to access and manage recruitment efforts while on the go.

f) **Integration with Alumni Networks:** Using the system's linkages with alumni networks to take advantage of employment openings, mentoring initiatives, and career advice.

g) **Virtual Career Fairs and Events:** Increasing the system's capacity to offer online career fairs, webinars, and networking occasions, enabling recruiters and students to connect and communicate over distance.

h) **Workflow and automation automated:** Putting automated features to use to expedite repetitive operations, such scheduling interviews, checking resumes, and following up with candidates. This increases efficiency and lowers manual labour.

i) **Integration with Learning Management Systems:** By integrating with learning management systems, which educational institutions utilize to access student academic records, certifications, and skill tests, an in-depth picture of a candidate's profile can be obtained.

j) **Enhanced Security and Data Privacy:** Strengthening system security measures to protect user data, comply with privacy regulations, and ensure the confidentiality of sensitive

information. Regular security audits and updates should be performed to stay ahead of potential vulnerabilities.

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