Stage: **F1**

Group symbol: **K02-20c**

Team: **1**

Project title: **Placement Management System**

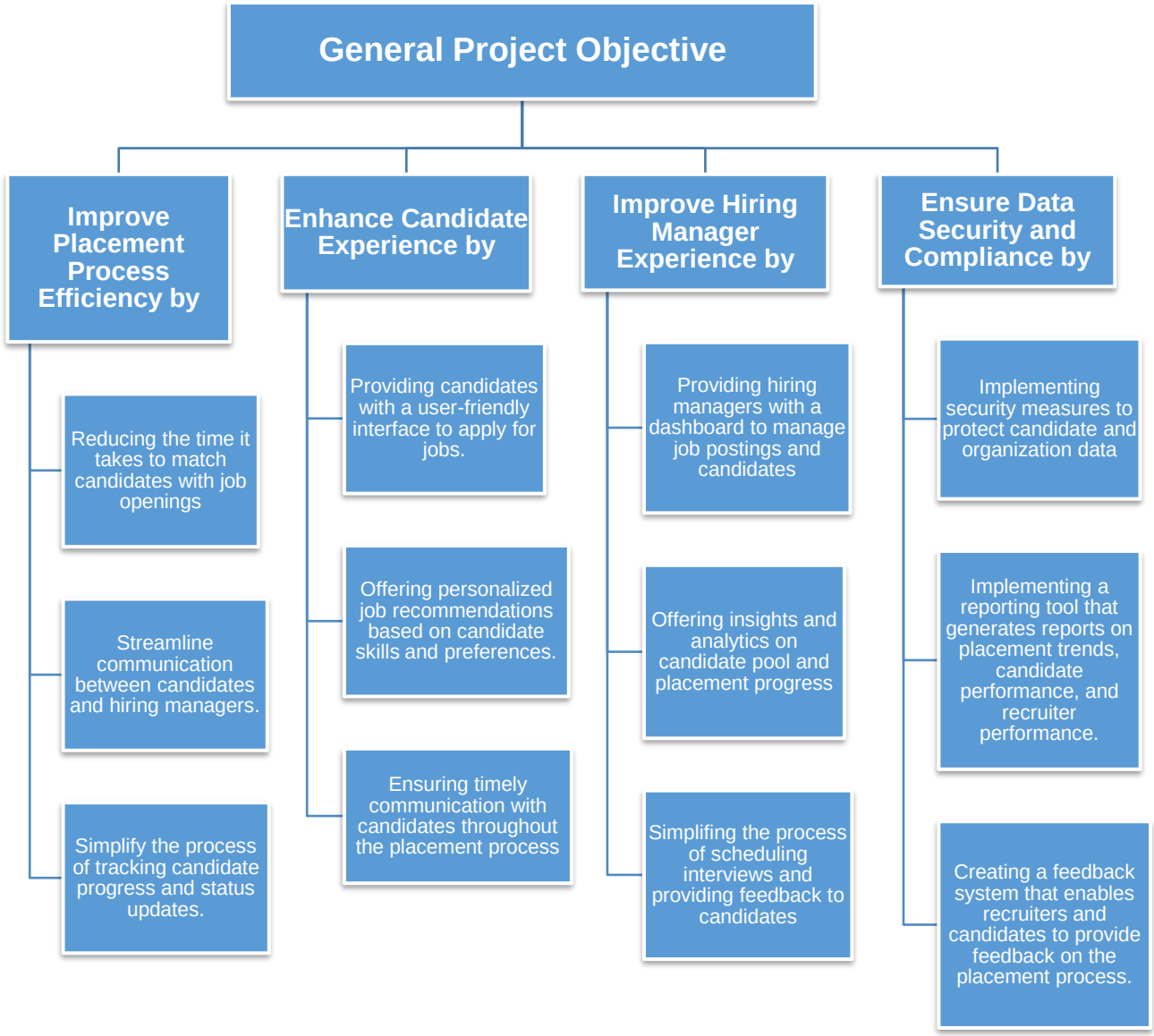
Team members :

No	Name	Surname	Student ID	Role
1	Krishna Mukesh	Patel	270446	PM, Team Leader
2	Tiago	Fernandes	270439	Team Member

1. Elaboration of application concept (F1)

1.1. Project (business) goals

General Project Objective is to Develop a Placement Management System that helps educational institutions manage student placements efficiently.



Each of these objectives is relevant to the project and important from the perspective of end-users. They are also achievable, measurable, and realistic within the constraints of the project.

1.2. Identification of the project's external Stakeholders

Identify the role of each **external** stakeholder in the project, along with a textual description.

Sr. No.	Name	Role	Description
1	Student	The primary role of students in the system is to use the system to apply for university placements and manage their applications. Students may also provide feedback on the system's usability and suggest improvements to the system.	Students are one of the primary external stakeholders of a university placement system as they are the end-users of the system.
2	Universities /Colleges	They use the university placement system to post available placements, review student applications, and communicate with students about the status of their applications. Universities and colleges may also provide feedback on the system's effectiveness in helping them manage the placement process.	Universities and colleges are the entities that provide placement opportunities for students.
3	Employers/ Recruiter	Employers/Recruiters may use the system to post available placements and review student applications. They may also provide feedback on the quality of applicants and the effectiveness of the system in helping them find suitable candidates.	Employers may also be external stakeholders of the university placement system, particularly if they offer internships or work placements to students
4	Government Agencies	Government agencies may use the system to gather data on university placements and to monitor the effectiveness of the system in helping students find suitable placements.	Government agencies may be interested in the university placement system, particularly if they are involved in funding higher education or monitoring the quality of higher education.

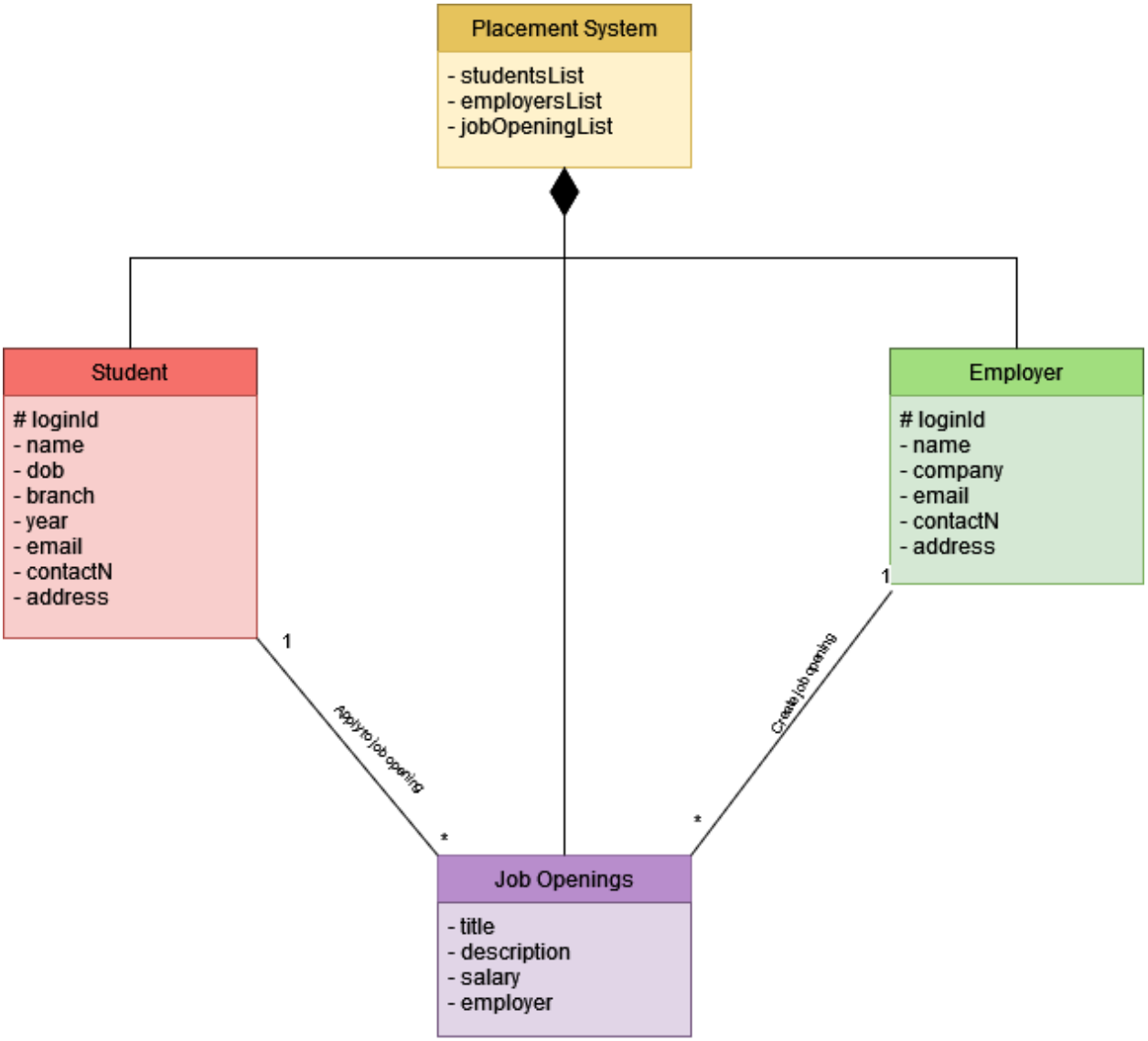
1.3. Domain description

- **Description of phenomena in the application domain:**

The Placement Management System is a platform designed to facilitate the process of managing student placements in various organizations, such as companies, non-profits, and government agencies. The system provides a centralized platform for students to search and apply for placements, for employers to post placement opportunities and review applications, and for administrators to manage the placement process and oversee the interactions between students and employers.

The following phenomena can be observed in this domain:

- ✓ Students can search for placements based on their interests, skills, and academic background.
- ✓ Employers can post placement opportunities and review applications from students.
- ✓ Administrators can manage the placement process, monitor the progress of placements, and communicate with students and employers.
- ✓ Students can apply for placements by submitting their resumes, cover letters, and other supporting documents.
- ✓ Employers can provide feedback on students' performance during placements.
- ✓ Students can receive academic credit and gain practical work experience through placements.



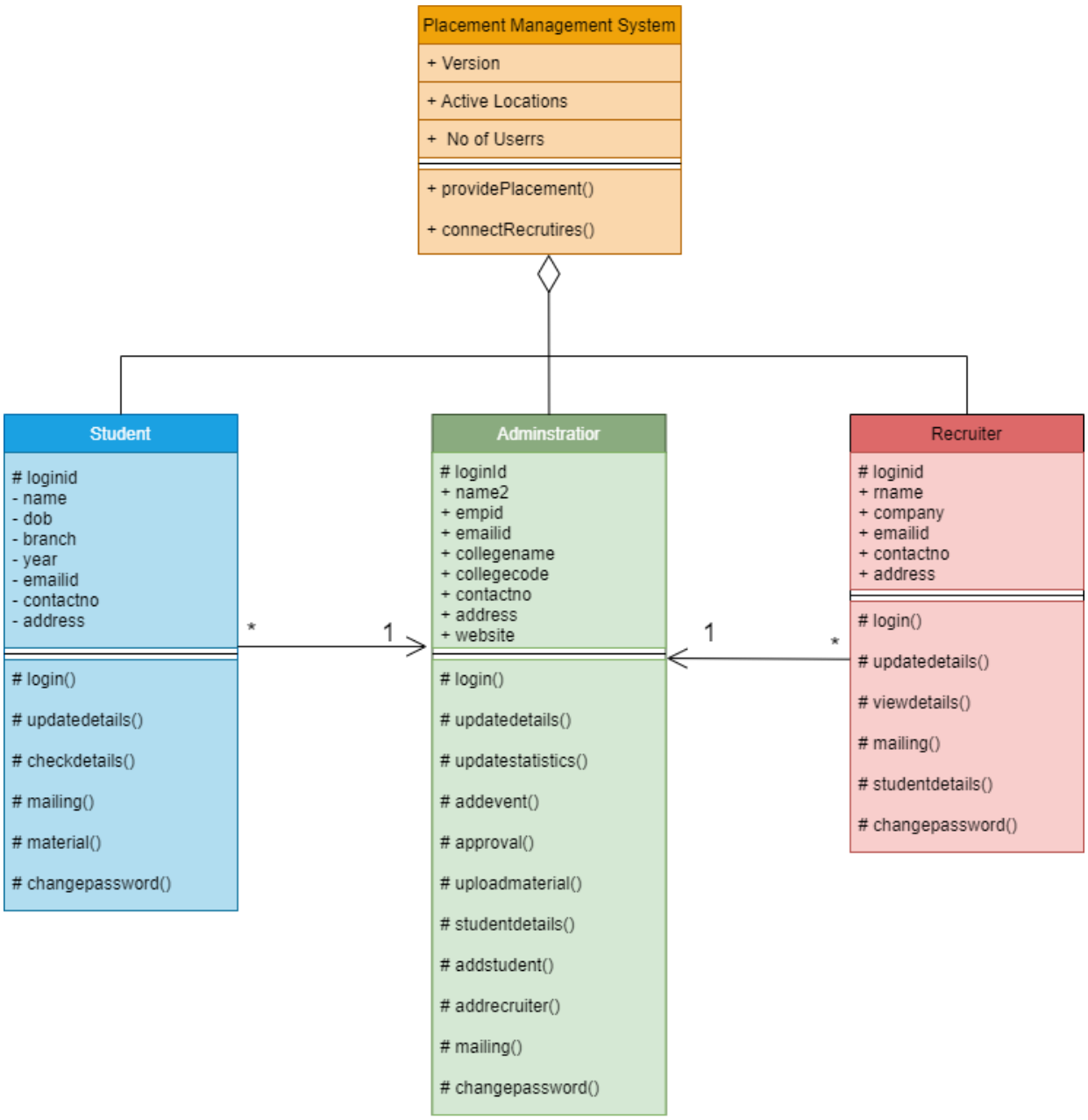


Fig 1.1 Class Diagram

- **Entities:**

✓ Placement Management System: The main entity in the system that manages all the placements.

✓ Student: An entity that represents a student who is looking for a placement opportunity.

✓ Administrator: An entity that represents an administrator who manages the system and has access to all the data.

✓ Recruiter: An entity that represents a recruiter who is looking to hire students for placements.

- **Relationships:**

✓ The Placement Management System manages the Student, Administrator, and Recruiter entities.

- ✓ The Administrator entity has access to all the data in the system, including the Student and Recruiter entities.
- ✓ Many-to-One between Student and Administrator: Each student is assigned to one administrator, who manages their placement process.
- ✓ Many-to-One between Recruiter and Administrator: Each recruiter is assigned to one administrator, who manages their job postings and hiring process.

- **Events:**

- ✓ Student registers in the system: When a student registers in the system, their details are added to the student entity.
- ✓ Administrator approves student registration: When an administrator approves a student's registration, the student's status is updated in the Student entity.
- ✓ Recruiter posts job opening: When a recruiter posts a job opening, the details of the opening are added to the Recruiter entity.
- ✓ Administrator approves job posting: When an administrator approves a job posting, the job opening status is updated in the Recruiter entity.
- ✓ Student applies for job opening: When a student applies for a job opening, the details of their application are added to the Student entity.
- ✓ Recruiter reviews student applications: When a recruiter reviews student applications, the details of the application status are updated in the student entity.
- ✓ Recruiter hires student: When a recruiter hires a student, the details of the hiring process are updated in the Student and Recruiter entities.
- ✓ Administrator monitors placement process: The administrator can monitor the placement process for each student and recruiter through the Student and Recruiter entities.

1.4. Project schedule (Gantt chart)

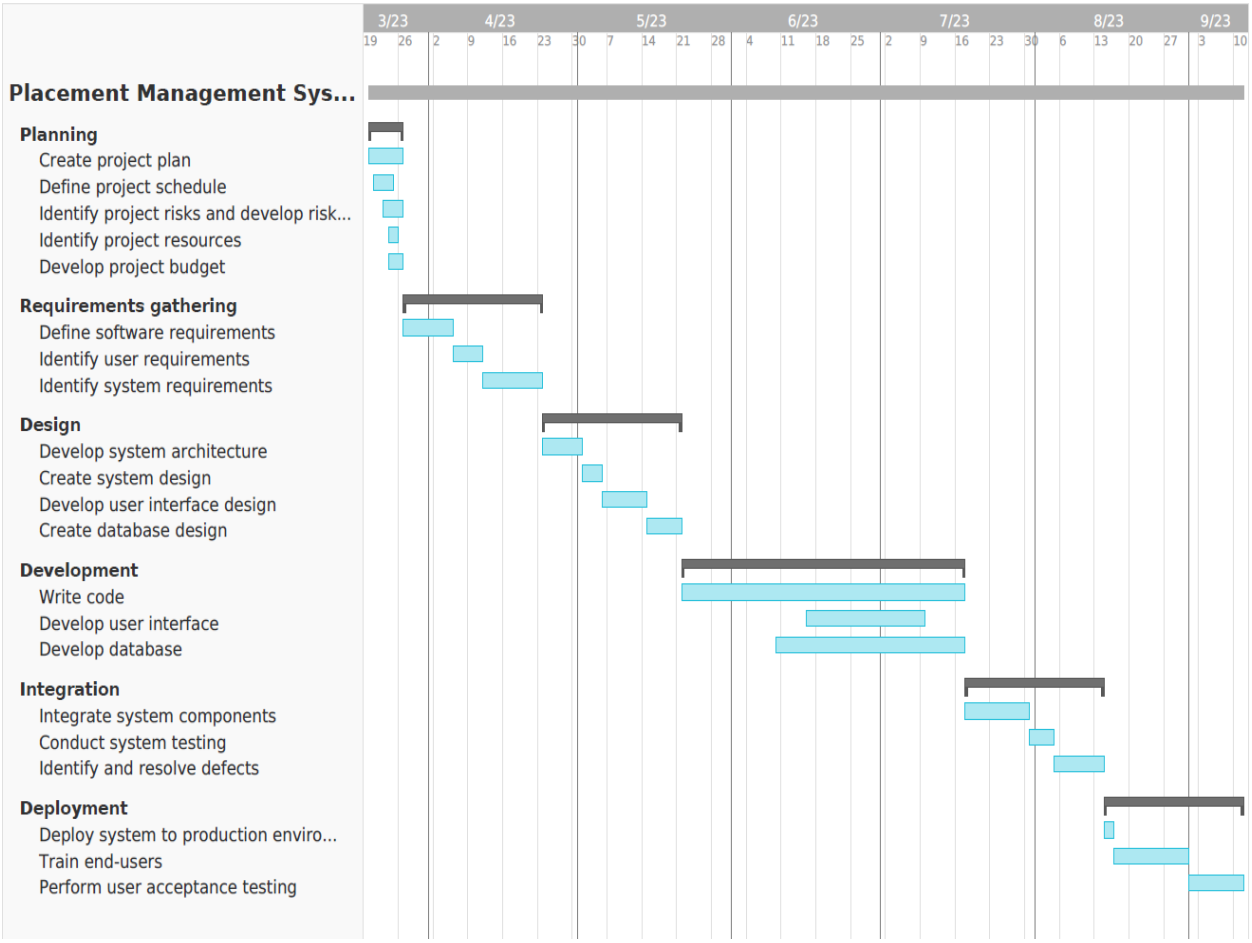


Fig 1.1 Gantt Chart

Milestones

1. **Project completely planned:** All stages, goals and objectives clearly defined including scheduling and dependencies between phases.
2. **Requirements defined:** Including software, user and system requirements.
3. **System designed:** Design requirements, such as system, UI and DB should be almost completely designed (changes may occur in the future).
4. **System developed:** Before testing, the system must have all planned functionalities and must be functional.
5. **System tested and with minimum errors:** System components integrated and run all tests. After testing, resolve the remaining bugs.
6. **System deployed and project completed:** System deployed and available to the public.

Dependencies in the schedule

Planning

- Create project plan (must be completed before defining project schedule)
- Develop project schedule (must be completed after creating project plan)
- Identify project resources (must be completed before developing project budget)

Requirements gathering

- Define software requirements (must be completed before developing system architecture)
- Identify user requirements (must be completed before developing user interface design)
- Identify system requirements (must be completed before developing system architecture)

Design

- Develop system architecture (must be completed before creating system design)
- Create system design (must be completed before development)

Development

- Write code (must be completed after creating system design)
- Develop user interface (must be completed after developing user interface design)
- Develop database (must be completed after creating database design)

Integration

- Conduct system testing (must be completed after integrating system components)

Deployment

- Deploy system to production environment (must be completed after conducting system testing and identifying and resolving defects)
- Perform user acceptance testing (must be completed after training end-users)

1.5. Identification of existing or alternative solutions

Here are some examples of existing or alternative solutions for the Placement management system.

1. **Job Board Software (JBS):** JBS is a customizable job board software that can be used for university placement management.
    - Features include job listing and management, applicant tracking and management, and employer management.
    - Advantages: It is customizable and can be integrated with existing university websites, has a user-friendly interface, and provides advanced search and filtering options for job listings.
    - Disadvantages: It may require technical expertise to set up and maintain, and some users may find the interface complex.

2. **Owiwi:** Owiwi is a web-based talent assessment and recruitment platform.
    - Features include game-based psychometric assessments, talent matching, and recruitment management tools.
    - Advantages: It uses innovative assessment techniques, provides a user-friendly interface, and offers detailed analytics and reporting tools.
    - Disadvantages: It may not be customizable to fit the specific needs of individual universities, and it can be expensive.

3. **SmartRecruiters:** SmartRecruiters is a cloud-based recruitment software.
    - Features include job posting and management, candidate management and tracking, and analytics and reporting tools.
    - Advantages: It is user-friendly, provides customizable workflows and templates, and offers integrations with other recruitment tools.
    - Disadvantages: It can be expensive, and some users have reported technical glitches and slow performance issues.

4. **Zoho Recruit:** Zoho Recruit is a web-based recruitment software.
    - Features include candidate tracking and management, job posting and management, and collaboration tools.
    - Advantages: It is affordable, offers customizable workflows and templates, and provides integrations with other Zoho products.
    - Disadvantages: Some users have reported technical glitches and slow performance issues, and it may not offer as many advanced features as other solutions.

5. **Workable:** Workable is a cloud-based recruitment software.
    - Features include job posting and management, candidate tracking and management, and analytics and reporting tools.

- Advantages: It has a user-friendly interface, provides customizable workflows and templates, and offers integrations with other recruitment tools.
- Disadvantages: It can be expensive, and some users may find the interface overly simplistic.

1.6. Project context

- **Application context:** The Placement Management system is a software application designed to help universities manage their placement processes. The system would automate tasks such as posting job vacancies, processing student applications, and tracking student progress during the placement period. It would also provide analytics and insights to help universities optimize their placement process. This system can be used by students, university placement officers, and potential employers.

- **Technological context:** The project would use HTML, CSS, and JavaScript as the primary technologies for front-end development. The back-end development would use PHP

  and MySQL as the primary technologies. The system would be deployed on a web server and accessible via a web browser. The system would also integrate with various APIs, such as job portals and career services, to fetch and post data.

- **Organizational context:** The Placement Management system would be designed for universities that have a placement program. It would help universities streamline their placement processes and improve the overall student experience. The system would be customizable to meet the unique needs of different universities. The stakeholders in this project would include students, universities, employers/recruiters, government agencies, etc

- **Legal context:** The system would need to comply with data protection laws such as GDPR and CCPA. It would also need to ensure the security of user data and prevent unauthorized access. The system would also need to ensure that it does not discriminate against any group or individual based on any protected characteristic, such as race or gender.

- **Important aspects of the product:**
  The product will be user-friendly and easily accessible to students, placement officers, and potential employers. The system will be scalable and able to handle a large number of users and data. It will also be customizable to meet the unique needs of different universities. Security and data protection will be given utmost importance. The system will also provide meaningful insights and analytics to help universities optimize their

placement processes. The system will be compliant with data protection laws and prevent discrimination.

- **Constraints of the project:**
  The project may face constraints such as limited budget and resources, technical limitations, and legal regulations. The project may also face challenges in integrating with various APIs and ensuring compatibility with different web browsers and devices.

- **Chances for development:**
  The project has a high potential for development as it addresses a critical need for universities. The system would help universities streamline their placement processes and improve the overall student experience. The use of HTML, CSS, and JavaScript for front-end development makes it more attractive to potential clients. The system can be customized to meet the unique needs of different universities, which would make it more attractive to potential clients. The project can also leverage various APIs to enhance its functionality and provide better insights to users. The project has a high potential for growth and expansion as universities across the world would require such a system.

1.7. Technologies used in the project.

The technologies used in the Placement Management System project are as follows:

1. **HTML (Hypertext Markup Language):** HTML is a markup language used to create web pages. It is the standard language used for creating web pages and is supported by all web browsers. HTML provides the basic structure and layout of web pages. It is responsible for defining the content of the web page, such as text, images, and links.

   - Justification: HTML is the most widely used markup language for creating web pages. It is supported by all web browsers and provides the basic structure and layout for web pages.

   - Key responsibilities in the project: Front-end development.

   - Link to the technology description: https://developer.mozilla.org/en-US/docs/Web/HTML

2. **CSS (Cascading Style Sheets):** CSS is a style sheet language used for describing the presentation of web pages. It is responsible for defining the layout, colors, fonts, and other visual aspects of web pages. CSS is used to separate the content of the web page from its presentation, making it easier to maintain and update the website.

   - Justification: CSS provides a simple and efficient way to style web pages. It separates the presentation from the content, making it easier to maintain and update the website.

- Key responsibilities in the project: Front-end development.
- Link to the technology description: https://developer.mozilla.org/en-US/docs/Web/CSS

3. **JavaScript:** JavaScript is a programming language used for creating interactive and dynamic web pages. It is responsible for adding interactivity and dynamic behaviour to web pages. JavaScript can be used for validating user input, manipulating the DOM (Document Object Model), and creating animations and visual effects.
   - Justification: JavaScript is a versatile and widely used programming language for web development. It allows for the creation of interactive and dynamic web pages.
   - Key responsibilities in the project: Front-end development.
   - Link to the technology description**:** https://developer.mozilla.org/en-US/docs/Web/JavaScript
4. **PHP (Hypertext Pre-processor**): PHP is a server-side scripting language used for creating dynamic web pages. It is responsible for generating dynamic content and interacting with databases. PHP is used to create web applications such as content management systems, e-commerce websites, and social media platforms.
   - Justification: PHP is a widely used server-side scripting language for web development. It is open-source and has a large community of developers.
   - Key responsibilities in the project: Back-end development.
   - Link to the technology description: https://www.php.net/
5. **MySQL**: MySQL is an open-source relational database management system. It is used for storing and retrieving data in web applications. MySQL is used to create databases, tables, and queries.
   - Justification: MySQL is a widely used open-source database management system. It is scalable, secure, and has a large community of developers.
   - Key responsibilities in the project: Back-end development.
   - Link to the technology description: https://www.mysql.com/

1.8. Project risks

Here are some potential risks that could impact the development of the Placement Management System project:

1. **Technical risks:**
    - Identification: Technical risks are risks that arise due to technological limitations or issues with the development environment. Examples include compatibility issues, security vulnerabilities, and performance issues.

    - Probability estimation: The probability of technical risks depends on the complexity of the project and the expertise of the development team. The more complex the project, the higher the probability of technical risks occurring.

    - Impact on the project: Technical risks can lead to delays in development, additional costs, and compromised functionality.

    - Timeframe: Technical risks can occur at any stage of the project and can have a significant impact on the timeline.

2. **Resource risks:**
    - Identification: Resource risks are risks that arise due to inadequate resources or resource constraints. Examples include insufficient budget, limited staffing, and lack of infrastructure.

    - Probability estimation: The probability of resource risks depends on the availability of resources and the scope of the project. If resources are limited or constrained, the probability of resource risks increases.

    - Impact on the project: Resource risks can lead to delays in development, reduced functionality, and compromised quality.

    - Timeframe: Resource risks can occur at any stage of the project and can have a significant impact on the timeline.

3. **Stakeholder risks:**
    - Identification: Stakeholder risks are risks that arise due to conflicts or disagreements among project stakeholders. Examples include differing opinions on project goals, lack of buy-in from stakeholders, and communication breakdowns.

    - Probability estimation: The probability of stakeholder risks depends on the complexity of the project and the number of stakeholders involved. The more stakeholders involved, the higher the probability of stakeholder risks occurring.

    - Impact on the project: Stakeholder risks can lead to delays in development, changes to project goals, and compromised quality.

- Timeframe: Stakeholder risks can occur at any stage of the project, but are more likely to occur during the planning and execution phases.

4. **External risks:**
   - Identification: External risks are risks that arise from external factors outside of the project team's control. Examples include changes in industry regulations, natural disasters, and economic downturns.

   - Probability estimation: The probability of external risks varies depending on the nature of the external factor. Some external risks are more predictable than others.

   - Impact on the project: External risks can lead to delays in development, changes to project goals, and compromised functionality.

   - Timeframe: External risks can occur at any stage of the project and can have a significant impact on the timeline.

1.9. Project costs estimation

It can be found in the file 1.9 Project Cost Estimation_xlsx