

**AAST:**

**ExternIT project**



**Extern** **IT**

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# Chapter 1: Introduction

## 1.1 Introduction:

Our project is about creating a system where companies can easily outsource tasks. Companies upload their tasks to the platform, and students can take on these tasks, complete them, and submit their work. The companies then review the submissions, choose the best one, and reward that student with payment. Other students who meet the task standards also get certified for their work, which helps them gain recognition and build their skills.

## 1.2 Motivation:

**For Companies:** Many businesses face challenges in finding cost-effective and creative solutions for their tasks. This platform provides a straightforward way to connect with talented students who can deliver innovative results.

**For Students:** Students often struggle to get practical experience that shows off their abilities. This platform gives them a chance to solve real-world problems, gain recognition, and enhance their resumes.

**For Both:** By connecting companies and students, this platform creates a win-win situation. Companies get quality work, and students get valuable experience and rewards.

## 1.3 Problem Definition:

Outsourcing is a common practice for companies in order to save time and cut some costs, but it is not as easy as it seems. A lot of businesses struggle with the proper selection of personnel, assurance of high-quality work, or effective process management. Traditional options such as freelancers or agencies are expensive and require a lot of effort.

But students have problems of their own. They want to get practice and show their skills, yet the chances to do that are limited. Most platforms don't recognize the effort of all contributors in a fair way. Usually, only a so-called "best" work is remunerated, while others who tried hard have nothing to show for it.

This project attempts to fill that gap. On one side, companies seek an easier and more accessible method of outsourcing their tasks, while students seek opportunities to learn, grow, and be acknowledged for their efforts. This project thus resolves problems on either side by creating a clear and open platform that favors companies and students alike.

## 1.4 Proposed System overview:

### 1.4.1 Objectives

Providing a platform that will connect the students with real-life projects in the field of study.

- Make it easier for companies to outsource tasks.
- Give students opportunities to gain experience and showcase their skills.
- Create a fair system for evaluating work and rewarding excellence.
- Recognize quality work by issuing certificates to students.

### 1.4.2 Scope

- **Primary Functions:** The platform will enable the easiest way of uploading tasks by companies, specifying their requirements, and reviewing student submissions. Companies will also be allowed to choose the best submissions for payment, and other submissions will receive feedback.
- **Student Engagement:** View available tasks, submit completed work, and check the status of submissions. They will get feedback on performance and a certificate for completion of tasks correctly done, including time spent on each task.
- **Task Evaluation System:** The platform will also provide a clear review system wherein the companies can evaluate all submissions against set criteria. In this way, even the work of the students that is not selected will be evaluated constructively.

### 1.4.3 Opportunities

- It enhances the employability factor among students by adding practical exposure to their relevant industry.
- Saves outsourcing costs and brings fresh lots of talent onboard for companies to work on their projects.
- Highly replicable model across geographies and industries
- Diversification of student's skill sets and professional networks.

## 1.5 Proposed system constraints and Assumption:

### 1.5.1 Constraints

- The platform has to balance demands of academic loads with the availability of work so as not to overload its students with more than they can handle.

- Companies may also have a minimum skill level requirement or minimum experience which would narrow down the pool available, maybe leaving out the younger body of students.
- Legal and contractual constraints regarding student labor and intellectual property have to be treated carefully, ethically.

### 1.5.2 Assumptions

- Companies are willing to outsource tasks to students more cheaply for flexibility.
- Students want to work practically but to a great extent make some earnings during their studies.
- There may be a reception of this step within the institutions as it is in line with career building.
- The system may attract adequate demand within the two parties involved so that its viability can be achieved.

## 1.6 System Stakeholders

### 1.6.1 Primary Stakeholders

- Students: The clients who require flexible and practical work
- Companies: The employers who need to outsource certain tasks at a lower rate.

### 1.6.2 Secondary Stakeholders:

- Training institutions - universities and colleges can support the platform as part of their placement services.
- Government and labor organizations may be interested in compliance with labor laws and in increasing employability among students.
- Investors: If the platform is a business venture, potential investors will be interested in its success and financial viability.

## 1.7 Required Tools

We'll be building a scalable and strong platform for connecting students with companies by mixing together different frontend and backend tools, also involving design. Here are some tools and technologies:

### Frontend Development:

- **ReactJS:** A popular JavaScript library for creating dynamic and interactive user interfaces.

- **Redux:** A state management library to efficiently manage complex application state.
- **React Router:** For handling navigation and routing within the application.
- **Material-UI or Ant Design:** UI component libraries to accelerate development and ensure consistent design.
- **Axios or Fetch API:** For making HTTP requests to the backend API.

### **Backend Development:**

- **PHP:** A powerful and widely used language for backend development and server-side scripting.
- **XAMPP:** A local development environment to test and host the application locally.

### **Database Design:**

- **MySQL:** For managing the platform's relational database.
- **ERDPlus or Microsoft Visio:** Tools to visualize the relationships between entities (tables) and their attributes.

### **Design and Prototyping:**

- **Figma:** A popular design tool for creating user interfaces, wireframes, and prototypes.
- **Canva:** A versatile design tool for creating graphics, presentations, and social media content.
- **Adobe Photoshop:** A powerful image editing software for creating high-quality visuals.

### **Additional Tools:**

**VS Code:** Code editors for writing and debugging code.

**npm or Yarn:** Package managers for managing dependencies.



## 1.8 SWOT analysis:

Table 1-1 swot analysis

<b>Strengths</b>	<b>Weaknesses</b>
<ul style="list-style-type: none"><li>● Flexible work model</li><li>● Matching the needs of students.</li><li>● Companies get access to skilled talent at a lower cost as compared to regular hiring.</li><li>● Learners can gain handy skills and industry exposure at a rapid pace.</li></ul>	<ul style="list-style-type: none"><li>● Incurs possible mismatches between student skills and company requirements</li><li>● Limited control over the quality of work contributed by students.</li><li>● Legal and contractual issues: the labor law and contract are not very simple for international projects.</li><li>● Trust building between students and companies for remote work will take time.</li></ul>
<b>Opportunities</b>	<b>Threats</b>
<ul style="list-style-type: none"><li>● Diversification into other industries</li><li>● Partnerships with educational institutions</li><li>● Offering other services like mentoring, skill tests and career counseling can add value to the platform.</li></ul>	<ul style="list-style-type: none"><li>● Competition from other platforms/outourcing services</li><li>● Legal or regulatory hurdles to hiring students</li><li>● Economic downturns can reduce freelance demand, affecting platform revenue.</li></ul>

## 1.9 Development Approach

The development shall be iterative and agile. The idea is to design, for this first version, a very basic platform with core functionalities that can enable matching between students and companies. The platform shall then be improved through iterations to come based on early users' feedback, students and companies, further continuous updating and enhancement based on user experience, market demand, and technological advancement.

# Chapter 2: Requirement Analysis and Specifications

## 2.1 Introduction

The main objective of this chapter is to give a concise idea about the system and the progress activities taken for the development of the work. The functional and non-functional requirements of the system, together with the user requirements, will be elaborated in detail. Also, an overall description of the system is included. In short, this chapter focuses on the analysis phase of the system development life cycle

## 2.2 Requirements identification:

### 2.2.1 Interactive techniques:

To gather the required functions from both parties and gain a deeper understanding of their needs and perspectives, we are employing a multifaceted approach involving interviews with both company workers and students, as well as conducting comprehensive surveys among students. This interactive methodology allows us to gain valuable insights and feedback.

### Understanding Company Needs and Wants

#### First interview

- **Interviewee:** Omar ayman, Co-founder & CEO of AlNour Rubber
- **Interviewer:** Abdelrahman mohamed, student
- **Attendees:** Abdelrahman Osama, Abdo Nasser
- **Date:** Friday, 25 October.
- **Location:** Remote

<b>Q1</b>	<b>What are the possible benefits our platform may bring to your organization?</b>
<b>A1</b>	Need fresh graduates for New ideas that can add to the organizations, because they have another point of view
<b>Q2</b>	<b>Does your institution currently outsource work to other parties? If the answer is yes, please explain the nature of the outsourced work.</b>

<b>A2</b>	Yes, overload small tasks like: Accumulate expenses, posting receipts, reports generation
<b>Q3</b>	<b>What are your main security concerns regarding the outsourcing of tasks, and how are you addressing them?</b>
<b>A3</b>	Security level is low in the tasks mentioned above, Hence it is outsourced
<b>Q4</b>	<b>Does the field of study matter?</b>
<b>A4</b>	Yes, Finance, Planning, Procurement
<b>Q5</b>	<b>Is your company interested in hiring a student who has successfully passed tasks on our website?</b>
<b>A5</b>	Students earn credit from outsourced tasks to be hire by certain organizations
<b>Q6</b>	<b>What factors would influence your decision to trust a student to complete a task on our platform?</b>
<b>A6</b>	I need just one small casual interview to understand his knowledge and what he has to offer

## Second Interview

- **Interviewee:** Ehab el sherif, Co-founder & Executive Producer of Morph Studios
- **Interviewer:** Abdelrahman mohamed, student
- **Attendees:** Abdelrahman Tamer, Abdelrahman Amr
- **Date:** Sunday, 17 November.
- **Location:** Remote

<b>Q1</b>	<b>How would this software help you as an organization?</b>
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A1	I need recommendations to ensure that the work will be done successfully. As a freelancer, I'm often on tight deadlines, so I need to hire someone who can start immediately without spending time verifying their qualifications.
Q2	Is certification and GPA mandatory for you?
A2	It depends on the task. For example, in graphic design, if a person is creative but lacks the technical skills to execute the design, it won't be helpful.
Q3	Is splitting tasks with students a compromise for you?
A3	It depends on the industry. In my case, as a production house, I can split tasks during the off-season. However, during peak times, I will be more selective. The idea of splitting tasks is manageable if the timing is right.
Q4	How would you like tasks to be displayed to ensure they reach the most relevant audience
A4	I prefer to post tasks visible only to those in the relevant field.
Q5	Do you prefer a bidding system or choosing from completed work?
A5	I prefer selecting from completed work, as it allows me to directly assess the results and make more selective decisions.
Q6	How do you like to negotiate with students?
A6	I prefer to contact students via phone or at least WhatsApp. Chat within the app might be too time-consuming and less efficient, depending on the UI.

<b>Q7</b>	<b>Who will review the tasks? And how would you rate them after completion?</b>
A7	I want to be the decision-maker throughout the process, from start to finish, without needing verification from others before the final approval.
<b>Q8</b>	<b>What level of security do you need?</b>
A8	Students should only have access to the company's information, not the client's details.
<b>Q9</b>	<b>What information do you need from the students?</b>
A9	Contact information is sufficient.
<b>Q10</b>	<b>Can your tasks be done remotely?</b>
A10	It depends on the task. For example, video editing requires large files that are difficult to upload or download remotely. In such cases, working on-site is preferable, as I cannot trust students with sensitive materials.
<b>Q11</b>	<b>How do you trust a student?</b>
A11	I would prefer a ranking and rating system for students to gauge their reliability and performance.

### 2.2.1.2 Surveys:

We conducted a survey to understand student needs and preferences for a platform connecting them with companies for real-world tasks. The

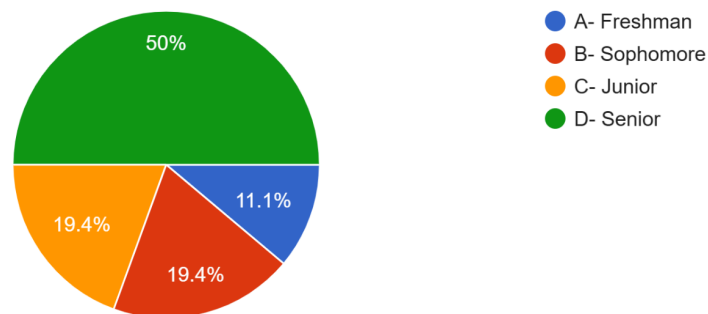
insights gathered will help shape a user-focused system that aligns with their expectations.

## Survey Highlights: Most Selected Options

**1- Year of Study:** Majority of respondents were senior students.

1- What year are you in at university?

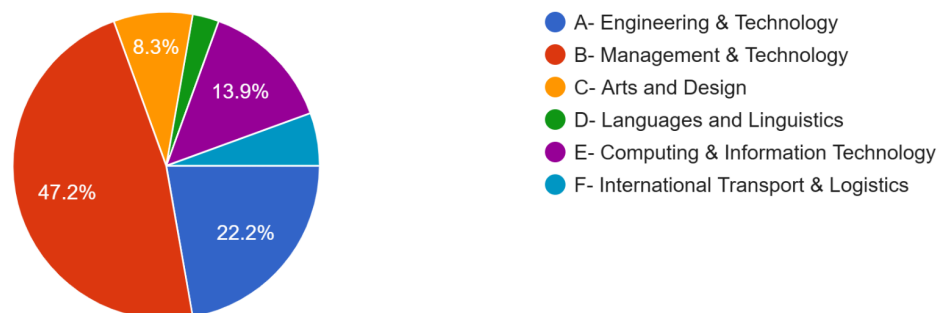
36 responses



**2- Fields of Interest:** Management & Technology and Computing & Information Technology were the most selected fields.

2- Which field are you most interested in?

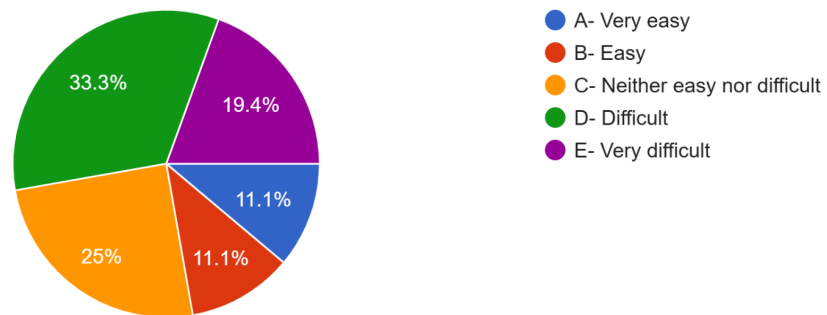
36 responses



**3- Ease of Finding Internships or Part-Time Jobs:** Majority answered 'Neither easy nor difficult'.

### 3-How easy or difficult was it for you to find an internship or part-time job?

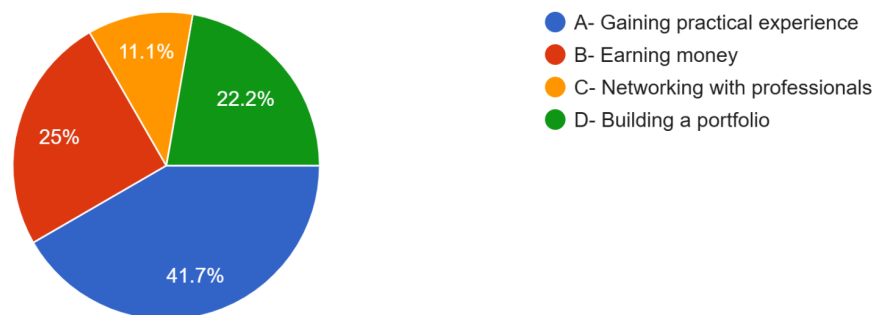
36 responses



### 4- Motivations to Participate: Majority answered 'Gaining practical experience'

#### 4- What motivates you most to participate in such a platform?

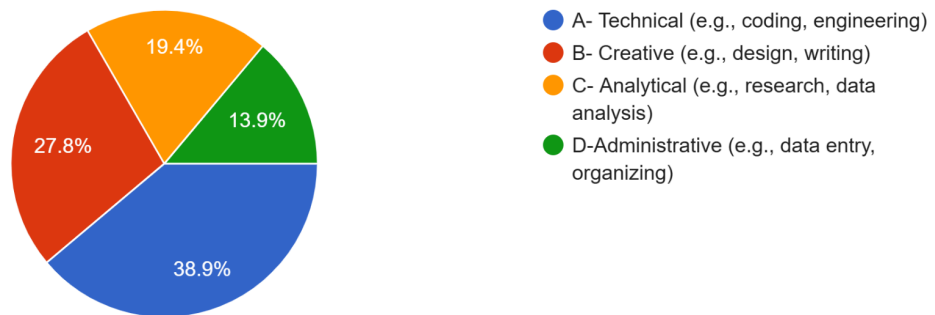
36 responses



### 5- Preferred Task Types: Majority answered 'Technical (e.g., coding, engineering)'.

### 5- What type of tasks would you prefer to work on?

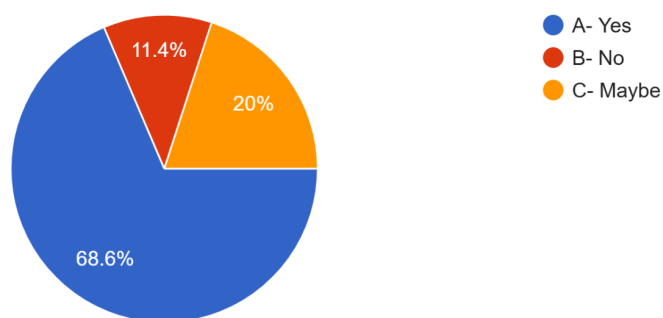
36 responses



### 6. Interest in Competitive Task Structures: Majority answered 'Yes'.

#### 6- Would you be interested in participating in tasks where only the best submission gets paid?

35 responses

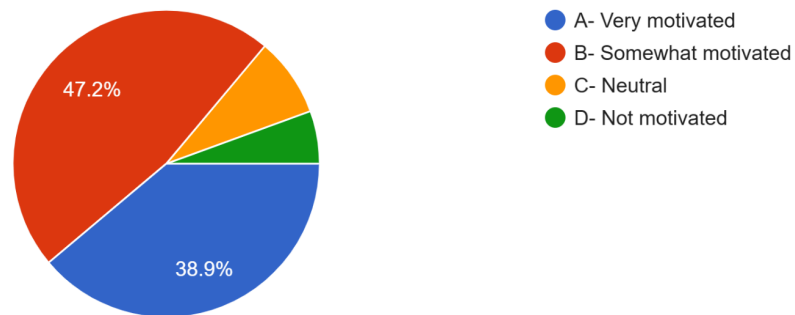


### 7-Motivation for Certificates: Majority answered 'Somewhat motivated'.



7- How motivated are you in earning certificates for non-selected submissions make you?

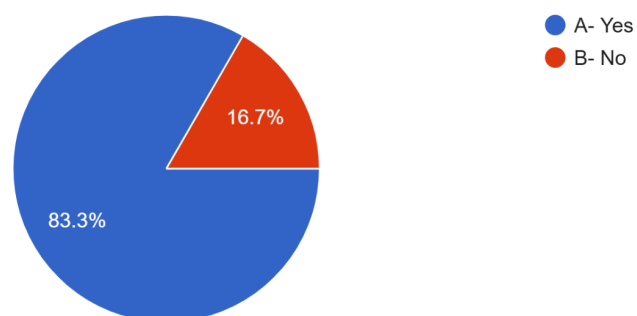
36 responses



**8- Preference for Personalized Task Recommendations:** Majority answered 'Yes'.

8- Should the platform offer personalized task recommendations based on your skills and interests?

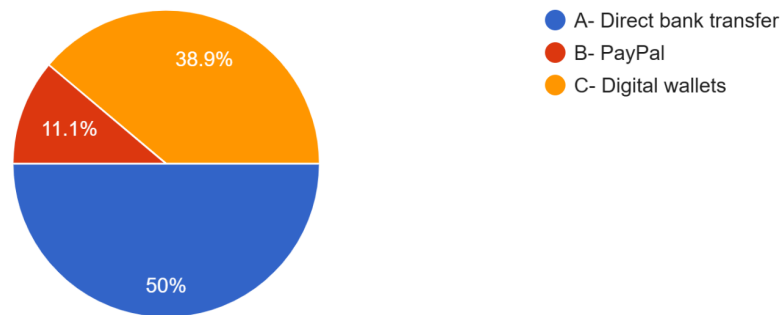
36 responses



**9- Preferred Payment Methods:** Majority answered 'Direct bank transfer'.

9- How would you prefer to get paid for completed tasks?

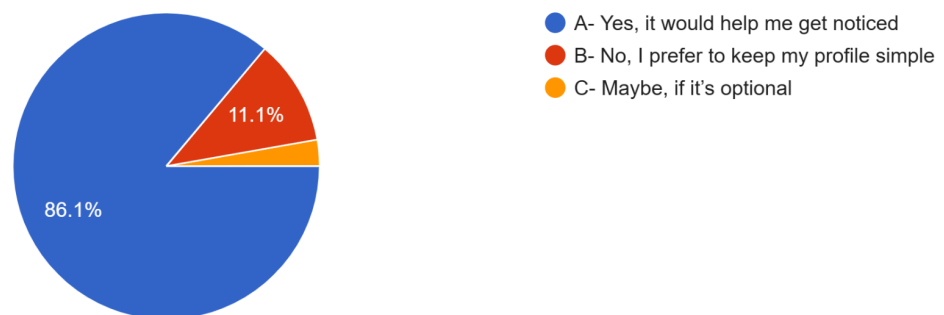
36 responses



**10- Interest in Detailed Profiles:** Majority answered 'Yes, it would help me get noticed'.

10- Would you prefer to have a profile that shows your skills, previous work, and ratings from companies?

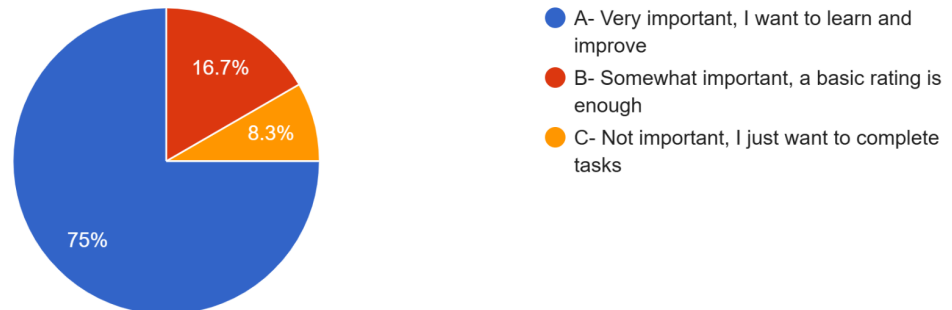
36 responses



**11- Importance of Detailed Feedback:** Majority answered 'Very important, I want to learn and improve'.

11- How important is it for you to receive detailed feedback from companies on your task submissions?

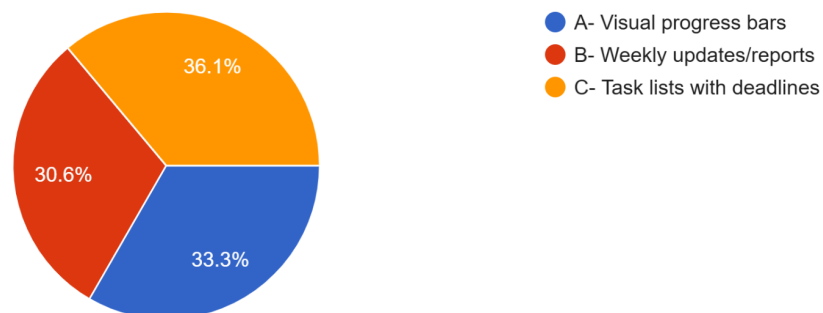
36 responses



**12- Preferred Progress Tracking Methods:** Majority answered 'Visual progress bars'.

12- How would you prefer to track your progress and tasks?

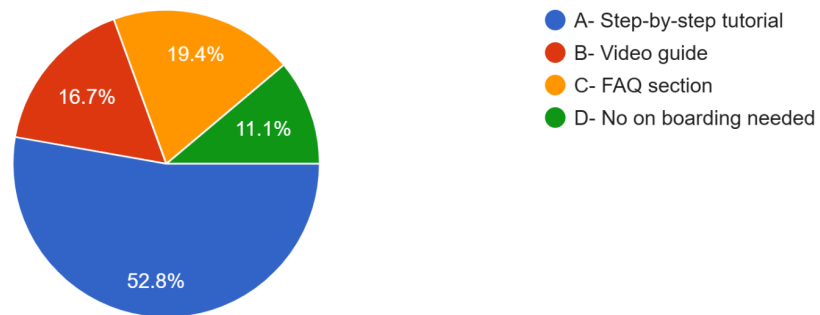
36 responses



**13- Preferred Onboarding Methods:** Majority answered 'Video guide'.

13- What type of on boarding would help you get started on the platform?

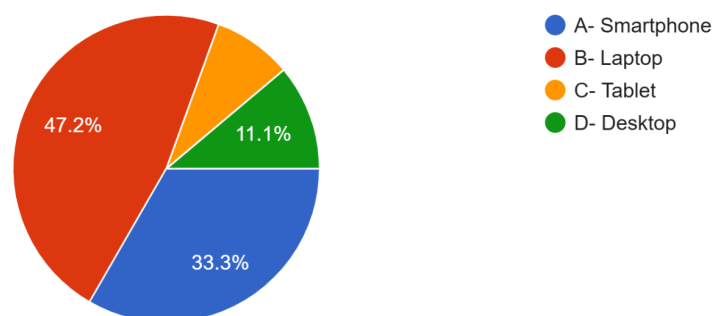
36 responses



**14- Preferred Devices for Platform Access:** Majority answered 'Laptop'.

14- What device do you primarily use to access online platforms?

36 responses



### 2.2.2 Unobtrusive techniques:

Here is a breakdown for each requested section: **Online Search with Link Website, Similar System, Common Points, and Competitive Edge:**

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#### 2.2.2.1. Online Search with Link Websites

Below are platforms with links offering task outsourcing, internships, and skill certification services:

- **Internshala:** A comprehensive platform offering internships and training in diverse fields with certifications and stipends. [Visit](#)  
.
  - **Handshake:** Specializes in connecting students to exclusive internships and career opportunities via educational partnerships. [Visit](#)  
.
  - **Skillvertex:** Provides internships with real-world projects focused on career-aligned skill development. [Explore](#)  
.
  - **StuMagz:** A student-centered platform offering internships, volunteering, and industry-specific projects with verified profiles. [Visit](#)
- 

#### 2.2.2.2. Similar Systems

- **Virtual Internships:** Helps students work remotely on tasks or internships, providing certifications post-completion. [Learn More Externships](#)  
.
- **MakeIntern:** Offers global internship opportunities and training with flexible schedules. [Visit MakeIntern Placement Preparation](#)  
.

- **EasyShiksha:** Provides free internships and globally recognized certifications along with placement services. [Learn More Externships](#)
  - **LetsIntern:** Focuses on connecting students with startup opportunities, virtual internships, and part-time projects. [Visit LetsIntern Externships](#)
- 

#### 2.2.2.3. Common Points AND Competitive Edge

1. **Access to Diverse Opportunities:** All platforms offer varied opportunities ranging from technical internships to creative freelancing jobs.
2. **Skill Development:** Every platform includes a training or mentorship aspect to enhance the practical skills of participants.
3. **Certification:** Recognized certificates are provided to boost student resumes and career opportunities.
4. **Flexibility:** Supports remote work, enabling students to manage academics alongside gaining professional experience.
5. **Networking:** Many platforms include community and networking tools to connect students with industry professionals.
6. **Internshala:** Combines training with internships, offering a complete learning-to-earning journey with stipends and industry-wide appeal.
7. **Handshake:** Strong ties with educational institutions and exclusive postings set it apart for college students.
8. **Skillvertex:** Hands-on projects directly align with industry needs, preparing students with practical expertise.
9. **StuMagz:** Features a verification system for student profiles, enhancing credibility for both students and recruiters.

10. **Extern:** Provides students real-world business challenges, offering unique exposure to actual work environments while earning certifications.
- 

### 2.3 Obtained Requirements:

Requirements	Student	Company	Functional	Non-Functional
Registration				
Task Posting and Assignment				
Task Submission				
Feedback				
Certification				
Skill Verification				
Profile Management				
Task Evaluation				
Communication Features				
Payment Integration				
Usability				
Accessibility				
Scalability				
Security				
Privacy				

# Chapter 3: Feasibility studies:

## 3.1 Introduction

Before embarking on the development of any project, it is essential to determine its practicality and viability. Feasibility studies serve as a critical step in this process, providing a thorough evaluation of the technical, financial, and operational aspects of a proposed system. For our project—an online platform enabling companies to outsource tasks to students—conducting a feasibility study is crucial to ensure that the idea can be successfully implemented and sustained.

In this chapter, we will explore the various dimensions of feasibility, including technical, economic, operational, and legal considerations. By assessing these factors, we aim to identify potential challenges, estimate the required resources, and evaluate the system's ability to deliver value to all stakeholders. This study will also help us determine if the platform aligns with our goals of connecting companies with student talent, fostering skill development, and creating a rewarding experience for both parties.

---

## 3.2 Technical Feasibility

### Technology Stack:

- **Frontend Development:** React.js for dynamic user interfaces, Redux for state management, and Material-UI for consistent design.
- **Backend Development:** Django or Node.js for secure and scalable backend operations.
- **Database:** MySQL for relational data storage, ensuring high performance.
- **Hosting:** AWS or Azure for scalable cloud infrastructure.

### Key Features:

- User authentication with multi-factor security.
- Task posting and management module.
- Payment gateway integration (Stripe or PayPal).
- Certification generation and distribution.

### Challenges and Solutions:

- **Challenge:** Ensuring data privacy.
  - **Solution:** Implement SSL encryption and regular penetration testing.



- **Challenge:** Scaling the platform for high user traffic.
    - **Solution:** Employ cloud hosting with load balancing.
- 

### 3.3 Operational Feasibility

#### Target Audience:

- **Primary Users:** Students seeking practical experience and certifications.
- **Companies:** Businesses looking for cost-effective task outsourcing.

#### Features for Students:

- View and apply for tasks.
- Receive certificates for completed tasks.
- Gain access to performance feedback and ratings.

#### Features for Companies:

- Post and manage tasks.
- Evaluate submissions and reward the best work.
- Access a pool of diverse and affordable talent.

#### Onboarding Process:

- Tutorials for companies and students.
- User-friendly dashboards for task tracking.

#### Support:

- 24/7 customer service via live chat and email.
  - Comprehensive FAQs and knowledge base.
- 

### 3.4 Legal Feasibility

#### Data Protection:

- Comply with data privacy regulations such as GDPR.
- Encrypt sensitive user data and publish a detailed privacy policy.

#### Ownership of Work:

- Define intellectual property terms to transfer task rights to companies.

### **Payment Compliance:**

- Ensure adherence to local taxation and invoicing regulations.

### **Liability Protection:**

- Include terms to protect against disputes related to work quality or data misuse.
- 

## **3.5.Economic Feasibility**

### **Revenue Model:**

- **Subscription Fees:** Charge companies a monthly fee for premium features.
- **Commission:** Earn a percentage from payments made to students for task completion.
- **Premium Services:** Offer featured tasks and detailed analytics as add-ons.

### **Cost Estimates (in Egyptian Pounds):**

- **Initial Development:** EGP 900,000–1,500,000 for building the platform, depending on complexity.
- **Monthly Maintenance:** EGP 30,000–75,000 for hosting, updates, and customer support.
- **Marketing Budget:** EGP 300,000 for the initial six months of campaigns.

### **Break-Even Analysis:**

- Expected to break even within 12–18 months with a steady increase in user engagement.
  - Revenue from subscriptions and commissions will grow as the user base expands.
-

### 3.5.1.System Costs

**Personnel Costs (EGP/month):** Salaries for individuals who develop the system.

The following table shows the team roles and their average salaries per month as a base salary in Egyptian Pounds:

Role	Quantity	Average Monthly Salary (EGP)	Average Annual Salary (EGP)
Project Manager	1	14,000	168,000
Full-Stack Developer	2	10,000	120,000
UI/UX Designer	1	8,000	96,000
Accountant	1	9,000	108,000
Total	5	41,000	492,000

**Hardware Costs (EGP/unit):**

Hardware	Quantity	Cost/Unit (EGP)	Total Cost (EGP)
Computer	4	9,500	38,000
Printer	1	5,500	5,500
Total	5	15,000	43,500

**Website Marketing Costs (EGP/month):**

Expense Factor	Monthly Cost (EGP)	Annual Cost (EGP)
Social Media Marketing	4,000	48,000
Search Engine Optimization	5,000	60,000

<b>Email Marketing</b>	2,500	30,000
<b>Total</b>	11,500	<b>138,000</b>

### Utilities (EGP/month):

Utility	Monthly Cost (EGP)	Annual Cost (EGP)
<b>Phone Bill</b>	1,000	12,000
<b>Internet Bundle</b>	1,200	14,400
<b>Total</b>	<b>2,200</b>	<b>26,400</b>

### Essential Factors (EGP/annually):

Expense Factor	Explanation	Annual Cost (EGP)
<b>Domain Name</b>	The unique address that's in the address bar of the browser.	300
<b>Website Hosting</b>	A service that keeps the website accessible on the internet.	800
<b>Maintenance</b>	Includes updates on CMS, and resolves website-related issues.	2,000
<b>SSL Certificate</b>	Helps to make your website appear safe to users.	800
<b>Average Total</b>		<b>3,900</b>

### 3.5.2.Cost-Benefit Analysis

Benefit	Explanation	Annual Profit (EGP)
<b>Placing Ads</b>	Pay-per-click advertising through platforms like Google AdSense.	50,000

<b>Affiliate Marketing</b>	Promoting others' services with commissions from schools, therapists, etc.	1,078,000
<b>Average Total</b>		<b>1,128,000</b>

- **Development Cost** = Hardware Costs + Personnel Costs + Utilities = 43,500 + 328,000 + 17,600 = **389,100 EGP**
  - **Annual Operating Costs** = Personnel Costs + Utilities + Marketing Costs + Essential Factors = 492,000 + 26,400 + 138,000 + 3,900 = **660,300 EGP**
  - **Annual Benefits** = **1,128,000 EGP**
  - **Economic Lifetime of the System:** Expected to last 5 years.
  - **Required Rate of Return:** 15%
- 

### 3.5.2.1. Payback Analysis:

Metric	Value
<b>Development Cost</b>	389,100 EGP
<b>Annual Operating Cost</b>	660,300 EGP
<b>Annual Revenue</b>	1,128,000 EGP
<b>Payback Period</b>	0.83 years
	<b>10 months</b>

### 3.5.2.2.Internal Rate of Return (IRR):


















































Metric	Value
Estimated Lifetime Benefits	5,640,000 EGP
Estimated Lifetime Costs	3,301,500 EGP
IRR	70% (Lifetime)
Annual IRR	14%

### 3.6.Risk Analysis:

Risk Factors	Probability	Impact	Importance	Rank	Strategy
Data Security	0.3	0.8	0.24	High	Risk Reduction
System Downtime	0.2	0.7	0.14	Moderate	Risk Avoidance
User Acquisition	0.5	0.4	0.20	Moderate	Risk Reduction
Scalability Issues	0.4	0.5	0.20	Moderate	Risk Reduction
Compliance Failure	0.2	0.9	0.18	High	Risk Transference
Payment Failures	0.3	0.6	0.18	High	Risk Reduction

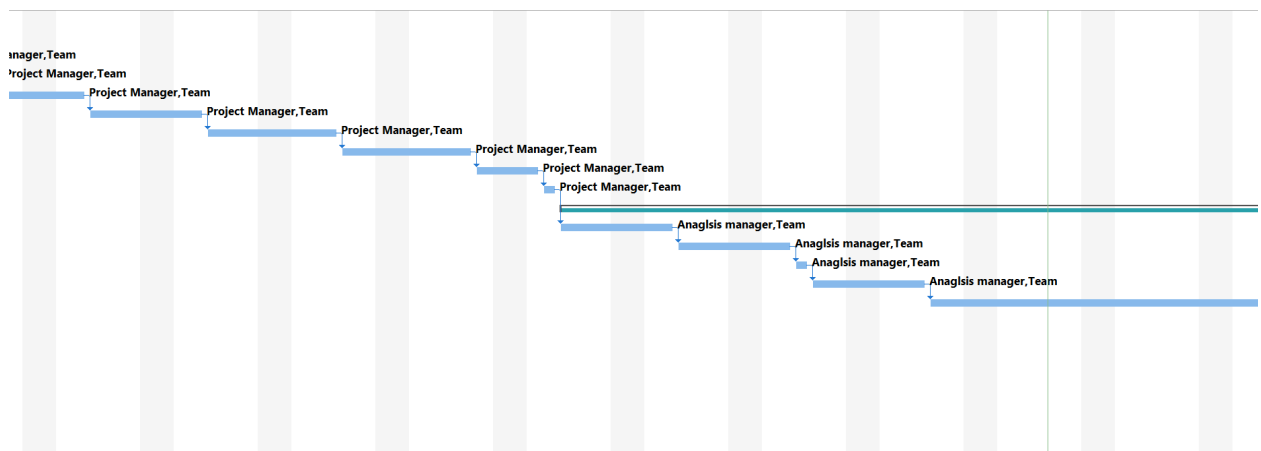
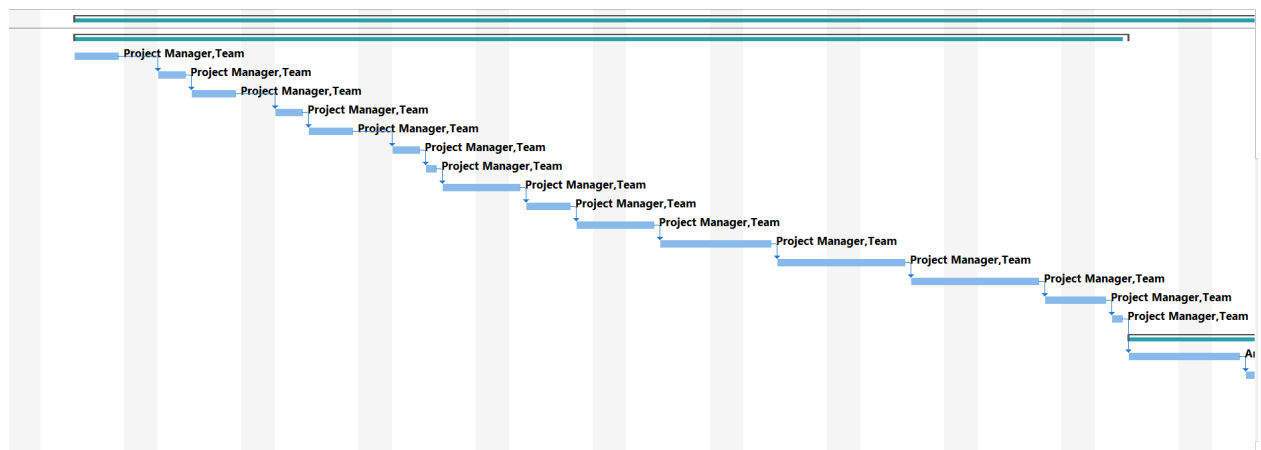
## 3.7.Project Management Artifacts

### 3.7.1 Gantt Chart

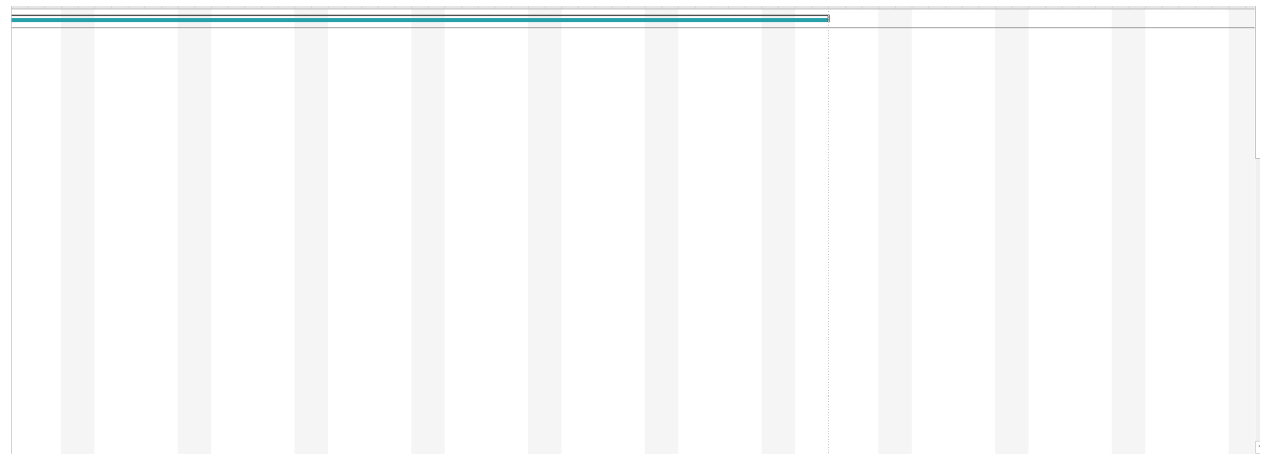
	Task Mode ▾	Task Name ▾	Duration ▾	Start ▾	Finish ▾	Predecessors ▾	Resource Names ▾	Add New Column ▾
		✦ Extern IT	190 days	Tue 10/1/24	Mon 6/23/25			
		✦ Start Introduction:	45.13 days	Tue 10/1/24	Mon 12/2/24			
		select the idea	3 days	Tue 10/1/24	Thu 10/3/24		Project Manager,T	
		write the introduction	2 days	Sun 10/6/24	Mon 10/7/24	3	Project Manager,T	
		write the scope	3 days	Tue 10/8/24	Thu 10/10/24	4	Project Manager,T	
		write the problem state	2 days	Sun 10/13/24	Mon 10/14/24	5	Project Manager,T	
		Manually Scheduled	3 days	Tue 10/15/24	Thu 10/17/24	6	Project Manager,T	
		analyse the objectives	2 days	Sun 10/20/24	Mon 10/21/24	7	Project Manager,T	
		Meeting	1 day	Tue 10/22/24	Tue 10/22/24	8	Project Manager,T	
		select system requirement	3 days	Wed 10/23/24	Sun 10/27/24	9	Project Manager,T	
		develop market analysis	3 days	Mon 10/28/24	Wed 10/30/24	10	Project Manager,T	
		select target market	3 days	Thu 10/31/24	Mon 11/4/24	11	Project Manager,T	
		create the SWOT analysis	5 days	Tue 11/5/24	Mon 11/11/24	12	Project Manager,T	
		create the business model	6 days	Tue 11/12/24	Tue 11/19/24	13	Project Manager,T	
		develop a competition	6 days	Wed 11/20/24	Wed 11/27/24	14	Project Manager,T	
		select revenue model	2 days	Thu 11/28/24	Sun 12/1/24	15	Project Manager,T	
		deadline of introduction	1 day	Mon 12/2/24	Mon 12/2/24	16	Project Manager,T	
		✦ start data collection:	32 days	Tue 12/3/24	Wed 1/15/25			
		search existing systems	5 days	Tue 12/3/24	Mon 12/9/24	17	Anaglsis manager,T	
		prepare interviews	5 days	Tue 12/10/24	Mon 12/16/24	19	Anaglsis manager,T	
		Meeting	1 day	Tue 12/17/24	Tue 12/17/24	20	Anaglsis manager,T	
		create questionnaires	5 days	Wed 12/18/24	Tue 12/24/24	21	Anaglsis manager,T	
		write summary	15 days	Wed 12/25/24	Tue 1/14/25	22	Anaglsis manager,T	
		deadline data collection	1 day	Wed 1/15/25	Wed 1/15/25	23	Anaglsis manager,T	
		✦ start data collection:	32 days	Tue 12/3/24	Wed 1/15/25			
		search existing systems	5 days	Tue 12/3/24	Mon 12/9/24	17	Anaglsis manager,T	
		prepare interviews	5 days	Tue 12/10/24	Mon 12/16/24	19	Anaglsis manager,T	
		Meeting	1 day	Tue 12/17/24	Tue 12/17/24	20	Anaglsis manager,T	
		create questionnaires	5 days	Wed 12/18/24	Tue 12/24/24	21	Anaglsis manager,T	
		write summary	15 days	Wed 12/25/24	Tue 1/14/25	22	Anaglsis manager,T	
		deadline data collection	1 day	Wed 1/15/25	Wed 1/15/25	23	Anaglsis manager,T	
		✦ start data modeling:	21 days	Thu 1/16/25	Thu 2/13/25			
		draw ERD	6 days	Thu 1/16/25	Thu 1/23/25	24	Design manager,T	
		Meeting	1 day	Sun 1/26/25	Sun 1/26/25	26	Design manager,T	
		draw DFD& UML	13 days	Mon 1/27/25	Wed 2/12/25	27	Design manager,T	
		deadline data modeling	1 day	Thu 2/13/25	Thu 2/13/25	28	Design manager,T	
		✦ Start feasibility study:	30 days	Sun 2/16/25	Thu 3/27/25			
		calculate technical fees	10 days	Sun 2/16/25	Thu 2/27/25	29	Anaglsis manager,f	
		Meeting	1 day	Sun 3/2/25	Sun 3/2/25	31	Anaglsis manager,f	
		prepare legal form	10 days	Mon 3/3/25	Sun 3/16/25	32	Anaglsis manager,f	
		calculate economical feasibility	8 days	Mon 3/17/25	Wed 3/26/25	33	Anaglsis manager,f	
		deadline feasibility study	1 day	Thu 3/27/25	Thu 3/27/25	34	Anaglsis manager,f	
		✦ Start project management:	27 days	Sun 3/30/25	Mon 5/5/25			
		start general plan	5 days	Sun 3/30/25	Thu 4/3/25	35	Anaglsis manager,f	
		Meeting	1 day	Sun 4/6/25	Sun 4/6/25	37	Anaglsis manager,f	
		prepare detailed plan	12 days	Mon 4/7/25	Tue 4/22/25	38	Anaglsis manager,f	
		create GANTT chart	5 days	Wed 4/23/25	Tue 4/29/25	39	Anaglsis manager,f	
		create PERT diagram search risks and mitigate add milestones add resource	3 days	Wed 4/30/25	Sun 5/4/25	40	Anaglsis manager,f	



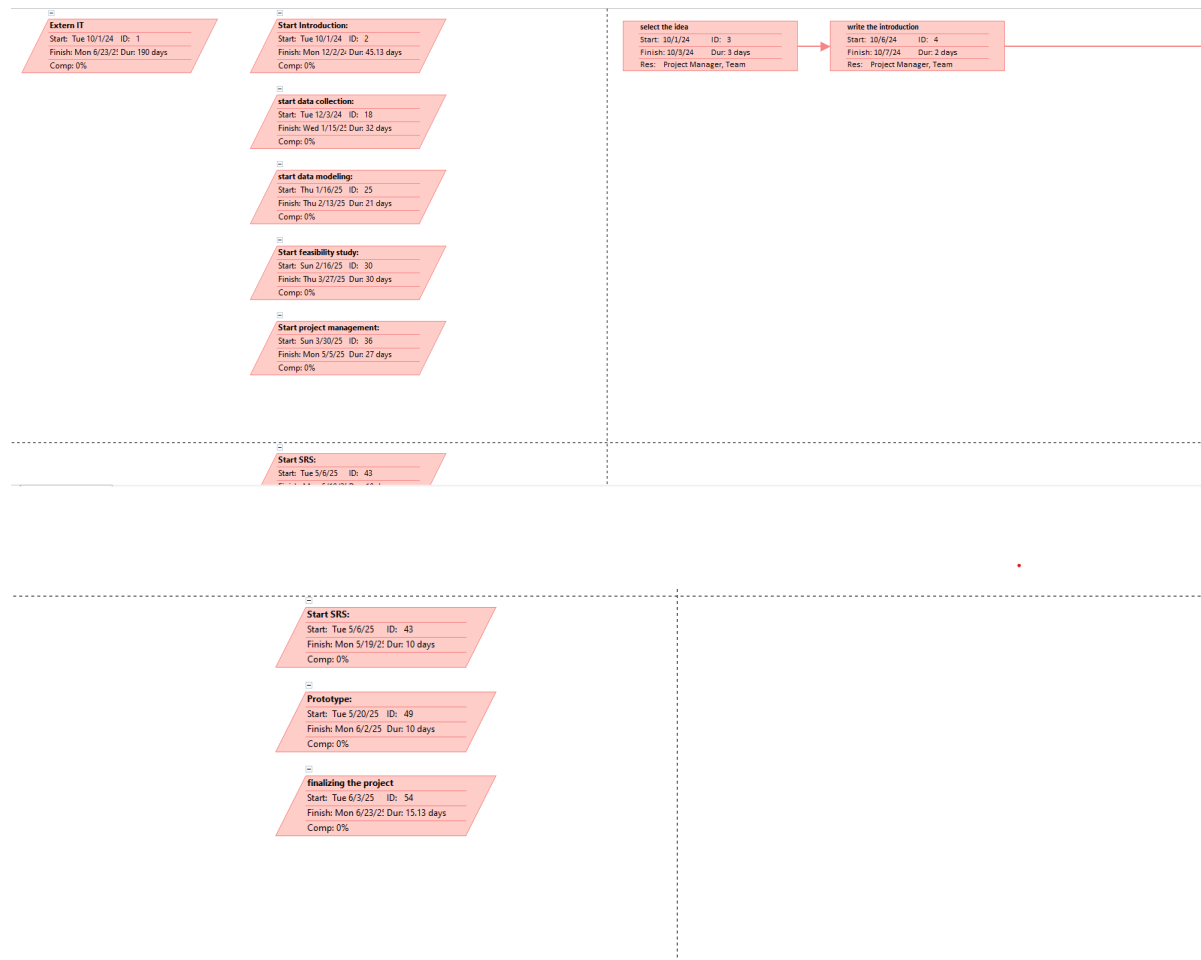
✚	Start project management:	27 days	Sun 3/30/25	Mon 5/5/25			
🔧	start general plan	5 days	Sun 3/30/25	Thu 4/3/25	35	Anaglsis manager, I	
🔧	Meeting	1 day	Sun 4/6/25	Sun 4/6/25	37	Anaglsis manager, I	
🔧	prepare detailed plan	12 days	Mon 4/7/25	Tue 4/22/25	38	Anaglsis manager, I	
🔧	create GANTT chart	5 days	Wed 4/23/25	Tue 4/29/25	39	Anaglsis manager, I	
🔧	create PERT diagram search risks and mitigate add milestones add resource	3 days	Wed 4/30/25	Sun 5/4/25	40	Anaglsis manager, I	
🔧	deadline project management	1 day	Mon 5/5/25	Mon 5/5/25	41	Anaglsis manager, I	
✚	Start SRS:	10 days	Tue 5/6/25	Mon 5/19/25			
🔧	Functional req.	2 days	Tue 5/6/25	Wed 5/7/25	42	Develop manager, I	
🔧	Meeting	1 day	Thu 5/8/25	Thu 5/8/25	44	Develop manager, I	
🔧	Non- Functiond reg	2 days	Sun 5/11/25	Mon 5/12/25	45	Develop manager, I	
🔧	Business req.	4 days	Tue 5/13/25	Sun 5/18/25	46	Develop manager, I	
🔧	deadline SRS	1 day	Mon 5/19/25	Mon 5/19/25	47	Develop manager, I	
✚	Prototype:	10 days	Tue 5/20/25	Mon 6/2/25			
🔧	User manual	5 days	Tue 5/20/25	Mon 5/26/25	48	Design manager, Te	
🔧	Meeting	1 day	Tue 5/27/25	Tue 5/27/25	50	Design manager, Te	
🔧	System Problye.	3 days	Wed 5/28/25	Sun 6/1/25	51	Design manager, Te	
🔧	deadline Prototype	1 day	Mon 6/2/25	Mon 6/2/25	52	Design manager, Te	
✚	finalizing the project	15.13 days	Tue 6/3/25	Mon 6/23/25			
🔧	finalizing introduction and analysis	3 days	Tue 6/3/25	Thu 6/5/25	53	Project Manager, T	
🔧	finalizing data collection	3 days	Sun 6/8/25	Tue 6/10/25	55	Anaglsis manager, I	
🔧	finalize data modeling	2 days	Wed 6/11/25	Thu 6/12/25	56	Design manager, Te	
🔧	finalize feasibility study	2 days	Sun 6/15/25	Mon 6/16/25	57	Anaglsis manager, I	
🔧	finalize project management	1 day	Tue 6/17/25	Tue 6/17/25	58	Anaglsis manager, I	
✚	finalizing the project	15.13 days	Tue 6/3/25	Mon 6/23/25			
🔧	finalizing introduction and analysis	3 days	Tue 6/3/25	Thu 6/5/25	53	Project Manager, T	
🔧	finalizing data collection	3 days	Sun 6/8/25	Tue 6/10/25	55	Anaglsis manager, I	
🔧	finalize data modeling	2 days	Wed 6/11/25	Thu 6/12/25	56	Design manager, Te	
🔧	finalize feasibility study	2 days	Sun 6/15/25	Mon 6/16/25	57	Anaglsis manager, I	
🔧	finalize project management	1 day	Tue 6/17/25	Tue 6/17/25	58	Anaglsis manager, I	
🔧	finalizing SRS	1 day	Wed 6/18/25	Wed 6/18/25	59	Develop manager, I	
🔧	finalize prototype	2 days	Thu 6/19/25	Sun 6/22/25	60	Design manager, Te	
🔧	project submission	1 day	Mon 6/23/25	Mon 6/23/25	61	Anaglsis manager, I	

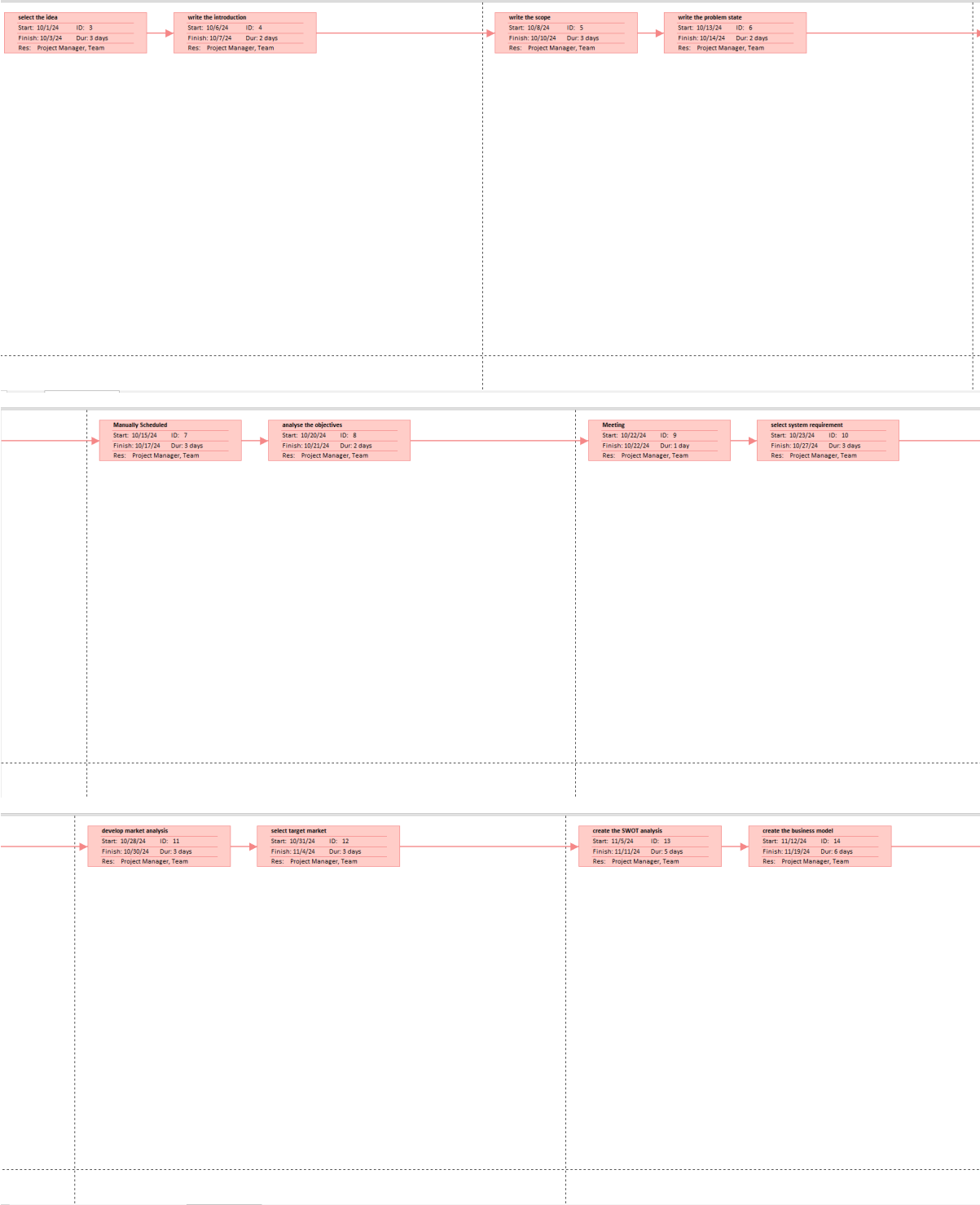


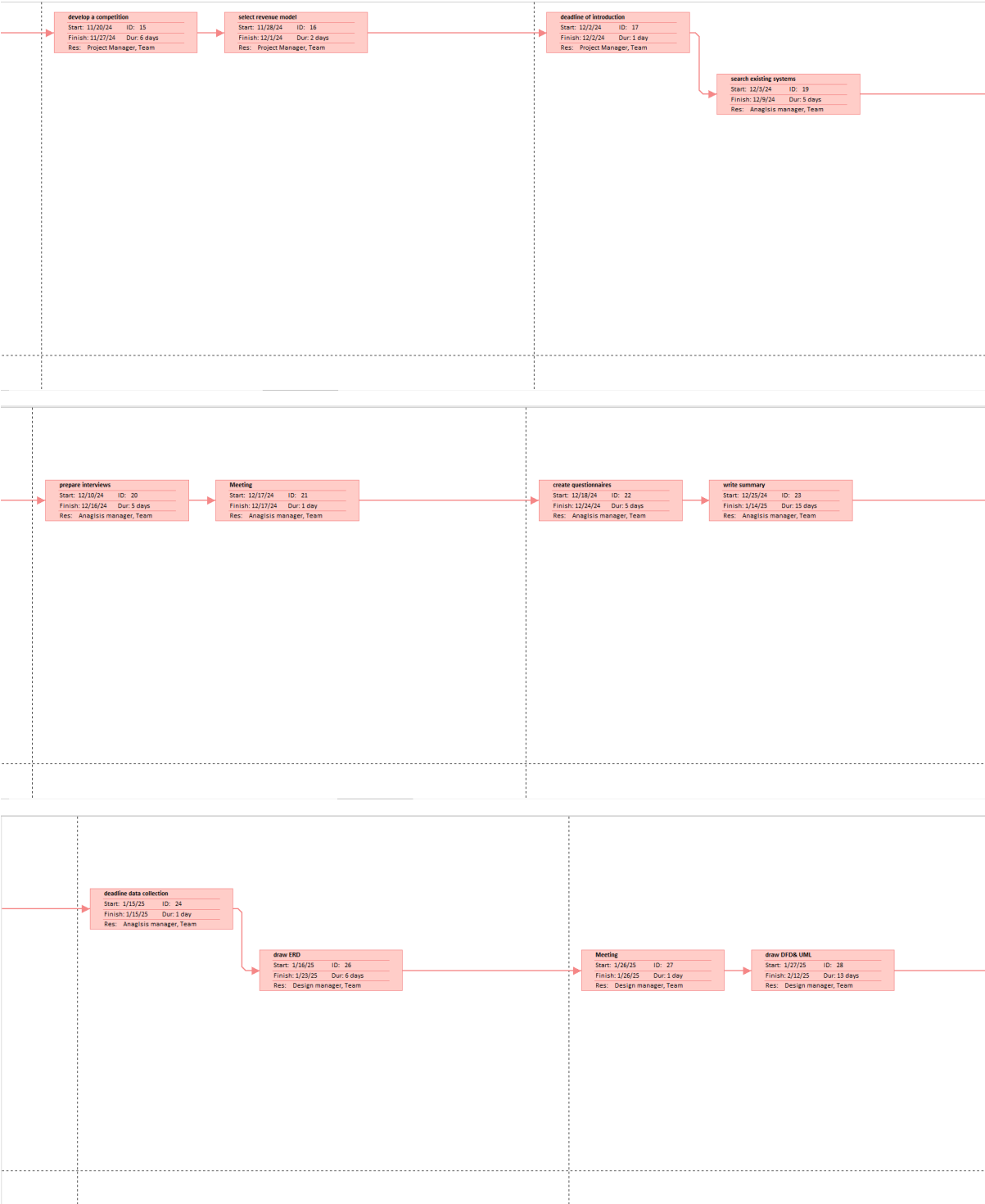


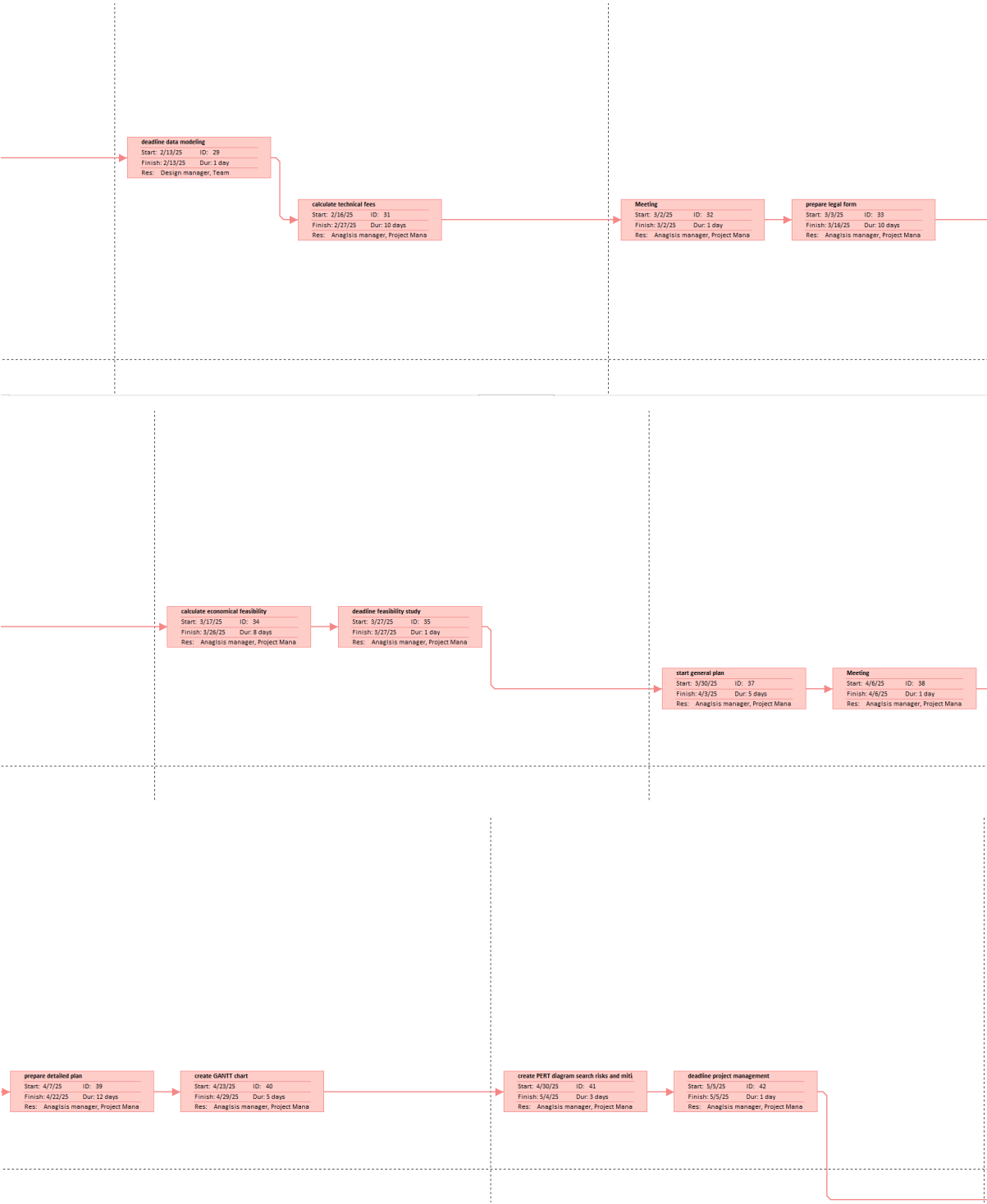


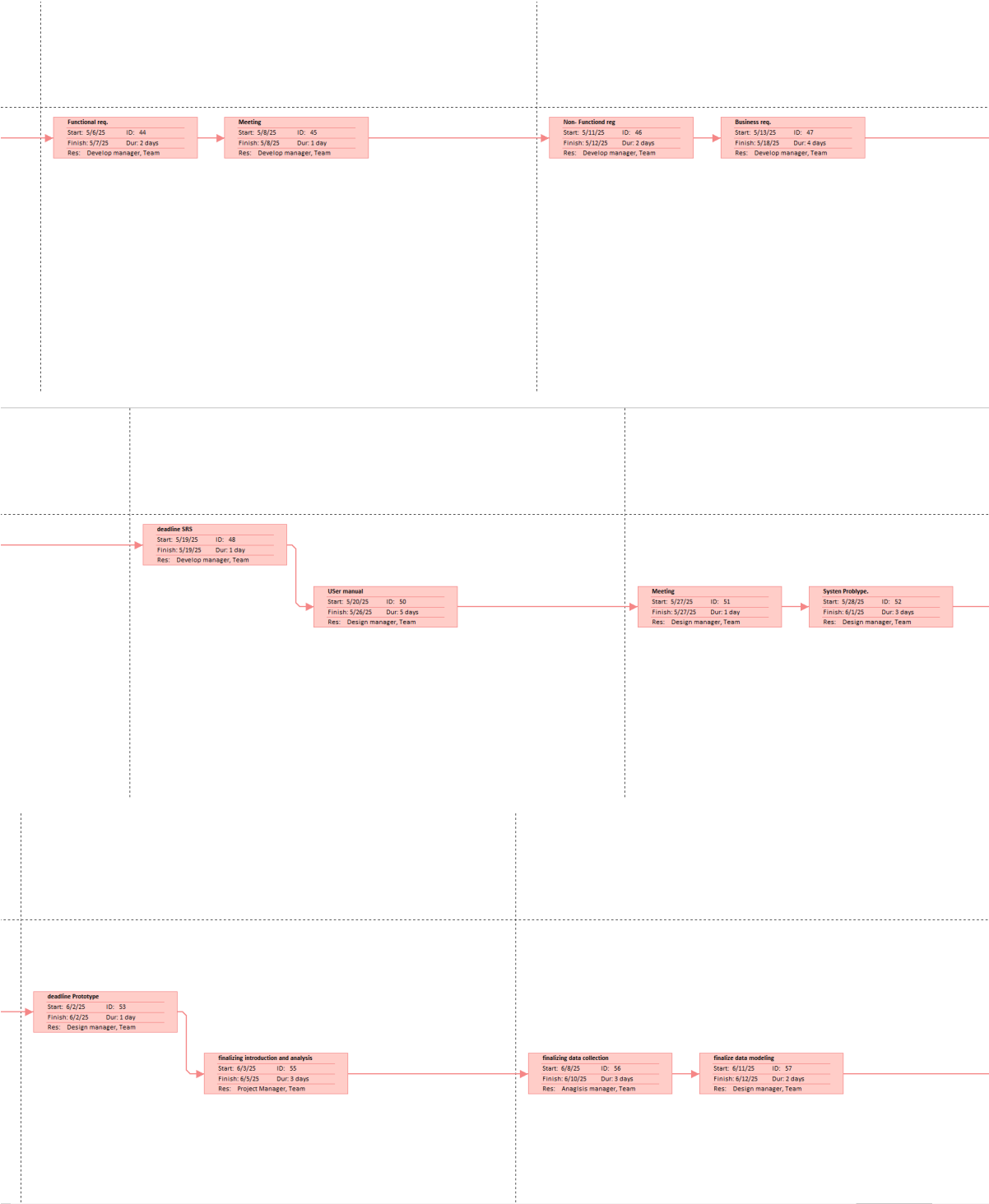
### 3.7.2 PERT Chart

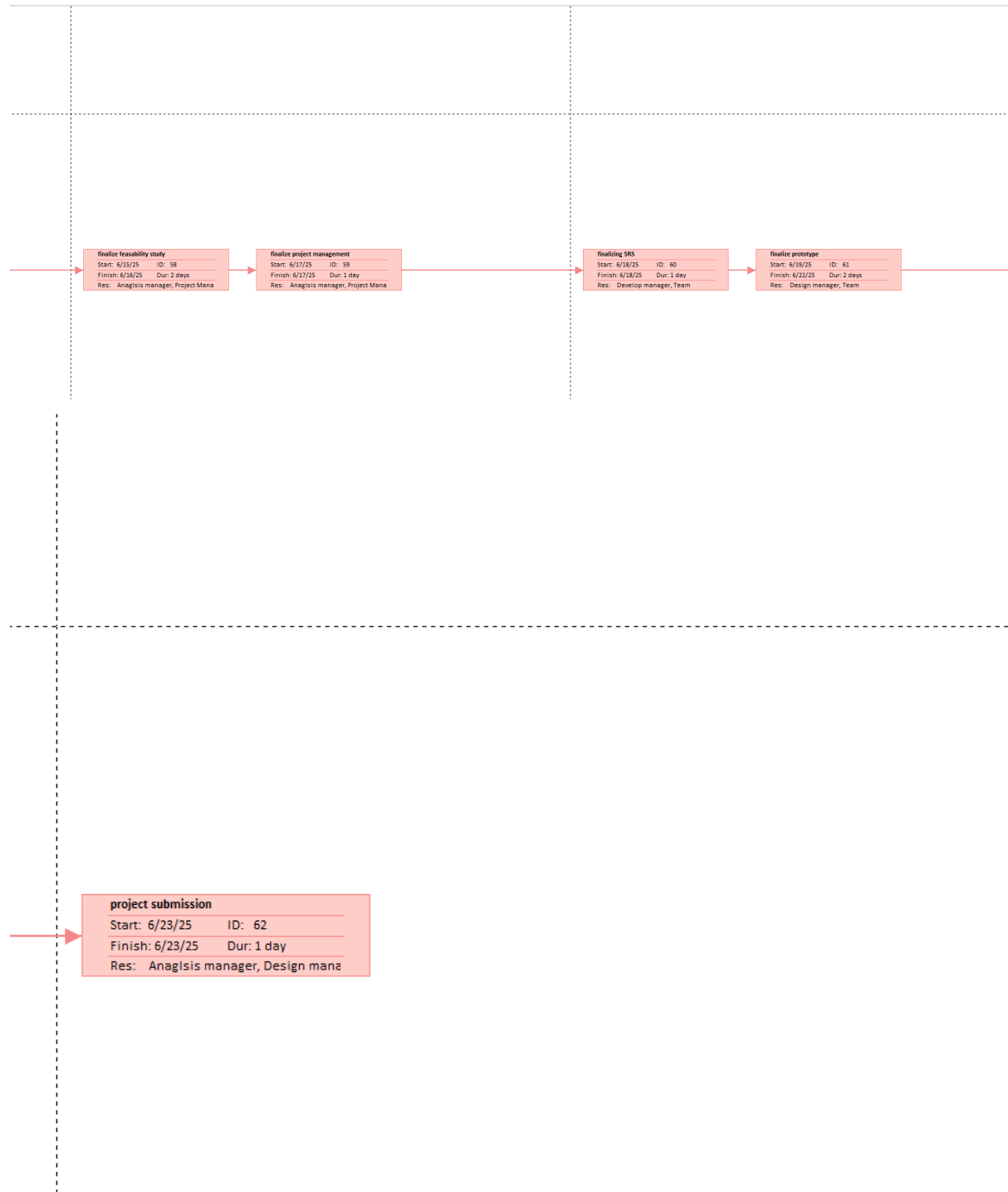












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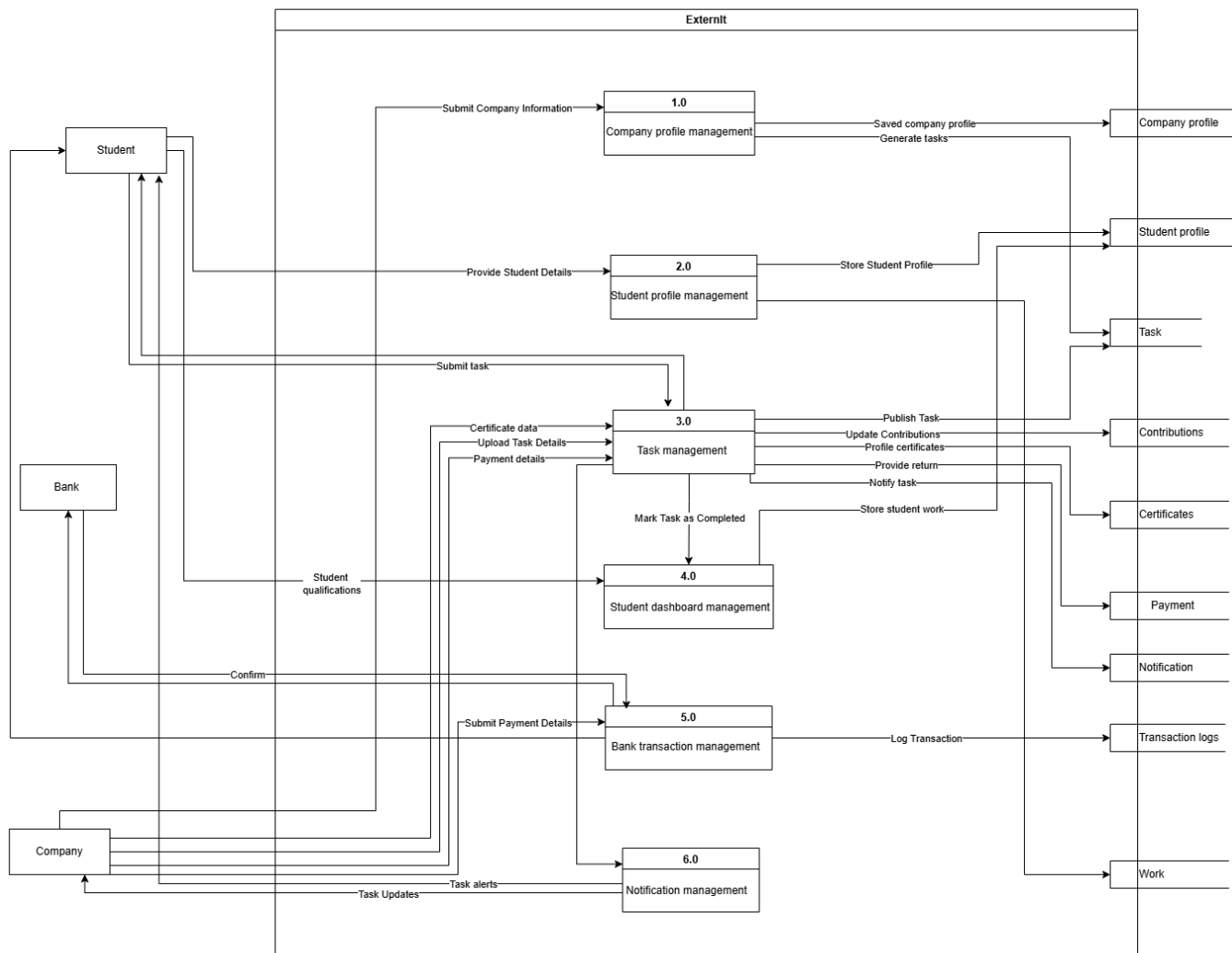
## 4.1 Business Process and Functional Modeling



## **4.1.1 Data Flow Diagram**

### **4.1.1.1 Context Level**

### 4.1.1.2 Level Zero



4-1 DFD level 0

### 4.1.1.3 Level 1

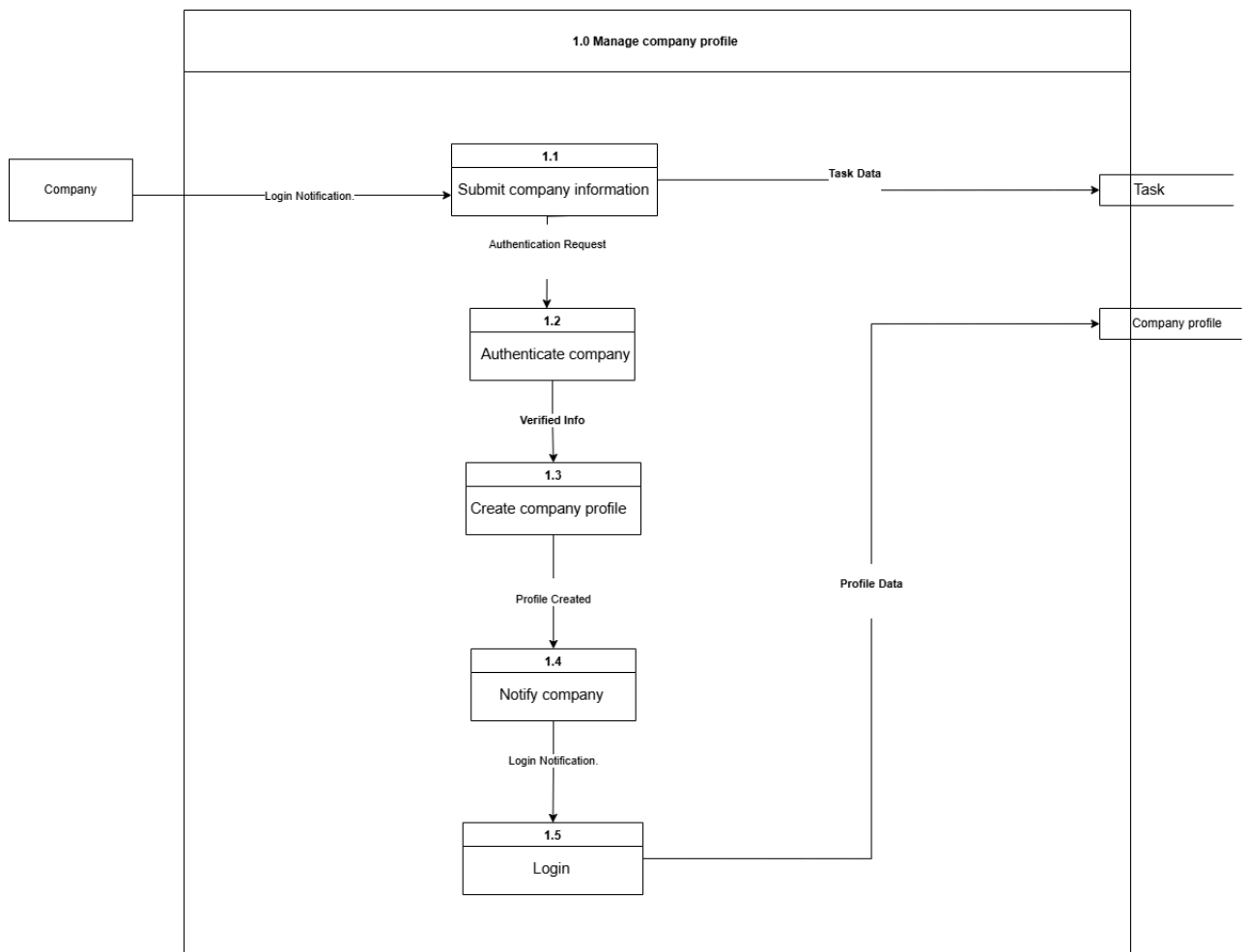
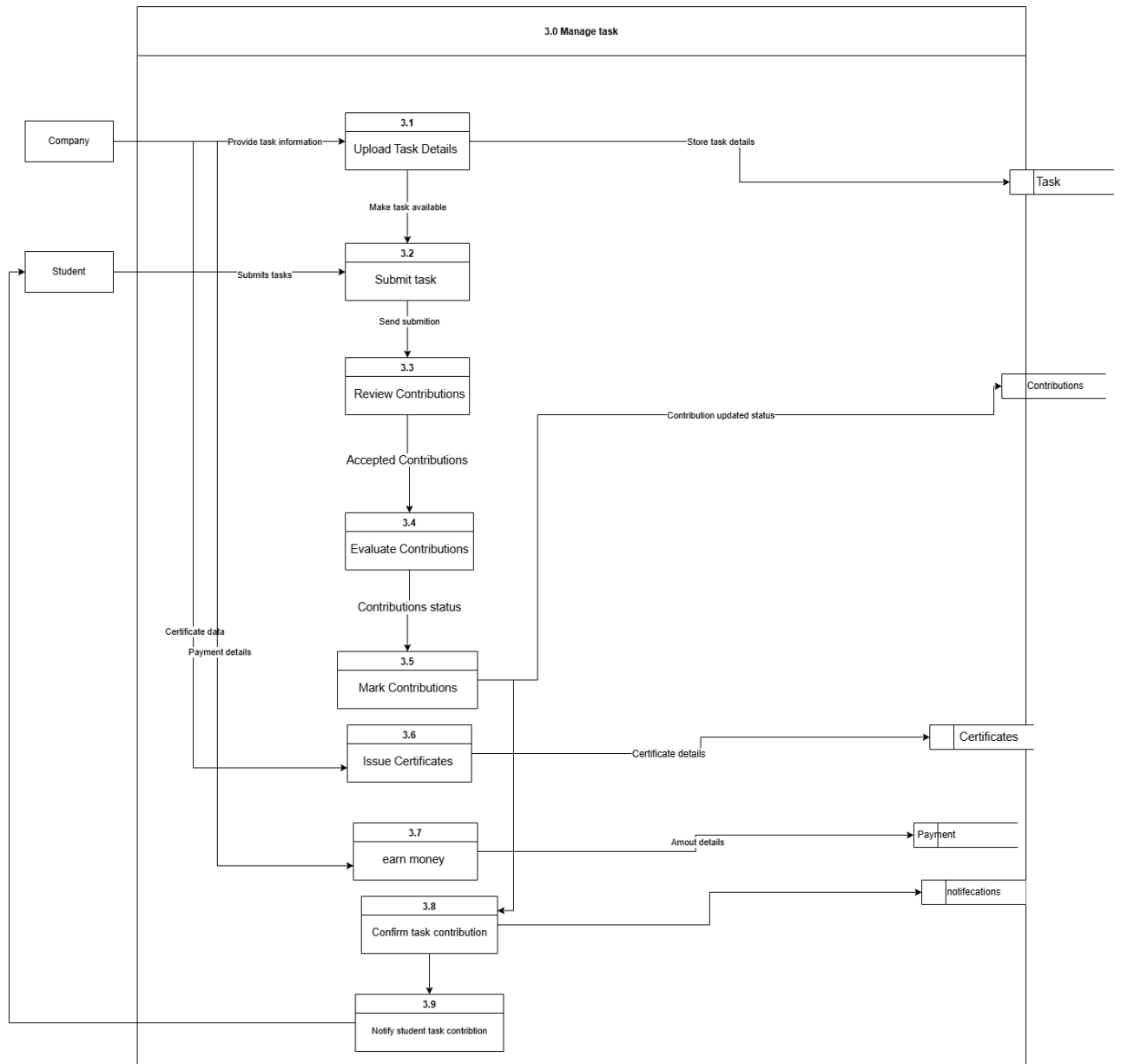
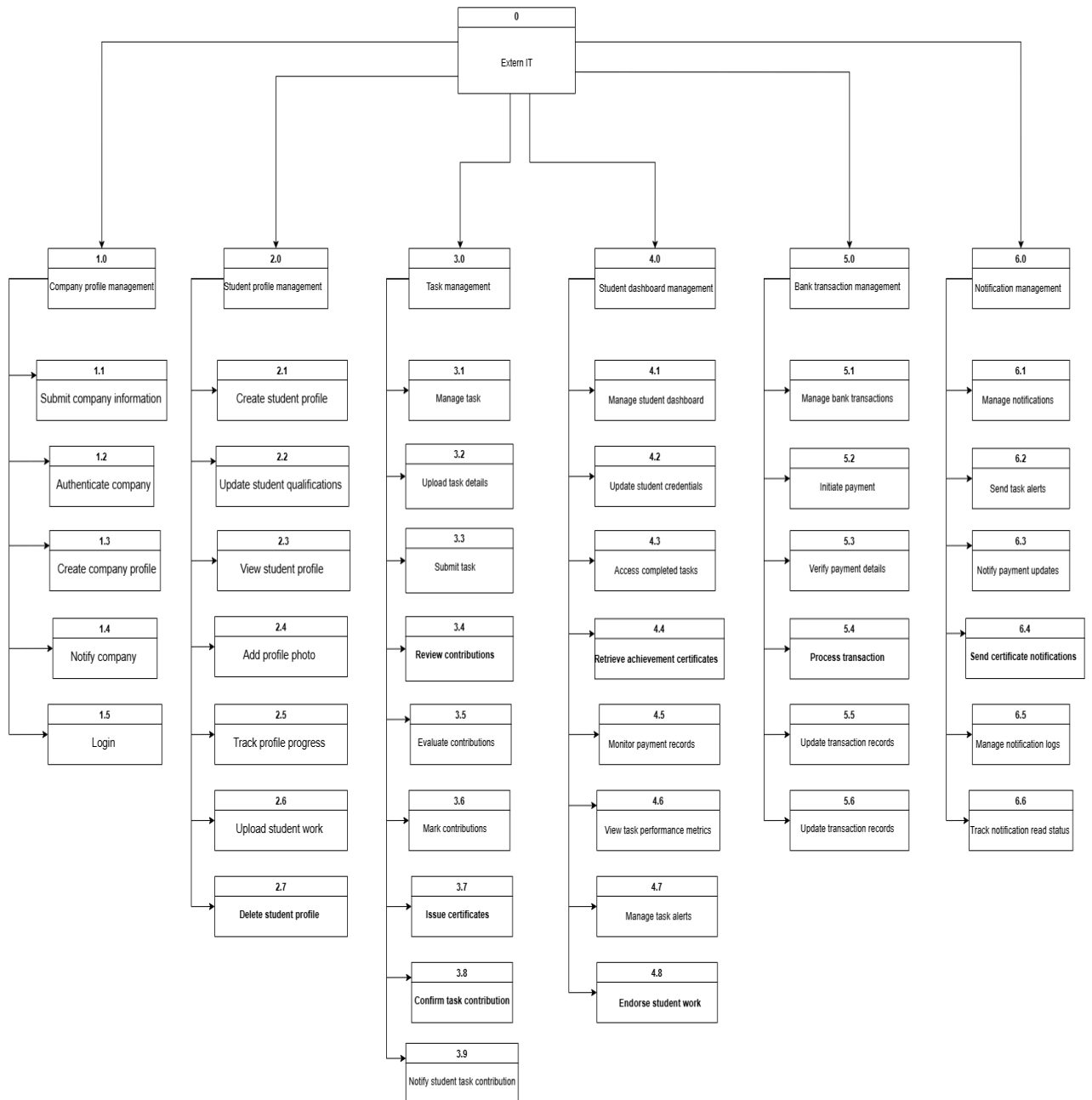


Figure 4-2 DFD level 1



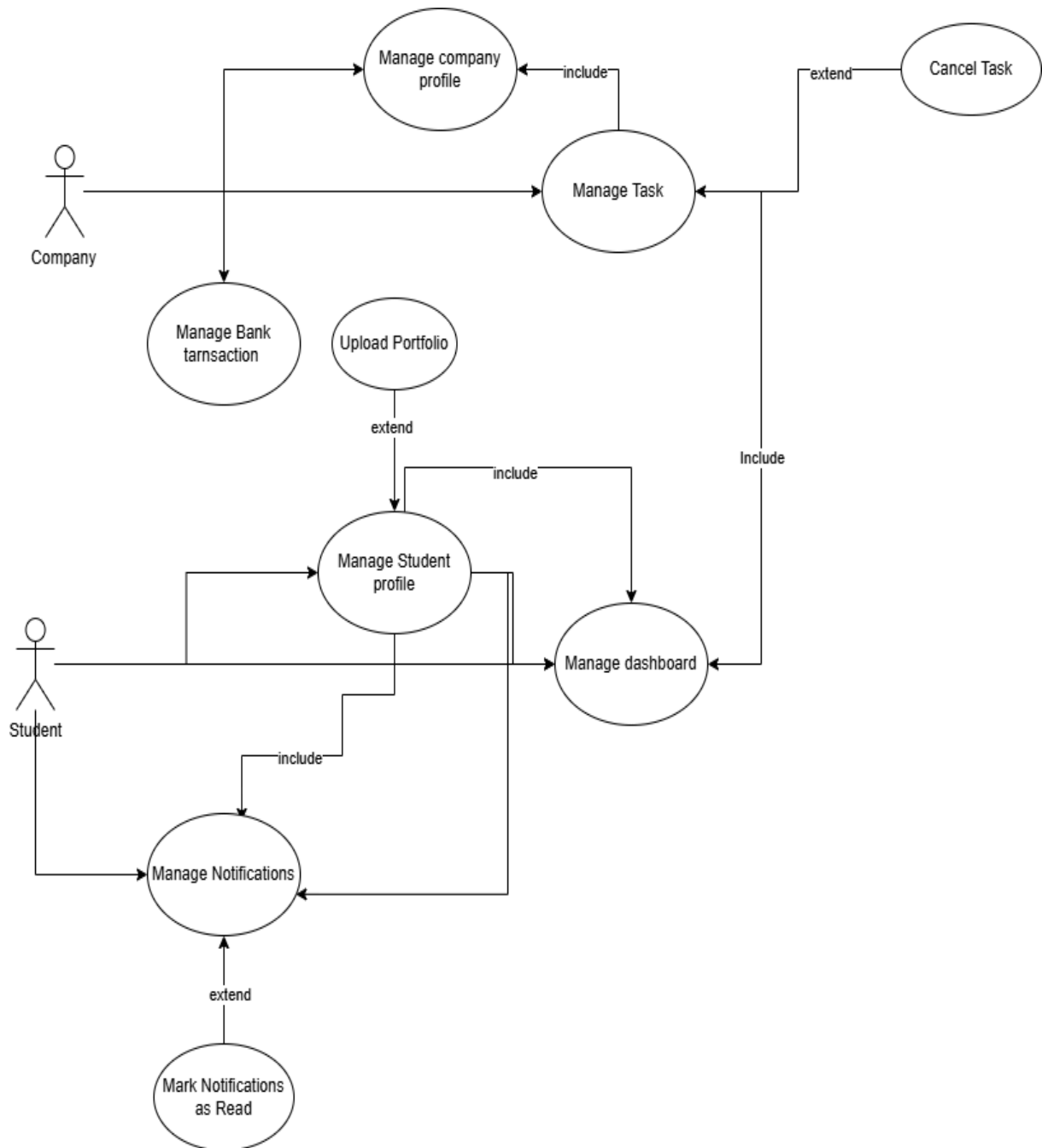
**Figure 4.**

## 4.1.1.4 FHD



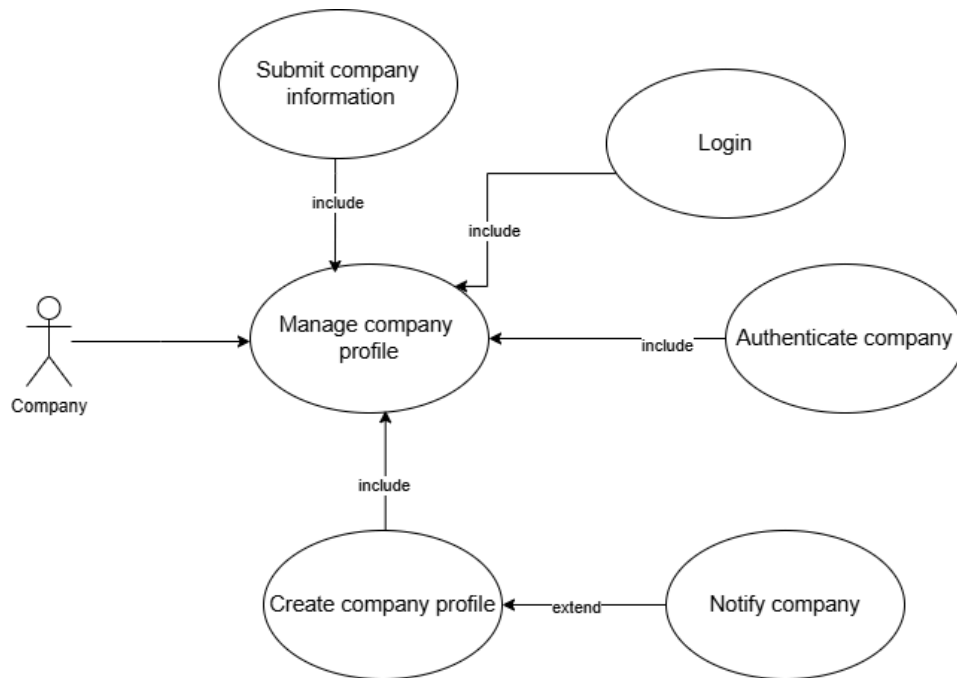
## 4.1.2 Use-case diagrams

Use-case Scenario 1



Use Case	Explanation
Manage Company Profile	Primary functionality for managing a company's profile on the platform.
Manage Task	Mandatory functionality for task management by the company.
Cancel Task	Optional functionality triggered when the company decides to cancel a task.
Manage Bank Transaction	Required for handling payment-related activities by the company.
Upload Portfolio	Optional functionality for uploading a portfolio by a student.
Manage Student Profile	Primary functionality for managing a student's profile on the platform.
Manage Dashboard	Essential for students to interact with and track tasks, progress, or updates.
Manage Notifications	Core functionality to handle task updates, payment alerts, or general notifications.
Mark Notifications as Read	Optional functionality for students to track or mark notifications as read.

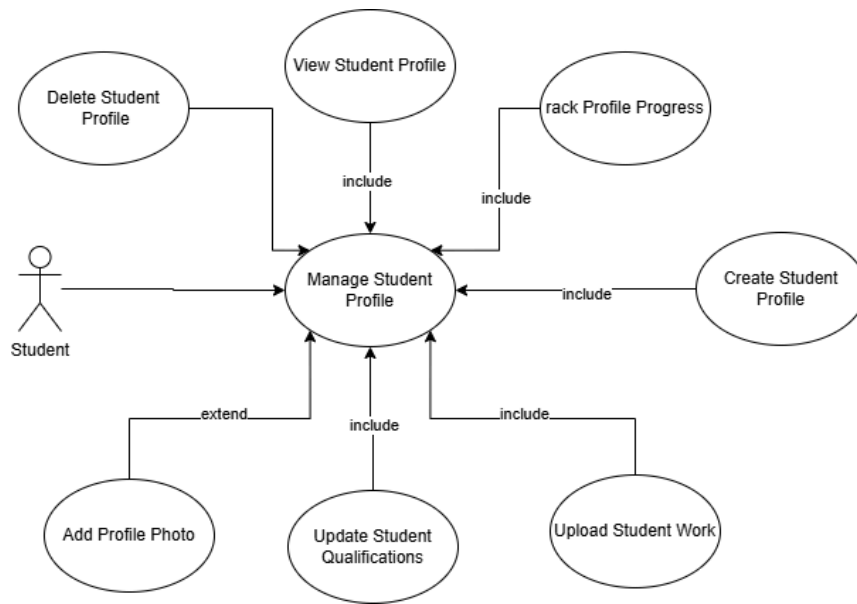
## Use-case Scenario 2



Use Case	Explanation
Manage Company Profile	Primary functionality for managing all aspects of a company's profile on the platform.
Submit Company Information	Mandatory step where the company provides necessary information to create or update its profile.
Login	Required step for the company to authenticate its access to the system.
Authenticate Company	Verifies the company's credentials to ensure secure access and profile management.
Create Company Profile	Mandatory step to establish a company's presence on the platform.
Notify Company	Optional functionality triggered after creating the company profile to confirm completion or send updates.

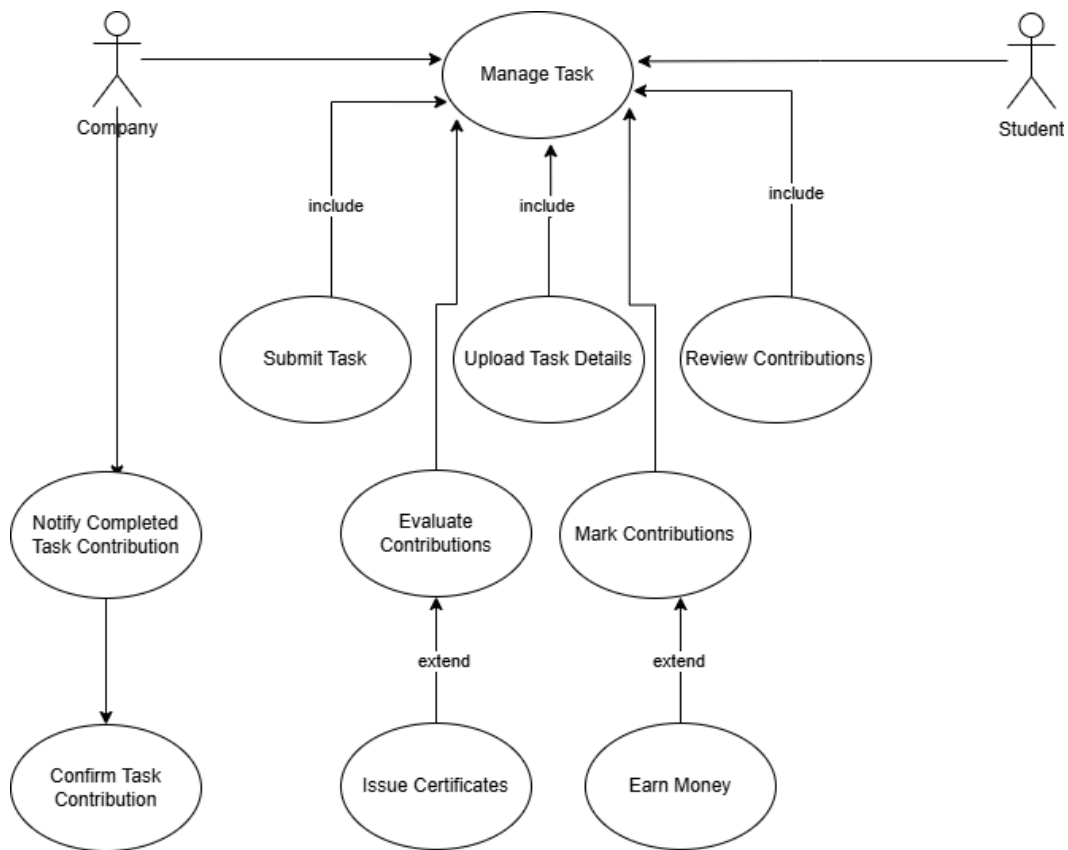


### Use-case Scenario 3



Use Case	Explanation
Manage Student Profile	The primary functionality for managing student-related information.
Create Student Profile	Mandatory for managing a profile as it creates the initial profile.
View Student Profile	Required for students to access and review their profile information.
Track Profile Progress	Necessary to monitor the completeness and progress of the profile.
Update Student Qualifications	Essential for keeping the profile up-to-date with new qualifications.
Upload Student Work	Allows students to add projects or assignments to their profile.
Delete Student Profile	Enables students to remove their profile from the system if no longer needed.
Add Profile Photo	Optional functionality to enhance the profile with a profile photo.

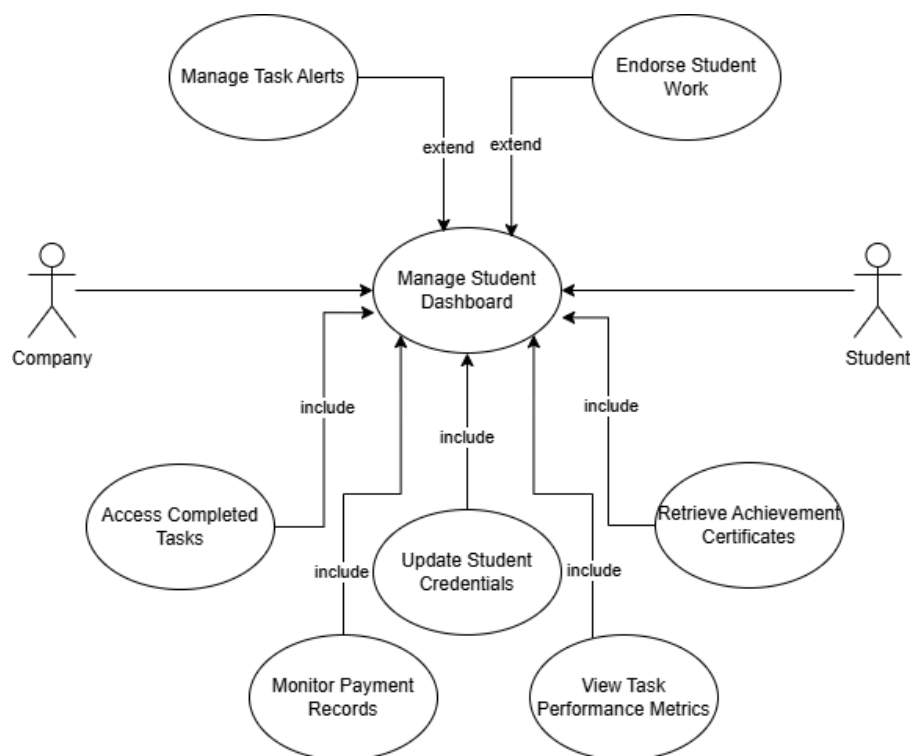
## Use-case Scenario 4



Use Case	Explanation
Manage Task	The primary functionality that oversees all task-related processes.
Submit Task	Mandatory for students to submit their work as part of task management.
Upload Task Details	Required for companies to provide task details to initiate the process.
Review Contributions	Necessary to assess and review student submissions for task quality.
Evaluate Contributions	Required to judge the quality and relevance of the submitted work.
Mark Contributions	Tracks the status of contributions after evaluation.

Issue Certificates	Optional functionality that awards certificates based on the evaluation of contributions.
Earn Money	Optional functionality triggered if financial rewards are to be distributed to contributors.
Confirm Task Contribution	Confirms the final submission of tasks by contributors.
Notify Completed Task Contribution	Optional notification triggered after task completion is confirmed.

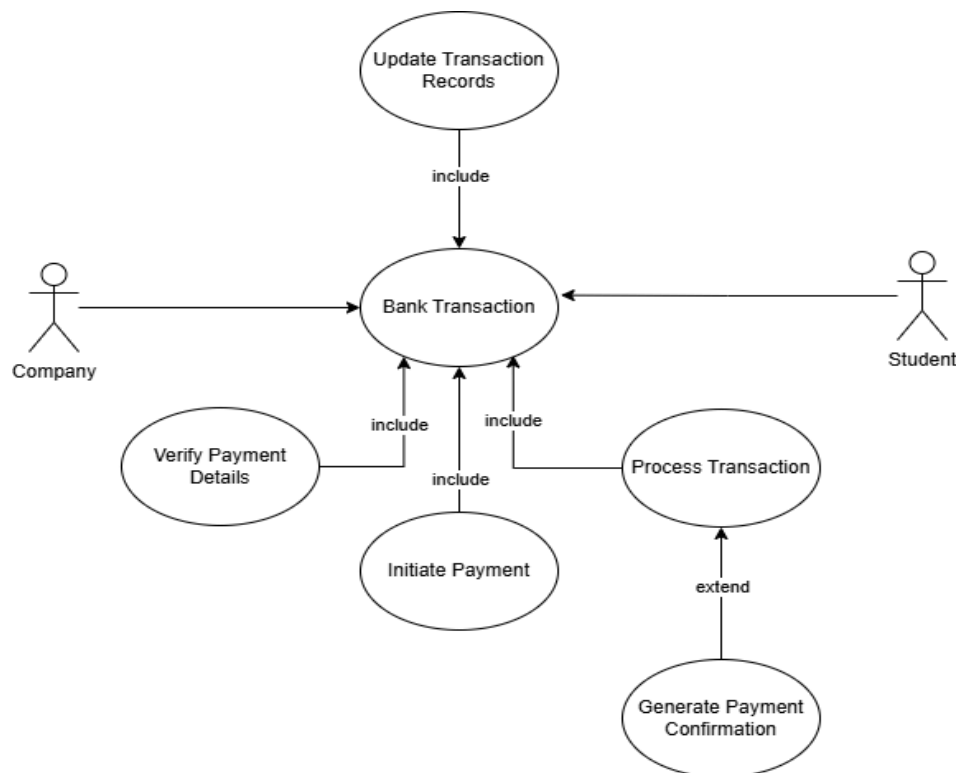
### Scenario 5:



Use Case	Explanation
Manage Student Dashboard	The primary functionality that oversees all dashboard-related actions for students and companies.

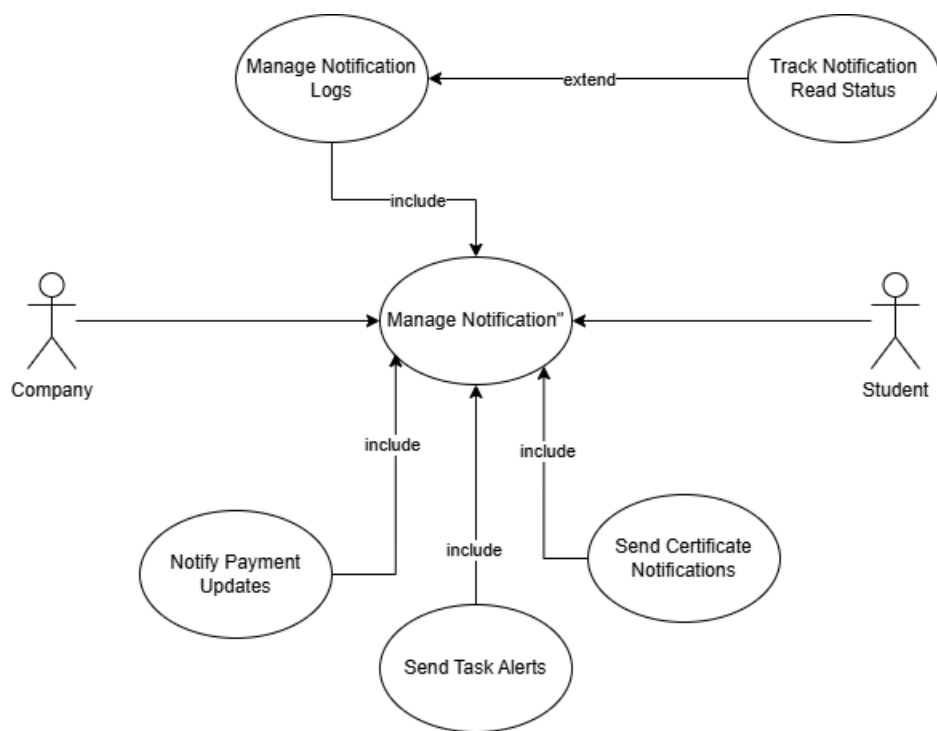
Update Student Credentials	Essential for maintaining up-to-date student information on the dashboard.
Access Completed Tasks	Required for students to view their completed tasks on the platform.
Retrieve Achievement Certificates	Necessary for students to access their earned certificates after completing tasks.
Monitor Payment Records	Enables students to track payment details for completed tasks.
View Task Performance Metrics	Allows students to analyze and track their performance metrics for completed tasks.
Manage Task Alerts	Optional functionality for handling task reminders and notifications.
Endorse Student Work	Optional action for endorsing or validating the student's work, triggered by specific conditions.

### Scenario 6:



Use Case	Explanation
Bank Transaction	The primary functionality for handling all bank-related transactions.
Initiate Payment	A mandatory step to start the payment process.
Verify Payment Details	Essential to validate the accuracy and completeness of payment information.
Process Transaction	A core step to execute the actual payment process.
Update Transaction Records	Required to maintain accurate logs of all transaction activities in the system.
Generate Payment Confirmation	An optional step to confirm the success or failure of the processed transaction.

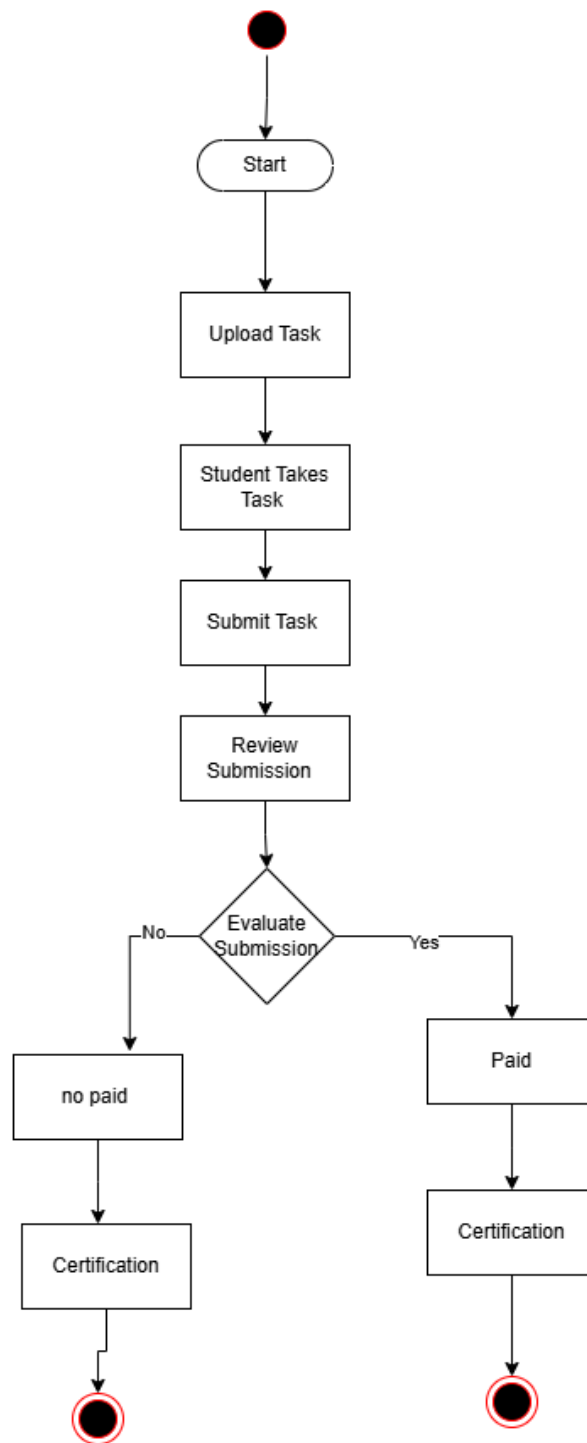
### Scenario 7:



Use Case	Explanation
----------	-------------

Manage Notification	The primary functionality that handles all notification-related processes for both students and companies.
Send Task Alerts	A mandatory step to notify students about task updates or new tasks.
Notify Payment Updates	Required to inform students and companies about changes in payment status.
Send Certificate Notifications	Necessary to notify students when achievement certificates are available.
Manage Notification Logs	Essential to log and store notification-related activities for auditing and tracking purposes.
Track Notification Read Status	Optional functionality to track whether the notifications sent have been read by recipients.

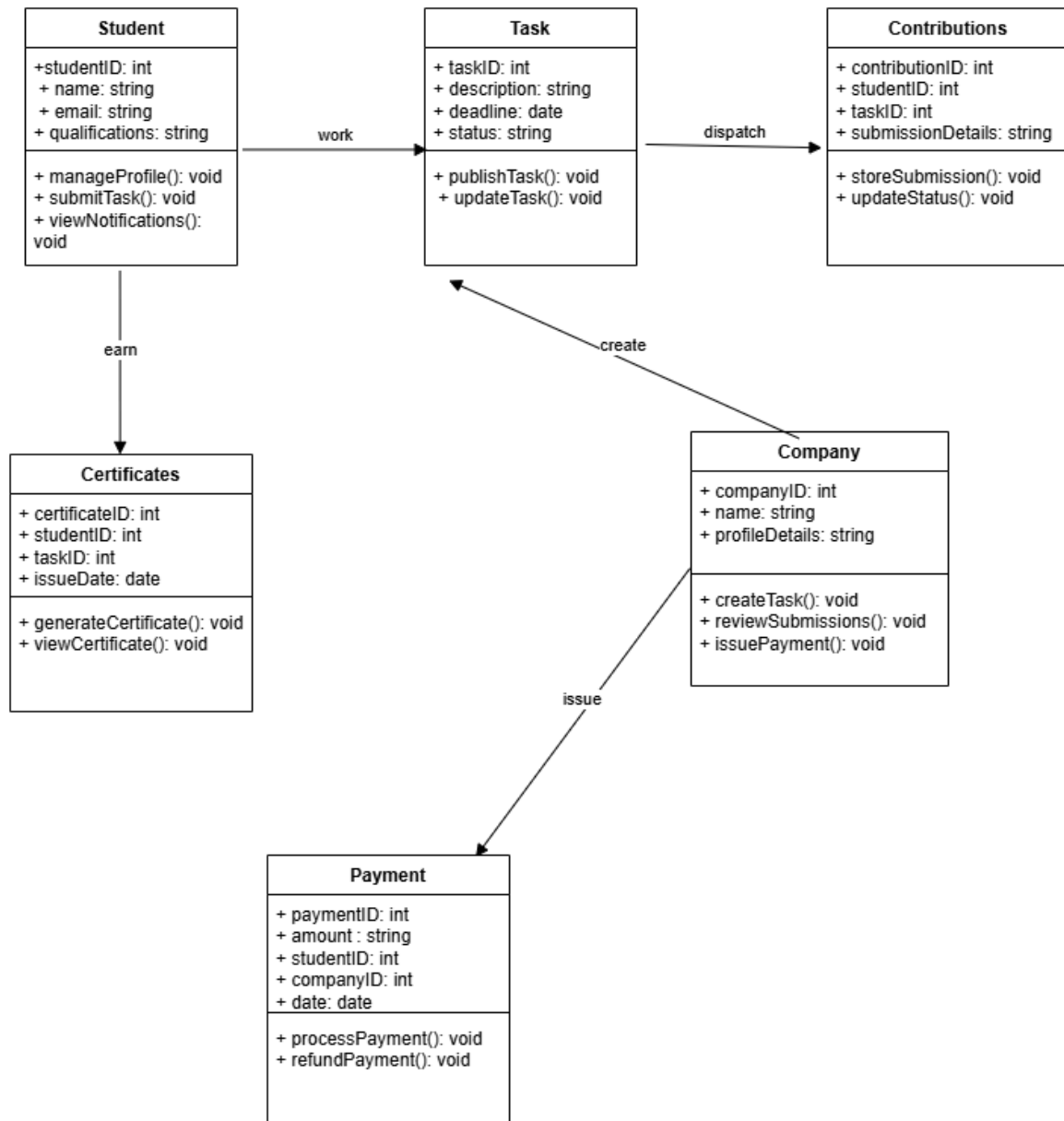
### 4.1.3 Activity diagrams



4-3 Activity Diagram

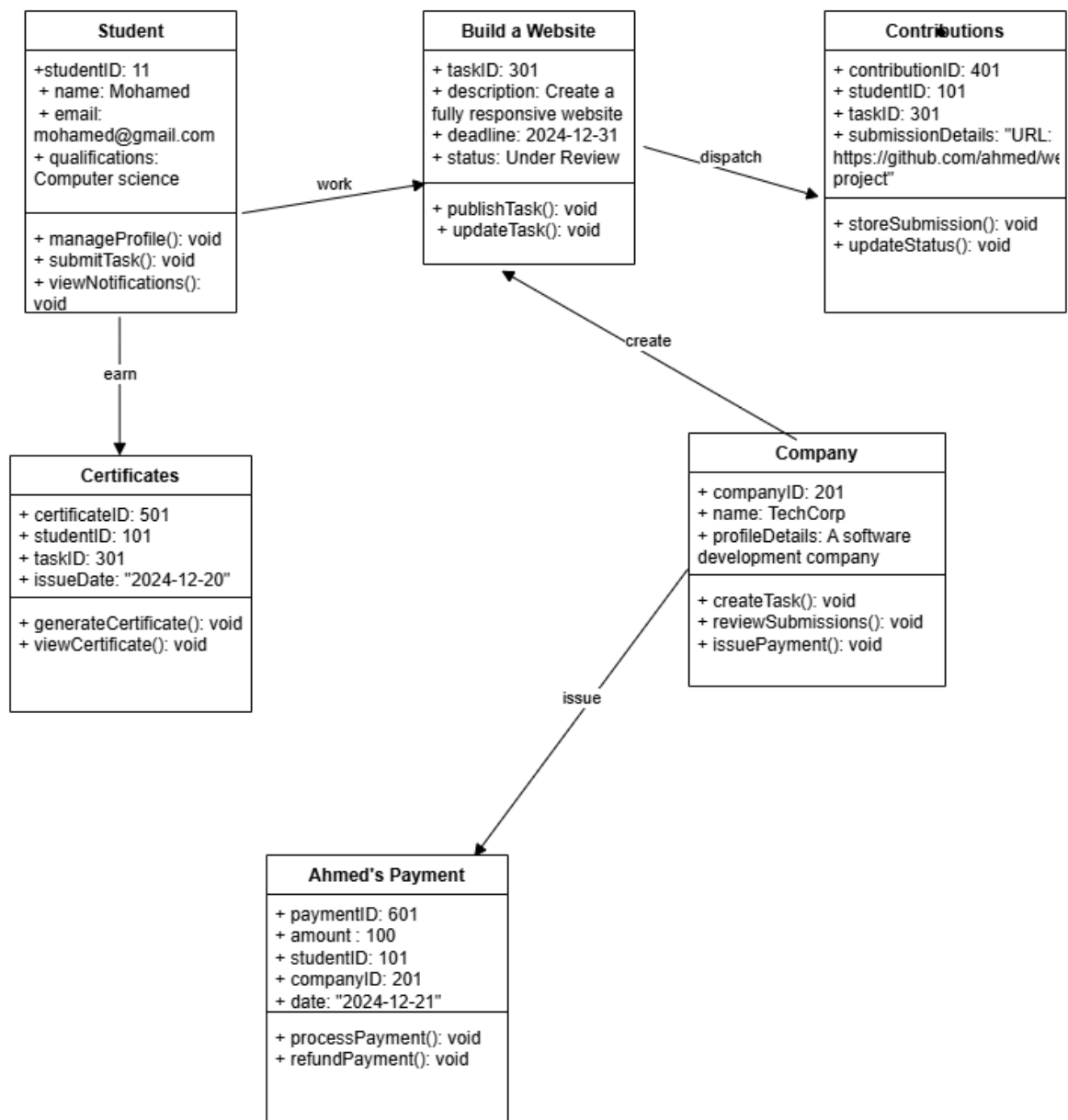
## 4.3 Structural Modeling

### 4.3.1 Class Diagram





## 4.3.2 Object Diagram

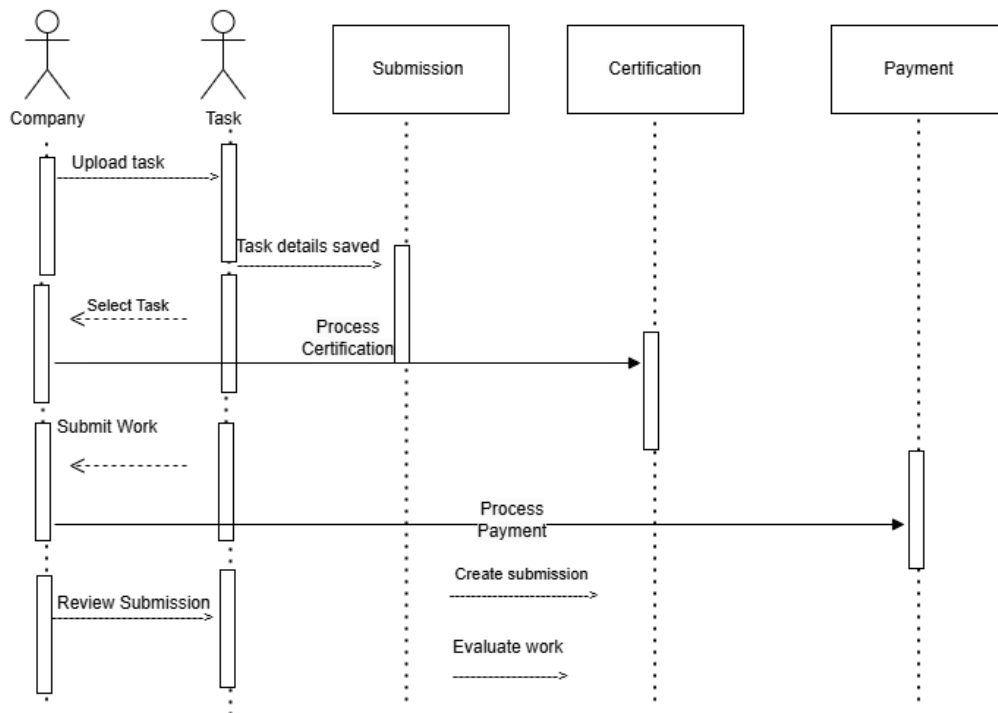


### 4.3.3 Class Responsibility Collaborator (CRC) Cards

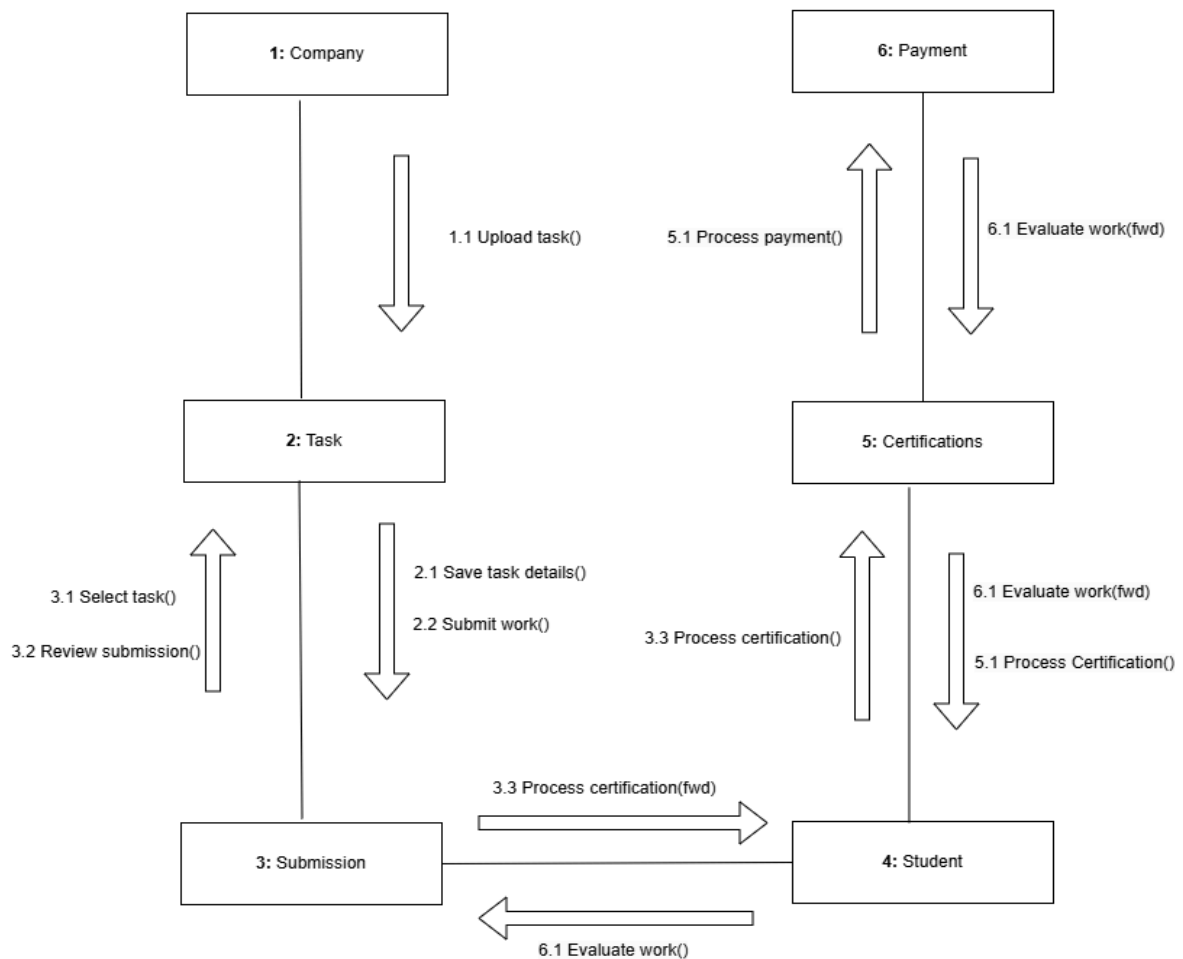
<b>Class Name: Task Management</b>	<b>D:1</b>	<b>Type: Concrete, Domain</b>
<b>Description:</b> Responsible for managing task creation, updates, contributions, and status.		<b>Associated Use Cases:</b> 4
<b>Responsibilities</b> <ol style="list-style-type: none"><li>1. Student Profile (to identify contributors).</li><li>2. Company Profile (to publish tasks).</li><li>3. Notification Management (to send task updates).</li><li>4. Certificates (to generate certificates after task completion).</li></ol>	<b>Collaborations</b> <ol style="list-style-type: none"><li>1. Create and manage tasks.</li><li>2. Assign tasks to students.</li><li>3. Track contributions and completion status.</li><li>4. Notify stakeholders about task updates.</li></ol>	

## 4.4 Behavioral Modeling

### 4.4.1 Sequence diagram



## 4.4.2 Communication diagram



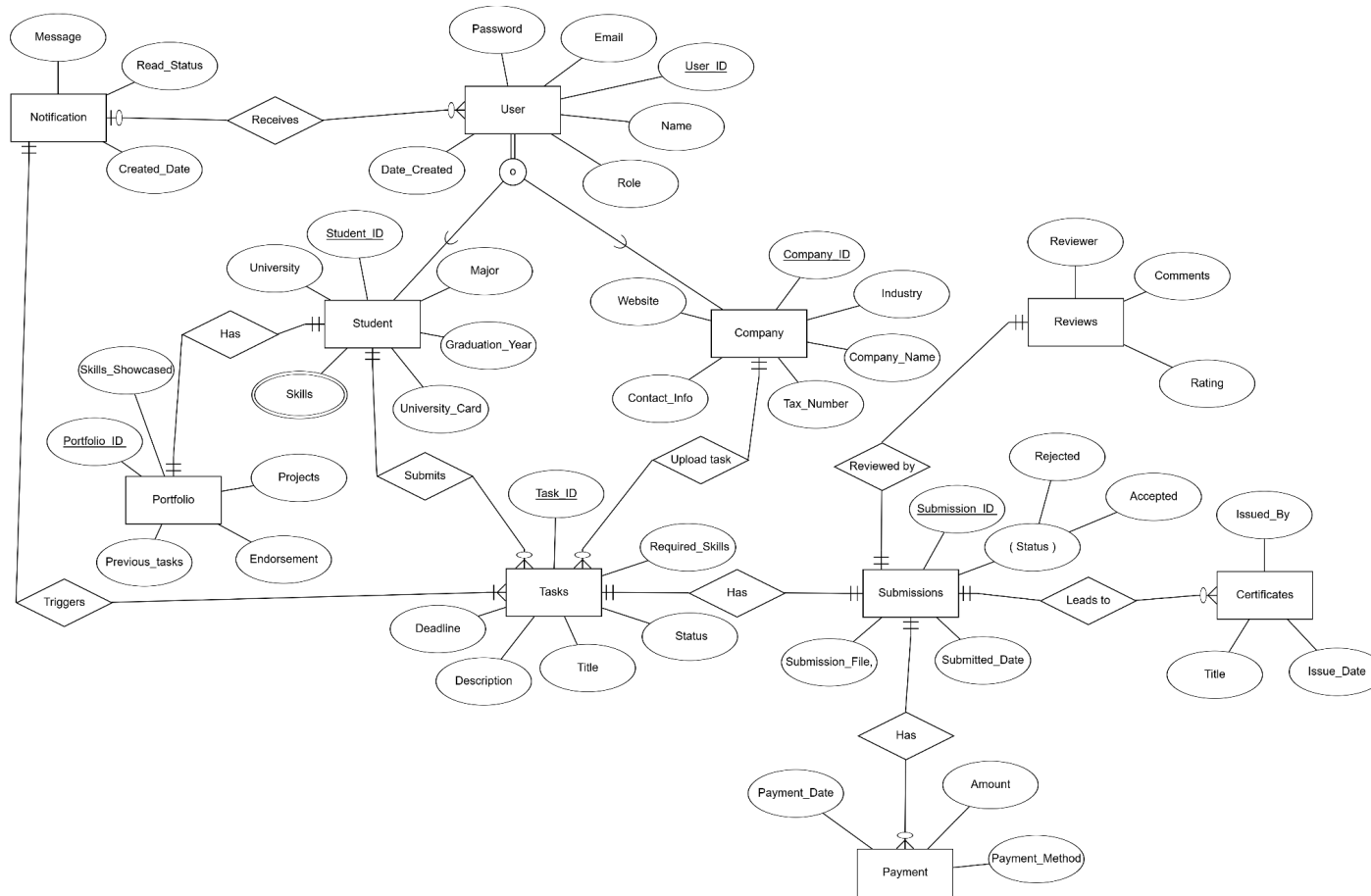
1. **Company** uploads a task to **Task**.
2. **Task** saves the task details in **Submission**.
3. **Submission** allows the **Task** to be selected.
4. **Task** sends a command to **Submission** to submit the work.
5. **Submission** sends the work back to **Task** for review.
6. **Submission** processes the certification and communicates with **Certification**.
7. **Certification** processes the payment and communicates with **Payment**.
8. **Payment** evaluates the work and sends the evaluation results to **Submission**.

## 4.4.4 CRUDE Analysis

[illegible]

# 5.1 Database Design

## 5.1.1 ERD



## 5.1.2 Data Dictionaries

### Entity: User

Attribute	Nullability	Data Type	Index	Description
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User_ID	Not null	INT (10)	Primary Key	Unique identifier for the user.
Name	Not null	VARCHAR (50)		Full name of the user.
Email	Not null	VARCHAR (50)		Email address of the user.
Password	Not null	VARCHAR (30)		Encrypted password.
Role	Not null	VARCHAR (20)		User role (e.g., Student, Company).
Date_Created	Not null	DATE		Date the user account was created.

### Entity: Student

Attribute	Nullability	Data Type	Index	Description
Student_ID	Not null	INT (10)	Primary Key	Unique identifier for a student.
University	Not null	VARCHAR (100)		Name of the university.
Major	Not null	VARCHAR (50)		Major field of study.
Graduation_Year	Not null	YEAR		Expected or actual graduation year.
University_Card	Not null	VARCHAR(255)		ID or card associated with the student.

### Entity: Company

Attribute	Nullability	Data Type	Index	Description
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Company_ID	Not null	INT (10)	Primary Key	Unique identifier for a company.
Company_Name	Not null	VARCHAR (100)		Name of the company.
Industry	Not null	VARCHAR (50)		Industry type of the company.
Website	Not null	VARCHAR (100)		Company's official website URL.
Contact_Info	Not null	VARCHAR (50)		Contact information (e.g., email/phone).
Tax_Number		INT (16)		Tax identification number of the company.

### Entity: Tasks

Attribute	Nullability	Data Type	Index	Description
Task_ID	Not null	INT (10)	Primary Key	Unique identifier for a task.
Title	Not null	VARCHAR (50)		Title of the task.
Description	Not null	TEXT		Detailed description of the task.
Deadline	Not null	DATE		Deadline for task completion.
Required_Skills	Not null	VARCHAR (200)		Skills required to complete the task.

### Entity: Submissions

Attribute	Nullability	Data Type	Index	Description
Submission_ID	Not null	INT (10)	Primary Key	Unique identifier for a submission.

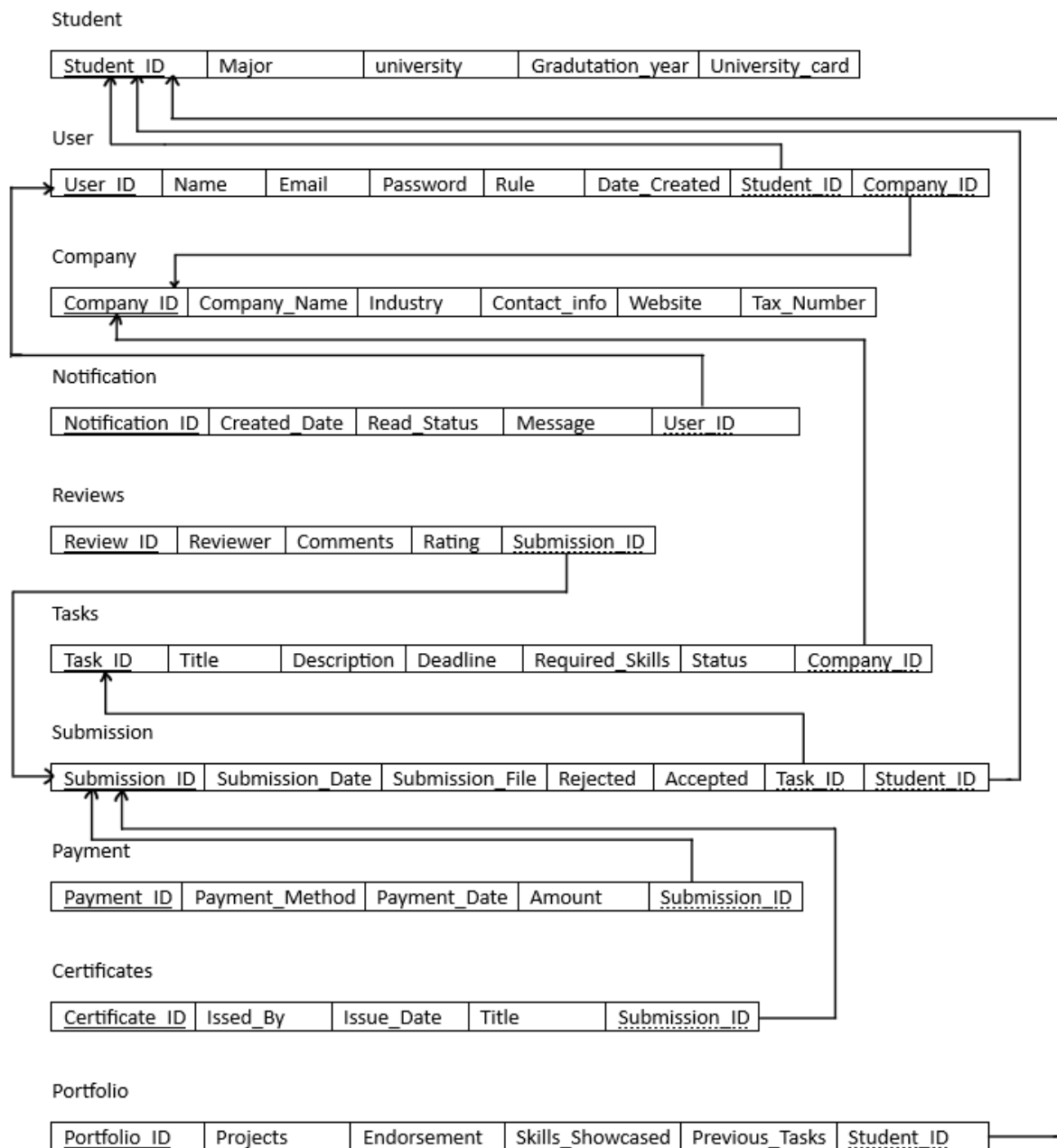


Task_ID	Not null	INT (10)	Foreign Key	References the associated task.
Status	Not null	TEXT		Detailed description of the task.
Submission_File	Not null	VARCHAR (100)		File submitted for the task.
Submitted_Date	Not null	DATE		Date of submission.

### Entity: Payment

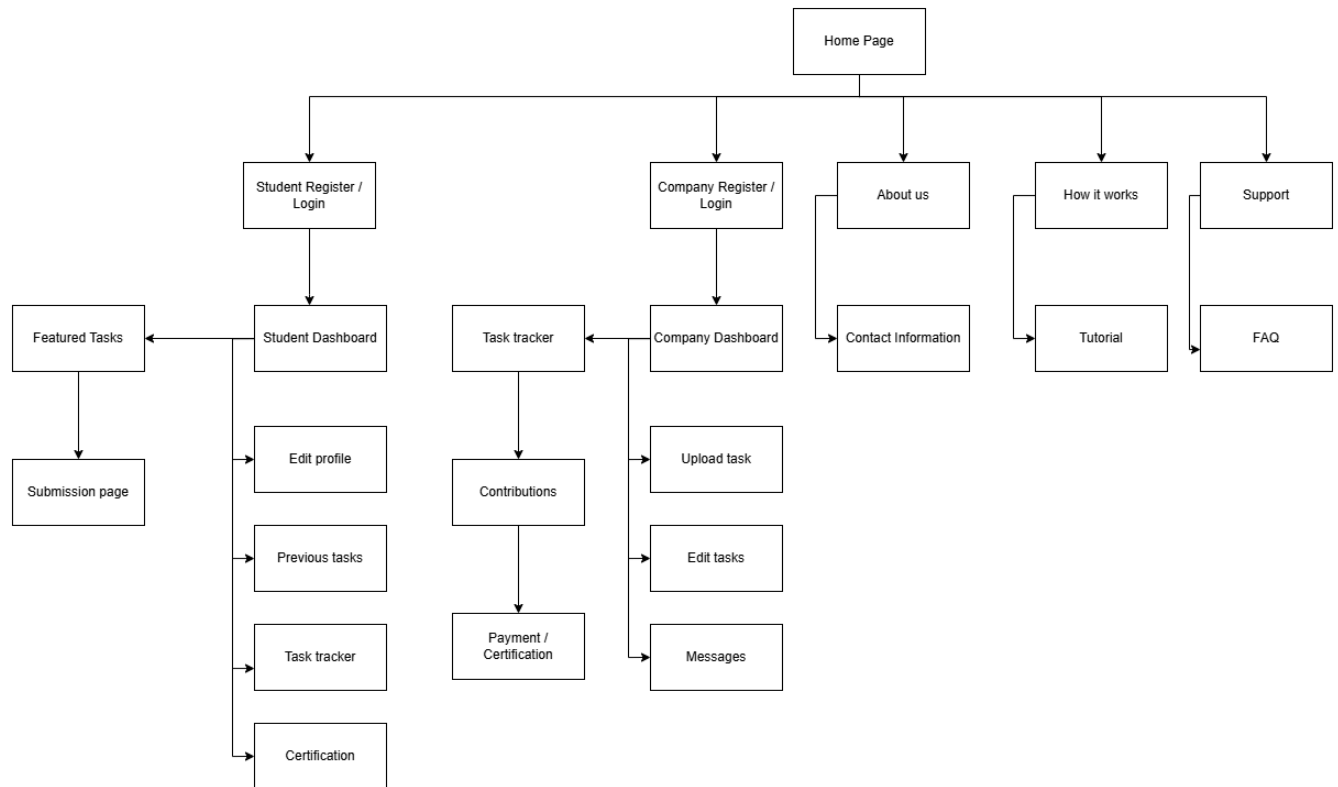
Attribute	Nullability	Data Type	Index	Description
Payment_ID	Not null	INT (10)	Primary Key	Unique identifier for a payment.
Submission_ID	Not null	INT (10)	Foreign Key	References the associated submission.
Amount	Not null	DECIMAL (10,2)		Payment amount.
Payment_Date	Not null	DATE		Date of the payment.
Payment_Method	Not null	DATE		Method of payment (e.g., credit card, bank transfer).

### 5.1.3 Relational Data Model

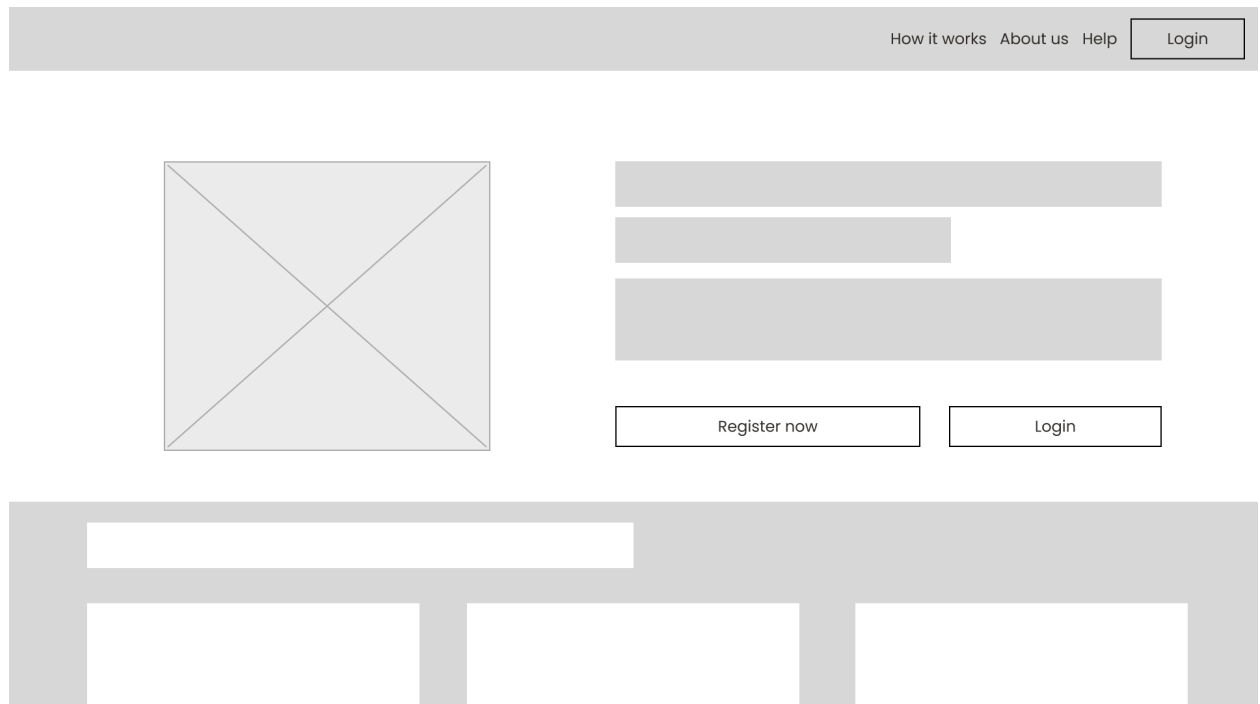


## 5.2 Human Computer Interaction (GUI Design)

### 5.2.1 Site map



## 5.2.2 Story board



This is the Homepage, serving as the entry point for users to understand the platform and access key actions such as logging in or registering.

### Header Elements:

**Navigation links:** "How it works," "About us," "Help."

**Login Button:** Links to the login page.

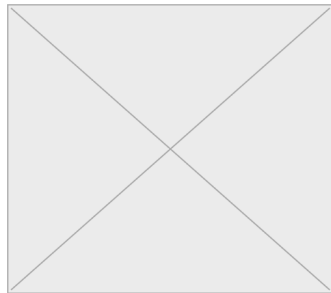
### Main Section

**Left Pane:** Placeholder for a main image or graphic.

**Right Pane:** Three text blocks and two buttons:

**Register now:** Links to sign-up form.

**Login:** Redirects to login page.



For Students



For companies

This page appears after the user presses the Login or Register now button on the homepage.

## Header Elements:

**Navigation links:** "How it works," "About us," "Help."

**Login Button:** An additional option to log in.

## Main Section:

**Back Arrow (Left Side):** Lets users return to the previous page.

### Two Options:

**For Students:** Redirects users to log in or sign up as a student.

**For Companies:** Redirects users to log in or sign up as a company.

## 6.1 Conclusions

In conclusion, this project successfully addresses the critical need for an efficient platform that bridges the gap between companies and students for task outsourcing. By leveraging key functionalities such as company and

student profile management, task publishing and contribution tracking, payment integration, and notification management, the system ensures a seamless and user-friendly experience for both stakeholders.

The inclusion of core processes like certificate generation, task evaluation, and dashboard analytics demonstrates the platform's commitment to enhancing the professional growth of students while meeting the operational needs of companies. Furthermore, the integration of a robust notification system and payment transaction module ensures transparency and reliability throughout the platform.

This project not only streamlines task outsourcing but also fosters a mutually beneficial relationship between companies and students, enabling skill development, professional exposure, and efficient task execution. Future iterations of the system can explore advanced features such as AI-based task recommendations, real-time collaboration tools, and deeper analytics for improved decision-making and user satisfaction.

By addressing real-world challenges and providing innovative solutions, this platform sets a strong foundation for connecting academia and industry, paving the way for enhanced collaboration and productivity.

## **6.2 Future Work Directions**

- Enabling users to showcase completed tasks and certificates directly on professional networks.
- Exploring integration with external tools and platforms such as LinkedIn, payment gateways, and e-learning systems.
- Conducting pilot testing with real companies and students to gather actionable feedback.
- Identifying and resolving any usability or functionality issues to improve the overall user experience.
- Beginning in the development of a mobile application to ensure accessibility and convenience for users on the go.

- Develop audit logs to track all activities for improved transparency and accountability.
- Introduce real-time communication and collaboration features, such as chat systems, file sharing, and task progress tracking.