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Requirement Analysis and Specification Document (RASD)

Students & Companies Problem

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1 | Introduction

For university students finding the right internship that match their interest and their skills can sometimes be hard. At the same time companies sometimes suffers to clearly defines their projects and what they are looking for from the students. For almost 60% of United States students, not knowing how to find an internship was the main reason for not taking one [1].

The number of internships available for students has plunged by 30%, with only 3,817 opportunities in October 2024 being advertised compared to almost 5,500 a year ago [2]. Also the estimated number of American college students take up formal work experience is 21.5% while only 8.7% of UK students take this path. Even among students studying at the top ten universities, the rate is only 19% [2].

While platforms like LinkedIn offer a broad range of job opportunities, they are not tailored specifically to internships, thus make it difficult for students to find internships that align with their skills and interests. Furthermore, companies may struggle to clearly define their projects and requirements, leading to mismatches and inefficiencies in the recruitment process.

Before COVID-19 in the United States, internship rates were between 50% and 60%. However, recent research indicates a much lower number of 21.5% [1].

Even if in the United States, students on average reported being very satisfied with their internship experiences, there are still many students (1 in 4 reported) that had less than satisfactory experiences showing the needs of both students and companies to clearly define what they are looking for from the internships experience. [1].

1.1. Purpose

"Students&Companies" is imagined to be a platform dedicated solely to internships that can implement sophisticated matching algorithms to facilitate the interaction of students with the companies offering an internship and leading to more successful internship experiences.

The scope of the platform is to facilitate the matching between students and companies by assessing the student experiences, skills and attitudes (available in his/her CVs) and the projects and terms offered by the companies.

S&C can be used by the companies, who want to attract students with internships, and by the students who are looking to work for a company by actively searching for an internship

or which receives a recommendation from a system implemented in the platform.

If both the student and the company have a mutual interest in each other then a contact is established, followed by a selection process during which the student is interviewed, S&C also support the selection process by helping managing the interview and finalize the selections.

If the student and the company agree, the platform can collect various kind of informations (such as feedback and suggestions), additionally S&C provides suggestions both to companies and to students on how to improve the company and student appearance on the platform (in terms of CVs for students and project descriptions for companies).

Lastly, S&C monitors the internship and the outcomes of the matchmaking process by allowing students and company to complain, communicate problems and more. Universities can also use the platform to monitor the situation of internships and handle complains.

The main goals of the platform "Student&Companies" are reported in subsection 1.1.1.

1.1.1. Goals

- **[G1]** Match students with internships that align with their experiences, skills and attitudes.

- **[G2]** Match companies with students that might be interested to an internship in that company.

- **[G3]** Let companies advertise the internships that they offer.

- **[G4]** Provide suggestions to students on how to make submission more appealing for the companies.

- **[G5]** Provide suggestions to companies on how to make their internship advertisement more appealing to students.

- **[G6]** Allow students to proactively look for an internship.

- **[G7]** Allow students to apply for internships proposed by companies.

- **[G8]** Offers recommendations to students for internships that match their experiences, skills and attitudes listed in their CVs.

- **[G9]** Use a matching algorithms to improve recommendations.

- **[G10]** Allow the interaction between students, companies and universities.

- **[G11]** Help companies managing the selection process.

- **[G12]** Track the status of applications and selections.

- **[G13]** Collect feedback from students and companies to enhance the matching.

- **[G14]** Collect data to perform statistical analyses for the recommendation system.

- **[G16]** Provide a method for students, companies and universities to communicate.

- **[G17]** Allow to report complains to universities.

- **[G18]** Let universities monitor their students internships.

- **[G19]** Maintain data security and privacy on the platform.

1.2.   Scope

This section focuses on identifying the phenomena within the "Students&Companies" (S&C) domain, distinguishing between phenomena controlled by the world, by the machine, and those shared by both, thereby adopting the "World-Machine Approach." S&C is a platform designed to facilitate connections between university students and companies, supporting the entire cycle of internship offer management. The main actors interacting with the system are students, companies, and universities.

Students

Students use the platform to receive, search for, and apply to internships. They can explore the different available offers, submit applications, and receive notifications about opportunities that match their interests and profile. They can also receive feedback from the system to improve their resumes, making their profiles more attractive to companies.

Companies

Companies use the platform to post internship offers, receive relevant applications, and manage the entire selection process. They can view students' resumes, invite them for interviews, and provide evaluations upon the completion of the internship experience. They can also receive feedback from the system to improve the description of their job offers, helping them attract better talent.

Universities

Universities monitor the progress of internships and support students in their educational journey. Through the platform, universities can verify the correct conduct of internships, offer support to students, and manage any issues that arise during the work experience. For example, if a student reports difficulty adjusting to the assigned tasks, the university can intervene by coordinating with the company to provide additional guidance or adjust the workload.

1.2.1.   World Phenomena

World phenomena are events that occur in the real, external context, outside the platform, and thus are not observed or controlled by the machine. These phenomena influence the operations of the system. They include:

- **[WP1]** Students create their resumes with information about experiences, skills, and attitudes.

- **[WP2]** Companies define internship offers with details about tasks, technologies used, and required qualifications.

- **[WP3]** Companies set the terms for internship offers, including salary details, working hours, work type (full-remote, smart-working, office-only), and schedule.

- **[WP4]** Universities provide guidelines for internships, such as minimum required hours, student placement areas, and the requirement for at least one company mentor.

- **[WP5]** Companies and universities collaborate through the platform to establish internship requirements and objectives.

- **[WP6]** Universities weekly contact students via messages to monitor internship progress.

- **[WP7]** Universities manage student complaints by taking concrete actions against companies (reminders via messages/calls, legal actions, etc.).

1.2.2. Shared Phenomena

Shared phenomena involve both the external world and the machine, requiring direct interactions between the system and users. These phenomena are crucial for the correct execution of system functionalities and represent the point of contact between the machine and the world. Shared phenomena are usually classified in 2 subcategories: World controlled and Machine controlled.

World controlled

- **[SP1]** Student creates a profile on the platform.

- **[SP2]** Company creates a profile on the platform.

- **[SP3]** Students upload their resumes on the platform.

- **[SP4]** Companies upload internship-related information (technical and contractual details) on the platform.

- **[SP5]** Students manually search for internship offers, using possible filter parameters (field, city, distance from a specific location, paid/unpaid).

- **[SP6]** Students manually view and select internship offers that interest them.

- **[SP7]** Students submit applications for relevant internships for himself/herself through the platform, which makes them visible to companies.

- **[SP8]** Universities have the option to terminate an internship due to severe conditions between students and companies, indicating the reason for such termination.

Machine controlled

- **[SP9]** The system sends notifications to students when new internship offers matching their interests are available.

- **[SP10]** The system sends notifications to companies when new candidates matching their interests are available.

- **[SP11]** Companies receive student applications through the platform.

- **[SP12]** The system provides a section for message exchange, for organizing meetings between companies and student candidates, as well as updating internship progress and reporting student complaints to universities.

- **[SP13]** The system facilitates the organization of interviews between students and companies: scheduling section (calendar).

- **[SP14]** The system facilitates the organization of interviews between students and companies: section for conducting interviews (video call platform).

- **[SP15]** The system requests students and companies to complete a questionnaire (multiple-choice and open-ended questions) to provide feedback on the internship experience (recommended or completed) to improve the recommendation system.

- **[SP16]** The system provides feedback to students and companies on their uploaded content (resumes and internship details) to obtain better matches and improve engagement.

1.2.3. Machine Phenomena

Machine-controlled phenomena are automatic operations performed by the system, which are crucial for its functioning. These phenomena occur without human intervention, and thus without being observed by the "world." They include:

- **[MP1]** The system processes student resume data and company internship offers to generate personalized recommendations.

- **[MP2]** The system collects statistics on offered internships and provided feedback, creating reports to improve recommendation processes.

- **[MP3]** The platform manages automatic notifications, sending updates to students, companies, or universities about new matches or messages, and reminding them of scheduled meetings.

- **[MP4]** The platform automatically verifies the completeness of student profiles and company offers, suggesting necessary corrections or additions.

1.3. Definitions, Acronyms, Abbreviations

1.4. Revision History

1.5. Reference Documents

1.6. Document Structure

2 | overall description

This section provides a general overview of the Students & Companies (S&C) system, describing its operational context and interaction with users and the external environment. This part of the document is essential to understand the system's structure, its main actors, and how it fulfills user requirements. Specifically, it covers:

- The product perspective, offering a detailed analysis of usage scenarios.

- Conceptual diagrams representing the main domain entities and their interactions.

- The lifecycle of states for key system functionalities.

2.1. Product Perspective

The Students & Companies (S&C) system is a platform designed to facilitate interactions among students, companies, and universities in the context of internships. This subsection provides an overview of the system's scope and purpose, highlighting how it addresses key challenges in managing internships effectively.

The Product Perspective section is structured into the following subsections:

- **Scenarios:** Describes typical use cases for the system, illustrating how students, companies, and universities interact with its functionalities.

- **Domain Class Diagram:** Provides a conceptual representation of the main entities within the system and their relationships.

- **State Diagram:** Outlines the lifecycle of the system's core processes, detailing the transitions between different states.

These subsections collectively define the operational context of the system, offering insights into how its components work together to meet user requirements.

2.1.1. Scenarios

The purpose of this section is to illustrate the operational contexts in which the **Students & Companies (S&C)** system will function. It outlines how the system's functionalities are designed to meet user requirements by presenting a comprehensive exploration of the entire lifecycle of an internship. This lifecycle begins with profile creation and concludes with the completion of the internship experience.

To ensure clarity and transparency, we employ a narrative style to describe these scenarios. This approach not only enhances readability but also allows us to introduce the key stakeholders, the settings, and the motivations driving their actions. Each scenario narrates a story, portraying real-life use cases through the interactions of the primary characters.

The protagonists of the following scenarios are:

- **Lorenzo:** Lorenzo is a university student pursuing a Bachelor's degree in Artificial Intelligence at the University of Pavia. As part of his academic program, he is required to complete an internship, which he also intends to use as the basis for his thesis. After receiving no positive responses to his CV submissions through various company websites, Lorenzo decides to explore the S&C platform.

- **David:** David works at AISent, a small and medium-sized enterprise (SME). He is looking for a student to collaborate on a Computer Vision project, making him an ideal example of a company recruiter who benefits from the S&C platform.

- **Claudio:** Claudio is a professor at the University of Pavia. Lorenzo contacts him to request that he serve as his academic tutor. In this capacity, Claudio will act as a liaison between the company and the intern, oversee the internship's progress, and prepare the final report for competency evaluation (as detailed in Section **??**).

The interaction lifecycle between these three stakeholders and the S&C platform will be analyzed in detail through the following stages:

1. Student's (Lorenzo) scenarios.

2. Company Recruiter's (David) scenarios.

3. University Tutor's (Claudio) scenarios.

Stage A: Student's Scenarios

Scenario [A-1]: *The Student open the S&C Application*   .
The first interaction between the student **Lorenzo** and the S&C application focuses on accessing the platform. This process depends on the specific reason for Lorenzo's access and can lead to one of the following actions:

- **Registration:** If Lorenzo is a new user, he may choose to create an account. This step allows him to explore the platform and assess how his profile aligns with available internships.

- **Login:** If Lorenzo already has an account, he logs in to continue using the platform. This access allows him to perform tasks such as monitoring applications, reviewing internship progress, or addressing any issues related to ongoing internships.

- **Password Recovery:** If Lorenzo has forgotten his login credentials, he can initiate the password recovery process to regain access to the platform.

- **Customer Support:** If Lorenzo encounters issues or has questions, he can interact with the support system, which includes automated help via a chatbot and escalation to a human representative when necessary

This scenario focuses solely on the student's access. The subsequent four points will now be analyzed in detail as individual scenarios. They are presented here to provide context for the genesis of this scenario. The analysis will proceed with scenarios spanning from the student's initial application access to the internship's conclusion.

Scenario [A-2]: *Student Registration* .
The second scenario occurs when **Lorenzo** (the student), after accessing the **S&C** application and realizing he does not yet have a profile, decides to create one. Upon selecting the registration option, Lorenzo is directed to the registration page, where he is prompted to fill out the required fields. These fields include:

- Email address

- Date of birth

- Password

- Role selection (Student, Academic Tutor, or Recruiter)

- Security Questions and Answers

After completing the form and confirming his email address, Lorenzo's profile is successfully created. He is then redirected to the homepage, where he can log in instead of registering again. From this point, Lorenzo can proceed to explore and utilize the platform's features.

Scenario [A-3]: *The Student Credential Recovery* .
Despite having created a profile, **Lorenzo** (or any other student) has forgotten both his email and password. Using the credential recovery feature, Lorenzo provides the answers to the security questions he selected during registration. The **S&C** system validates his responses, retrieves the email associated with his profile, and sends a temporary password to that email. Lorenzo can then use the provided credentials to regain access to his account and reset his password if needed.

Scenario [A-4]: *The Student and the Chatbot Interaction* .
Lorenzo is uncertain about the detailed functionalities of the **S&C** application and wants to understand how his data will be used before providing his information. To address this and other doubts, Lorenzo interacts with the platform's chatbot. The chatbot offers clear explanations, providing information about data usage and the platform's features. If Lorenzo requires further clarification, the chatbot escalates his query to a human representative for additional support.

Scenario [A-5]: *The Student Login in the S&C Application* .
Lorenzo (or any other student) proceeds to log in using the credentials obtained during the registration process. From the initial page, the student navigates to the dedicated login

page with the intent of accessing the functionalities of the **S&C** platform. To complete the login process, Lorenzo must enter his username and password into the designated fields for student credentials. Once authenticated, he gains access to the platform.

Scenario [A-6]: *The Student Create its CV (Student First Access into S&C)*
.

This scenario occurs when **Lorenzo** logs into the **S&C** application for the first time. Before accessing the platform's full features, Lorenzo is required to complete the creation of his profile, which is linked to the credentials used during login. As part of this process, Lorenzo must create his CV within the application. The CV creation process offers Lorenzo two options:

- **Option 1: Manual CV Creation.** Lorenzo can build his CV from scratch by filling out the mandatory fields and, if desired, adding optional customizable fields. This approach allows Lorenzo to tailor his CV to his specific preferences and needs.

- **Option 2: Upload an Existing CV.** If Lorenzo already has a CV prepared, he can upload it directly to the application. Using advanced Large Language Model (LLM) technology, the platform analyzes and transfers the data from Lorenzo's uploaded CV into the system's standardized format.

After the CV is processed, Lorenzo is given the opportunity to manually review and edit any fields where data may not have been correctly transferred. Once the CV is complete, Lorenzo can request an automatic review to enhance its quality. This review, powered by an agent-based approach leveraging LLMs, provides suggestions and improvements for optimizing the CV. Finally, Lorenzo can confirm and save the CV within his profile, completing the setup process. With his CV finalized, Lorenzo can proceed to use the application and explore its features.

Scenario [A-7]: *The Student Searches for an Internship* .
After successfully logging into the **S&C** application, **Lorenzo** is ready to search for an internship. The internship search process encompasses all actions taken before a **contact** is established (i.e., when Lorenzo expresses interest in a position and the company deems him a suitable candidate). The student has three distinct methods to search for internships, corresponding to the three primary ways a contact can occur. These methods are presented in descending order of interaction friction:

Subscenario [A-7.1]: *Monitoring Page* .
In the **Monitoring Page**, Lorenzo can view a list of positions for which companies have invited him to participate in their selection processes. Each position includes detailed information about the role and the company. If Lorenzo finds a position appealing, he can indicate his interest by accepting the company's invitation. This action results in a **contact**, allowing both parties to proceed with the next steps in the internship process.

If a contact is established in this way, in our example, Lorenzo has accepted a request in his Monitoring Page to participate in the selection process for a Computer Vision Intern role at the company **AISent**.

Subscenario [A-7.2]: *"For You" Section in Matchmaking* .
The **"For You" Section** of the matchmaking system presents a list of recommended positions tailored to Lorenzo's CV details. In this section, Lorenzo can review the descriptions of suggested positions and express interest by assigning a **like** to roles he finds appealing. If Lorenzo wishes to refine the list, he can use system-recommended tags to filter positions by job type or category. When Lorenzo assigns a like to a position, the corresponding recruiter is notified. If the recruiter reciprocates the interest, a **contact** is established.

If a contact is established in this way, in our example, Lorenzo has used the "For You" section to send a request to participate in the selection process for a Computer Vision Intern role at the company **AISent**. This request was then accepted, establishing the contact.

Subscenario [A-7.3]: *Custom Search in Matchmaking* .
If the system-recommended tags or positions in the **"For You" Section** do not meet Lorenzo's preferences, he can perform a **custom search**. Using the application's comprehensive search engine, Lorenzo can manually explore all open positions listed on the platform. This approach provides maximum flexibility for finding opportunities that align with his specific interests.

If a contact is established in this way, in our example, Lorenzo used the custom search feature to find the position and sent a request to participate in the selection process for a Computer Vision Intern role at the company **AISent**. This request was then accepted, establishing the contact.

Scenario [A-8]: *The Student Monitors the Progress of Their Applications* .
Within the **Monitoring Page**, **Lorenzo** can not only view the positions for which he has received invitations to participate in the selection process but also track the progress of applications he has submitted to various positions across different companies. The **Monitoring Page** also provides detailed updates on Lorenzo's applications, including:

- Whether the company has issued a negative response to his application.

- Whether the company has viewed his application but has not yet responded.

- Whether the company has not yet viewed his application.

This feature allows Lorenzo to stay informed about the status of all his internship applications and take appropriate actions if needed.

In the case of our example from subscenarios [A-7.2] and [A-7.3], the Computer Vision Intern position at **AISent**, as in [A-7.1], will appear in the monitoring section. However, unlike in [A-7.1], this position will be listed under the section for submitted applications rather than the section for received offers.

Scenario [A-9]: *A Contact is Established Between the Student and the Company* .
A contact is established between **Lorenzo** and a company when mutual interest has been

expressed, regardless of the order in which the interest was shown. Once this connection is made, the system sends a notification to inform Lorenzo of the successful match. The notification includes key details, such as the **name of the company** and the **position** for which the contact was made. This notification is stored in the **Notifications Section** of the application, allowing Lorenzo to review it at any time. This ensures that Lorenzo remains informed about new opportunities and can easily keep track of his connections as they arise, supporting effective engagement with companies.

Scenario [A-10]: *The Selection Process (Student perspective)* .

The **selection process** from the student's perspective begins when **Lorenzo** is notified of a **contact** established with a company. This notification, as described in Scenario **A-9**, includes details about the company and the position. Lorenzo then accesses the **Selection Page**, where he views the stages of the recruitment process defined by the company. These stages may include screening, technical tests, interviews, and final evaluations. Each stage provides clear instructions and deadlines. To progress, Lorenzo completes the required tasks, such as submitting documents or tests and attending interviews scheduled via the platform. Throughout the process, real-time updates are provided in the **Notifications Section**, and the **Calendar Widget** helps him manage deadlines. Communication with recruiters is facilitated through the **Messaging Page**, allowing Lorenzo to ask questions or respond to feedback. If successful, the company extends an offer, which Lorenzo can review and accept directly on the **Selection Page**.

Scenario [A-11]: *The Student Receives an Internship Offer* .

After successfully completing all stages of the selection process defined by the company, **Lorenzo** is notified of an official offer for the position. This notification is accessible within the **Selection Section** of the application. Lorenzo is given a defined number of days, as specified by the company, to respond to the offer. He can take one of the following actions:

- **Decline the Offer:** Lorenzo can choose to reject the offer outright.

- **Request an Additional Call:** Lorenzo can request a follow-up call for clarification or discussion before making his decision. However, the company is not obligated to accommodate this request.

- **Accept the Offer:** Lorenzo can immediately accept the position and proceed with onboarding.

This feature ensures that Lorenzo has sufficient flexibility to evaluate the offer and make an informed decision within the specified timeframe.

Scenario [A-12]: *The Student Accepts the Formal Offer Received* .

After completing all stages of the selection process, **Lorenzo** receives a formal offer from the company through the **Selection Page**. The notification includes all relevant details about the position, such as the internship duration, start date, and specific terms. Lorenzo carefully reviews the offer and chooses to accept it through the platform. Upon acceptance, the system updates the status of the offer and notifies the company of his decision.

Following this, Lorenzo is required to take the next step in the process by finding a **University Tutor**. This is essential for ensuring proper academic oversight and compliance with university requirements for internships. Through the **Tutor Selection** section in the Active Stage Page of the platform, Lorenzo can search for and contact a professor from his university who is eligible to act as his academic tutor. Once the tutor agrees, their details are linked to Lorenzo's internship profile, completing the administrative setup and allowing the internship to officially begin.

Scenario [A-13]: *The Student Provides Weekly Internship Updates* .
When the internship is active, **Lorenzo** receives a weekly notification prompting him to complete the **Weekly Progress Questionnaire**. This ensures regular updates on his internship experience. The questionnaire can be accessed in the **Active Internship Section** of the application. In this section, Lorenzo finds a designated box where he is required to complete the questionnaire each week. This feature helps track Lorenzo's progress and provides structured insights into his internship activities.

Scenario [A-14]: *The Student Reports Problems During the Internship* .
During the internship, **Lorenzo** may encounter various types of issues that need to be addressed to ensure his rights and well-being are protected. To facilitate this, the platform allows Lorenzo to contact his assigned professor (academic tutor) directly through the **Active Internship Section**. This feature provides Lorenzo with a secure and efficient way to report problems and seek guidance or intervention when necessary.

Scenario [A-15]: *The Student Completes the Internship* .
At the conclusion of the internship, **Lorenzo** is required to complete a **Final Evaluation Questionnaire**. This questionnaire is designed to collect feedback on his overall internship experience.

The questionnaire includes:

- A rating and written feedback on the company, assessing aspects such as the work environment, the relevance of the tasks, and the support provided during the internship.

- A rating and evaluation of the academic tutor, focusing on their guidance, communication, and availability throughout the internship.

- A self-reflection section, where Lorenzo can describe what he has learned and how the internship has contributed to his personal and professional growth.

This feedback is used to improve the platform's matchmaking process, ensure quality standards for future internships, and provide valuable insights to both companies and academic tutors. Once the questionnaire is completed, the internship is marked as finalized, and Lorenzo can access a certificate of completion if applicable.

Stage B: Company Staff Member / Recruiter Scenarios

Scenario [B-1]: *The Recruiter Open the S&C Application* .

The first interaction between the recruiter **David** and the S&C application focuses on accessing the platform. This process depends on the specific reason for David's access and can lead to one of the following actions:

- **Registration:** David can register as a recruiter, creating an account specific to his company's needs.

- **Login:** Once registered, David can log in to manage internship postings, review applications, and communicate with students.

- **Password or Username Recovery:** If David forgets his login credentials, the system allows for easy recovery through a secure process.

- **Chatbot Assistance:** A chatbot is available to help David resolve issues or clarify doubts regarding internship postings or candidate management.

This scenario focuses solely on the recruiter's access. The subsequent four points will now be analyzed in detail as individual scenarios. They are presented here to provide context for the genesis of this scenario. The analysis will proceed with scenarios spanning from the recruiter's initial application access to the internship's conclusion.

Scenario [B-2]: *The Recruiter Registration* .

The second scenario occurs when **David** (the recruiter), after accessing the **S&C** application and realizing he does not yet have a profile, decides to create one. Upon selecting the registration option, David is directed to the registration page, where he is required to fill out the following fields:

- Email address

- Password

- Role selection (Student, Academic Tutor, or Recruiter)

- Security Questions and Answers

Once David completes the registration form and verifies his email address, his recruiter profile is successfully created. He is then redirected to the homepage, where he can log in instead of registering again. From this point, David can start posting internship opportunities, managing applications, and engaging with potential candidates.

Scenario [B-3]: *The recruiter Credential Recovery* .

David (or any other recruiter) encounters a situation where he has forgotten both his email and password. Using the credential recovery feature, David answers the security questions he set up during registration.Upon verifying his responses, the **S&C** system provides him with the email linked to his account and sends a temporary password to that email address. With these credentials, David can log in and reset his password for continued access.

Scenario [B-4]: *The recruiter and the Chatbot Interaction* .
David has questions about how to use specific features of the **S&C** application, such as creating an internship posting or reviewing student profiles. To resolve his doubts, David interacts with the platform's chatbot. The chatbot provides step-by-step guidance and answers frequently asked questions. If David's concerns are not fully addressed, the chatbot escalates his query to a human representative for further assistance.

Scenario [B-5]: *Recruiter Login* .
David (or any other recruiter) proceeds to log in using the credentials obtained during the registration process. From the homepage, David navigates to the login page, intending to access the **S&C** platform to manage internship opportunities and applications.To log in, David must enter his username and password into the fields designated for recruiter credentials. Upon successful authentication, he gains access to the platform.

Scenario [B-6]: The Company Staff Member Links to Their Company .
During his first interaction with the **Students & Companies (S&C)** platform, after completing the initial login, **David**, a Company Staff Member at AISent, must connect his personal profile to his company. This connection is necessary to enable full functionality of the platform and is achieved through one of two possible subscenarios.

Subscenario [B-6.1]: The Company is Already Registered .
If **AISent** is already registered on the platform, David connects his profile using the **Company Code**, which was generated when the first staff member from AISent registered the company. If David does not have the code, he can initiate a recovery process by requesting it via email to the company's initial contact or by using the **"Resend Code"** option, which sends the code to the registered company email. If these options fail, David can verify his affiliation by uploading his employment contract to the platform, which will then be manually reviewed and validated by an S&C administrator.

Subscenario [B-6.2]: The Company is Not Yet Registered .
If **AISent** is not yet registered on the platform, David must create a new company profile. This involves providing details such as AISent's name, address, and industry. Once the required fields are completed, David can use the **LLM (Large Language Model)** feature integrated into the platform to review and optimize the entered details. By selecting the **"Review and Optimize"** option, the LLM ensures the input is accurate and professional. After finalizing the profile, David submits it for verification by the S&C administrative team, ensuring compliance with the platform's standards before it becomes active.

Scenario [B-7]: The Company Staff Member Creates Their Profile .
After successfully linking his account to the company, **David**, a staff member at AISent, proceeds to create his personal profile on the **Students & Companies (S&C)** platform. This step allows David to specify his role within the company and include a personal introduction that can help students get to know him better. David fills out the necessary fields in his profile, such as his job title, a brief description of his responsibilities, and a personal

message or bio to make his profile approachable to potential internship candidates. To ensure professionalism and accuracy, David can utilize the platform's integrated **LLM (Large Language Model)** feature. By selecting the *"Review and Optimize"* option, David allows the LLM to suggest enhancements to his profile before finalizing it. Once reviewed and confirmed, the completed profile is securely linked to David's credentials and becomes accessible within the platform, enabling seamless interaction with students and the management of internship processes.

Scenario [B-8]: The Company Staff Member Creates a New Job Position .

After setting up his profile, **David**, a staff member at AISent, accesses the **New Position** page to create a new internship or job posting for the company. This page provides an intuitive interface designed to simplify the creation of detailed and attractive job postings while ensuring that critical elements of the selection process are properly defined. David begins by entering the essential details of the position, such as the job title, description, required qualifications, and duration. Additionally, this section allows David to define the specific selection process for the position, including steps such as *Initial Screening*, *Technical Tests*, and *Final Interviews*. Defining these steps is fundamental as they guide both the company and students during the recruitment process. To assist with the creation of the job posting, the platform offers **predefined templates** tailored to common roles, such as Programmer, Human Resources Specialist, or Translator. By selecting a template, David can quickly populate the fields with industry-standard information, reducing the effort required to start from scratch. To further refine the job posting, David can utilize the **LLM (Large Language Model)** feature integrated into the platform. By enabling the *"Review and Optimize"* option, the LLM analyzes the entered information and suggests improvements to make the job posting more appealing to potential candidates. These enhancements may include adjustments to the job description, qualifications, or other details to better align with industry best practices. Once all fields, including the selection process, are reviewed and optimized, David confirms the creation of the job posting. The finalized posting is then made available on the platform for students to discover and apply.

Scenario [B-9]: Company Staff Member Saves a Draft of a Job Position .

While creating a new job position on the **New Position** page, **David**, a staff member at AISent, decides to save his work as a draft without publishing it immediately. This feature allows David to save incomplete or tentative postings and revisit them later for further edits or finalization. David fills in the necessary details for the position, such as the title, description, and required qualifications. However, if he needs more time to finalize the content or wants to revisit specific details later, he selects the **"Save Draft"** option. The draft is securely stored within the **Drafts** section of the platform, accessible only to authorized company staff members. At a later time, David can return to the **Drafts** section, open the saved draft, and make additional changes or refinements.

Scenario [B-10]: The Company Staff Member Invites Students to Selection .

On the **Matchmaking** page, **David**, a staff member at AISent, reviews a list of potential candidates for open job positions. The platform's recommender system identifies students whose profiles align with the job requirements, providing David with a curated list for

each position. For each student, David can click on their name to view a detailed page containing the student's CV, offering insights into their skills, experiences, and qualifications.Next to each student's name, their **interest status** is displayed, which can take one of three values: *"Yes," "No,"* or *"Not Yet Defined."* If the student has indicated **"No"**, David can still send a request to participate in the selection process if he believes the student might be a good fit for the position. This allows the company staff member to encourage candidates who may have initially overlooked the opportunity. For students whose status is **"Not Yet Defined,"** David can send a request to invite them to the selection process. This ensures that students who have not yet expressed a preference are given a chance to engage with the position. Once the request is sent, the platform updates the student's status and notifies them of the company's interest. If the student has already expressed **"Yes"** as their interest status, David does not need to send a request but can instead approve the application. However, the detailed process for handling students with "Yes" status is addressed in the next scenario.

Scenario [B-11]: Selection Process (Company Staff Perspective) .
From the perspective of the **Company Staff Member**, the selection process begins once a **contact** is established with a student, as outlined in Scenario **B-11**. This occurs when mutual interest is expressed, either by the student accepting an invitation to participate or the staff member inviting a student who has shown interest. The **Selection Page** allows the staff member, such as **David**, to manage the recruitment process for each position. The page provides a detailed view of the selection stages, including initial screening, technical tests, interviews, and final evaluations. For each stage, David can view the progress of individual candidates and track completion statuses.David can use the platform's tools to communicate with students through the **Messaging Page**, providing instructions, feedback, or scheduling interviews. The **Calendar Widget** helps David manage deadlines and events related to the recruitment process, ensuring that both the company and candidates remain aligned.Once a student successfully completes all stages, David can use the **Offer Management** section to extend an internship offer. This functionality allows David to define the terms of the offer, notify the student, and track their response. If the student declines, David can efficiently proceed with other candidates in the process.

Scenario [B-12]: The Company Staff Member Makes a Formal Offer .
Once a student successfully completes all stages of the selection process, **David**, a company staff member at AISent, proceeds to make a formal offer through the **Offer Management** section of the platform. This process allows David to define and communicate the terms of the internship or job position to the student. David begins by accessing the details of the specific position and selecting the student to whom the offer will be extended. He enters the key terms of the offer, such as the internship duration, start date, and any other relevant conditions.

Scenario [B-13]: The Company Staff Member Organizes the First Call with the Student and the University Tutor .
After the student accepts the formal offer and selects a university tutor, **David**, a staff

member at AISent, schedules an initial call with the student and their university tutor through the platform's **Communication Tools**. This meeting aims to provide a detailed explanation of the student's responsibilities during the internship and address any potential questions or concerns. David coordinates the meeting by proposing a time and date through the **Calendar Widget**, which sends invitations to both the student and the tutor. During the call, David outlines the key tasks, expectations, and deliverables, ensuring alignment among all parties. This step fosters a clear understanding of the internship objectives and establishes a solid foundation for collaboration.

Scenario [B-14]: The Company Staff Member Reports Issues with the Student to the University Tutor .

If challenges arise during the internship, such as the student not meeting expectations or encountering difficulties at the workplace, **David** uses the platform to notify the university tutor. This reporting is handled through the **Active Internship** section, where David can document specific concerns, such as lack of engagement, underperformance, or other workplace issues.The platform facilitates seamless communication between David and the tutor via the **Messaging Page**, enabling them to discuss potential solutions. This process ensures that problems are addressed collaboratively, balancing the company's expectations with the academic oversight provided by the university tutor.

Scenario [B-15]: The Company Staff member Completes the Final Evaluation of the Student .

At the end of the internship, **David** completes the final evaluation of the student through the **Internship Evaluation Form** provided by the platform. This form includes structured questions about the student's performance, skills, and overall contribution during the internship. David provides detailed feedback on areas such as technical abilities, teamwork, communication, and adherence to deadlines. The platform allows for both quantitative ratings and qualitative comments. Once submitted, the evaluation is shared with the student and their university tutor, contributing to the student's academic record and professional development. This final step ensures a comprehensive assessment of the internship experience from the company's perspective.

Stage C:University Tutor's Scenarios

Scenario [C-1]: *The Tutor Open the S&C Application* .

The first interaction between **Claudio**, the university professor, and the S&C application focuses on accessing the platform. This process depends on the specific reason for Claudio's access and can lead to one of the following actions:

- **Registration:** Claudio can register as a university tutor, creating an account that connects him with students and companies.

- **Login:** After registration, Claudio can log in to oversee internships, communicate with students and companies, and evaluate the progress of ongoing internships.

- **Password or Username Recovery:** If Claudio forgets his credentials, the system offers a recovery process to regain access.

- **Chatbot Assistance:** The chatbot provides support for Claudio in case of queries related to his role, such as managing internship documentation or maintaining communication with stakeholders.

This scenario focuses solely on the tutor's access. The subsequent four points will now be analyzed in detail as individual scenarios. They are presented here to provide context for the genesis of this scenario. The analysis will proceed with scenarios spanning from the tutor's initial application access to the internship's conclusion.

Scenario [C-2]: *The Academic Tutor Registration* .
The second scenario occurs when **Claudio** (the academic tutor), after accessing the **S&C** application and realizing he does not yet have a profile, decides to create one. Upon selecting the registration option, Claudio is directed to the registration page, where he must provide the following information:

- Email address

- Password

- Role selection (Student, Academic Tutor, or Recruiter)

- Security Questions and Answers

After completing the registration form and verifying his email address, Claudio's tutor profile is successfully created. He is then redirected to the homepage, where he can log in instead of registering again. From this point, Claudio can begin overseeing internships, communicating with students and companies, and accessing tools for managing the internship evaluation process.

Scenario [C-3]: *The academic tutor Credential Recovery* .
Claudio (or any other academic tutor) forgets his login credentials, including both his email and password. To recover them, Claudio uses the credential recovery feature and submits answers to the security questions he chose during registration.After validating his responses, the **S&C** system provides Claudio with the email associated with his profile and sends a temporary password to that email. This enables Claudio to log in and update his password as necessary.

Scenario [C-4]: *The academic tutor and the Chatbot Interaction* .
While navigating the platform, **Claudio** encounters a situation requiring assistance, such as managing student evaluations or communicating with companies. To resolve his query, Claudio interacts with the platform's chatbot. The chatbot offers automated assistance, providing answers to common questions or guiding Claudio step by step through the issue. If Claudio's problem requires further support, the chatbot escalates the query to a human representative who contacts him directly.

Scenario [C-5]: *The academic tutor Login in the S&C Application* .
Claudio (or any other academic tutor) proceeds to log in using the credentials obtained during the registration process. From the homepage, Claudio navigates to the login

page, intending to access the **S&C** platform for overseeing and managing internships. To complete the login process, Claudio enters his username and password into the fields designated for tutor credentials. Once successfully authenticated he gains access to the platform.

Scenario [C-6]: The University Staff Member Links to the University .
During their first interaction with the **Students & Companies (S&C)** platform, the **University Staff Member**, such as **Claudio**, must connect their profile with their respective university. This connection is essential for enabling access to functionalities such as monitoring student internships and communicating with companies. The process unfolds through one of two options: If the university is already registered on the platform, Claudio connects his profile using the **University Key**, a unique identifier generated when the university was first registered. If Claudio does not have access to the key, he can request it via email to the initial registrant or use the **"Resend Key"** option, which sends the identifier to the registered university email. Alternatively, Claudio can verify his affiliation by uploading an official document, such as proof of employment, which will be reviewed and validated by the S&C administrative team. If the university is not yet registered, Claudio must create a new **University Profile**. This involves providing details such as the university's name, address, and departments. The platform offers an **LLM (Large Language Model)** feature to optimize and review the entered information, ensuring the data is accurate and professional. After completing the profile, it is submitted for verification by the S&C administrative team. Once validated, Claudio's profile is linked to the university, granting him access to all relevant features.

Scenario [C-7]: University staff member Profile Creation .
After linking his account to the university, **Claudio**, a university staff member, creates his **Profile** on the **Students & Companies (S&C)** platform. This profile is essential for enabling interaction with students and companies during internship management. Claudio fills out key information such as his academic title, department, and contact details. He also provides a brief bio, describing his areas of expertise and how he can assist students during their internships. To ensure the profile is professional and appealing, Claudio can use the platform's integrated **LLM (Large Language Model)** feature to review and optimize the content. By selecting the *"Review and Optimize"* option, he ensures the profile meets the highest standards. Once completed and confirmed, Claudio's profile is securely linked to his credentials, making it visible to students and companies interacting with him on the platform.

Scenario [C-8]: The University Staff Member Monitors the Internship .
During the internship, **Claudio**, the university staff member, monitors the progress of the student through the **Active Internship** section on the **Students & Companies (S&C)** platform. This section provides Claudio with detailed updates on the student's weekly reports, tasks, and overall performance. Claudio can access the weekly questionnaires submitted by the student, which highlight completed tasks, challenges faced, and skills developed. These updates allow Claudio to ensure that the internship aligns with the educational objectives of the student's academic program. If any concerns arise, Claudio

can initiate communication with both the student and the company through the platform's **Messaging Page** to address and resolve them promptly.

Scenario [C-9]: The University Staff Member Handles a Complaint During the Internship .
If a complaint arises during the internship, **Claudio** is notified through the **Active Internship** section. Complaints may be raised by either the student or the company and can involve issues such as miscommunication, unmet expectations, or serious breaches that may require the internship's interruption. Claudio reviews the details of the complaint and assesses its severity. If necessary, he uses the **Messaging Page** to discuss the issue with both parties, seeking clarification and possible resolutions. In cases where the complaint cannot be resolved amicably, Claudio uses the **Internship Management Tools** to initiate the process for pausing or terminating the internship. This step involves documenting the reasons for the decision and notifying all stakeholders of the outcome, ensuring transparency and accountability.

Scenario [C-10]: The University Staff Member Finalizes the Internship Review .
At the conclusion of the internship, **Claudio** conducts a final review to assess the success of the internship from an academic perspective. Using the **Internship Evaluation Form**, Claudio evaluates the student's performance based on the weekly updates, feedback from the company, and the student's own reflections. Claudio submits a comprehensive report detailing the student's achievements, skills gained, and areas for improvement. This report is shared with the student and becomes part of their academic record, ensuring that the internship experience contributes to their professional and educational development.

2.1.2. Domain Class Diagram

2.1.3. State Diagram

Here we include scenarios and further details on the shared phenomena and a domain model (class diagrams and state diagrams).

2.2. Product Functions

Here we include the most important requirements.

2.3. User Characteristics

Here we include anything that is relevant to clarify their needs.

2.4.   Assumptions, Dependencies, and Constraints

Here we include domain assumptions.

3 | Specific Requirements

The **Specific Requirements** section of this document outlines the detailed and technical aspects of the system. This section serves as a crucial guide for developers and designers, providing them with the necessary information to implement and test the functionalities of the **Students & Companies (S&C)** platform.

The requirements detailed in this section are derived from the scenarios and use cases described earlier. Each requirement is structured to ensure traceability, clarity, and alignment with the system's objectives. The content of this section is designed to address the following key aspects:

- **Functional Requirements:** These define the specific behaviors and functionalities the system must exhibit, such as user authentication, profile management, CV creation, and internship tracking.

- **External Interface Requirements:** This includes user interfaces, hardware interfaces, software dependencies, and communication channels, ensuring the system interacts seamlessly with users and external systems.

- **Performance Requirements:** This addresses the system's expected performance in terms of speed, reliability, and scalability.

- **Design Constraints:** Any limitations or preconditions that must be considered during development.

- **Non-functional Requirements:** This includes usability, security, and compliance requirements to ensure the system's overall quality and robustness.

The structure and content of this section are intended to provide a comprehensive reference for all stakeholders, ensuring that the system is built and maintained according to the specified requirements.

3.1. External Interface Requirements

This subsection focuses on the external interfaces with which the **S&C** platform will interact. These interfaces are essential for ensuring seamless communication and interaction between the system, its users, and external components. The external interfaces are categorized as follows:

- **User Interfaces:** This includes visual representations, such as wireframes or mockups, to clarify how users (students, recruiters, and academic tutors) will interact with

the system. While UI design is not the primary focus, these visuals help convey the intended user experience.

- **Hardware Interfaces:** If the system interacts with physical devices, such as computers, smartphones, or external sensors, this section describes the nature of these interactions and any specific requirements.

- **Software Interfaces:** This covers interactions between the **S&C** platform and external software components, such as APIs, third-party applications, or services integrated into the system.

- **Communication Interfaces:** This details the protocols and mechanisms used for data exchange, whether for system-to-system communication or user notifications over networks.

By defining these external interfaces, this subsection ensures clarity and consistency in the system's integration with external components.

3.1.1. User Interfaces

The purpose of this section is to define the user interfaces (UIs) of the **Students & Companies (S&C)** platform. User interfaces serve as the primary interaction points between the system and its users (students, recruiters, and academic tutors). This subsection outlines the structure, elements, and functionalities of these interfaces, ensuring they align with the requirements and workflows described in the overall description. User interfaces in this document are not intended to represent the final design but rather provide a clear understanding of the system's interaction points for implementers. Through wireframes and mockups, the UIs illustrated here establish a foundation for design and development while maintaining consistency with the system's overall goals and requirements. Each interface detailed below corresponds to specific functionalities. This section ensures the interfaces meet the needs of the users and support the operational goals of the platform.

Structure of Interfaces:

- **General Interfaces:** (From 1 to 3)

- **Student Interfaces:** (From 4 to 12)

- **Company Interfaces:**(From 1X–X)

- **University Tutor Interfaces:** (From X to X

1] Login/Sign-Up Interface   .
The Login/Sign-Up interface (figure 3.1) is the entry point for users to access the **Students & Companies (S&C)** platform. This interface is designed to ensure simplicity, accessibility, and clarity for all types of users, including students, recruiters, and academic tutors.

This interface serves two primary functions: Firstly allowing new users to create an

Figure 3.1: Login/Sign-Up Interface of the Students & Companies platform.

account through the **Create an Account** button. Secondly Enabling returning users to log in via the **Log In** button. As shown in the image the Login/Sign-Up interface includes the following components:

- **Logo and Tagline:** The platform logo is prominently displayed at the top, accompanied by the tagline: *"Finding an internship has never been easier."* This provides branding consistency and communicates the platform's purpose.

- **Create an Account Button:** A large, user-friendly button allowing new users to start the registration process.

- **Log In Button:** A visually distinct button for existing users to access their accounts.

- **Password Recovery Option:** A link labeled *"Recovery Password and Username"* is provided for users who have forgotten their credentials.

- **Chatbot Assistance:** A link labeled *"Do You Have Some Questions? Talk to our BOT"* enables users to seek help through an automated chatbot for immediate assistance.

2] Log In Page .
The Log In Page (Figure 3.2) allows users to securely access their accounts on the **Students & Companies (S&C)** platform. This interface supports two primary user roles: **Students** and **Company Staff Members**. It is designed for simplicity and accessibility, ensuring a smooth login experience for all users.
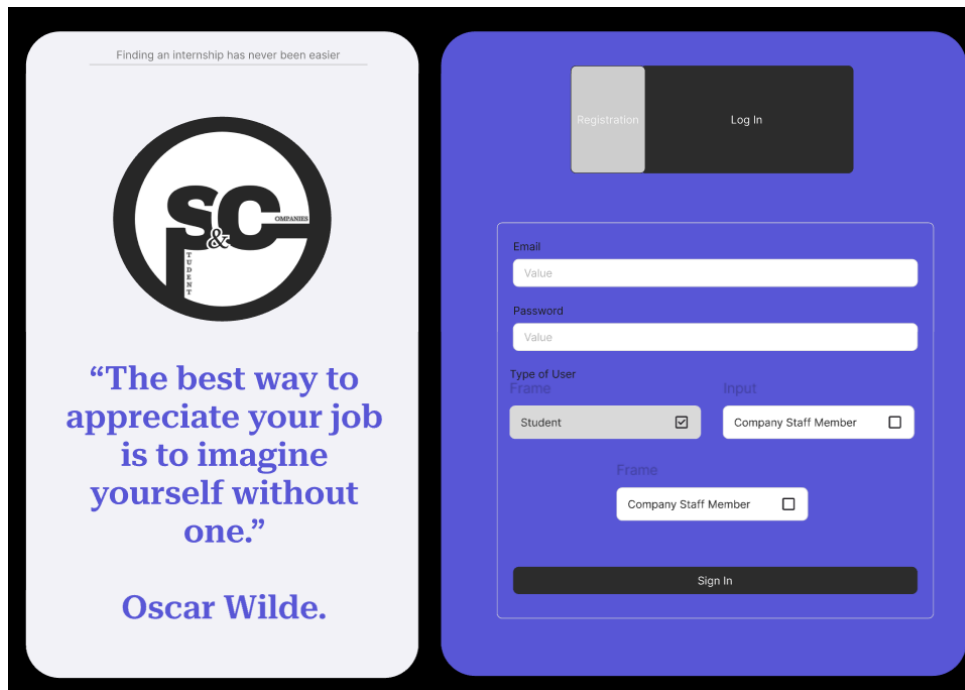
Figure 3.2: Log In Page of the Students & Companies platform.

The interface includes separate login paths for new and returning users. Below is a breakdown of the components:

- **Logo and Tagline:** The left panel displays the platform logo and a motivational quote by Oscar Wilde: *"The best way to appreciate your job is to imagine yourself without one."* This inspires users and reinforces the platform's purpose.

- **Email and Password Fields:** The login form includes fields for users to input their email and password securely.

- **User Role Selection:** Users can select their role as either:
  - **Student:** Designed for students accessing internship opportunities.
  - **Company Staff Member:** For company recruiters or representatives logging in to manage their postings.

- **Sign In Button:** A prominent button to complete the login process.

- **Tab Navigation:** Includes two tabs:
  - **Registration Tab:** Redirects new users to the account creation page.
  - **Log In Tab:** Highlights the current login functionality.

3] Registration Page .
The Registration Page (Figure 3.3) allows new users to create an account on the **Students & Companies (S&C)** platform. This interface supports the two primary user roles:

Students and **Company Staff Members**, ensuring that both can seamlessly register and access the platform.

Figure 3.3: Registration Page of the Students & Companies platform.

This page ensures a secure and user-friendly account creation process. Below is a breakdown of its components:

- **Logo and Tagline:** Similar to the login page, the platform logo and a motivational quote by Oscar Wilde (*"The best way to appreciate your job is to imagine yourself without one."*) are displayed on the left panel for consistency and engagement.

- **Email and Password Fields:** Mandatory fields for users to input their email and create a secure password.

- **User Role Selection:** Users select their role as either:
  - **Student:** For students seeking internships.
  - **Company Staff Member:** For recruiters or company representatives.

- **Security Question and Answer:** Users must select a security question from a dropdown menu and provide an answer. This enhances account recovery and security.

- **Register Button:** A prominent button to finalize the registration process.

- **Tab Navigation:** Includes:
  - **Registration Tab:** Highlights the current page functionality for account creation.

– **Log In Tab:** Provides easy navigation back to the login page.

4] Student First Access Page .

The Student First Access Page (Figure 3.4) is the first interface presented to students after successful registration and login to the **Students & Companies (S&C)** platform. This page guides users through the initial steps to create or upload their CV, a crucial requirement to unlock the platform's features.
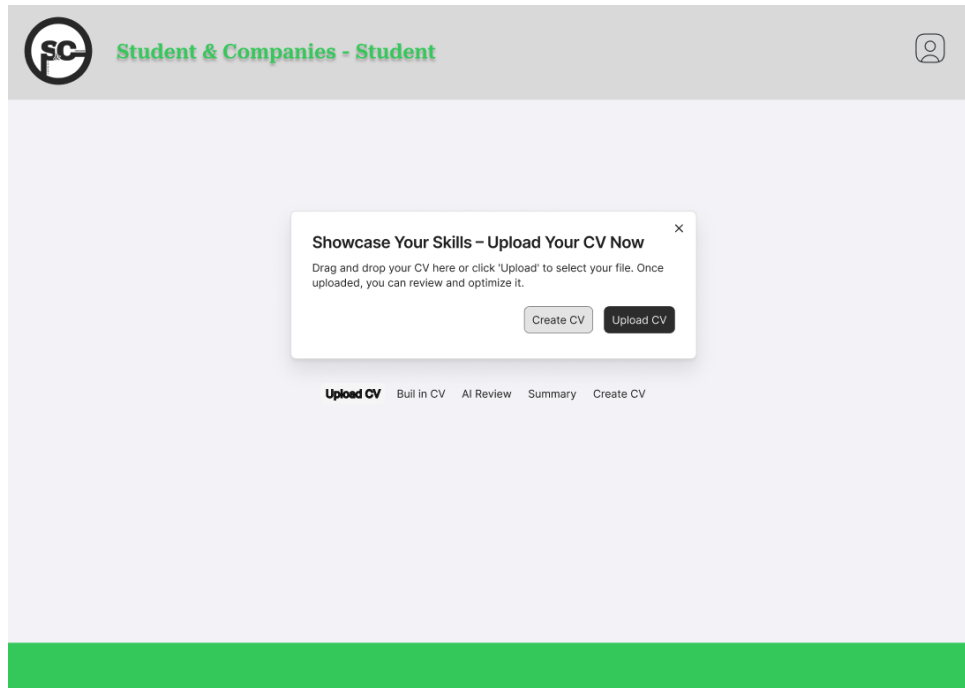
Figure 3.4: Student First Access Page of the Students & Companies platform.

The interface is designed to be intuitive and action-driven, focusing on helping students quickly get started. Below is a breakdown of the components:

- **Header and Branding:** The platform logo is displayed prominently, accompanied by the title *"Showcase Your Skills – Upload Your CV Now"*, reinforcing the importance of completing this step.

- **Upload CV Options:** Students can:
  - **Create CV:** Access a CV-building tool within the platform to create a new CV from scratch.
  - **Upload CV:** Drag and drop an existing CV file or select one from their device for upload.

- **Tabs for Navigation:** Located at the bottom of the interface, these tabs provide students with an overview of the CV-related steps, including:
  - **Upload CV:** The current step to upload or create a CV.
  - **Built-in CV:** Access to the CV builder.

– **AI Review:** A feature to enhance the CV using AI-powered suggestions.

  – **Summary:** A preview of the finalized CV.

  – **Create CV:** An additional path to build the CV if not uploaded.

5] Create CV Page .

The Create CV Page (Figure 3.5) allows students to build their CV directly within the **Students & Companies (S&C)** platform. This interface is designed for students who choose to create their CV from scratch rather than uploading an existing document, ensuring flexibility and accessibility for all users.

Figure 3.5: Create CV Page of the Students & Companies platform.

This page guides the student step-by-step through the CV creation process. Below is a breakdown of its components:

- **Header:** The title *"Create Your CV"* instructs the student to begin building their CV. A subtext, *"Start to create your CV from scratch,"* further clarifies the purpose of the page.

- **Input Fields:**

  – **Name:** A field for the student's first name.

  – **Surname:** A field for the student's last name.

  – **Other Important Information:** A free-text field for additional details the student wishes to include in their CV, such as a personal statement or key skills.

- **Terms and Conditions Checkbox:** Students must accept the terms and conditions by selecting a checkbox labeled *"I accept the terms."* A link to the full terms (*"Read our T&Cs"*) is provided for transparency.

- **Save Button:** A prominent button labeled *"Save shipping information"* allows students to save the entered details and proceed to the next step in the CV creation process.

- **Progress Tracker:** Pagination at the bottom of the page (e.g., *1, 2, 3, ...*) indicates the step-by-step progress through the CV creation process.

- **Navigation Tabs:** Tabs such as *Upload CV, Built-in CV, AI Review, Summary,* and *Create CV* allow students to navigate between CV-related functionalities seamlessly.

6] Review Extracted CV Page .

The Review Extracted CV Page (Figure 3.6) is presented to students after uploading their CV. The **Students & Companies (S&C)** platform automatically extracts the relevant details from the uploaded document and displays them for review. This step allows students to verify the accuracy of the extracted information and make any necessary corrections.

Figure 3.6: Review Extracted CV Page of the Students & Companies platform.

This interface provides a streamlined process for students to ensure the correctness of their CV data before it is finalized. Below is a breakdown of the components:

- **Header:** The title *"Review Your CV"* guides the student to carefully check the extracted information. A subtext, *"Check if there is any error,"* emphasizes the

importance of this step.

- **Extracted Fields:**

    - **Name:** Automatically extracted from the uploaded CV. Editable by the user in case of inaccuracies.

    - **Surname:** Extracted and editable.

    - **Other Important Information:** Additional extracted data (e.g., personal statement or skills). This field can also be edited or left empty as needed.

- **Terms and Conditions Checkbox:** Students must re-confirm acceptance of the platform's terms via the checkbox labeled *"I accept the terms."* A link to *"Read our T&Cs"* is provided for reference.

- **Save Button:** A button labeled *"Save shipping information"* allows students to save the reviewed and corrected details.

- **Progress Tracker:** Pagination at the bottom of the page (e.g., *1, 2, 3, ...*) visually indicates the current step in the CV management process.

- **Navigation Tabs:** Tabs such as *Upload CV*, *Built-in CV*, *AI Review*, *Summary*, and *Create CV* provide easy navigation across CV-related functionalities.

7] CV Creation Confirmation Page .

The CV Creation Confirmation Page (Figure 3.7) is displayed to students after successfully uploading or creating their CV. This interface serves as confirmation that the CV has been saved to their profile and provides options for further actions.
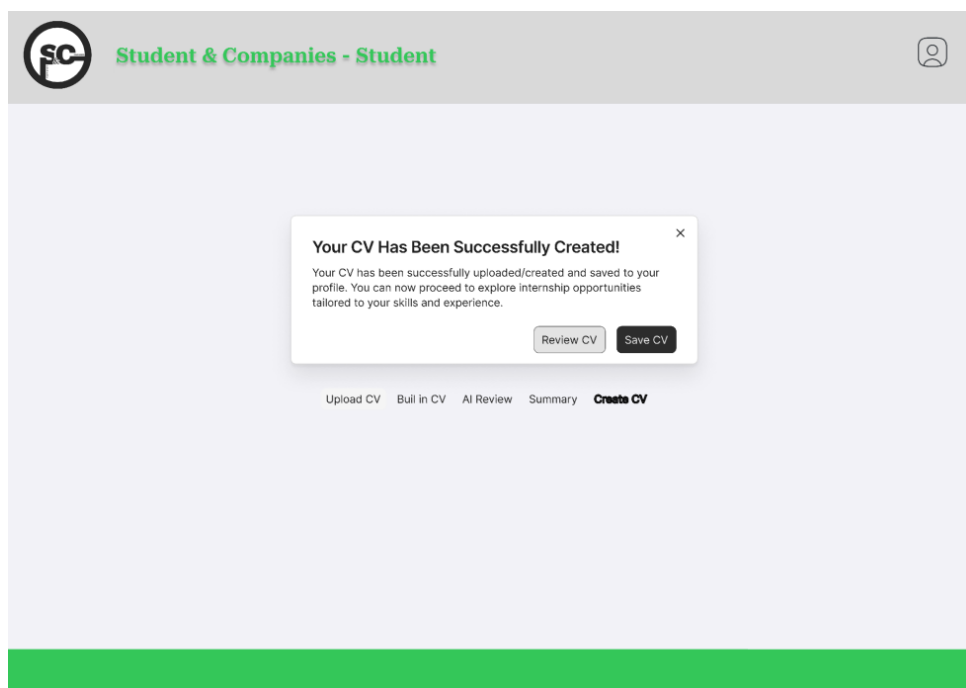
Figure 3.7: CV Creation Confirmation Page of the Students & Companies platform.

This page provides feedback to students about the completion of the CV process and offers actionable steps to continue their journey on the platform. Below is a breakdown of the components:

- **Confirmation Message:** A message titled *"Your CV Has Been Successfully Created!"* informs the student that their CV is now saved and ready to use. Subtext provides further details, such as *"Your CV has been successfully uploaded/created and saved to your profile. You can now proceed to explore internship opportunities tailored to your skills and experience."*

- **Action Buttons:**
    - **Review CV:** Redirects the student to review their saved CV in detail.
    - **Save CV:** Allows the student to confirm and finalize the CV creation process.

- **Navigation Tabs:** Tabs such as *Upload CV*, *Built-in CV*, *AI Review*, *Summary*, and *Create CV* enable easy navigation to other CV-related functionalities.

8] Homepage (Student Version) .

The Homepage (Figure 3.8) serves as the main dashboard for students on the **Students & Companies (S&C)** platform. This interface provides an overview of key features, personalized updates, and actionable elements, allowing students to manage their profile, track opportunities, and stay organized efficiently.
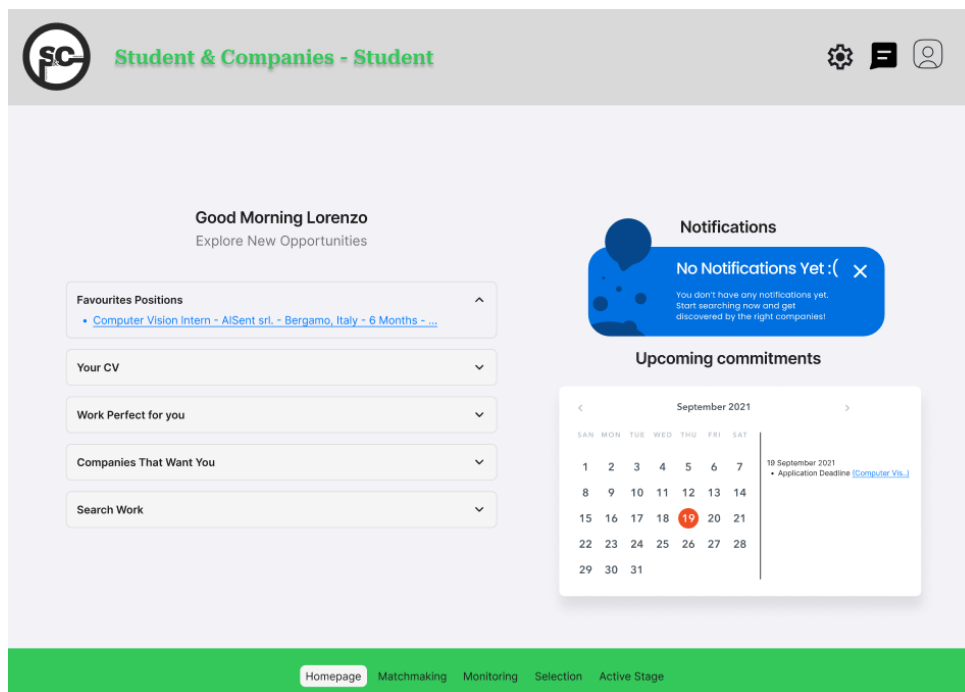
Figure 3.8: Homepage of the Students & Companies platform.

The homepage is designed to give students quick access to their most relevant information and tasks. Below is a breakdown of its components:

- **Welcome Message:** A personalized greeting (*"Good Morning Lorenzo"*) sets a friendly tone, accompanied by the subheading *"Explore New Opportunities"* to encourage engagement with the platform.

- **Sections:**

  - **Favourites Positions:** Displays saved or favorite internship opportunities, such as *"Computer Vision Intern - AISent srl."*, enabling quick access to details.

  - **Your CV:** Provides a link to review or update the student's CV.

  - **Work Perfect for You:** Highlights internship recommendations tailored to the student's profile.

  - **Companies That Want You:** Lists companies that have shown interest in the student's profile.

  - **Search Work:** Directs the student to the internship search functionality.

- **Notifications Panel:** A visually prominent box showing recent notifications. If there are no notifications, a message such as *"No Notifications Yet"* encourages the student to start searching for opportunities.

- **Upcoming Commitments:** A calendar widget displays deadlines and important events, such as application deadlines, with detailed information on the selected date.

- **Navigation Bar:** Located at the bottom, it includes quick links to:

  - **Homepage:** The current page.

  - **Matchmaking:** Access to recommended internship matches.

  - **Monitoring:** Track the status of internship applications.

  - **Selection:** View details about ongoing selection processes.

  - **Active Stage:** Manage active internships.

9] Matchmaking Page .

The Matchmaking Page (Figure 3.9) is designed to recommend internship opportunities tailored to the student's profile, skills, and preferences. This page serves as a dynamic tool for connecting students with relevant companies, streamlining the application process.

This interface simplifies the internship search process by presenting curated opportunities. Below is a detailed breakdown of its components:
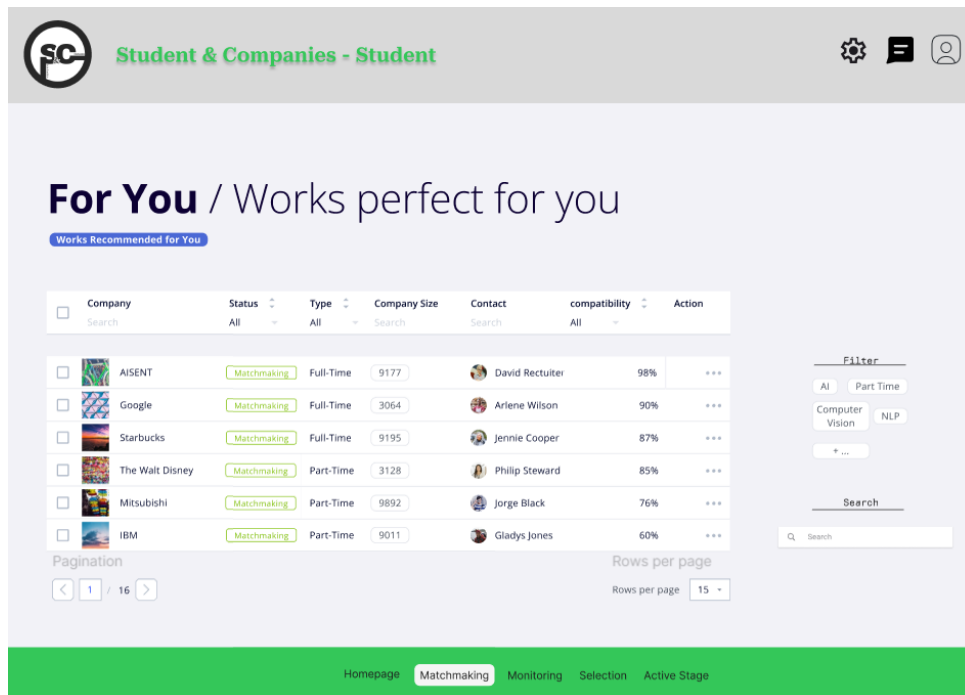
Figure 3.9: Matchmaking Page of the Students & Companies platform.

- **Header:** The title *"For You / Works perfect for you"* introduces the section, highlighting its purpose of recommending positions tailored to the student's profile.

- **Recommendation List:**

  - Displays a table with key details for each recommended position, including:

    * **Company Name:** For example, *AISent, Google, Starbucks*.

    * **Status:** Indicates the stage of the matchmaking process (e.g., *Matchmaking*).

    * **Type:** Specifies whether the position is *Full-Time* or *Part-Time*.

    * **Company Size:** Provides additional context about the organization.

    * **Contact:** Displays the recruiter or company representative's name.

    * **Compatibility Score:** A percentage value (e.g., *98%*) indicating how well the student's profile matches the position requirements.

  - Each row includes an **Action Menu** for further interaction, such as saving or applying for the position.

- **Filter and Search Panel:**

  - **Filters:** Enables students to narrow recommendations by keywords (e.g., *AI, NLP, Computer Vision, Part-Time*).

  - **Search Bar:** Allows students to search for specific opportunities or companies.

- **Pagination:** Provides navigation to view additional recommended positions (e.g., *1 of 16 pages*).

From this page, students can:

- Explore detailed job descriptions for recommended positions.

- Apply for or save internships using the action menu.

- Refine their search using filters or the search bar.

10] Monitoring Page .

The Monitoring Page (Figures 3.10 and 3.11) is a central hub where students can track the progress of their internship applications and view company interest in their profile. This interface is divided into two main functionalities: *"Your Applications"* and *"Your Selection Offers"*.

10-1. Your Applications This section (Figure 3.10) allows students to monitor the progress of their submitted internship applications. It includes:

Figure 3.10: Monitoring Page - Stay Updated on Your Applications.

- **Header:** The title *"Stay Updated on Your Applications"* encourages students to track their submissions.

- **Application Table:** Displays key information for each application, including:

  - **Company Name:** The organization to which the student has applied.

  - **Status:** Tracks the progress of the application with indicators such as *Not Seen*, *Seen*, and *Refused*.

- **Type:** Specifies whether the position is *Full-Time* or *Part-Time*.

- **Contact:** The recruiter or company representative managing the position.

- **Compatibility:** A percentage showing the match between the student's profile and the position.

- **Action Menu:** Allows additional actions like withdrawing the application or viewing position details.

10-2. Your Selection Offers .
This section (Figure 3.11) highlights companies that have expressed interest in the student's profile. It includes:

Figure 3.11: Monitoring Page - This Company Wants You.

- **Header:** The title *"This Company Wants You!"* invites students to explore company interest.

- **Offers Table:** Displays details of positions where companies have shown interest, including:

  - **Company Name:** The organization expressing interest.

  - **Status:** Indicates the interest level (e.g., *Want YOU*).

  - **Type:** Specifies the position as *Full-Time* or *Part-Time*.

  - **Contact:** The recruiter or company representative expressing interest.

  - **Compatibility:** A percentage indicating the match between the student and the position.

– **Action Options:** Buttons for *Accepting* or *Discarding* the company's offer of interest.

11] Selection Page .

The Selection Page (Figure 3.12) provides students with an overview of their ongoing selection processes for internships. This page keeps students informed about their progress and upcoming events, ensuring they remain organized and proactive during the recruitment stages.
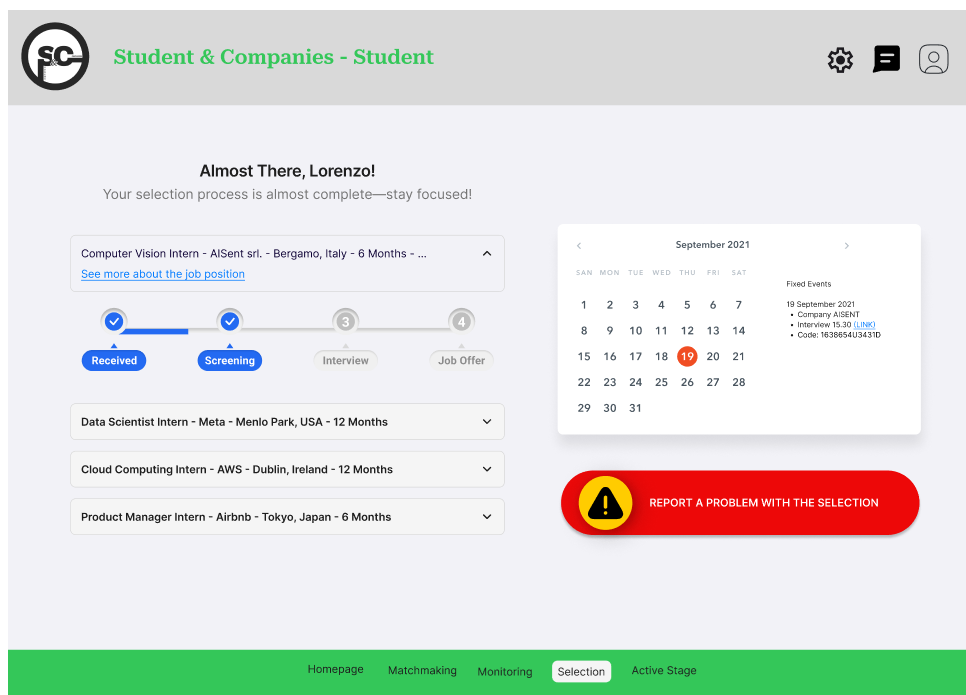

Figure 3.12: Selection Page of the Students & Companies platform.

This interface displays critical information and actionable items related to the student's current internship applications in the selection process. Below is a breakdown of its components:

- **Header:** The message *"Almost There, Lorenzo!"* motivates students by emphasizing the progress they've made. The subheading *"Your selection process is almost complete—stay focused!"* encourages focus and perseverance.

- **Selection Progress Tracker:**

  – A visual timeline shows the current stage of the selection process for each application. Stages include:

    * **Received:** Indicates the application has been received by the company.

    * **Screening:** The application is under review by the company.

    * **Interview:** Scheduled or ongoing interview processes.

    * **Job Offer:** The final stage when an offer has been extended to the student.

– The highlighted stage in blue represents the student's current status.

- **Application List:** Below the tracker, a list of all active applications with position titles and details is displayed. Students can expand each entry to view more details or navigate to the position description.

- **Calendar Widget:** A calendar displays fixed events and deadlines related to the selection process, such as interview dates, along with links to details (e.g., *"Interview 15:30"* with a clickable link).

- **Action Button:** A prominent red button labeled *"Report a Problem with the Selection"* allows students to escalate any issues or concerns directly to the platform support team.

- **Navigation Bar:** Links to other core functionalities of the platform, including *Homepage*, *Matchmaking*, *Monitoring*, and *Active Stage*.

12] Active Stage Page .

The Active Stage Page (Figure 3.13) provides students with detailed information and tools to manage their ongoing internship. This page ensures that students can monitor their progress, maintain communication with relevant parties, and report issues promptly.
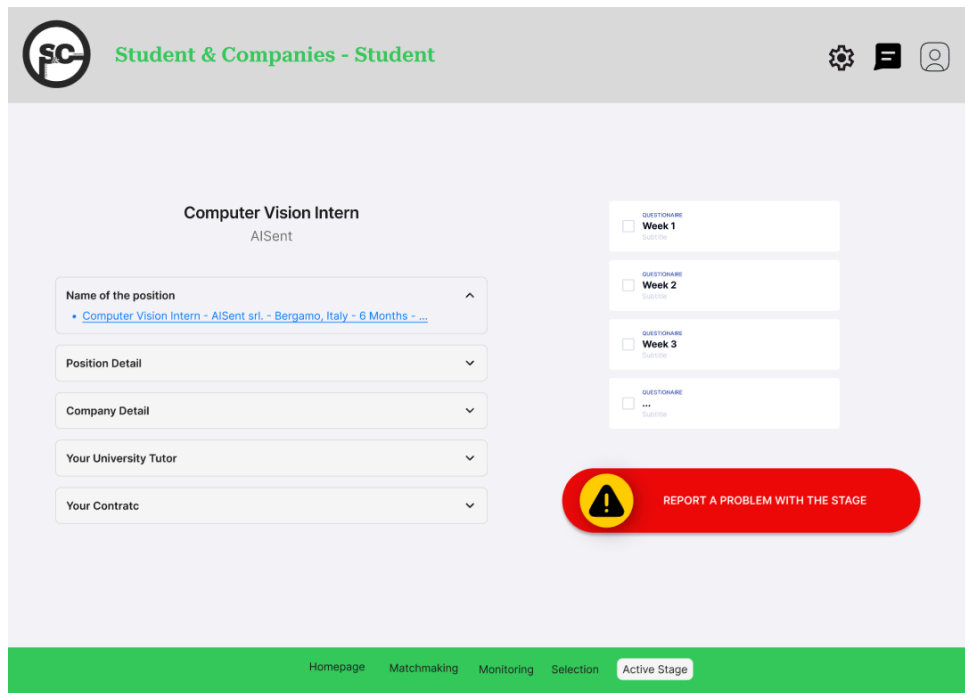

Figure 3.13: Active Stage Page of the Students & Companies platform.

This interface is central to tracking the student's current internship engagement and maintaining transparency between the student, company, and academic tutor. Below is a breakdown of its components:

- **Header:** Displays the title of the ongoing internship, e.g., *"Computer Vision Intern"* along with the company name (*"AISent"*), providing a quick identification of

the internship.

- **Position Details:** Expandable sections for key internship details, including:

  - **Name of the Position:** Links to detailed job descriptions.

  - **Position Detail:** Specific information about the internship responsibilities and objectives.

  - **Company Detail:** Contact information and an overview of the organization.

  - **Your University Tutor:** Provides contact details of the assigned academic tutor responsible for monitoring the internship.

  - **Your Contract:** Displays terms and conditions of the internship agreement, ensuring legal clarity.

- **Weekly Questionnaires:** A checklist for weekly questionnaires that students must complete as part of their internship progress reporting. Each week is represented with a box (e.g., *"Week 1," "Week 2," "Week 3"*).

- **Action Button:** A prominent red button labeled *"Report a Problem with the Stage"* allows students to report any issues encountered during their internship directly to the platform support team.

- **Navigation Bar:** Located at the bottom, providing access to other key functionalities such as *Homepage, Matchmaking, Monitoring,* and *Selection.*

User Actions: From this page, students can:

- Review key details about their internship, including job roles, company information, and contract terms.

- Submit weekly questionnaires to keep track of their progress.

- Report issues or challenges encountered during their internship directly through the platform.

13] Profile Settings Page .

The Profile Settings Page (Figure 3.14) allows students to customize and update their personal information on the **Students & Companies (S&C)** platform. This interface ensures that users maintain accurate and up-to-date profiles, which are critical for successful interactions with companies and academic tutors.

This page provides a straightforward layout to manage personal details, ensuring ease of use for all students. Below is a breakdown of its components:

- **Navigation Menu:** Located on the left-hand side, the menu includes options for:

  - *Home Page, Your CVs, Saved Work, Profile Settings.*

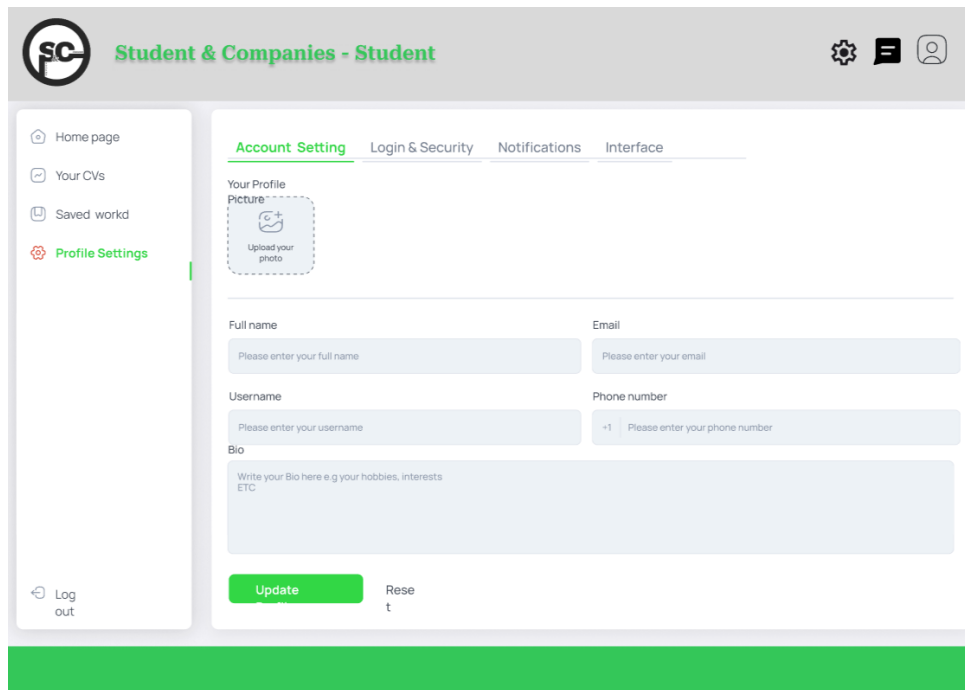 - A **Log Out** button at the bottom for secure account management.

Figure 3.14: Profile Settings Page of the Students & Companies platform.

- **Profile Picture:** An upload area allows students to add or update their profile picture for a more personalized experience.

- **Personal Information Fields:**

    - **Full Name and Username:** Input fields for the student's name and username.

    - **Email and Phone Number:** Contact details that enable communication with companies and tutors.

    - **Bio:** A free-text area for students to describe their interests, hobbies, or professional aspirations.

- **Action Buttons:**

    - **Update:** Saves any changes made to the profile.

    - **Reset:** Clears the current fields to their default state.

- **Tabs for Additional Settings:** Located at the top, these tabs provide access to:

    - *Account Settings, Login & Security, Notifications, Interface.*

User Actions: From this page, students can:

- Update personal and contact information.

- Add or change their profile picture.

- Reset fields if incorrect changes are made.

14] Messaging Page .
The Messaging Page (Figure 3.15) enables direct communication between students, company representatives, and the platform's support team. This interface is essential for fostering effective dialogue throughout the internship search and application process.
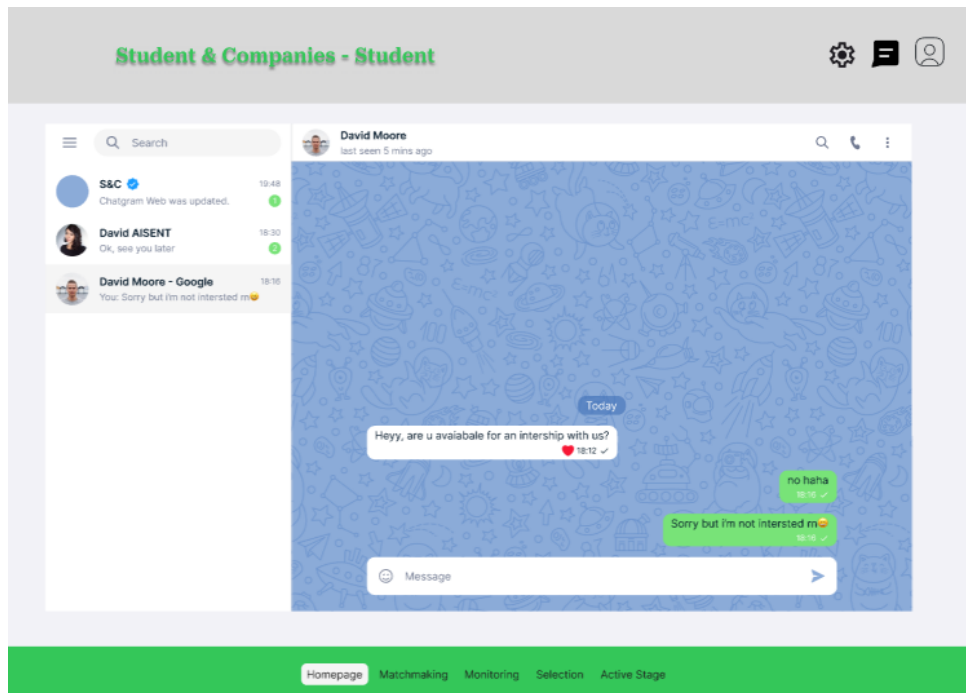

Figure 3.15: Messaging Page of the Students & Companies platform.

This page is designed to simplify communication, ensure clarity in messaging, and promote efficient interaction between all parties. Below is a breakdown of its components:

- **Chat List:** A panel on the left side displays all active conversations, including:
  - Messages from the platform's support team (*e.g., S&C Verified*).
  - Conversations with recruiters (*e.g., David Moore – Google*).
  - Timestamp indicators for the most recent messages.
- **Active Chat Window:** The main chat area features:
  - Messages exchanged between the student and the selected contact.
  - Visual indicators for read receipts (e.g., checkmarks) and message reactions (e.g., heart icon).
  - A toolbar at the top for additional actions such as searching within the conversation, initiating a call, or blocking the user.
- **Message Input Field:** A text box at the bottom allows students to type and send new messages.

- **Navigation Bar:** Located at the bottom of the page, linking to key sections such as *Homepage, Matchmaking, Monitoring, Selection,* and *Active Stage.*

User Actions: From this page, students can:

- Engage in real-time communication with company representatives or the platform's support team.

- Use message reactions to provide quick feedback.

- Search through past messages or escalate issues through the platform's messaging system.

3.1.2. Hardware Interfaces

3.1.3. Software Interfaces

3.1.4. Communication Interfaces

3.2. Functional Requirements

Definition of use case diagrams, use cases and associated sequence/activity diagrams, and mapping on requirements.

3.3. Performance Requirements

3.4. Design Constraints

3.4.1. Standards Compliance

3.4.2. Hardware Limitations

3.4.3. Any Other Constraint

3.5. Software System Attributes

3.5.1. Reliability

3.5.2. Availability

3.5.3. Security

3.5.4. Maintainability

3.5.5. Portability

4 | Formal Analysis Using Alloy

This section should include a brief presentation of the main objectives driving the formal modeling activity, as well as a description of the model itself, what can be proved with it, and why what is proved is important given the problem at hand. To show the soundness and correctness of the model, this section can show some worlds obtained by running it, and/or the results of the checks performed on meaningful assertions.

5 | Effort Spent

In this section you will include information about the number of hours each group member has worked for this document.

Bibliography

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