CPIT-250 | Group Project

[*Internship Accessibility and Communication Enhancement*]

Group members:

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- **Problem:**

The current internship landscape presents significant hurdles for both students and companies. One of the primary challenges is the lack of accessibility to internship opportunities. Often, students struggle to discover available internships, and even when they are aware of openings, obtaining detailed information about the company and the specific role can be challenging and opaque.

Additionally, establishing connections between companies and universities for recommendations from administrators and professors poses a common difficulty. This lack of streamlined communication can lead to missed opportunities for students who possess the necessary skills and knowledge for internships, as companies may overlook them due to incomplete information or insufficient recommendations.

Considering these challenges, there is a compelling opportunity to develop a solution that addresses these pain points. By providing a centralized platform that offers comprehensive information about internship opportunities, facilitates communication between universities and companies, and offers insights into the requirements for specific roles, this system can serve as a valuable resource for both students and companies.

This system aims to bridge the gap between students and companies, empowering students to pursue their dream roles with confidence and enabling companies to identify and recruit the most suitable candidates for their internship programs. Through effective system analysis and design, we can create a solution that revolutionizes the internship experience, fostering meaningful connections and mutually beneficial partnerships.

- ## Solution:

To address the challenges identified in the internship landscape, we propose the development of a comprehensive internship-finding system. This system will offer a user-friendly platform designed to meet the needs of both students and companies, facilitating efficient internship discovery, communication, and recruitment processes.

1- Centralized Internship Database:

Implement a centralized database of internship opportunities to ensure easy accessibility for students. Include detailed information about each internship, such as company background, job description, requirements, and application deadlines.

2- User-friendly Interface:

Design an intuitive user interface that allows students to search and filter internship listings based on criteria such as location, industry, duration, and required skills. Present relevant information about each internship in a clear and concise manner, enabling students to make informed decisions.

3- Communication Tools:

Integrate communication features that enable seamless interaction between students and companies.
Provide messaging capabilities to facilitate inquiries, application submissions, and follow-up discussions.

4- Mobile Compatibility:

Ensure that the system is compatible with mobile devices, allowing students and companies to access internship listings and communication features on the go.

- **Interviewee:**
  - ***Student***

Internship Accessibility and Communication Enhancement: Student	
Interviewee: King Abdualziz University Student	**Interviewer:** Ibrahim Rabeh Aljohani, Muath Abdullah Alhurtumi, Abdulaziz Mohammed Shaheen, Ahmed Abdulrahman Alhuthyfi
Location/Medium: Building 31 , During Lab session or Instructor Office	**Appointment Date: DATE** Start Time: 2024/2/20 10:30AM End Time: 2024/2/20 11:30AM
Objectives: To find requirements of internship system that will benefit students, administrators, and companies	**Reminders:** Background/experience of interviewee Known opinions of interviewee
General Observations: One group member will take notes and write any body language gestures or language tones or anything else that may verbally or non-verbally identify or contribute in determining the requirements.	

Unresolved Issues, Topics Not Covered:	
Question: 1 What are the main issues you were facing when applying to summer internship?	**Answer:** . Difficulty obtaining internship in a reputable company.
Question: 2 Are the company requirements for applying to summer internship clear?	**Answer:** yes, a lot of companies give clear requirements when applying for summer internship.
Question: 3 Does the roadmap for summer internship and the skill will be taught by the company during it are clear and easy to find?	**Answer:** No, the road map and skills are not given when we start applying and searching, sometimes we find companies for internship, but get rejected because there is no roadmap and searching and getting road map take a while.
Question: 4 Did you face any problems during the search for a company internship ?	**Answer:** Yes, because there is no website that include all or most of companies that have internship.

Question: 5 Did you use the current university ? If yes, how would you rate it from 10?	**Answer:** Yes, 3 out of 10
Question: 6 What are the cons of the current website?	**Answer:** Old interface, hard to use, bad user experience, and it didn't have the roadmap of the internship.
Question: 7 What are the pros of the current website?	**Answer:** Easy to find.
Question: 8 Are there any high-profile companies on the website?	**Answer:** Yes, rarely.
Question: 9 Does the website have a lot of companies on it?	**Answer:** No, there isn't. We need more companies in it.
Question: 10 What are the features you would hope to see it in website?	**Answer:** More organization of the site, dividing similar companies under one name, and so on so that it is easier for the student to search for the company he desires.

- **Interviewee:**
  - ***Company***

Internship Accessibility and Communication Enhancement: company	
Interviewee: Company	**Interviewer:** Ibrahim Rabeh Aljohani, Muath Abdullah Alhurtumi, Abdulaziz Mohammed Shaheen Ahmed Abdulrahman Alhuthyfi
Location/Medium: Hilton hotel Jeddah, meating room	**Appointment Date: DATE** Start Time: 2024/2/25 1;30PM End Time: 2024/2/25 2;30PM
Objectives: To find requirements of internship system that will benefit students, administrators, and companies	**Reminders:** Background/experience of interviewee Known opinions of interviewee
General Observations: One group member will take notes and write any body language gestures or language tones or anything else that may verbally or non-verbally identify or contribute in determining the requirements.	
Unresolved Issues, Topics Not Covered:	

Question: 1 How could the internship application and selection process be improved to make it more efficient for your company?	**Answer:** An integrated system that allows us to post internships, receive and review applications, communicate with candidates, and receive university endorsements all in one place would streamline our process significantly. Additionally, tools that leverage data analytics to predict candidate success in specific roles would be a game-changer for us.
Question: 2 How effective do you find the current communication channels with universities and potential interns?	**Answer:** The communication channels are fragmented, which complicates the process. We often have to use multiple platforms to reach out to universities and candidates, leading to delays and sometimes missed opportunities to connect with top talent.
Question: 3 What has been your experience with the reliability and accuracy of recommendations or endorsements from universities?	**Answer:** While we value university recommendations, the process to obtain them can be slow and the criteria for endorsement aren't always clear to us. It would be beneficial to have a more standardized and transparent system for
Question: 4 What are the most important criteria's when looking for a good fit for an internship.	**Answer:** When searching for an ideal candidate, our most important criteria include a mix of soft and hard skills. Being able to communicate effectively with your team, having the capability to solve challenging problems, and being enthusiastic about the role are some of our key considerations.
Question: 5 Which of two is generally more important for internships, having a good GPA or having more hands on experience on the field.	**Answer:** While a good GPA is certainly indicative of a student's dedication and hard work, relying solely on academic performance as a measure of potential is not recommended. This is because much of the work in our positions involves practical tasks and challenges that may not be covered in traditional academic settings. Therefore, being adept with hands-on experience and quickly adapting to new practical situations is decidedly more critical for success in our roles.

- **Interviewee:**
  - ***Administrator***

Internship Accessibility and Communication Enhancement: Administrates	
Interviewee: King Abdualziz University Administrates	**Interviewer:** Ibrahim Rabeh Aljohani, Muath Abdullah Alhurtumi, Abdulaziz Mohammed Shaheen Ahmed Abdulrahman Alhuthyfi
Location/Medium: Building 31 , During Lab session or Instructor Office	**Appointment Date: DATE** Start Time: 2024/2/20 10;30AM End Time: 2024/2/20 11;30AM
Objectives: To find requirements of internship system that will benefit students, administrators, and companies	**Reminders:** Background/experience of interviewee Known opinions of interviewee
General Observations: One group member will take notes and write any body language gestures or language tones or anything else that may verbally or non-verbally identify or contribute in determining the requirements.	
Unresolved Issues, Topics Not Covered:	

Question: 1 How does the current manual process for matching students to internships impact the administration's workload and efficiency?	**Answer:** The manual matching process significantly increases our administrative workload, particularly during peak internship seasons. We manually review student applications and coordinate with companies, which is time-intensive and prone to errors. Implementing an automated matching system could reduce this workload, allowing our staff to focus on personalized career guidance instead.
Question: 2 Could you provide examples of specific challenges students have faced due to the lack of detailed internship information?	**Answer:** We've had students apply for internships that didn't align with their career goals or skill levels because the listings lacked clarity on responsibilities and learning opportunities. One case involved a student who accepted an internship only to find out it was mostly clerical work, not the data analysis role they were seeking. A system that mandates detailed descriptions and categorizes roles by skills and industries could mitigate such mismatches.
Question: 3 How often do communication breakdowns between companies and the university occur, and what are the typical consequences?	**Answer:** Communication breakdowns are frequent, especially during the application and selection phases. For example, last semester, a delay in email communication led to three students missing their interviews. Direct messaging and real-time notifications integrated into the new system could reduce these incidents.

Question: 4 Describe a specific instance where obtaining a recommendation was problematic. How would an automated system improve this?	**Answer:** Recently, a professor was on vacation, and a student couldn't obtain a timely recommendation for a competitive internship. The student missed the application deadline as a result. An automated system where professors can pre-approve recommendations or endorse skills directly on the platform would have allowed the student to proceed without delay.
Question: 5 What specific features would enhance the mobile experience for students searching and applying for internships?	**Answer:** A mobile app that allows for filtering opportunities by specific criteria like 'remote-friendly,' 'field-specific skills,' or 'company ratings' would greatly benefit our students. Additionally, push notifications for application deadlines and messages from potential employers could ensure students never miss out on opportunities."
Question: 6 Can you identify the main shortcomings of the current feedback system used post-internship?	**Answer:** The primary issue with our current feedback system is its reliance on end-of-internship surveys, which often leads to low engagement. Students and companies find the process cumbersome and the questions too generic, resulting in feedback that lacks actionable insights. There's also a notable delay in processing this feedback, diminishing its usefulness in making timely improvements.
Question: 7 What specific functionalities would companies like to see to streamline their communication with universities?	**Answer:** Features like anonymous applications to combat bias, highlighting diversity-friendly workplaces, and providing a platform for mentorship connections would be invaluable. Additionally, integrating a feedback loop from these students could help improve the system's inclusivity over time.
Question: 8 In what ways could a centralized system provide more meaningful analytics to the university about internship placements?	**Answer:** A centralized system could track the number of applications, interviews, and successful placements in real-time, segmented by department and student demographics. This data could help us identify trends, such as which industries are most sought after or which skills are lacking, allowing us to adjust our curriculum and advising services accordingly.
Question: 9 What improvements can be made to enhance the initial matching process between students and internship opportunities?	**Answer:** The initial matching process currently relies heavily on students independently searching and applying for internships, which often leads to mismatches due to a lack of comprehensive information and guidance. We suggest the new system incorporate a more sophisticated matching algorithm that takes into account students' academic achievements, skills, career interests, and personal preferences, as well as the specific needs and culture of the companies. This approach would ensure a higher compatibility rate between students and internships, leading to more fulfilling and productive internship experiences for both parties.

Data Flow Diagram (DFD)

- **Context DFD Level:**
  - **Process:** Internship Accessibility and Communication Enhancement.
  - **Inputs:** Enrollment details, Company details, Student info, Apply for the company, Explore company, Recommendation letter, Student performance request, Accept / refuse internship.
  - **Outputs:** Enrollment details, Recommendation letter request, Student performance, Confirm report, Retrieve company, Student personal info.
  - **Sources:** Admin, Company, Student.
  - **Destination:** Admin, Company, Student.

- **Level-0 Diagram:**

  1- Process: Register the student:
  - **Inputs:** Student personal info.
  - **Outputs:** Student personal info.
  - **Sources:** Student.
  - **Destination:** Student DB

  2- Process: Register the company:
  - **Inputs:** Company details C requirements.
  - **Outputs:** Company details C requirements.
  - **Sources:** Company.
  - **Destination:** Company DB

  3- Process: Check available companies:
  - **Inputs:** Available companies' internship C requirements, explore companies.
  - **Outputs:** Retrieve a company.
  - **Sources:** Student, Company DB.
  - **Destination:** Student

4- **Process:** Get recommendation letter**:**
   - **Inputs:** Student info, send recommendation template, store recommendation letter
   - **Outputs:** Recommendation letter request, store Recommendation
   - **Sources:** Admin, Student DB, Recommendation template.
   - **Destination:** Admin, Student DB
5- **Process:** Get student performance**:**
   - **Inputs:** Request student performance, student performance.
   - **Outputs:** Get student performance.
   - **Sources:** Admin, Student DB.
   - **Destination:** Admin**.**
6- **Process:** Request enrollment in company**:**
   - **Inputs:** Apply for company, student info.
   - **Outputs:** student info.
   - **Sources:** Student, student DB.
   - **Destination:** Company.
7- **Process:** Send initial confirmation**:**
   - **Inputs:** enrollment details.
   - **Outputs:** enrollment details.
   - **Sources:** Company.
   - **Destination:** Admin.
8- **Process:** Validate enrollment**:**
   - **Inputs:** Training roadmap, accept/refuse internship.
   - **Outputs:** Validation details.
   - **Sources:** Company DB.
   - **Destination:** Confirm enrollment.

G- Process: Confirm enrollment**:**

- **Inputs:** Validation details.
- **Outputs:** Confirm report.
- **Sources:** Validate enrollment.
- **Destination:** Student.

- Level-1 Diagram:

1- Process (3.1): Retrieve company profile**:**

- **Inputs:** Company info.
- **Outputs:** List of companies.
- **Sources:** Company DB.
- **Destination:** Filter companies.

2- Process (3.2): Filter companies based on student specification**:**

- **Inputs:** List of companies, student filter request query.
- **Outputs:** Filtered list of companies.
- **Sources:** Student.
- **Destination:** Format company info.

3- Process (3.3): Format company information for display**:**

- **Inputs:** Filtered list of companies.
- **Outputs:** Send list.
- **Sources:** Filter companies based on student specification.
- **Destination:** Send list to student.

4- Process (3.4): Send list to student**:**

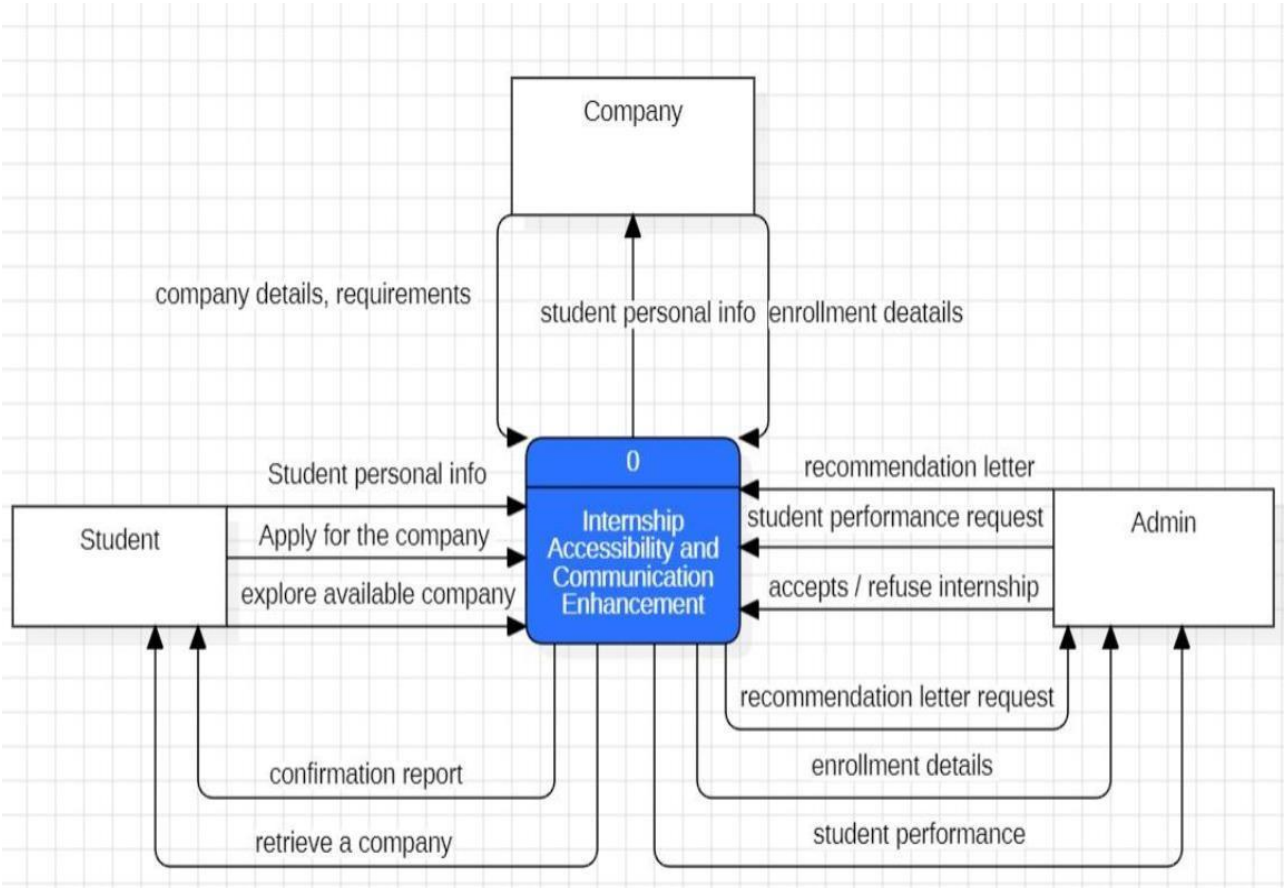
- **Inputs:** Send list.
- **Outputs:** Companies available for student to apply.
- **Sources:** Format company information for display.
- **Destination:** Student.

5- **Process (4.1):** Request recommendation letter**:**
   - **Inputs:** request letter.
   - **Outputs:** request.
   - **Sources:** Student.
   - **Destination:** Admin.
6- **Process (4.2):** Generate letter**:**
   - **Inputs:** Recommendation letter, student info, recommendation template.
   - **Outputs:** letter.
   - **Sources:** Admin, Student DB, Recommendation template.
   - **Destination:** Validate letter.
7- **Process (4.3):** Validate letter**:**
   - **Inputs:** letter.
   - **Outputs:** Validated letter, validation.
   - **Sources:** Admin, generate letter.
   - **Destination:** Admin, student DB.

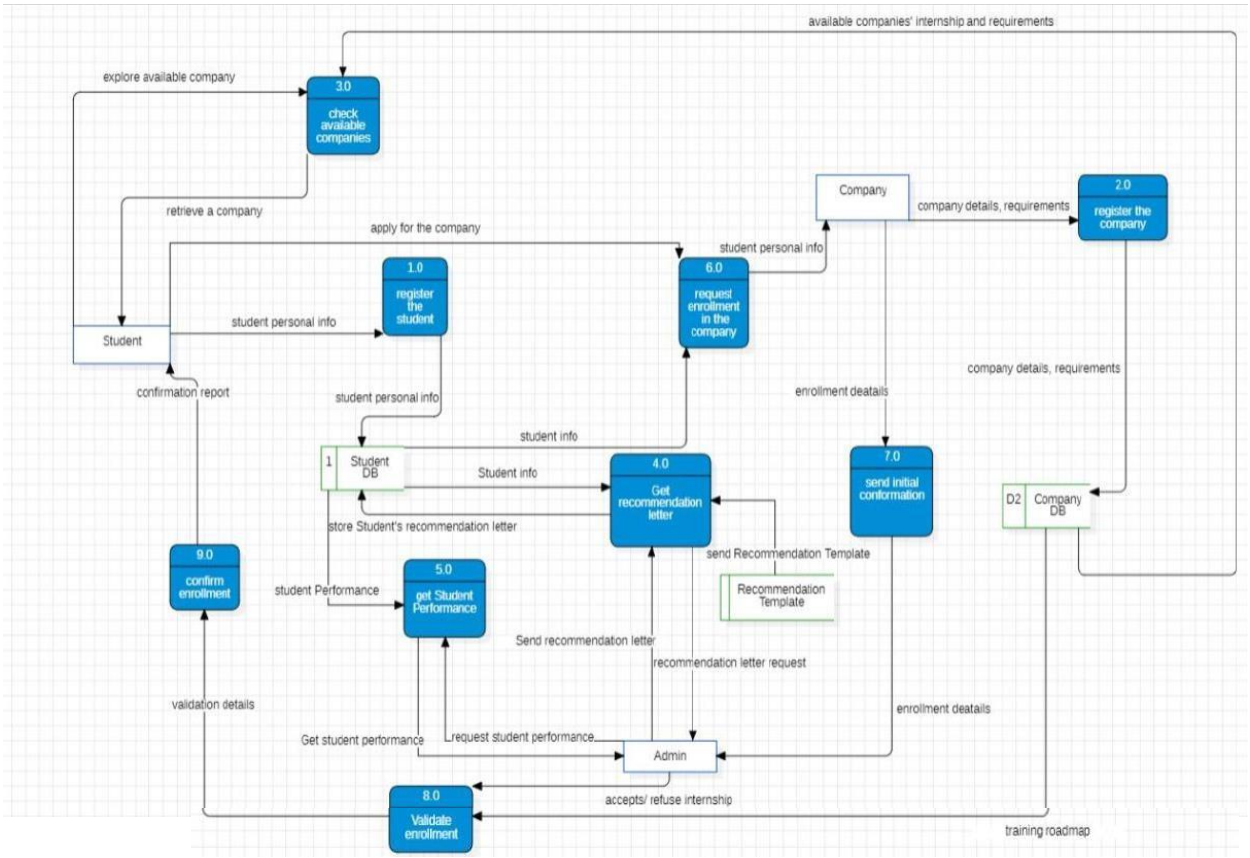
- Level-2 Diagram:
  1- **Process (4.2.1):** Retrieve default recommendation template**:**
     - **Inputs:** Recommendation letter, Recommendation template.
     - **Outputs:** Default recommendation template.
     - **Sources:** Admin.
     - **Destination:** Fill template with student info.
  2- **Process (4.2.2):** Fill template with student info**:**
     - **Inputs:** Default recommendation template.
     - **Outputs:** Filled recommendation letter.
     - **Sources:** Retrieve default recommendation template.
     - **Destination:** Finalize recommendation letter.

3- **Process (4.2.3):** Finalize recommendation letter**:**
   - **Inputs:** Filled recommendation letter.
   - **Outputs:** Send to validate letter.
   - **Sources:** Finalize recommendation letter.
   - **Destination:** Admin, student DB.

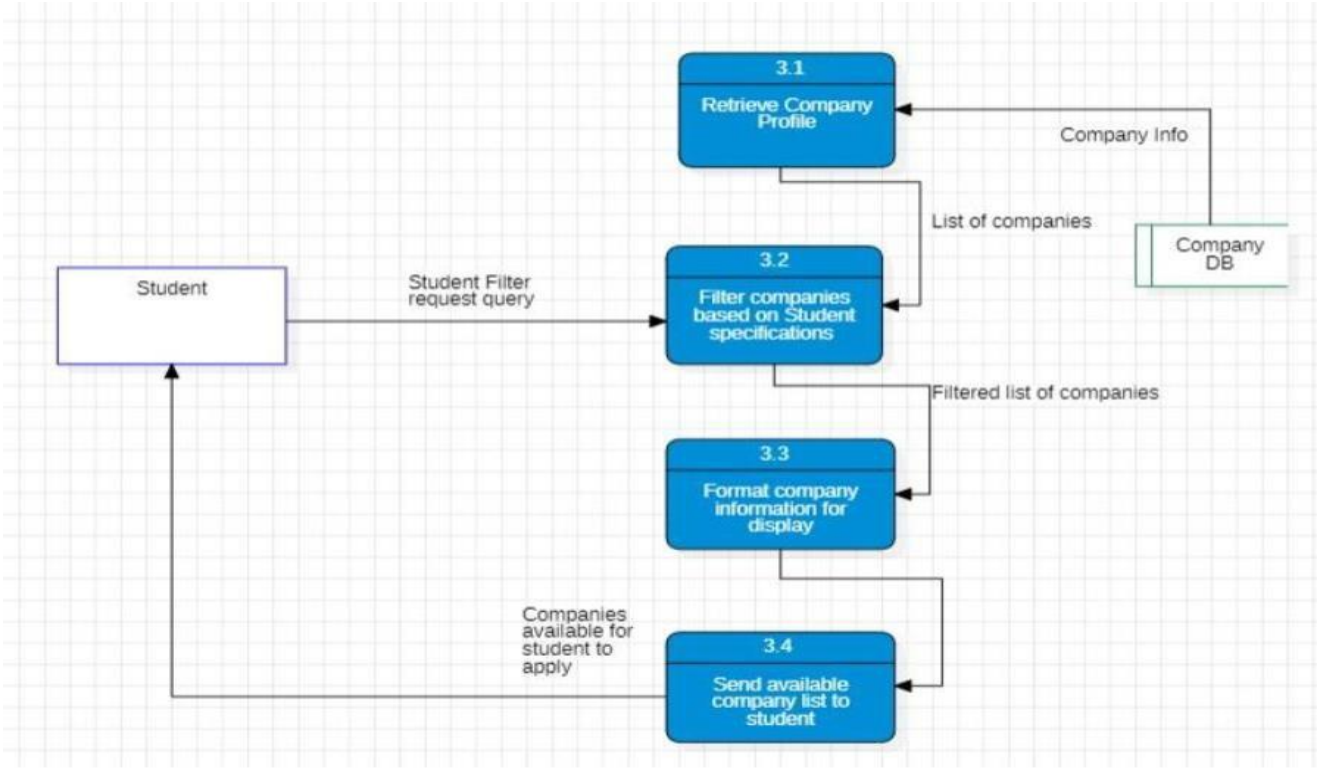
- **Context DFD Level:**

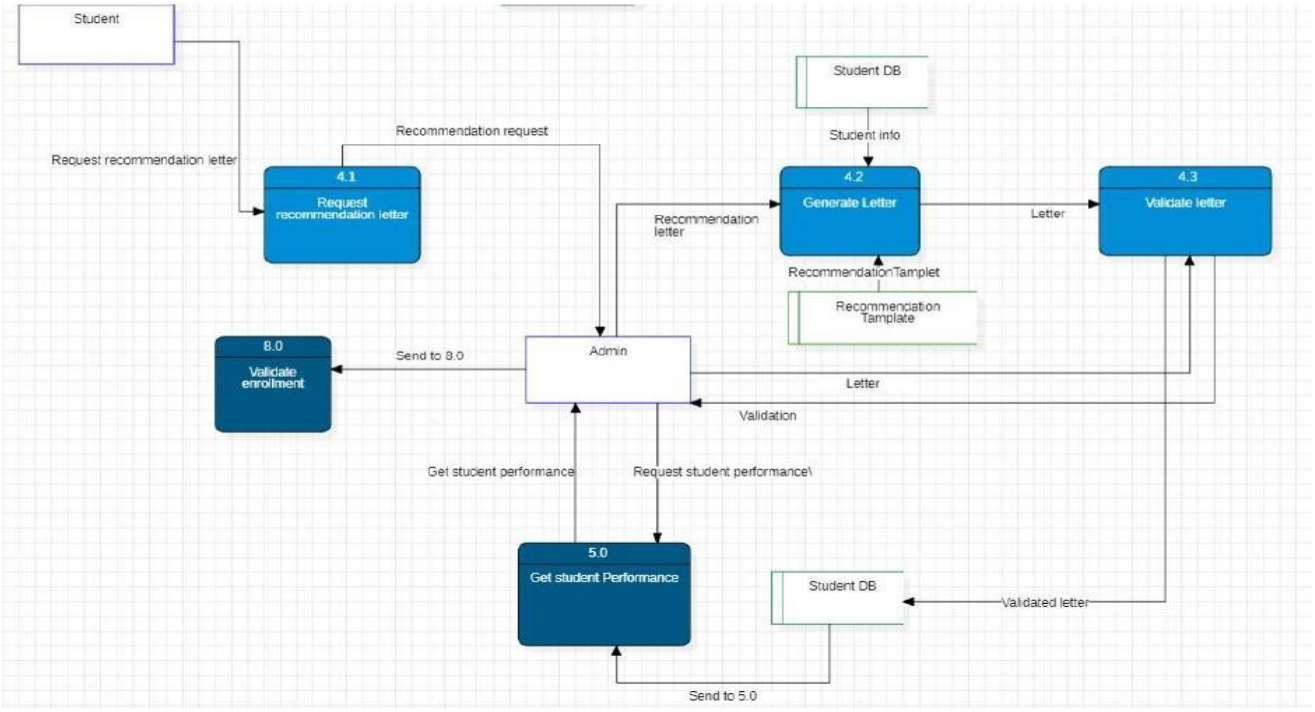


- **Level-0 Diagram:**

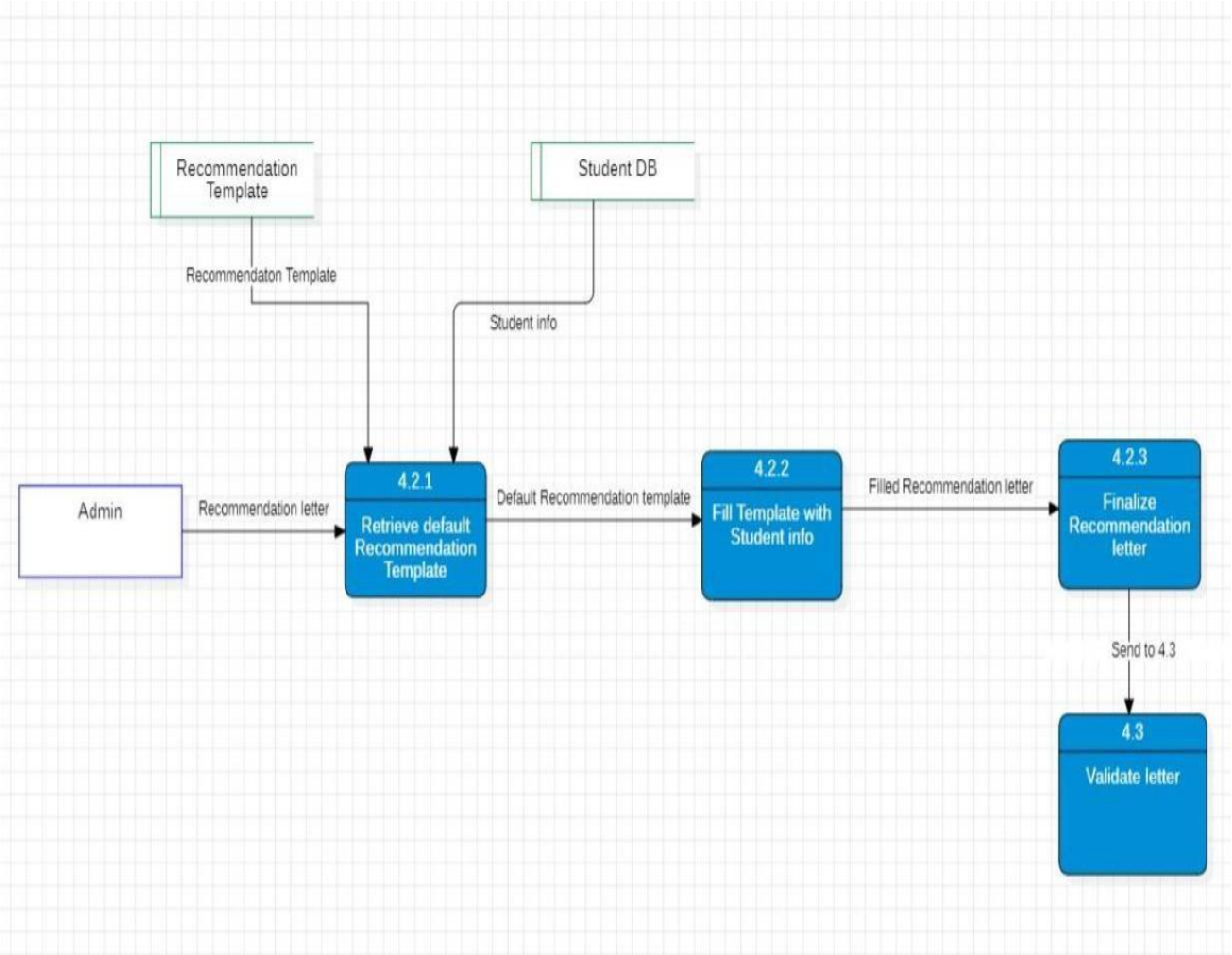


- **Level-1 Diagram:**





- **Level-2 Diagram:**



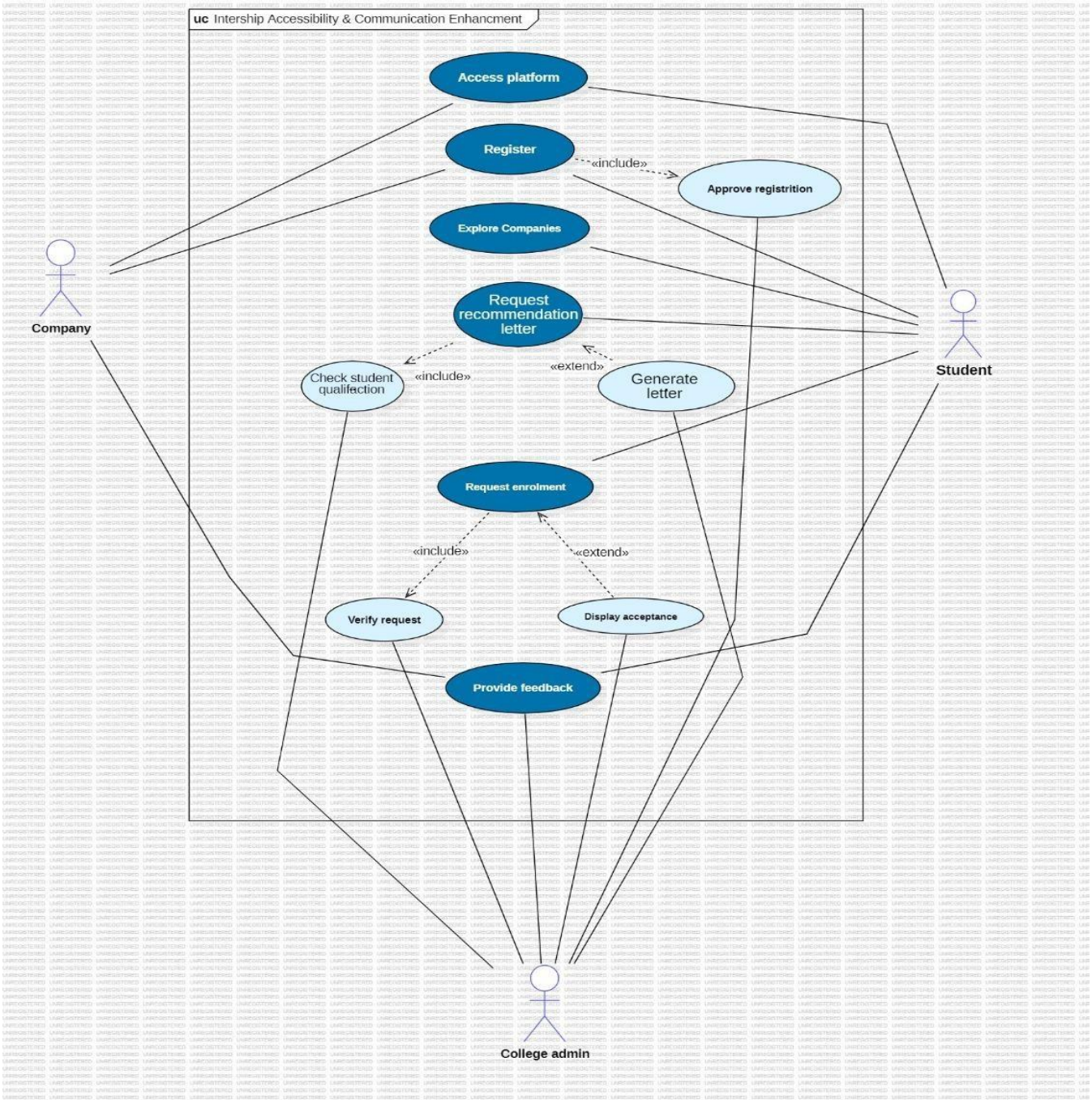
USE CASE DIAGRAM

- **Actors:**
  - Company
  - Student
  - College admin

- **Use Cases:**
  - Access platform.
  - Register.
  - Explore companies.
  - Request recommendation letter.
  - Request enrollment.
  - Provide feedback.
  - Approve registration.
  - Generate letter.
  - Check student qualification.
  - Verify request.
  - Display acceptance.

- **Relationships:**
  - **Include** approve registration in register:
    After registration, approve and validate register.
  - Request recommendation letter **include** in check student qualification:
    To request recommendation letter, student qualifications must be checked.
  - Request enrollment **include** verify request.
  - **Extend** from request recommendation letter to generate letter.
  - **Extend** from request enrollment to display acceptance.

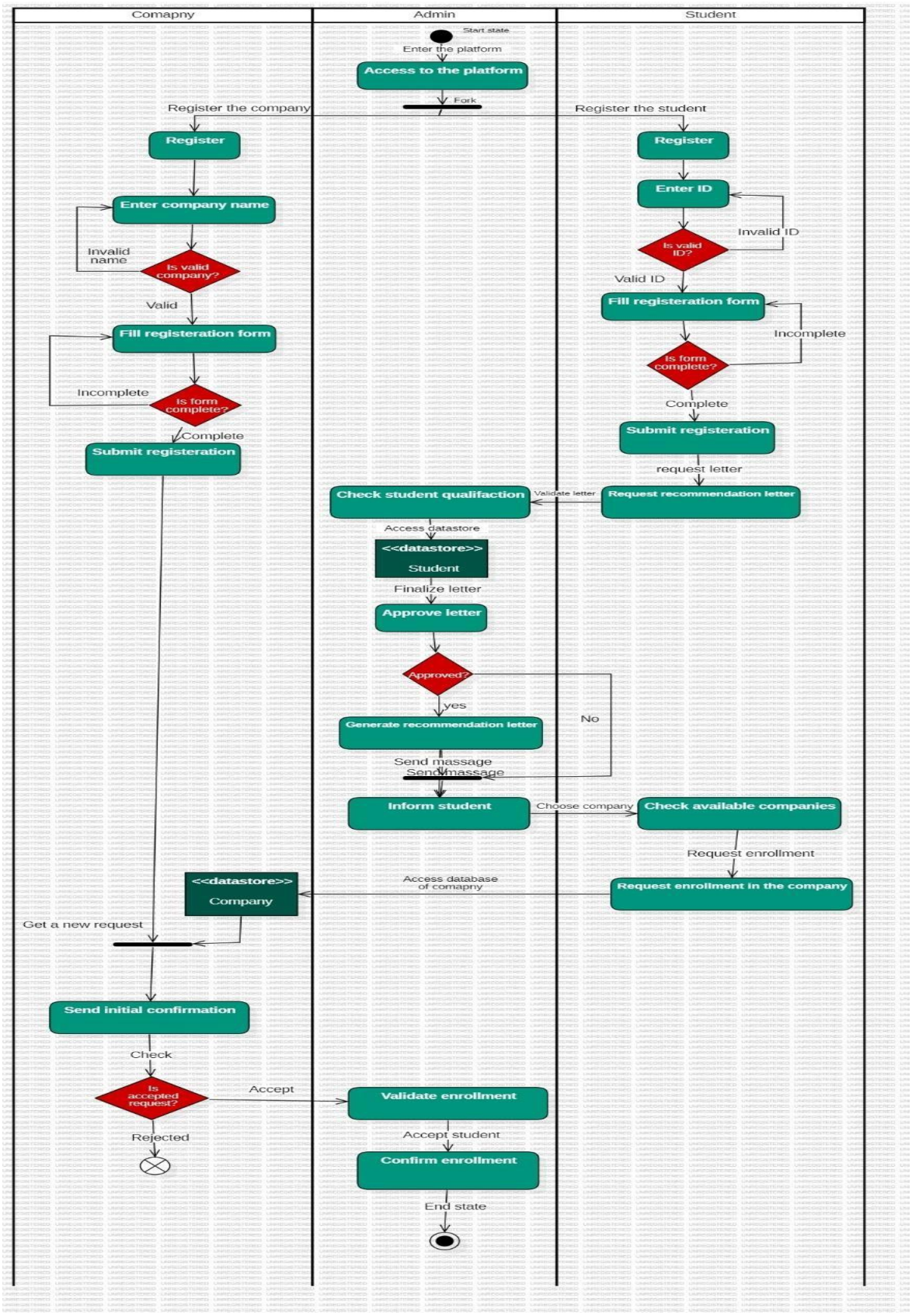
- **Use Case Diagram:**



ACTIVITY DIAGRAM

- **Swimlanes:**
  - **Admin: -**
    The activity diagram is start from admin. Admin check student qualification and then generate letter. Moreover, he is confirm enrollment.
  - **Student: -**
    Student register in the platform, and then fill registration form then request recommendation letter.
  - **Company: -**
    Company register in the platform, and then fill registration form then send initial confirmation to students.

- **Description:**
  After both the company and the student log in to the platform, they must fill out the required fields. Then the student can request a letter of recommendation and it will be approved by the admin. After that, the student explores the companies available on the site and chooses the company he wishes to apply to. After applying to a specific company, he must wait until he receives a final response from the company.


Comapny
Admin
Student
Start state
Enter the platform
Access to the platform
Fork
Register the company
Register the student
Register
Register
Enter company name
Enter ID
Invalid name
Is valid company?
Invalid ID
Is valid ID?
Valid
Valid ID
Fill registeration form
Fill registeration form
Incomplete
Is form complete?
Is form complete?
Incomplete
Complete
Complete
Submit registeration
Submit registeration
request letter
Check student qualifaction
Validate letter
Request recommendation letter
Access datastore
<<datastore>>
Student
Finalize letter
Approve letter
Approved?
yes
No
Generate recommendation letter
Send massage
Send massage
Inform student
Choose company
Check available companies
Request enrollment
Access database of comapny
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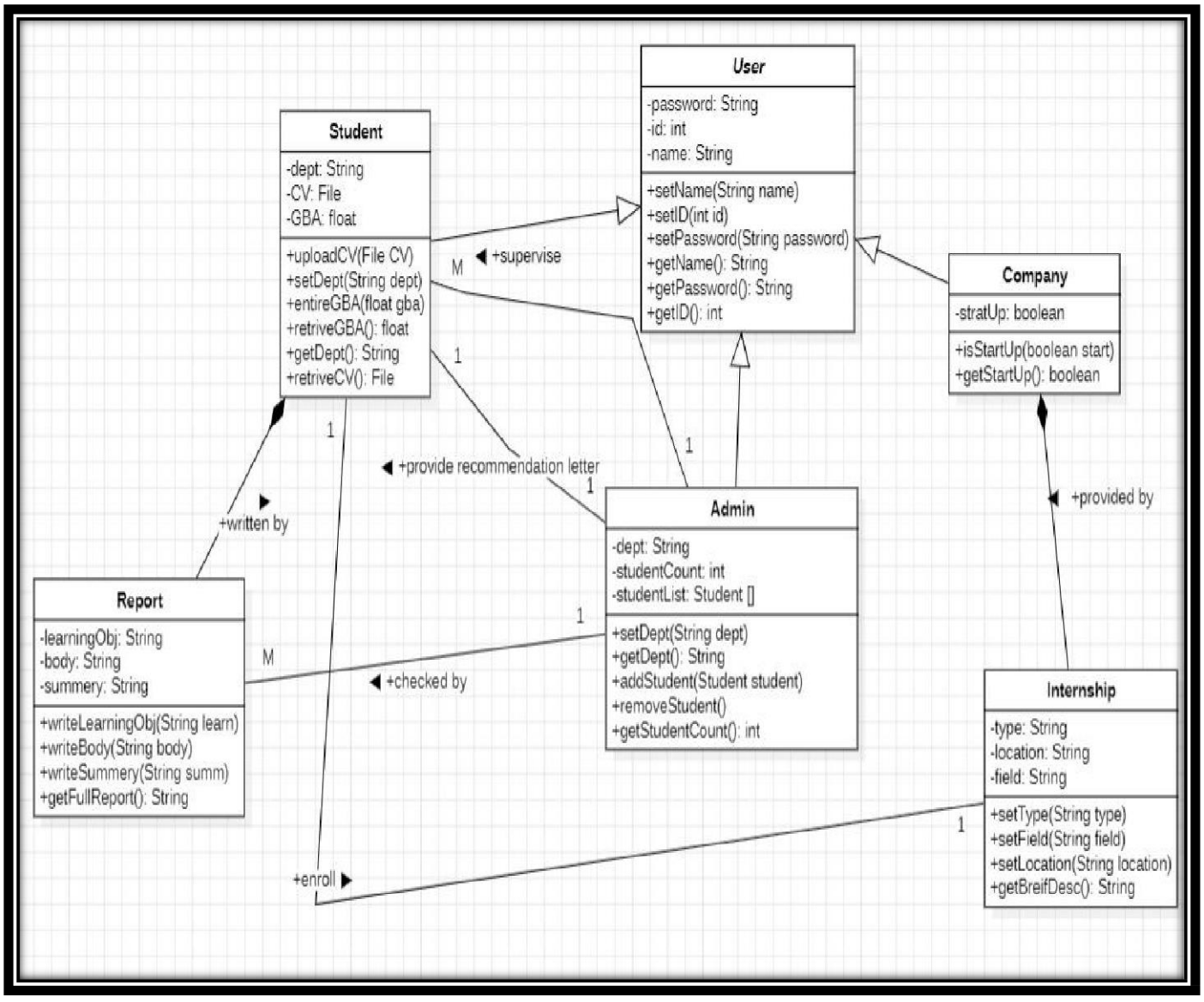
Company
Request enrollment in the company
Get a new request
Send initial confirmation
Check
Is accepted request?
Accept
Validate enrollment
Rejected
Accept student
Confirm enrollment
End state

CLASS DIAGRAM

- **Class s Attribute and method:**
  - **Student: -**
    Attributes: dept, CV, GBA
    Method: UploadCV(File CV), setDept(String dept), entireGBA(float gba), retrieve GBA( ), getDept(), retrieveCV( )
  - **User: -**
    Attributes: Password, ID, Name
    Method: setName(String Name), setID(int ID), setPassword(String password), getName( ), getPassword(), getID( )
  - **Company: -**
    Attributes: startUp
    Method: isStartUp(Boolean start), getStartUp()
  - **Internship: -**
    Attributes: type, location, field
    Method: setType(String type), setField(String field), setLocation(String location), getBreifDesc()
  - **Admin: -**
    Attributes: dept, studentCount, studentList
    Method: setDept(String dept), getDept(), addStudent(Student student), removeStudent( ), getStudentCount()
  - **Report: -**
    Attributes: learningObj, body, summary
    Method: writeLearningObj(String learn), writeBody(String body), writeSummary(String summ), getFullReport()

- **Class Relationships:**
  - **Admin** inherit from user.
  - **Company** inherit from user.
  - **Student** inherit from user.
  - An **Internship** is provided by **Company** (Composition).
  - A **report** is written by **student.** Composition).
  - **Student** enroll in an **internship.**

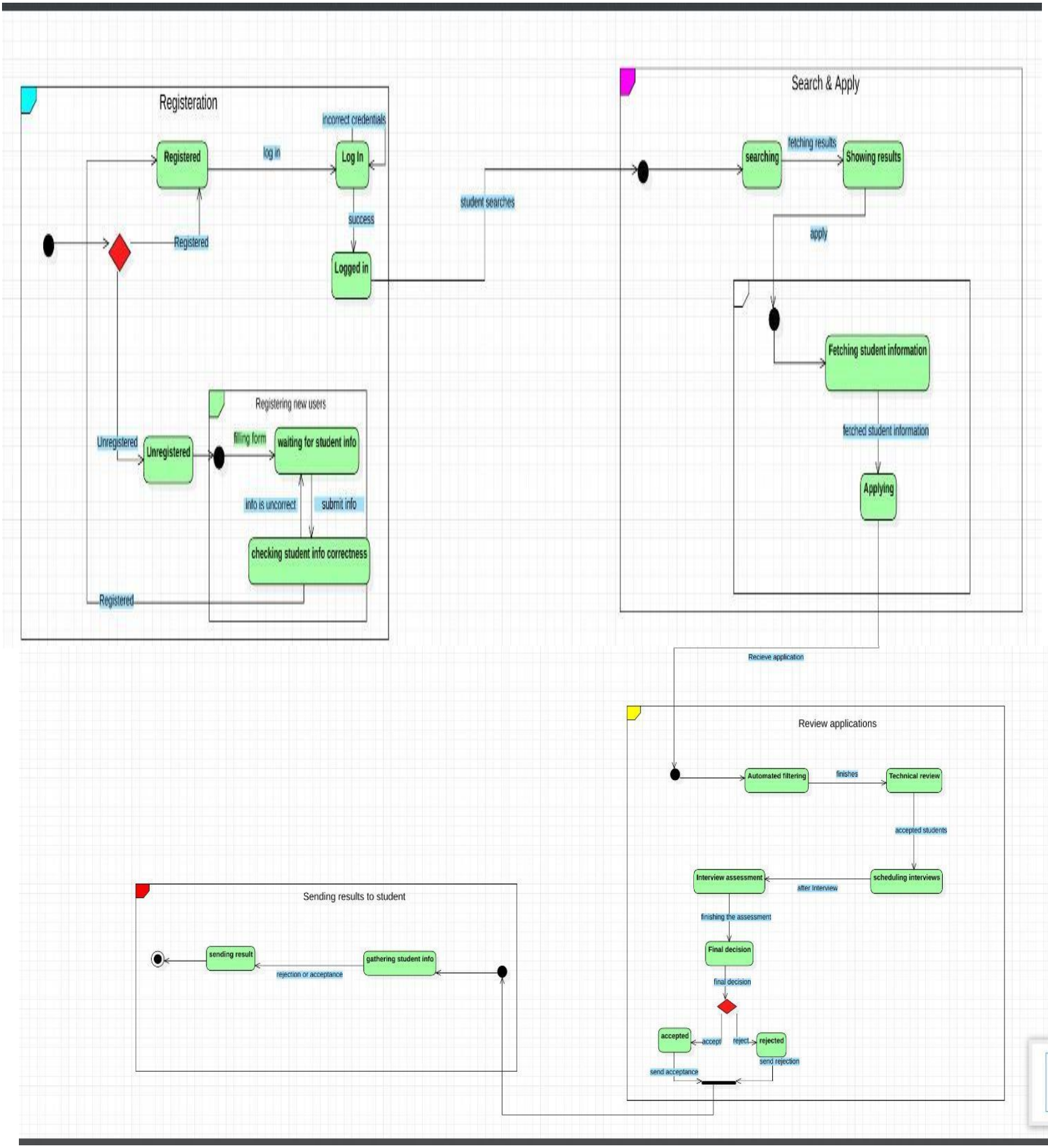
- **Class Diagram:**



STATE MACHINE DIAGRAM

- **Possible states:**
  - **Registered: -**
    register important information when logging in for the first time.
  - **Log in: -**
    Enter the username and password to log in correctly.
  - **Logged in: -**
    The entry was made incorrectly.
  - **Unregistered: -**
    Important information was not registered when you first logged in.
  - **Waiting for student info: -**
    Few moments to fetch data from database.
  - **Checking student info correctness: -**
    Verify the accuracy of the personal information entered.
  - **Searching: -**
    Search for a company.
  - **Showing results: -**
    Show search results.
  - **Fetching student information: -**
    Few moments to fetch data from database.
  - **Applying: -**
    Accept request.
  - **Automated filtering: -**
    Filter based on something specific.
  - **Technical review: -**
    Comprehensive technical review.
  - **Interview assessment: -**
    Evaluating the person after the interview.
  - **Final decision: -**
    Accept or reject person.
  - **Sending result: -**
    Send final decision to a person.

- **Possible events:**
  - **Log in: -**
    Occur when logging in for the first time.
  - **Success: -**
    Occur when the user enter username and password correctly.
  - **Filling form: -**
    Occur when student click on register.
  - **Submit info: -**
    Occur after register the student in platform.
  - **Student search: -**
    Occur when student search in companies.
  - **Fetching results: -**
    Occur when student search in companies.
  - **Receive application: -**
    Occur after applying student information.
  - **Finishing the assessment: -**
    Occur when starting evaluate the person.
  - **Send acceptance: -**
    Occur when the student is get acceptance after interview.
  - **Send rejection: -**
    Occur when the student is get rejection after interview.

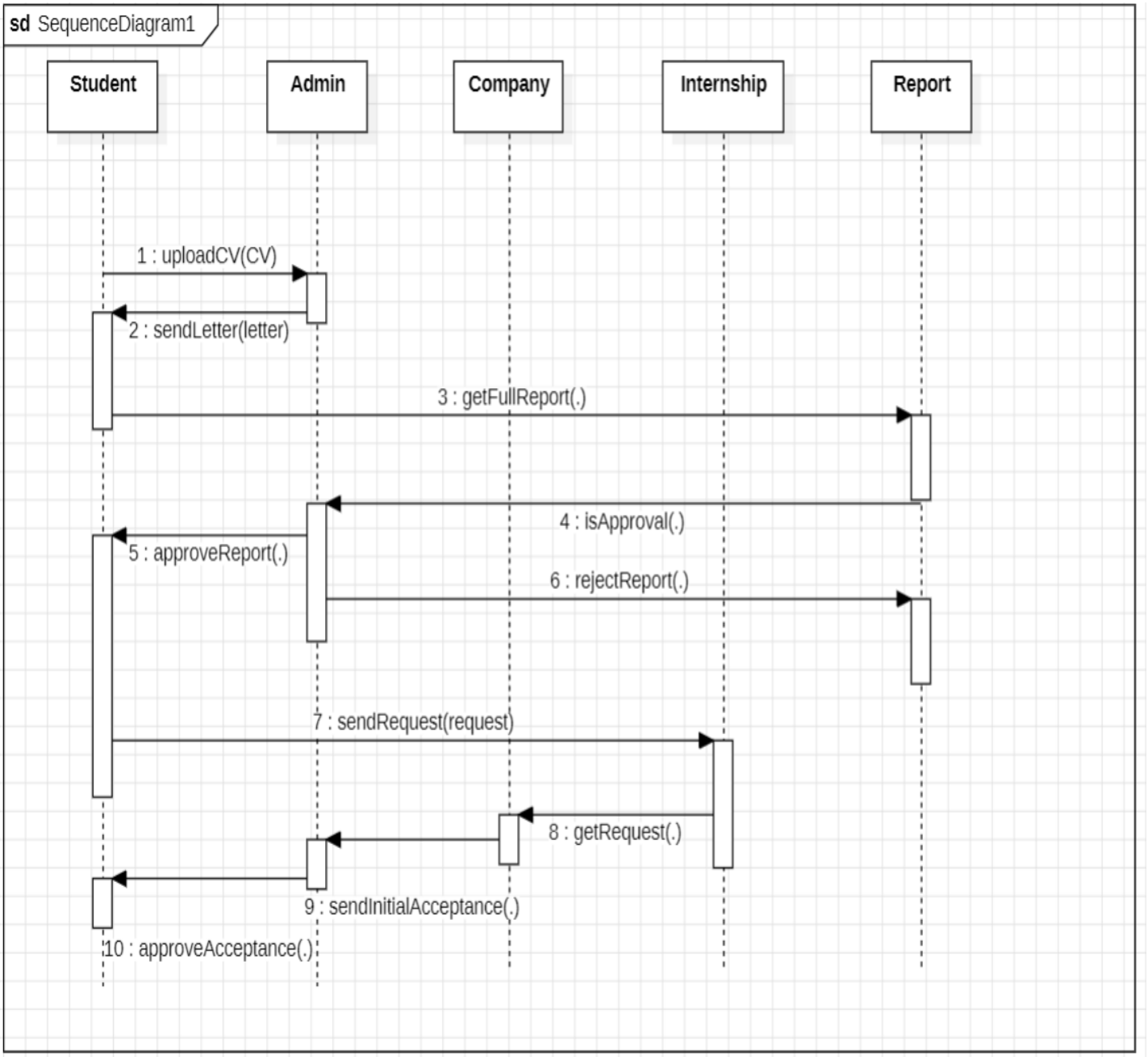

Registeration
Registered
log in
Log In
incorrect credentials
success
Logged in
Registered
Registering new users
Unregistered
Unregistered
filling form
waiting for student info
info is uncorrect
submit info
checking student info correctness
Registered
student searches
Search & Apply
searching
fetching results
Showing results
apply
Fetching student information
fetched student information
Applying
Recieve application
Review applications
Automated filtering
finishes
Technical review
accepted students
Interview assessment
after Interview
scheduling interviews
finishing the assessment
Final decision
final decision
accepted
accept
reject
rejected
send rejection
send acceptance
Sending results to student
sending result
rejection or acceptance
gathering student info

SEQUENCE DIAGRAM

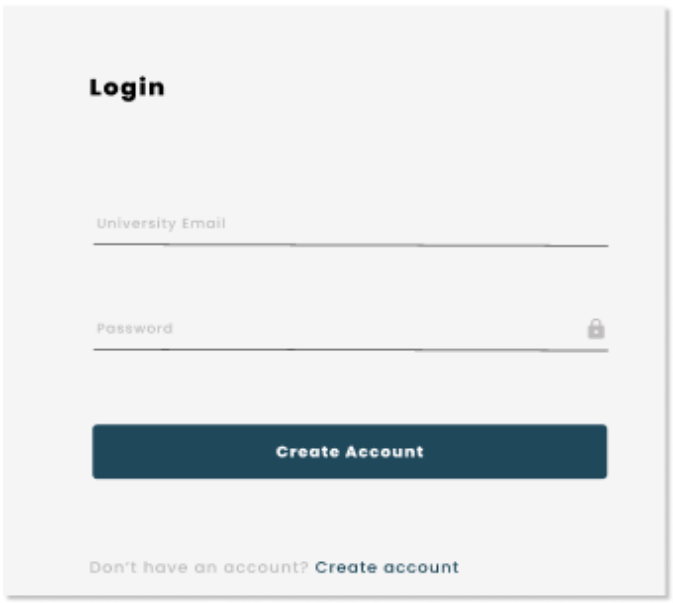
- **Massages s methods:**

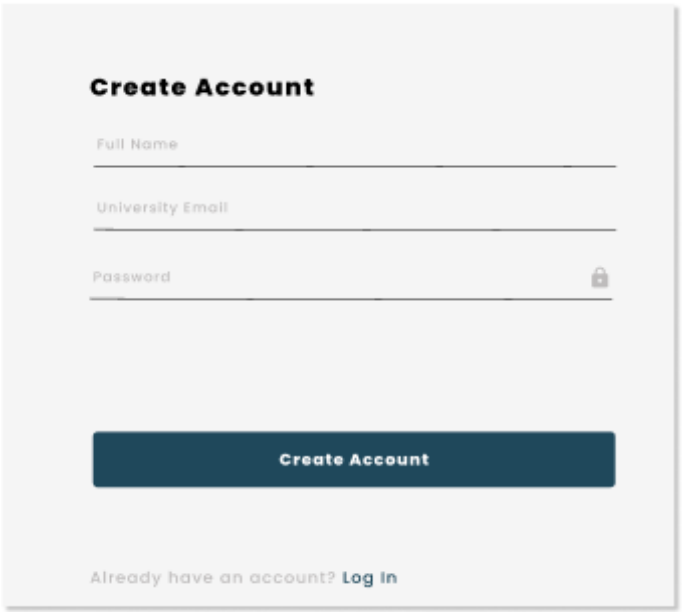
  - **uploadCV(CV): -**
    When **student** upload it's CV to **admin**.
  - **sendLetter(letter): -**
    Admin give **student** letter.
  - **getFullReport(): -**
    Get the full report from **report.**
    isApproval(): -
    Check whether the report is approved or not.
  - **approveReport(): -**
    The **admin** approves the report.
  - **rejectReport(): -**
    The **admin** rejects the report.
  - **sendRequest(request): -**
  - **Student** sends request to **internship** in order to enroll.
  - **getRequest(): -**
    The transaction goes to the **company**.
  - **sendInitialAcceptance(): -**
    The **company** send initial acceptance to **admin**.
  - **approveAcceptance(): -**
    The admin approve the enrollment.

- **Sequence Diagram:**

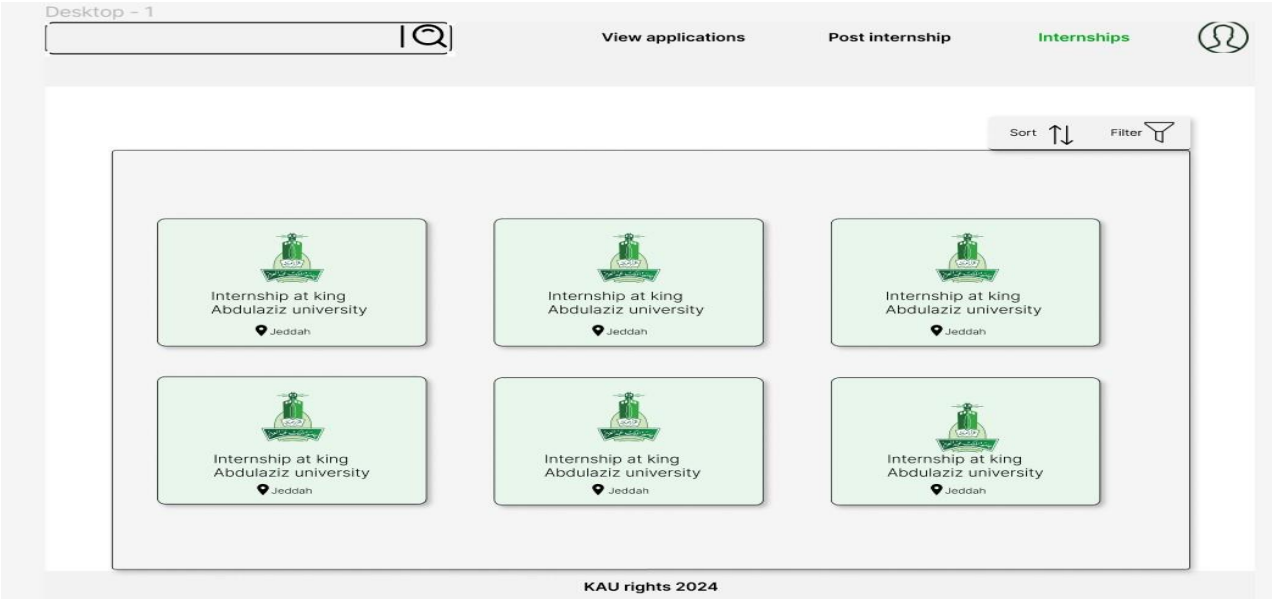


- **Login page:**

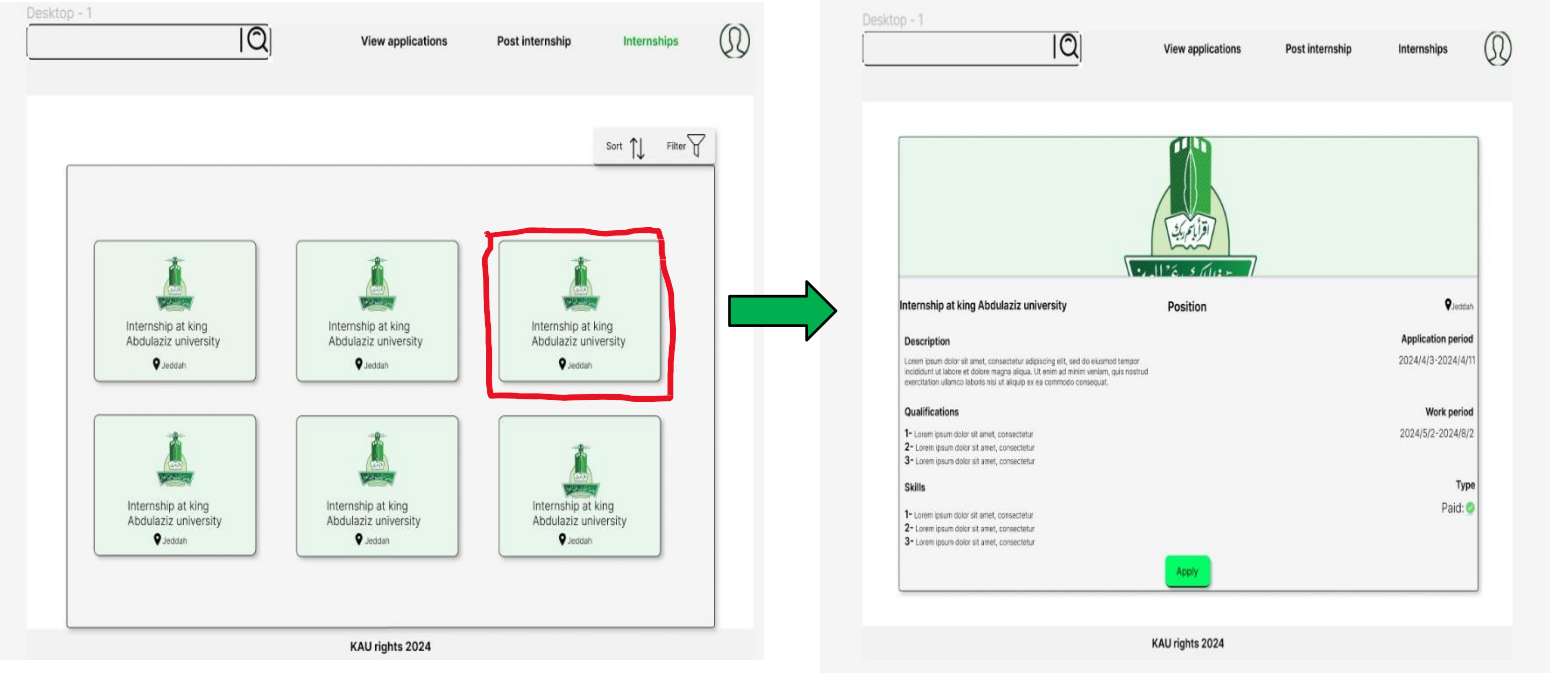




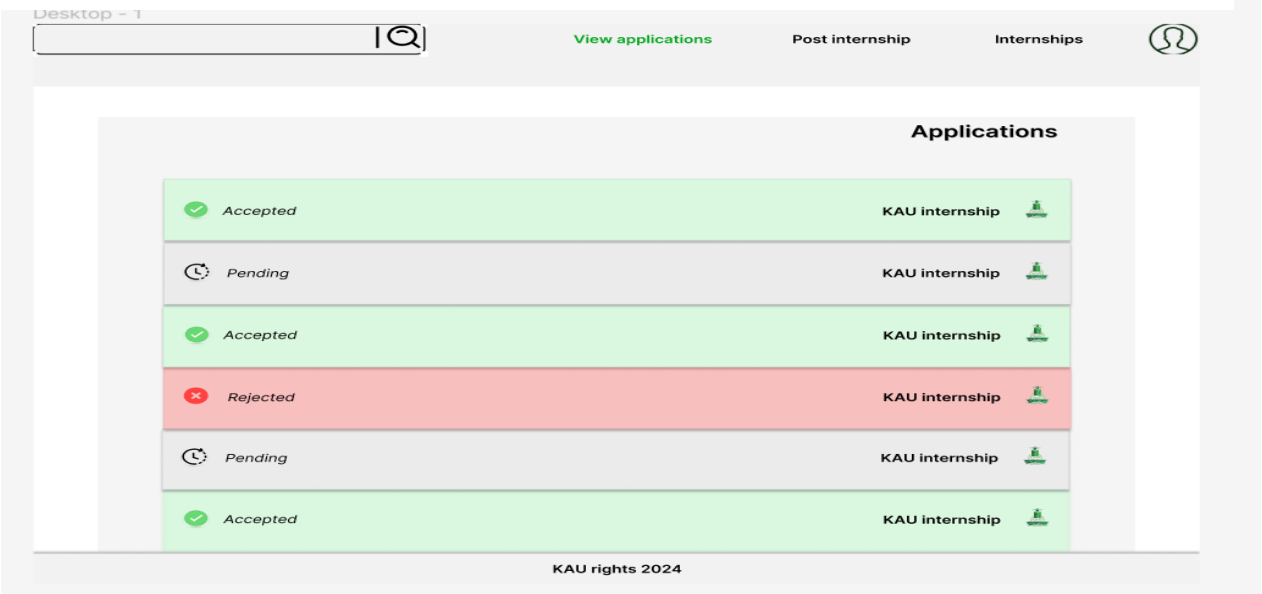
- **The first interface** that appears to the user when opening the site is this interface. Simply, this interface contains various groups of companies that offer internship:



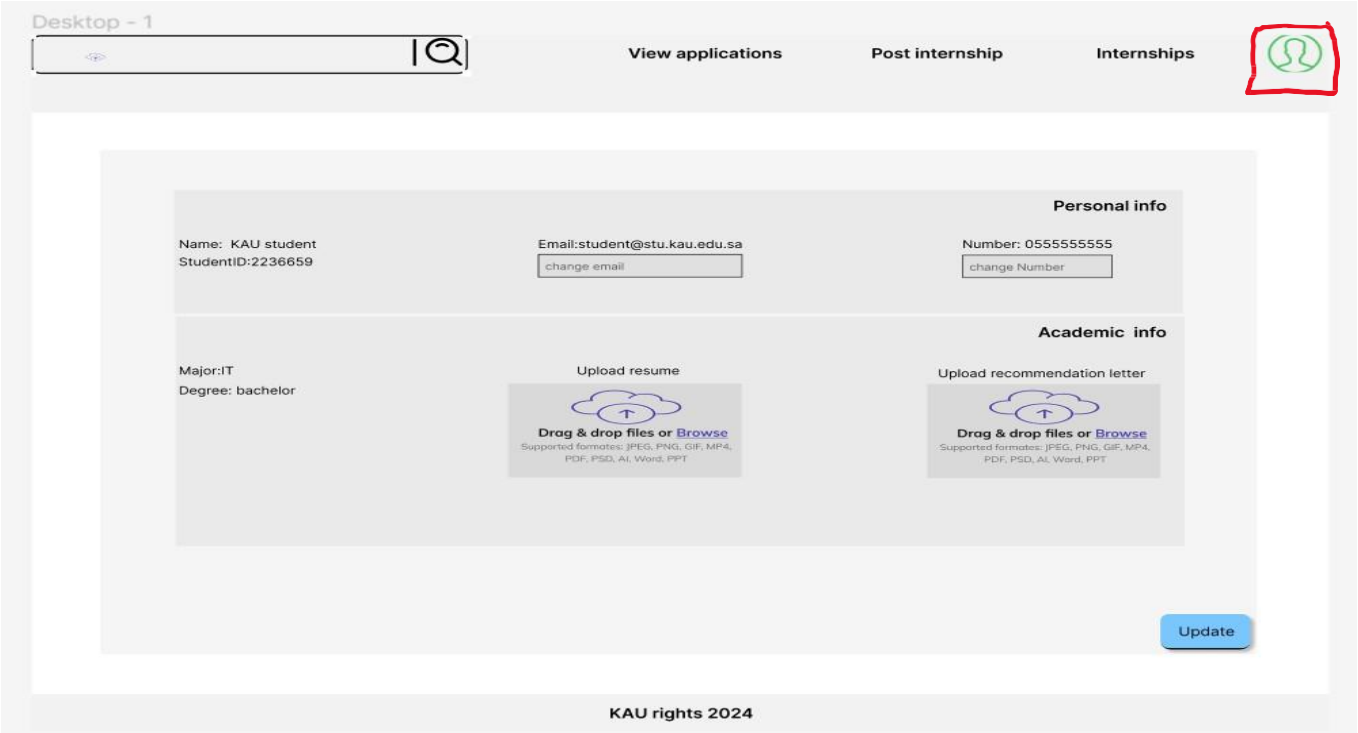
- When you click on one of these icons, **additional internship details** will appear:



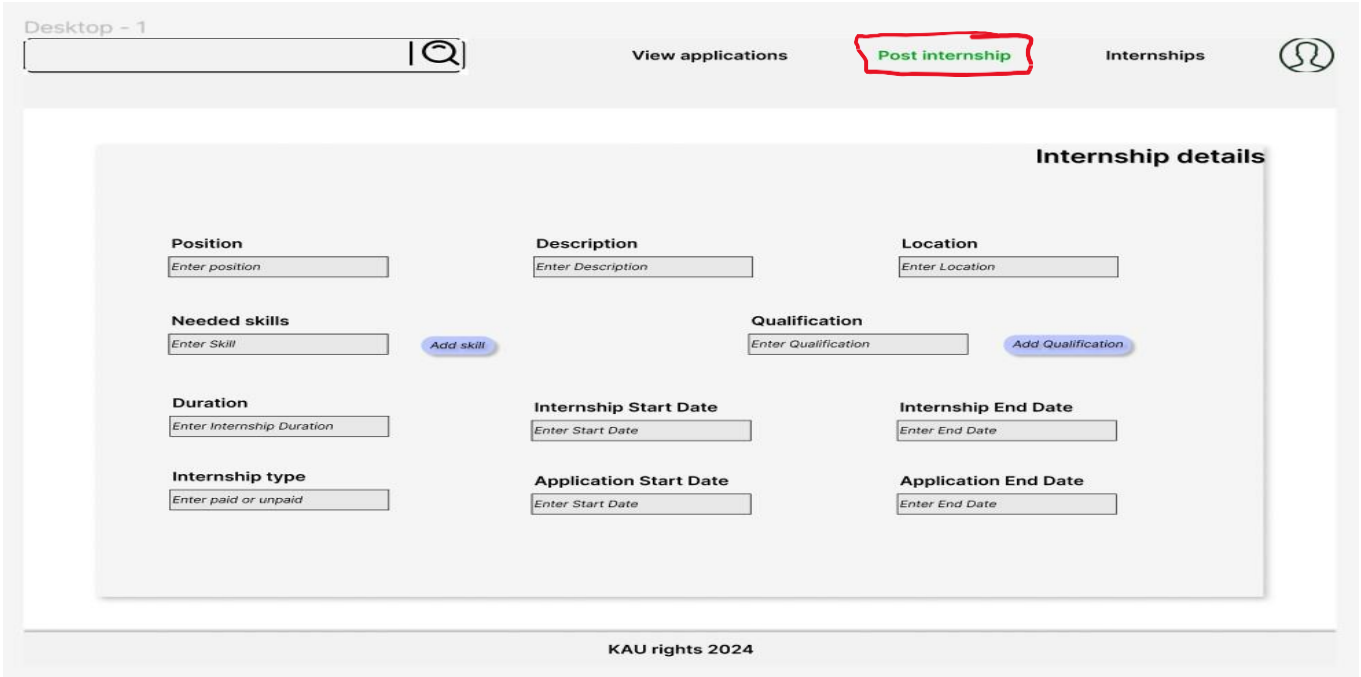
- You can check the status of your acceptance or refusal to participate in the internship through the **view applications icon:**



- The top bar also provides a search feature, in addition to that, you can access personal information by clicking on the **person icon:**



- The **post internship icon** allows companies to add its own advertisement:



Conclusion

In conclusion, the project presents a compelling opportunity to revolutionize the internship experience by addressing the pain points faced by students and companies. By developing a centralized platform, the project aims to enhance accessibility to internship opportunities, improve information transparency, and streamline communication between universities and companies. This solution has the potential to foster meaningful connections and mutually beneficial partnerships, benefiting both students and companies.

Future work

Moving forward, the project can focus on the following areas for future work:

Platform Development: Continue developing and refining the centralized platform to ensure a user-friendly interface, efficient data management, and seamless communication features. Regular updates, bug fixes, and user feedback implementation should be prioritized.

Partnerships and Collaborations: Forge partnerships with universities, companies, and internship program administrators to expand the reach and effectiveness of the platform. Collaborate with educational institutions to ensure the platform aligns with their internship programs and receives their support.

Data Integration and Insights: Enhance the platform's capabilities by integrating relevant data sources, such as company profiles, internship reviews, and alumni experiences. Utilize data analytics to provide valuable insights to students and companies, helping them make informed decisions about internships and candidate selection.