

University of Jeddah

College of Computer Science and Engineering

Department of Cybersecurity



UJ PATHFINDER
empowering success

Principles of Software Engineering

Course Number CCSW-223

Section CY2

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Introduction

UJ PathFinder is an application designed exclusively for the University of Jeddah community. This platform brings a revolutionary change to the academic journey by offering a centralized solution that benefits students, alumni, faculty, and companies alike. With UJ PathFinder, students can manage their profiles showing their experiences, access and request graduation documents, request recommendations and training letters, and connect with others. The application also serves as a bridge to job opportunities, allowing companies to view student profiles, engage in training programs, and explore potential employment options. By seamlessly integrating education and industry, UJ PathFinder empowers students and propels their career growth, providing them with a comprehensive tool to navigate their academic and professional paths more effectively.

UJ PathFinder also incorporates the feature of displaying the employment rate of University of Jeddah graduates, providing valuable insights into the success of alumni in securing job placements.

Additionally, companies are mandated to allocate a minimum of 2% of their total workforce for annual student training opportunities. This requirement ensures that both companies and students benefit from valuable internship experiences, fostering mutual growth and development within the UJ PathFinder platform.

1. Information Gathering

1.1. First Interview

Name: Abdulsalam Rashid Alamri

Job title: the director of the electricity company in the western sector.

Date: 27/1/2024

Email: aramri@se.com.sa

Interviewer : Yara Alamri

Q1/ What are your thoughts on an application designed to connect students with companies for cooperative training or training programs leading to employment?

Answer:

It's a great idea! This app makes it easier for students to find training opportunities in companies. Companies can also discover more students interested in their field. It's a win-win situation, helping both students and companies connect for valuable training opportunities.

Q2/ What key features should an application have to be effective for applying to cooperative training?

Answer:

The key features that make an app effective consist of:

- A comprehensive student database: It includes students' personal information, academic qualifications, professional certificates, skills, and experience.
- Advanced search tools: Enable companies to search for students by specialization, skills, and geographic location.
- Communication tools between companies and students: This enables companies to communicate with students to get to know them better.
- Strong security measures: to ensure the protection of users' privacy.

Q3/ What tips do you have for developers building an app to help both companies and students?

Answer:

- Focus on ease of use of the application: The application must be easy to use and suitable for companies and students.
- Ensure the protection of users' privacy: The application must be secure and protect users' privacy.
- In order to improve the application, we provide a feature to record user feedback, whether companies or students, on their experience in using the application.

Q4/ What benefits do you expect companies to gain from using the app?

Answer:

Among the benefits that companies gain from using this application:

- Improving the process of selecting students for cooperative training: The application will provide companies with an organized way to view available training opportunities, view data on applicants, and choose the students most suitable for their needs.
- Saving time and effort for companies and students: The application will help companies save the time and effort they spend searching for suitable students for cooperative training. It will also help students save the time and effort they spend searching for cooperative training opportunities.

Q5/ From your point of view, do you think this application can assist companies in annually training university students, making up 2% of the total workforce for entities with 50 employees or more, as a mandatory requirement?

Answer:

Yes, I agree with that.

Analyst comment:

In my point of view, the interview shows that the app is a good idea for connecting students and companies. It seems to have benefits for both, especially in making it easier for companies to train students, which is important for larger companies with a mandatory annual training requirement.

1.2. Second Interview

Name: Reema Hasan Alshehri

Job title: graduate from the University of Jeddah

Date: 29/1/2024

Email: [reemahasan911@ gmail.com](mailto:reemahasan911@gmail.com)

Interviewer: Deema Alshehri

Q1/ Do you face difficulties in obtaining academic recommendations from professors?

Answer:

Yes, I did. I approached the recommendations coordinator at the college, and they provided me with an email address for alumni services. I sent the email and was informed that they would review the matter. However, it took longer than expected to communicate with the professors and receive their responses.

I had to resort to sending a personal email directly to the professors to emphasize the importance of obtaining their recommendations and to clarify my academic goals and desire to benefit from their expertise in the field of study.

Q2/ Are you interested in receiving advice or guidance from other graduates regarding potential career paths, developing specific skills, or other professional matters?

Answer:

This is actually important to me. They may have valuable experiences and knowledge about potential career paths and developing specific skills. I can benefit from their advice in identifying a potential career path that aligns with my interests and current skills. If there is a platform that facilitates communication among graduates, it seems promising and extremely helpful.

Q3/ Do you have any suggestions on how to improve the platform to meet the needs of graduates and enhance their professional opportunities?

Answer:

You can add a dedicated section that enables graduates to access available job opportunities and suitable job vacancies based on their qualifications and professional interests.

Furthermore, provides resources that assist graduates in developing their professional skills and enhancing their prospects in the job market, such as tips on resume writing, job interviews, and acquiring the necessary skills for specific positions.

Analyst comment:

In my opinion, I believe that this application will help in the process of obtaining academic recommendations by utilizing tools and interfaces to simplify and expedite the process. Additionally, I found that it is important for graduates to communicate with their peers to receive professional guidance, which is what we aim to achieve in UJ Pathfinder.

1.3. Third Interview

Name: Ebtesam Almalki

Job title: Lecturer in the university of jeddah

Date: 30/1/2024

Email: EAlmalki@uj.edu.sa

Interviewer: Layan Kandil

Q1/ How do you currently handle the process of recommendation letters or internship letters from students?

Answer:

In the current process, students must physically visit the professor's office or send an email to request a recommendation letter, providing the necessary personal information. Typically, professors only write recommendation letters for students who have achieved high grades (A – A+). For training recommendation letters, the training coordinator shares the list of eligible students with advisors and students are responsible for finding available professors to write the recommendation letter.

Q2/ What are the common challenges or difficulties you face when managing these letters manually?

Answer:

Sometimes, professors can be busy and unavailable to students. In such cases, the student needs to search extensively for a professor who has the time to assist them with their request. Additionally, when a student has been out of school for two years or more and returns to the university to request a recommendation letter, it can be challenging for the professor to verify if they have taught the student that specific subject or if the student's grades were good or not. The professor may not be able to verify the accuracy of the student's claims.

Q3/How do you see the feature of UJ Pathfinder facilitating the process of receiving and sending recommendation letters and internship letters, and what specific benefits do you think this feature would bring to you as a professor and to the students?

Answer:

This development is impressive as it replaces manual processes with a reliable electronic service. It addresses issues with paper transactions, such as verifying transcript authenticity and confirming professor-student relationships. The program facilitates easy communication, allowing students to request recommendations and professors to verify information electronically, offering convenience and speed for both parties.

Q4/ Based on your experience, what suggestions or recommendations do you have for optimizing this feature to meet the needs of professors and students effectively?

Answer:

Integrating the program with the university's database seems beneficial, but it appears that this feature is already available. However, it would be advantageous if recommendation letters could be received and delivered through the dean's office or the responsible party for the application, rather than directly with the professors. This would address the challenge of contacting professors who may have left the university, ensuring effective communication. In such cases, the dean's office or the responsible party could review the student's information and provide a recommendation letter on behalf of the university. The student would only need to provide their course details, grades, and request for a recommendation. This approach would make the process faster, more reliable, and enhance the trustworthiness for the student.

Analyst comment:

In my opinion, and as confirmed during the interview, UJ PathFinder is expected to greatly assist professors and students in terms of receiving and sending recommendation letters and training letters in a more convenient, faster, efficient, and reliable manner for all parties involved.

1.4. Fourth interview

Name: Omniya Wajeih

Job title: Lecturer in the university of jeddah

Date: 30/1/2024

Email: wmomniya@uj.edu.sa

Interviewer: Mashaer Aldeghalbi

Q1/ What do you think about an application that caters to graduating students, allowing them to schedule appointments for collecting their graduation documents with the option of delivery services?

Answer:

A nice idea! I think the application will make it easier for graduates. The Deanship of Admissions and Registration works to reduce crowding and organize the scheduling process When the student chooses the required dates available in the application. I would like to confirm that I liked the delivery service, as some students may not want to attend the graduation ceremony and want to receive their graduation gown. Therefore, this application would help organize all of that.

Q2/ What are the essential features that the UJ Pathfinder should include to be effective in terms of scheduling appointments?

Answer:

To be honest, it would be better if there was a scheduled timetable with available time slots, like the "Sehhaty" application, for example. The student shouldn't randomly choose an appointment but rather select based on the available time slots. This would facilitate the organization process for the admissions and registration department by receiving and processing applications more efficiently.

Q3/ From your perspective, how can UJ Pathfinder improve students' experience in dealing with the admissions and registration deanship during the submission and delivery phase?

Answer:

As I mentioned previously, setting a schedule that provides the available appointments. In addition, students must write the information correctly so that the delivery is faster. I also have an addition that I would like to mention that I have seen at some universities. The Deanship of Admissions and Registration can place a gift, such as a beautiful doll, before sending the student's document as a form of entertainment and a memory of the university. It can also be used for sales. I think it's a good idea.

Q4/ How can the UJ Pathfinder contribute to achieving benefits for the university, especially in employment rate calculation and enhancing interaction between students and companies?

Answer:

Companies can make offers to graduating students, as the university acts as an intermediary between students and companies through the application. They can also highlight outstanding students, this depends on the procedures adopted. In addition, Jeddah University is moving towards Vision 2030 by creating a competitive and innovative environment. The higher the employment rate at the university, the more companies will be interested in attracting Jeddah University students, which raises the university's status locally and internationally.

Analyst comment:

I am grateful to Dr. Omniya for granting me the interview. In my opinion, I believe that this application would be helpful, as it provides a useful tool for streamlining appointments with graduates. One suggestion made to enhance the application is to include a scheduling feature that allows students to select appointments regularly rather than randomly. Additionally, it was suggested to incorporate small gifts as part of the graduation ceremony, which I believe would greatly improve UJ PathFinder and create a memorable experience for graduates.

1.5. Fifth interview

Name: Yara Alshehri

Job title: Senior Student in the university of jeddah

Date: 31/1/2024

Email: yara55hassan@gmail.com

Interviewer: Maryam Alotaibi

Q1/ Did you face any difficulties in finding suitable field training opportunities?

Answer:

Yes, I have searched a lot and couldn't find any.

Q2/ What do you think of a platform dedicated to Jeddah University that facilitates your access to field training and employment opportunities from various organizations?

Answer:

That would be great as it would make it easier for students to find suitable job opportunities based on their abilities and specialties. I suggest the application provides a matching algorithm to help students find training opportunities that align with their interests and fields of study. It should also provide detailed information and advice on the field training process, including how to prepare for field training, how to maximize its benefits, and tips on building a professional network.

Q3/ What services would you like to be available in the application to help you in your academic and professional journey?

Answer:

Sending notifications and reminders about new training opportunities and application deadlines,
Completing academic transactions through the application.

Analyst comment:

In my point of view, after interviewing with Yara I am now more confident about our application idea, as it is going to make it easier for graduates to find suitable training and job opportunities and support their academic and professional journeys effectively.

2. The purpose of the project

2.1. the user business of background of the project effort

2.1.1. Content

UJ PathFinder will provide a comprehensive solution for managing profiles, accessing graduation documents, requesting recommendations, and training letters, and facilitating communication and networking among users. The idea was chosen to improve and simplify the academic experience for the University of Jeddah community.

2.1.2. Motivation

UJ PathFinder is an innovative platform that revolutionizes the academic journey, empowering graduate, and senior students to successfully transition from academia to the professional world.

2.1.3. Considerations

UJ PathFinder aims to solve real problems faced by the University of Jeddah community, including lengthy academic recommendation processes, limited communication and networking among graduates, the need for a bridge between students and job opportunities, and challenges in finding cooperative training opportunities. By addressing these considerations, UJ PathFinder streamlines processes enhances communication, and provides valuable job prospects for students and graduates, benefiting both parties.

2.2. Goals Of the Project

The goal of UJ PathFinder is to connect students with cooperative training programs and job opportunities, empowering them to navigate their academic and professional paths effectively, Also UJ PathFinder can help expedite the academic recommendation process by providing a centralized platform where students can request recommendations and faculty members can submit them. This eliminates the need for lengthy manual processes, such as paper-based recommendation letters or email exchanges and reduces administrative burdens.

3. Preliminary report

3.1. The problem

The main problem that UJ PathFinder aims to solve is that the existing system lacks a centralized platform that can effectively connect students, alumni, faculty, and companies. This leads to inefficiencies and difficulties in accessing necessary resources and opportunities. The UJ PathFinder program aims to address the practical issues faced by the Jeddah University community, such as the Inefficient process for obtaining academic recommendations, difficulty connecting students with job prospects, delays in receiving graduation documents, difficulties in locating cooperative training, and Inadequate integration of education and industry. UJ PathFinder aims to provide the best solution for students by improving communication, streamlining operations, and providing worthwhile career opportunities for students and alumni.

3.2. Findings

- Lack of efficient communication between students and the Admission and Registration office.
- Inefficient communication between students and teachers for recommendations.
- Limited knowledge about supportive peers.
- Manual and inefficient process for recommendation or internship letters.
- Lack of data about employment outcomes
- Inconvenient non-organized process for acquiring graduation documents.
- Limited visibility of available training programs and job opportunities for students.
- Difficulty for companies to identify students with specific skills and expertise.
- Inefficient matching between students and companies for internships or job placements.
- Challenges in accessing and managing academic documents and records.

3.3. Recommendation or proposed solution

UJ PathFinder program provides a complete solution that aims to improve communication, simplify processes, and expand employment options for students and graduates. The following recommendations summarize the proposed solution:

1) Centralized Platform Development

- Create a consolidated web platform that connects students, graduates, instructors, and companies. This platform will act as a central point for accessing resources, communicating, and enabling several processes.
- Ensure that the interface is user-friendly and accessible across all devices to encourage widespread use.

2) Communication Enhancement

- Implement effective communication channels between students and the Admissions and Registration office, to answer questions, provide updates, and speed up processes.
- Facilitate direct communication between students and instructors for academic recommendations via the platform, reducing delays and inefficiencies.

3) Peer Support and Networking

- Establish channels or forums within the platform to facilitate communication and knowledge-sharing among students, fostering a supportive peer community.

4) Training, and Job Placement

- Improve exposure to training programs and career possibilities by centralizing listings and providing easy access through the platform.
- Help companies find students with specific talents and knowledge, enabling targeted recruitment efforts.
- Establish an effective matching system between students and employers for internships or job placements based on qualifications, preferences, and industry requirements.

By implementing these recommendations, the UJ PathFinder program aims to build an effective system that encourages communication, collaboration, and opportunities for the Jeddah University community. This unified platform will act as a catalyst for academic and professional achievement, bridging the gap between education and industry and enabling students and graduates to achieve their goals.

3.4. Cost & schedule estimates

Based on our research, our program will cost 75000 Riyal over a 6-month period of time.

Level		Duration	Cost
specification	Engineers and clients work together to define the requirements and constraints that will dictate the program that is developed.	1 month	7500 Riyal
Development	At this point, the program is developed and designed	2 months	45000 Riyal
Validation	During this point, the program is examined to ensure it meets the needs of the client	2 months	11250 Riyal
Evolution	This phase involves modifying the software to align with evolving customer and market demands.	1 month	11250 Riyal
		Total duration	Total cost
		6 months	75000 Riyal

4. Feasibility study – Project plan

4.1. Report Writing

4.1.1. Problem definition

The current system at Jeddah University faces several problems, including inefficient communication channels between students and the Admission and Registration office, delays in obtaining academic recommendations, limited knowledge-sharing among students, difficulties in accessing necessary resources and opportunities, and challenges for companies in identifying students with specific skills and expertise. These issues hinder the overall effectiveness and efficiency of the system, leading to frustration, delays, and missed opportunities for students, faculty, and companies involved.

4.1.2. Scope Objectives of the new system "UJ PathFinder"

UJ PathFinder aims to create a centralized platform that connects students, alumni, faculty, and companies, improving communication channels, streamlining academic recommendations, facilitating knowledge-sharing, providing access to training programs and job opportunities, and enabling efficient matching between students and companies.

4.1.3. Alternative Solutions

Each of the following points is an Alternative of a part that UJ PathFinders aim to solve Integrating them together is the next best plan.

1. Utilize existing communication platforms along with a student information system to centralize academic records and communication management.
2. Collaborate with existing career services platforms to provide a broader range of job opportunities and guidance.
3. Create a mentorship program to connect students with alumni and industry professionals.
4. Strengthen industry partnerships for increased internships and training programs.

4.1.4. Cost and Benefits of Alternatives

This table for integration all the alternatives' solutions together to provide the best alternative:

Level		Duration	Cost
specification	Engineers and clients work together to define the requirements and constraints that will dictate the program that is developed.	1 month	7000 Riyal
Development	At this point, the program is developed and designed	6 weeks	30200 Riyal
Validation	During this point, the program is examined to ensure it meets the needs of the client	1 month	10300 Riyal
Evolution	This phase involves modifying the software to align with evolving customer and market demands.	6 weeks	9000 Riyal
		Total duration	Total cost
		5 months	56500 Riyal

4.1.5. Software Impacts

To ensure effective utilization of the UJ PathFinder application, it is advisable to install the Windows operating system to enhance its functionality. Seamless integration with the existing database can be achieved by utilizing a programming language like MySQL. It is crucial to have a high-speed internet connection to prevent user frustration caused by slow application performance. Employing multiple security networks is essential for safeguarding the personal information of all students. Furthermore, utilizing high-capacity servers will enable smoother and more efficient application usage, enhancing overall system efficiency.

4.1.6. Potential Changes in the Organization

The implementation of "UJ PathFinder" software will have a significant positive impact on the current system. It will improve communication between students, faculty, alumni, and companies, streamlining processes such as recommendation letters, enhancing access to resources and job opportunities, and increasing the visibility of students' skills. The software will provide valuable data for decision-making, offer a user-friendly experience, boost efficiency and productivity, and ensure seamless integration with existing university systems.

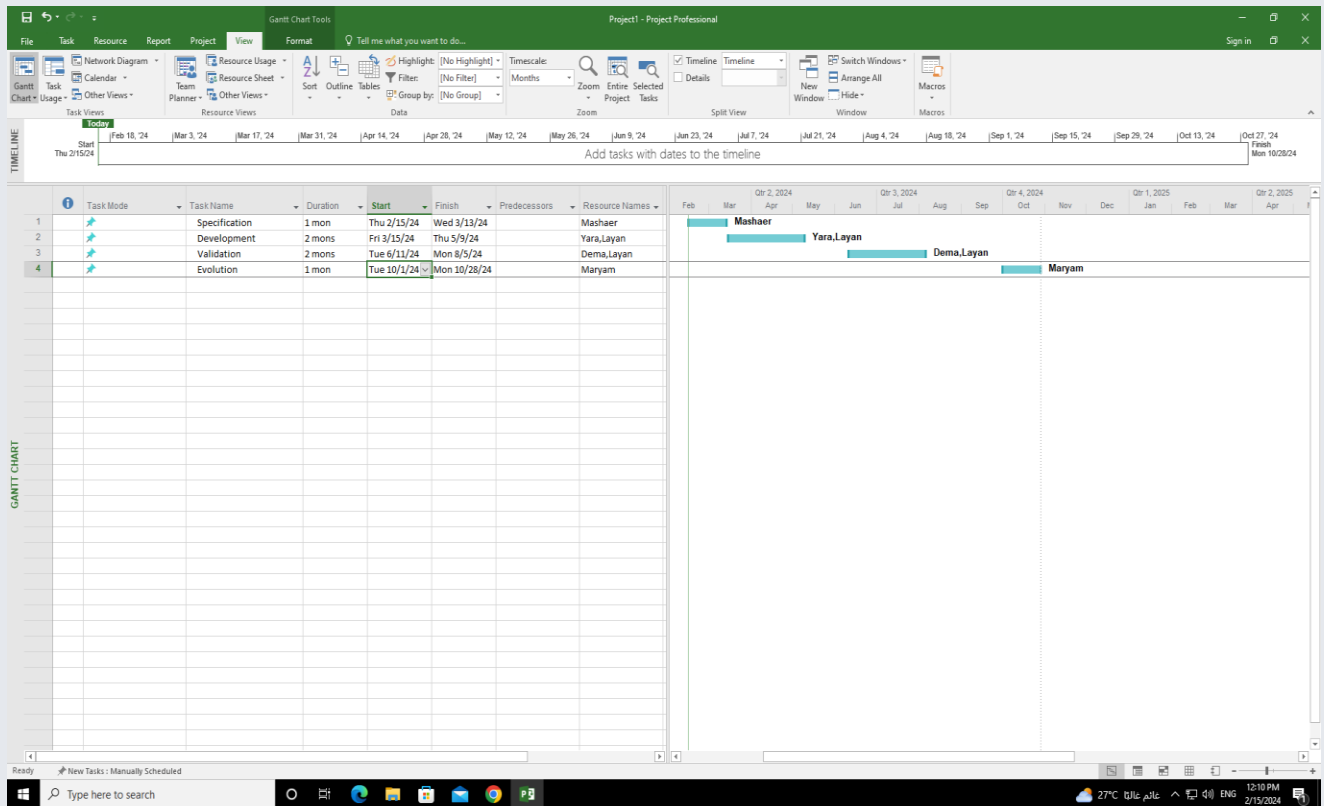
4.1.7. Recommended Alternative of the Course of Action.

We see that the best alternative for UJ PathFinder is implementing the following points:

1. Utilizing existing communication platforms along with a student information system to centralize academic records and communication management.
2. Collaborate with existing career services platforms to provide a broader range of job opportunities and guidance.
3. Create a mentorship program to connect students with alumni and industry professionals.
4. Strengthen industry partnerships for increased internships and training programs

This approach leverages existing resources and partnerships to enhance the overall students experience and support their academic and professional journeys.

4.2. Projects Plan



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5. Context Diagram

5.1. Stockholder definition

The Client: University of Jeddah, Deanship of Admission and Registration

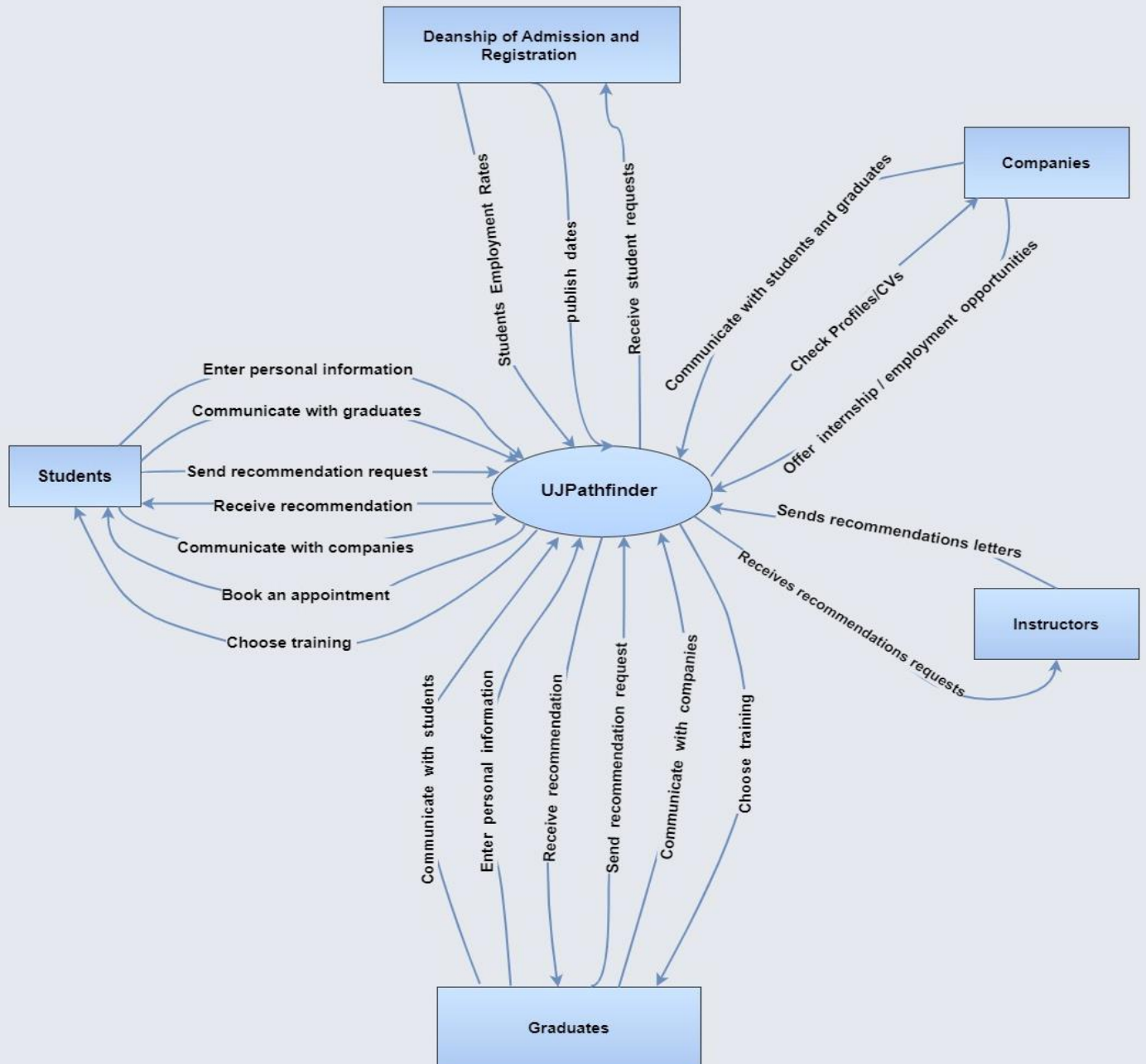
The Customer: UJ Students and graduates

Other Stockholders: Students, Lecturers, Ministry of Education, companies, HR

5.2. The scope of the work

Comparing	Content	Motivation
The Current Situation	The current system at Jeddah University puts students through manual and in-person processes for graduation documents, cooperative training, and recommendation letters. This is burdensome and inconvenient for students. They lack access to information about training programs, job opportunities, and guidance from older students. Companies also struggle to identify students with specific required skills.	To enhance the current system at Jeddah University, I recommend embracing digital solutions or a centralized online portal that simplifies University processes, provides students with information about training programs and job opportunities, enables experienced students and graduates to offer guidance and support to enrich the student experience, and implements a skills profiling system for better student-company matching.
The Context of the Work	After implementing and designing the program, several changes have occurred to the manual and in-person processes for cooperative training, and recommendation letters have been simplified. This has made it easier and more convenient for students. Students now have easy access to information about training programs, job opportunities, and guidance from experienced students and graduates. Furthermore, a skills profiling system has been implemented to improve the matching of students with company requirements.	For the upcoming versions of the application, it is recommended to continue developing digital solutions and a centralized online portal to ensure a seamless user experience. Regular updates and improvements should be made to keep up with technological advancements and address any emerging needs or challenges. Continuous feedback from students, graduates, and companies is crucial in identifying areas for improvement and tailoring the system to meet their specific requirements.

5.3. The Diagram



5.4. Business Event List

Event name	Input-output	Summary
Enter personal information	In	Students/Graduates enter their personal information in UJPathfinder
Communicate with graduates	In	Students can Communicate with graduates in UJPathfinder
Send recommendation request	In	Students/Graduates may Send recommendation requests in UJPathfinder to instructors
Receive recommendation	Out	Students/Graduates receive a recommendation from UJPathfinder from the instructors
Communicate with companies	In	Students and graduates can Communicate with companies in UJPathfinder
Book an appointment	Out	UJPathfinder provides a book-an-appointment service for graduation documents and gowns
Choose training	Out	UJPathfinder allows students and graduates to choose from training opportunities provided by companies.
Communicate with students	In	Graduates can communicate with students in UJPathfinder
Publish dates	In	The Deanship of Admission and Registration provides dates to receive graduation certificates and gowns in UJPathfinder
Receive student requests	Out	Deanship of Admission and Registration Receive student requests for graduation documents/gowns
Students' employment rates	In	The Deanship of Admission and Registration provides Student employment rates to UJpathFinder
Communicate with students and graduates	In	Companies can communicate with students and graduates in UJpathfinder
Check profiles/CV	Out	UJPathfinder allows companies to check students/graduates' profiles/CVs
Offer internship/employment opportunities	In	Companies Offer internship/employment opportunities in UJPathfinder
Sends recommendation letters	In	Instructor Sends recommendation letters through UJPathfinder
Receives recommendation requests	Out	Instructor Receives recommendation requests from UJPathfinder

6. Functional and Non-Functional Requirements

6.1. Functional Requirements

ID	Requirement definition
FR 1	Create account
FR 1.1	The system shall enable a user to create an account.
FR 2	login
FR 2.1	The system must make the default username, password, and ID number available to all users.
FR 3	Schedule Appointments
FR 3.1	The system must provide appointments based on the times available to receive graduation documents.
FR 4	Communication
FR 4.1	the system must provide a mechanism for users to communicate with each other.
FR 5	Track Internships
FR 5.1	The system should allow students to track and manage their internship experiences.
FR 6	Display Employment Rates
FR 6.1	The system has to offer a means for Student employment rates to be provided by the deanship of admission and registration.
FR 7	Facilitate Recommendations
FR 7.1	The system should allow graduates and Instructors to communicate for students to send requests and receive recommendations to/from instructors.
FR 8	Manage Offers
FR 8.1	The system shall allow companies to offer internship/training opportunities for students.
FR 9	View profile
FR 9.1	The system shall allow users to view each other's profiles.
FR 10	Manage Profiles
FR 10.1	Users should be able to update/delete their profiles.

6.2. Non-Functional requirements

User interface

ID	Requirement definition
UI1	The system must provide functionality in the user interface based on the user authorization.
UI2	The system must offer a user-friendly interface.
UI3	The user interface should be like a graphical user interface (GUI).

Hardware interface

ID	Requirement definition
HI1	The system must be implemented in a hardware-independent manner that does not rely on any specific hardware interfaces.

Software interface

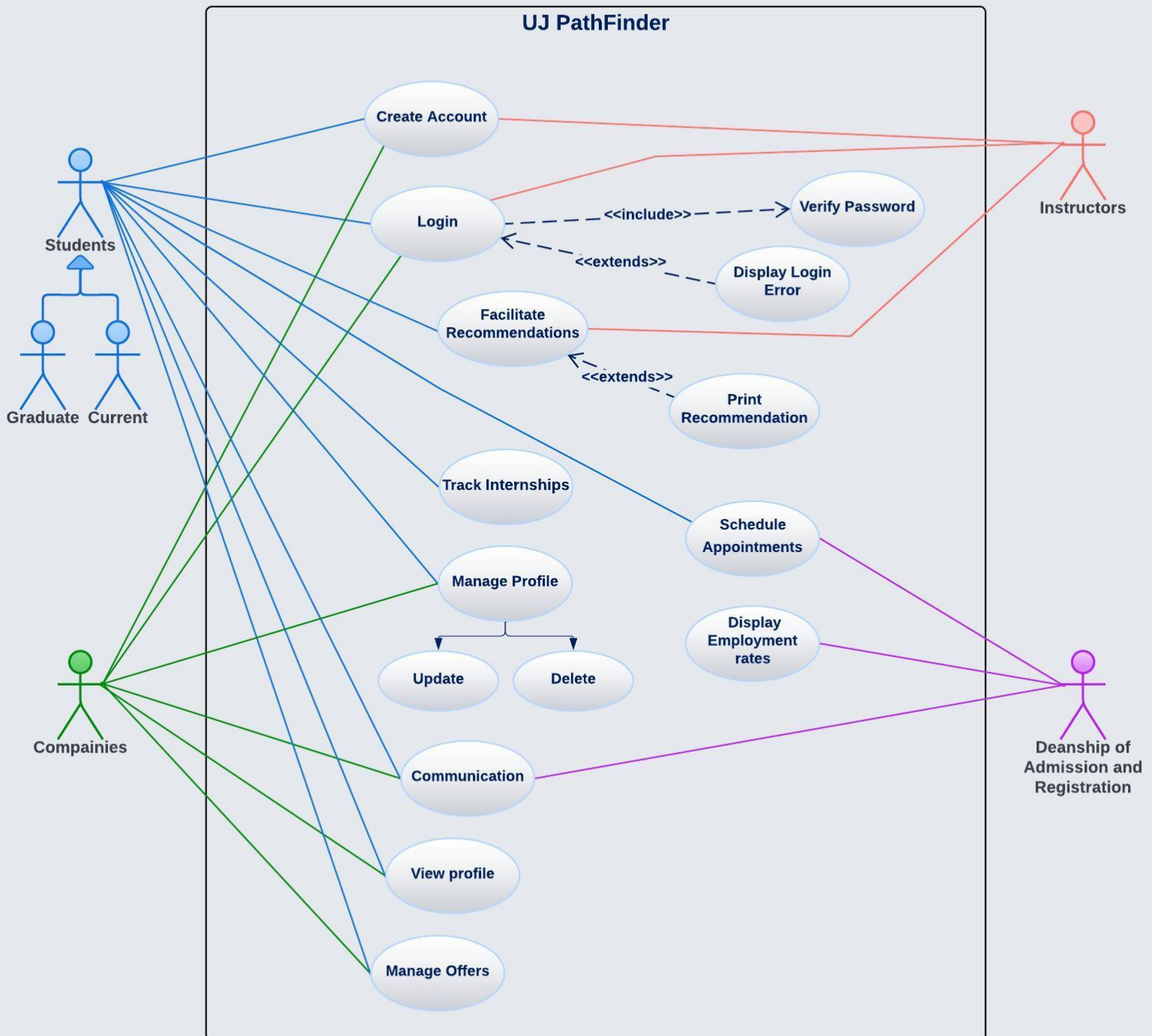
ID	Requirement definition
SI1	The system the interface should be designed to accommodate users with disabilities, providing features such as screen reader compatibility, keyboard navigation, and adjustable font size.
SI2	The system should support multi-platform compatibility, allowing users to access and use the software interface seamlessly across different operating systems.

Security Requirements

ID	Requirement definition
SE1	The system must have a login page.
SE2	The system must only enable the user to access the services that he or she has authorized.
SE3	User data must be transferred to databases for security.

7. Use Case

7.1. Use case Diagram



7.2. Use Case Description

UC1: Create account

Scope: UJ PathFinder Users

Level: The system enables the users to create an account.

Primary Actor: Student, Companies, Instructors.

Preconditions :

- ❖ The user must not have an existing account with the same username or email.
- ❖ Provided username and email must be valid and unique.
- ❖ The password must meet security requirements (e.g., minimum length, special characters).

Stakeholders and Interests:

- ❖ Students, Companies, Instructors, and the deanship.

Scenario of UC1:

- ❖ The user downloads the application.
- ❖ The user creates accounts in the system.

UC2: Schedule Appointments

Scope: Student, Deanship, and the system.

Level: The students make an appointment with the deanship

Primary Actor: Students

Preconditions :

- ❖ The student must have a valid account in the system.
- ❖ The Deanship must have available time slots for appointments.

Stakeholders and Interests:

- ❖ Students and the deanship

Scenario of UC2:

- ❖ The system displays the available time slots for appointments.
- ❖ The student selects a preferred time slot.
- ❖ If the time slot is available, the system confirms the appointment and sends a confirmation to the student.
- ❖ The system notifies the Deanship about the scheduled appointment.

UC3: Facilitate Recommendations

Scope: Students, Instructors, and the system.

Level: facilitate recommendations operation.

Primary Actor: students, Instructors.

Precondition:

- ❖ After login, the student Should have a valid academic connection or affiliation with the instructors to access the recommendation section.

Stakeholders and Interests:

- ❖ Students, and instructors.

Scenario of UC3 :

- ❖ The user downloads the application.
- ❖ The user creates accounts in the system.
- ❖ The user accesses the recommendation section to request a recommendation letter from instructors or view their recommendations.

UC4: Track Internships

Scope: Students and the system.

Level: The system allows students to track and manage their internship experiences.

Primary Actor: Students

Precondition:

- ❖ The student and the company must have a valid account in the system.
- ❖ The student must have an active internship with a company.

Stakeholders and Interests:

- ❖ Students, Companies, and the deanship.

Scenario of UC4:

- ❖ The system provides a feature for tracking internships.
- ❖ The system displays the student's active internships.
- ❖ The system provides information about the internship, such as start date, end date, tasks, and mentor details.
- ❖ The system allows the student to update the progress of their internship, such as completed tasks or milestones.

UC5: Communication

Scope: students, companies, the deanship.

Level: allows students to communicate with companies, the deanship, or other students.

Primary Actor: students.

Precondition:

- ❖ The student and company must have a valid account in the system.

Stakeholders and Interests:

- ❖ Students(current and graduates), companies, and the deanship.

Scenario of UC5 :

- ❖ The system provides a communication interface.
- ❖ Students can initiate communication with other students, companies, or the deanship by selecting the desired recipient.
- ❖ Students are interested in communicating with graduate students for academic guidance and mentorship. They are also interested in communicating with companies for internships, job opportunities, or networking purposes.
- ❖ The system facilitates communication by providing messaging or chat functionality.
- ❖ The system notifies the sender of any new messages or responses.
- ❖ The communication continues until both parties conclude the conversation.

UC6: Manage Offers

Scope: Students, Companies, and the system.

Level: allows students to receive offers from companies.

Primary Actor: students, companies.

Precondition:

- ❖ The student and company must have a valid account in the system.

Stakeholders and Interests:

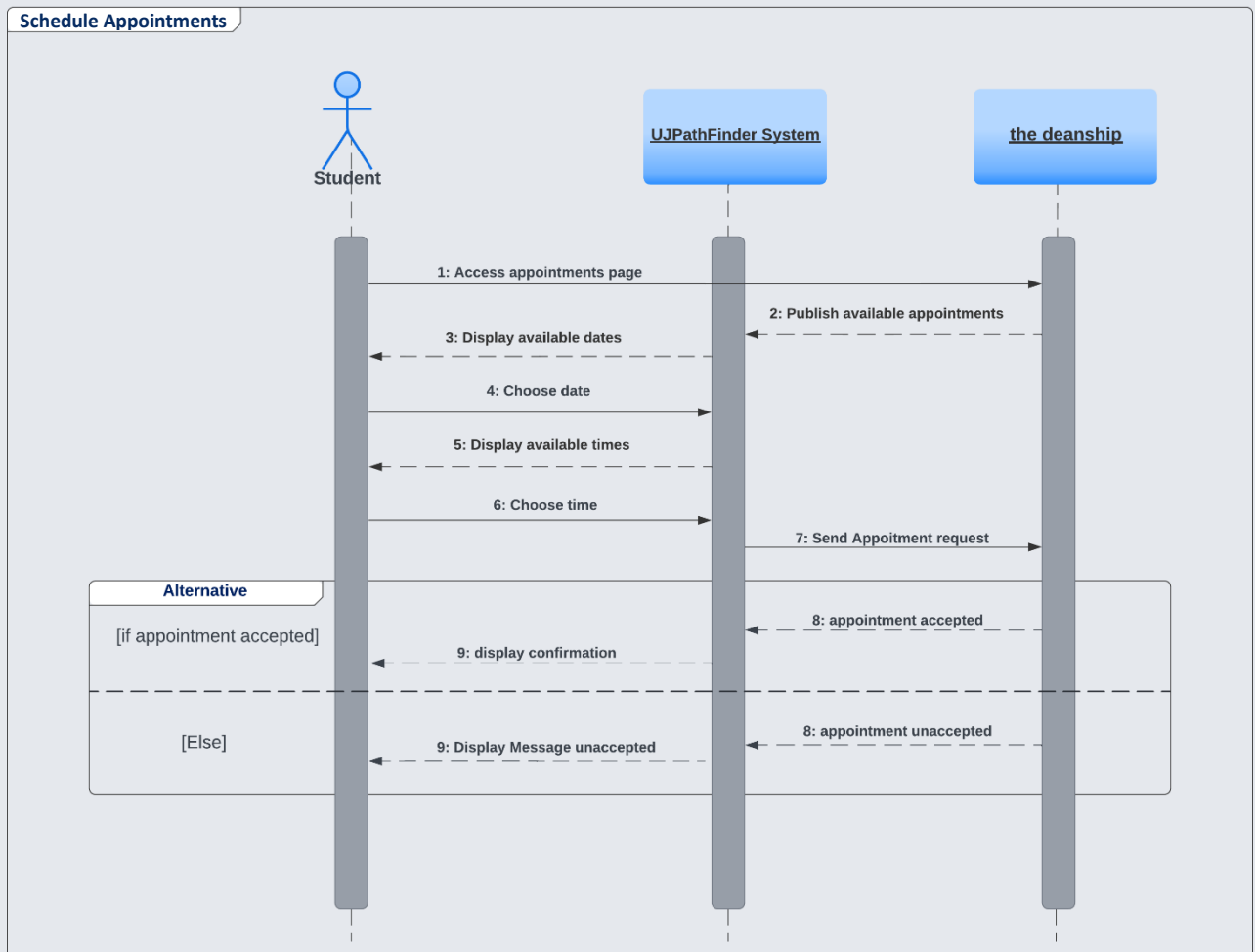
- ❖ Students, and Companies.

Scenario of UC6 :

- ❖ Students and companies log in to their accounts.
- ❖ Companies see a profile they like so they send job/training offers.
- ❖ Students receive the company's offer in the offers section and choose to accept or decline.

8. Sequence Diagrams

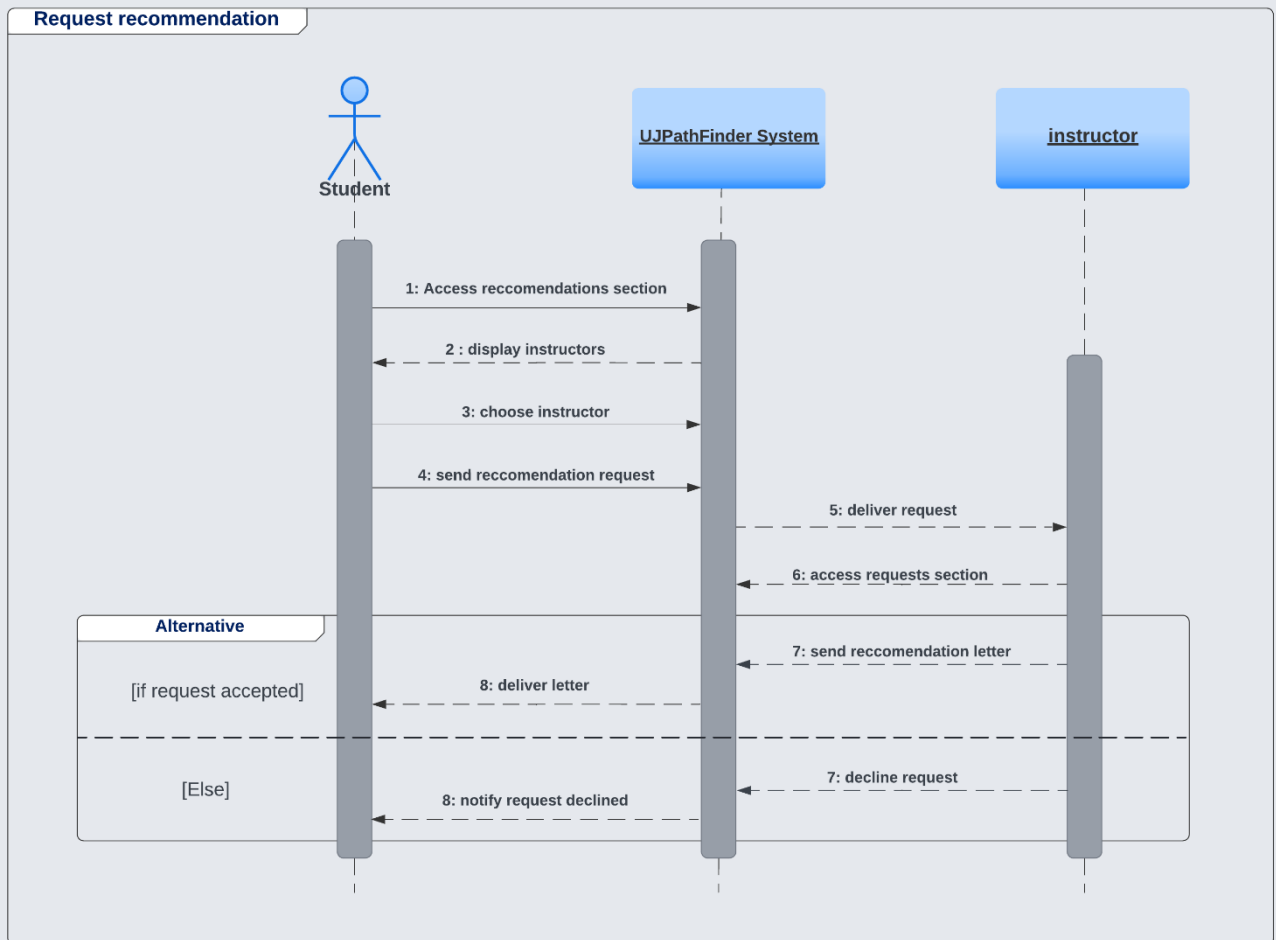
8.1 Schedule Appointments Sequence diagram:



Schedule Appointments sequence description:

1. The student begins by accessing the appointments page.
- 2&3. The system displays a schedule of available dates published by the deanship.
4. The user chooses a date.
5. The system displays a schedule of available times on that date published by the deanship
6. The user chooses a time.
7. the system sends the appointment request to the deanship
- [if the appointment was accepted]
 8. the deanship accepts the appointment on the system.
 9. the system displays confirmation to the student.
- [else]
 8. the deanship declines or cancels the appointment on the system.
 9. the system displays a message to the student.

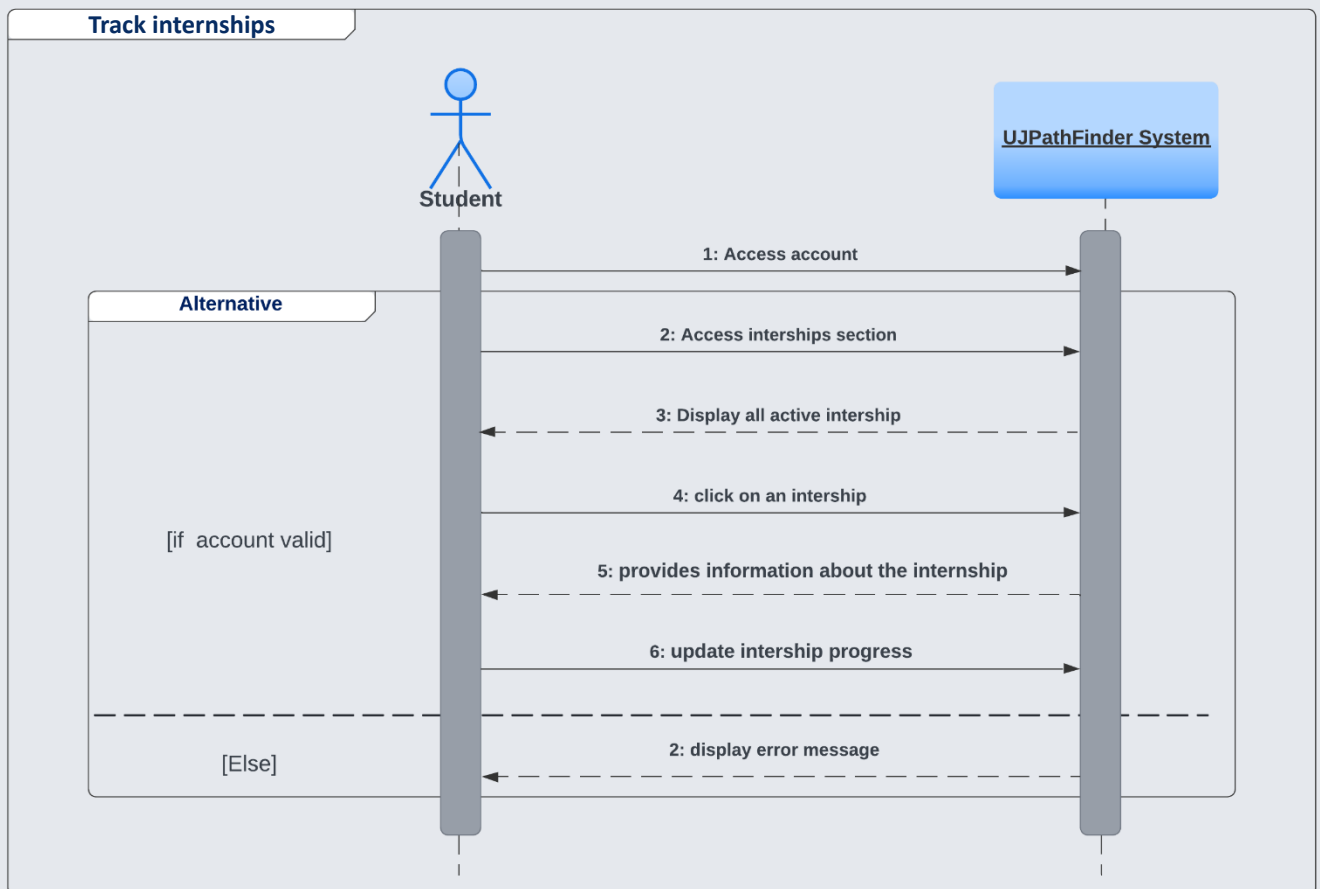
8.2 Request recommendation sequence diagram :



Request recommendation sequence description:

1. The student starts by accessing the recommendations section.
2. The system will display instructors.
3. The student will choose the instructor.
4. The student will send a recommendation request to the instructor.
5. The system will deliver the request to the instructor.
6. The instructor will access the requests section.
 - [if the request is accepted]
 7. The instructor will send a recommendation letter.
 8. The system will deliver the letter to the student.
 - [else]
 7. The instructor will decline the request.
 8. The system will notify the student that the request was declined.

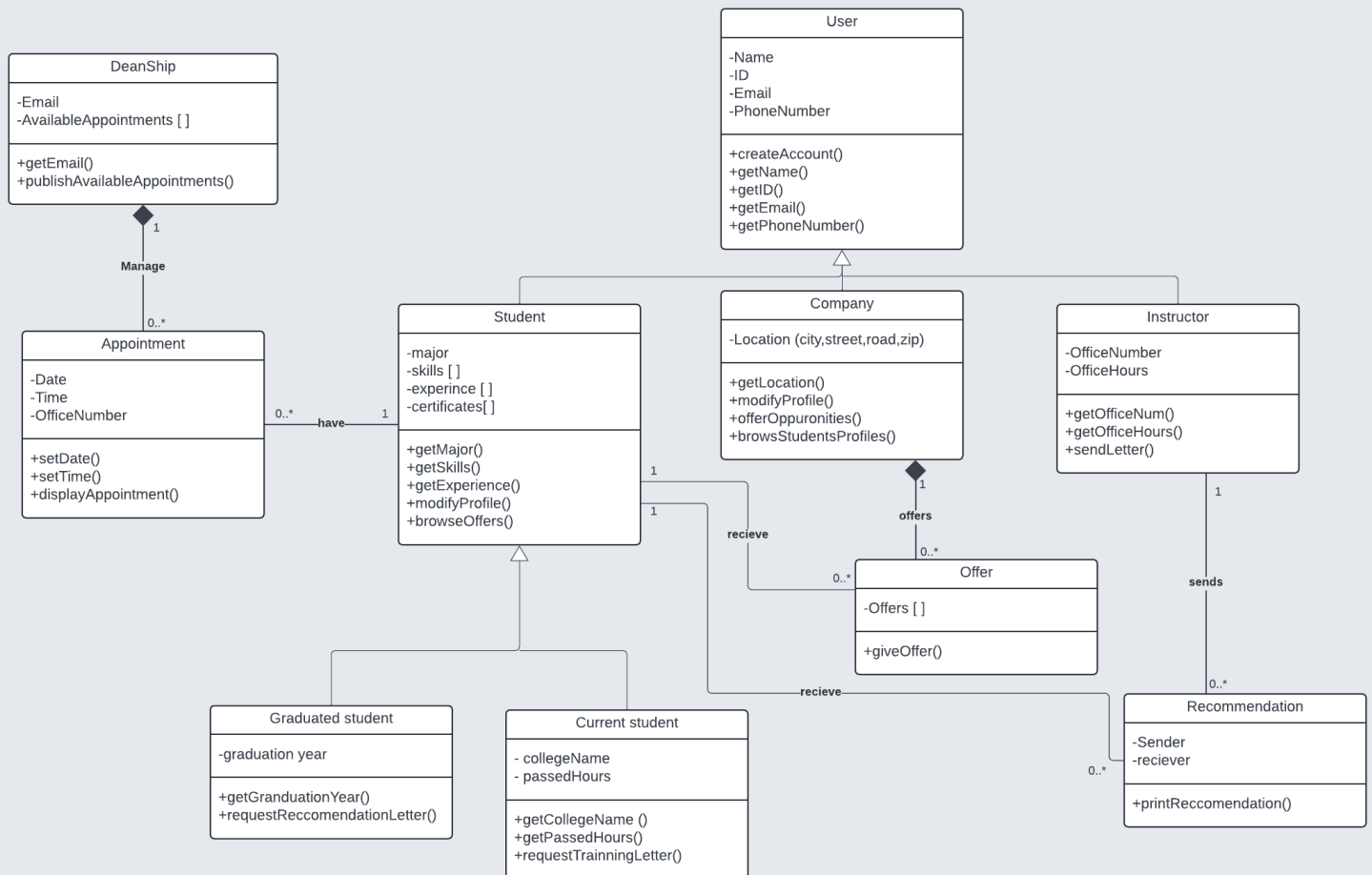
8.3 Track internships sequence diagram:



Track internship sequence description:

1. The student starts by accessing their account.
[if account valid]
 2. The student access internships section
 3. The system displays all the student's active internships
 4. the student clicks on an internship
 5. the system provides more information about the internship chosen
 6. the student can update their internship progress
- [else]
 - 2 The system will display an error message.

9. Class Diagram for UJPathFinder:



General description :

Our class diagram describes the fundamental activities, it shows the users of UJPathFinder, the deanship, and some classes that connect them.

Our main actor, the student (Graduate or current), can receive offers from companies, request/receive recommendations from instructors, and make an appointment with the deanship.

9.1. Classes Description:

Class	Description
DeanShip	<p>The DeanShip class represents the administrative role of a dean within a university structure. This class is responsible for managing various aspects of the academic and administrative processes. DeanShip can manage zero or more appointment schedules.</p> <p>Attribute:</p> <p>Email: This attribute stores the dean's email address.</p> <p>AvailableAppointments []: This is an array or list that holds available appointment slots that can be published or booked.</p> <p>publishAvailableAppointments (): This method handles the operation of making appointment slots publicly available, allowing for scheduling.</p>
Appointment	<p>The Appointment class encapsulates all details and operations associated with scheduling appointments, typically between students and administrative or academic staff. This relationship is indicative where multiple appointments could be handled by a single dean, or none at all if no appointments are scheduled.</p> <p>Attribute:</p> <p>Date: This attribute stores the date of the appointment.</p> <p>Time: This stores the time at which the appointment is scheduled.</p> <p>OfficeNumber: This is the office number where the appointment will take place.</p> <p>displayAppointment (): This method is used to display or print out the details of the appointment.</p>
User	<p>The user class is a superclass for the users of the app, which are specialized classes (Students – Companies – Instructors). It contains basic information about the users that their classes inherit; Name, ID, email, and phone number.</p> <p>They also inherit the CreateAccount(): method that allows them to create an account in UJPathFinder.</p>
Student (graduated and current)	<p>The student class is a subclass of the user class, which also serves as a superclass that contains what all the students have, with more specialized classes (graduate students, current students).</p> <p>Methods:</p> <p>modifyProfile(): allow students to alter their profile.</p> <p>browseOffers(): allow students to browse their available offers.</p> <p>Attribute:</p> <p>Major: This attribute stores the major of the student.</p> <p>Skills[]: This is an array or list that contains student's skills, such as soft skills and other skills</p> <p>Experience[]: This is an array or list that contains the experiences of the student, both within and outside of the educational environment.</p> <p>Certificates[]: This is an array or list that contains the certificates obtained by the student, which may be professional certificates for his specialty or a graduation certificate.</p> <p>Graduated Student class have an extra method, requestReccomendationLetter() which allows them to request a recommendation letter.</p> <p>Also, they have graduationYaer attribute, which holds the year they graduated.</p> <p>Current Student class also have an extra method, requestTrainingLetter() which allows them to request a training letter.</p> <p>Also, they have extra attributes, collegeName which holds the name of the college they're currently studying, and passedHours which contains the hours they passed so far.</p>

Company	<p>The company class is a subclass of the user class, which can also browse student files and provide training offers to students about to graduate who meet the requirements. For highly talented students, the training may also lead to career opportunities.</p> <p>Attribute: Location (city,street,road,zip): This attribute stores the companies location</p> <p>modifyProfile(): This method allows the company to modify their profile.</p> <p>offerOppurunities(): This method allows the company to offer training and job opportunities to students.</p> <p>browsStudentsProfiles(): This method allows companies to browse student's profiles and select highly skilled pupils for employment.</p>
Instructor	<p>The instructor class is a subclass of the user class, it contains the office number and office hours of the instructor, through which the student can communicate with the instructor. It also contains sendLetter() method, which allows the instructor to send Recommendation letters to students.</p> <p>Attribute:</p> <p>Office number: This attribute stores the office number of the instructor.</p> <p>Office hours: This attribute stores the office hours of the instructor.</p>
Offer	<p>The Offer class is tasked with sending offers from companies to students. It has two relationships: each company can provide multiple offers, and each student can receive multiple offers.</p> <p>Attributes:</p> <ul style="list-style-type: none"> - Offers[]: This is an array or list that contains various available offers that can be sent. <p>Method:</p> <ul style="list-style-type: none"> - giveOffer(): This method is responsible for giving the student the offers provided by the companies.
Recommendation	<p>The Recommendation class acts as a communication link between the student and the instructor, it can receive a recommendation letter from an instructor and deliver it to the student.</p> <p>Attributes:</p> <p>Receiver: This attribute stores the student name who receives the recommendation letter.</p> <p>Sender: This attribute stores the instructor name who has sent the recommendation letter.</p> <p>The PrintRecommendtion() method, is used to display or print the the recommendation letter for students and/or instructors.</p>

Conclusion and Suggestions:

Conclusion:

In conclusion, UJ PathFinder is a transformative project that aims to enhance the University of Jeddah experience by connecting students with companies, streamlining academic recommendations, and providing guidance for graduates. Through its centralized system, UJ PathFinder simplifies academic and professional processes, allowing students to efficiently manage profiles, access essential documents, schedule appointments, and build valuable connections. The project has received positive feedback, highlighting its potential to streamline the process of finding training opportunities, foster student-company collaborations, and address the challenges faced in obtaining academic recommendations and the desire for guidance from graduates. By integrating education and industry, UJ PathFinder empowers students, facilitates job opportunities, and provides valuable insights into alumni success through employment rates. UJ PathFinder is poised to revolutionize the academic journey and create a more seamless and beneficial experience for students, alumni, instructors, the deanship, and companies alike.

Suggestions:

- Focus on user experience: Make using the system simple and straightforward for everyone (students, alumni, Instructors, companies, the deanship).
- Strengthen essential functions: Maintain simple profile management, information access, job search, and communication.
- Bridge the education-industry gap: Support internship programs and highlight alumni achievement to increase student enthusiasm and attract companies.
- Gather periodically feedback: Actively gather user feedback to improve the platform and satisfy changing needs.
- Integration with Existing Systems: Integrate UJ PathFinder with existing systems and platforms within the University of Jeddah. This could include integrating with the student information system, academic databases, and other relevant systems to streamline data exchange and enhance functionality.
- Prioritize data security: Implement strong security procedures to secure user data.

By implementing these suggestions, UJ PathFinder could strengthen its position as an essential center for the University of Jeddah community, empowering students, easing their educational journey, connecting them with job opportunities, and building a productive environment.

Tasks Table

Lab number	Deema	Layan	Maryam	Mashaer	Yara
1	We all wrote the lab and came up with the name together.				
2	Second Interview	Third Interview	Fifth Interview	Forth Interview	First Interview
3	Content, Motivation, Considerations	Preliminary report (Findings)	Goals of the Project, Cost& schedule estimate	Preliminary report (The problem)	Preliminary report (Recommendation)
4	4.1.7	4.1.1 & 4.1.2 & 4.1.3 & 4.1.6	4.2	4.1.5 & 4.1.6	4.1.4
5	The scope of the work (Context of the work)	The scope of the work (Current situation) Assist The Diagram	Business Event List	Stockholder definition	The Diagram
6	All group members wrote the functional and non-functional requirements together.				
7	All group members have worked on the use case diagram and the use case description together.				
8	All group members worked on the sequence diagrams and their descriptions together.				
9	All group members have worked on the class diagram and classes descriptions together.				

Note: All members do Review & Revision all lab parts together.