Comp3900 Computer Science Project
Project proposal

Written by team 3900F13Aikun

Project: P21 Student Industry Project Management System

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Background

Introduction

The Student Industry Project Management System is a digital platform aimed at promoting collaboration among students, academic supervisors, and industry partners. The main goal of this system is to facilitate the seamless matching of students with industry internship opportunities and provide students with practical industrial experience while ensuring that projects receive appropriate guidance and meet industry standards. In this system, students can browse industry issues posted by industry partners and select projects of interest to them. Academic supervisors can constantly monitor students' progress and promote cooperation between students and industry partners. What's more, an evaluation system is available to every user which can help users provide useful feedback to others to improve project efficiency and collaborative experience.

The problem

Currently, linking students with relevant industry project opportunities and effectively managing coordination between academic supervisors, industry partners, and students can be a complex and time-consuming process. However, the emergence of the Student Industry Project Management System has greatly coordinated this issue. As an efficient connecting platform, it mainly solves the following main problems:

- Addressing the problem of information asymmetry. Without such a platform, students may find it difficult to find practical industrial projects that match their majors and interests. Also, industry partners may not be clear which students or research groups are most suitable for their project needs.

- Addressing the problem of communication barriers by establishing clear communication channels between different entities, helping to reduce misunderstandings and improve work efficiency.

- Reducing the risk of project delays or failures. Academic supervisors can track students' progress on this platform, provide guidance and feedback, and ensure the smooth progress of the project. This not only improves efficiency, but also provides effective protection for students and project partners.

- Enhanced the transparency in cooperation. All partners can view the progress, milestones, expected results, etc. of the project on the platform, ensuring that all parties understand the overall situation of the project and the system can help identify potential risks and issues, enabling partners to make timely adjustments. In addition, with a clear evaluation

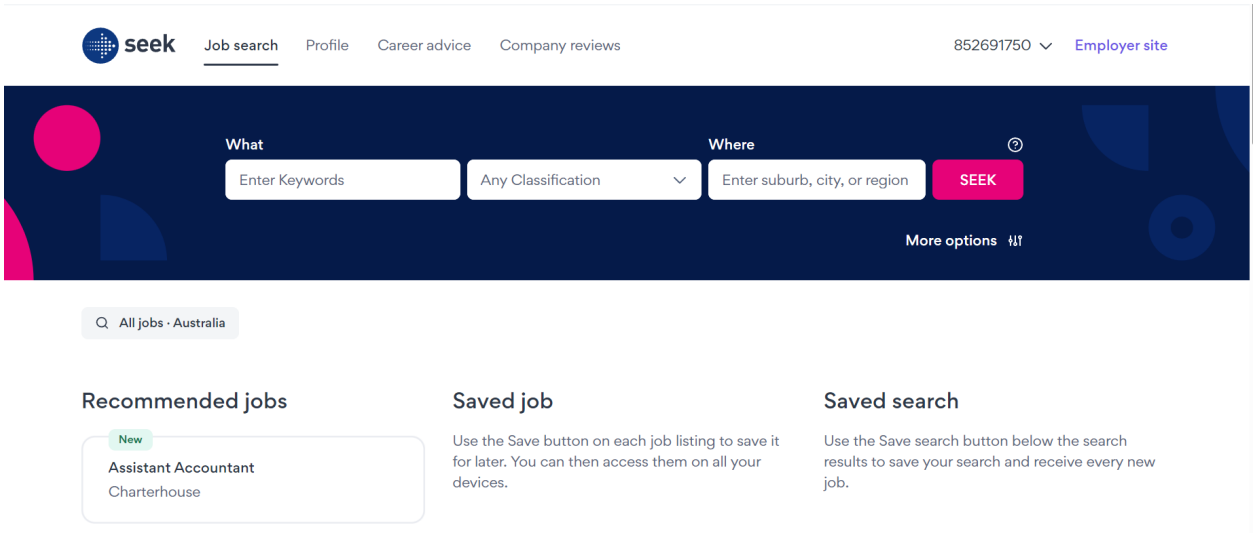
and feedback mechanism, academic mentors and industry partners can better determine the expected development of the project, which also makes communication between both parties more convenient.

Existing solution:

At present, the existing Student Industry Project Management System can roughly solve the above problems and provide a communication platform for students, academic supervisors and industrial partners. We have identified two similar systems which are seek, gradconnection.

Seek

Seek is a leading online recruitment and job search platform in Australia and New Zealand. It has a deep history and reputation in the field of job search and recruitment. On this website, job seekers can easily find suitable positions through various screening options such as location, job category, salary range, etc. Employers can also create company profiles and post their projects to showcase their corporate culture, benefits, and work environment. In addition, Seek provides various articles and resources on career advice, market trends, resume writing techniques, and interview techniques.[1]



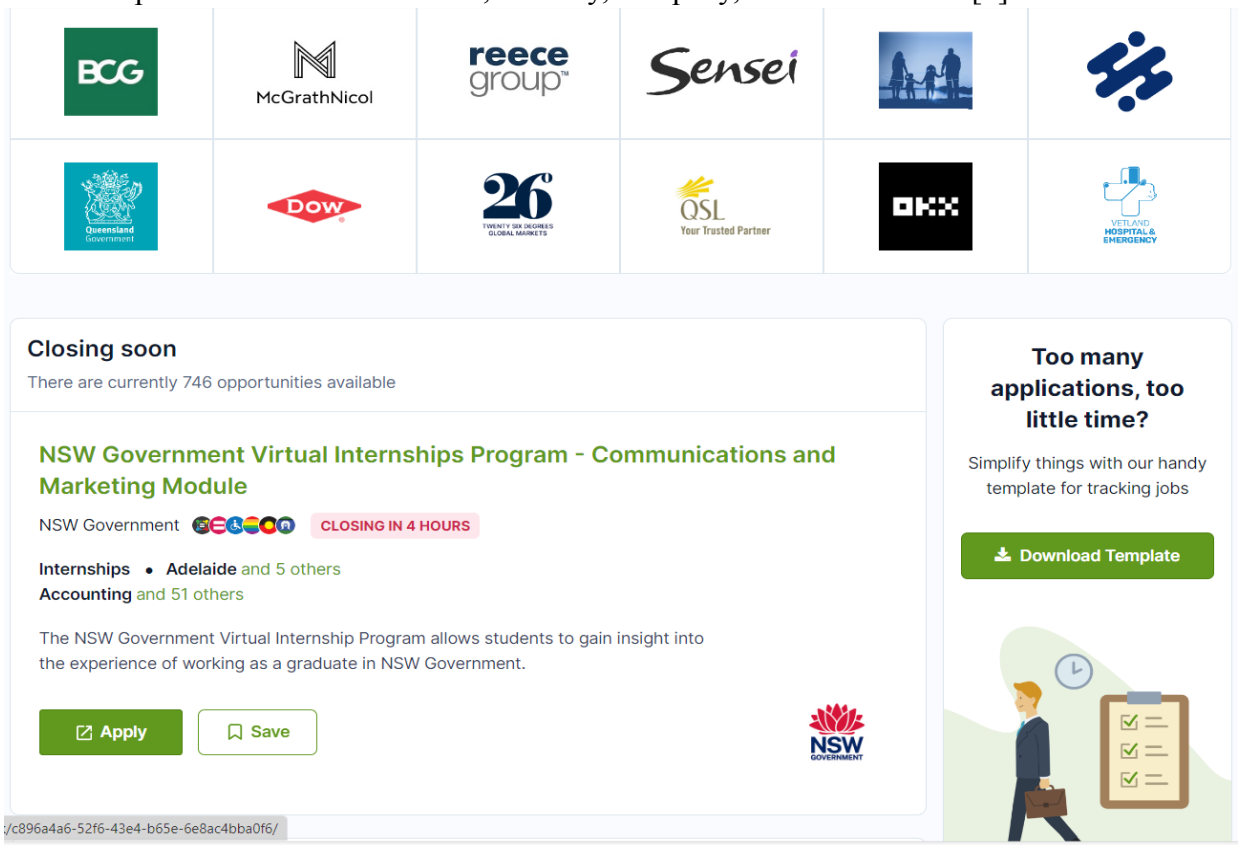
Drawbacks:

1. There is a large amount of job information on Seek, which may cause job seekers to feel overloaded with information and find it difficult to select the most suitable position for their needs.
2. Some employers may pay additional fees to promote their positions, which may affect the visibility of non paid positions.

3. Although ‘Seek’ this website provides job recommendations according to the user's preference and browsing history, sometimes the recommended positions may not fully meet the user's actual needs or interests.
4. In some cases, job seekers may need to wait for a long time to receive feedback from the employer about their application.

Gradconnection

GradConnection is a platform primarily aimed at college students and recent graduates, providing them with positions that align with their academic background and interests. Users can search for positions based on location, industry, company, and other factors.[2]



Drawbacks:

1. The website lacks an evaluation system and does not provide sufficient opportunities for students to evaluate or share their interactions and experiences with specific employers.
2. There is an issue with delayed updates on the website. Sometimes, certain positions or internship opportunities may have been filled but still appear as available on GradConnection.
3. Although the website offers positions in various industries, certain specific fields or industries may not have sufficient coverage compared to other more professional recruitment platforms.

4. The front-end design of the website is slightly messy compared to other professional websites, and the color contrast is not very obvious, making it difficult for users to pay attention to important information in the first place.

User Stories and Sprints

Term	Definition
Student	The person who works on the project
Academic supervisor	The person who monitors the student progress during project delivering period
Industry partner	The person who owns the project
Guest	Unlogin user
Group leader	A student who creates a gro

Functionality and Objective Satisfaction

To successfully deliver project 21, our team categorized the anticipated project features into eight distinct functional aspects based on the various stages that users navigate when utilizing platform functions, as detailed below.

1. User Authentication
2. User Profile
3. Opportunities Post
4. Information Browse
5. Project Hunt
6. Project Apply
7. Project Deliver
8. Project Finalize

User Authentication

The “User Authentication” is a critical component of the project, it is designed to offer users a secure and user-friendly gateway to access straightforward account management on the platform, which serves as the essential prerequisite for users to access and enjoy all the dedicated features of the project.

User story 1.1.1 : As a user (including academic supervisors, students and industry partners), I want to create an account on the website, so that I can access personalized information and services.

User story 1.1.2: As a user (including academic supervisors, students and industry partners), I want a strong password, so that my information is secure.

User story 1.2.1: As an academic supervisor/student, I want an identity verification process during registration, so as to prevent other users from impersonating my identity.

User story 1.2.2: As an industry partner, I want an identity verification process during registration, so as to prevent other users from impersonating my identity.

User story 1.3: As a registered user (including academic supervisors, students and industry partners), I want to log into my account, so that I can access and manage my personalized information efficiently.

User story 1.4: As a registered user (including academic supervisors, students and industry partners), I want to have the capability to reset my password in case I forget it, so that I can maintain the access of my account.

User story 1.5: As a login user (including academic supervisors, students and industry partners), I want to be able to logout, so that I can prevent others from accessing my account on my current device.

User story 1.6: As a login user (including academic supervisors, students and industry partners), I want a convenient method to switch between my different accounts, so that I can effortlessly access and manage my various accounts.

User Profile

The user profile plays a pivotal role in ensuring the successful realization of project opportunities. It provides basic information to foster mutual understanding and offers clear contact details that facilitate seamless communication among all involved parties. Furthermore, the skills section within user profiles enables the implementation of a recommendation system for students, enhancing the application's capacity to facilitate the discovery of fitting project opportunities in a user-friendly manner.

User story 2.1: As a login user (including academic supervisors, students and industry partners), I want to be able to edit my personal profile, so that I can keep my information accurate and updated.

Opportunities Post

The opportunities post element empowers industry partners to articulate comprehensive and detailed project requirements and publish them on the platform to create the demand of collaboration among all parties. This action not only generates invaluable content but also contributes to the platform's fundamental ability to bring envisioned ideas to fruition.

User story 3.1: As an Industry partner, I want to be able to create and modify project opportunities, so that I can engage and collaborate with academic supervisors and students on various projects.

Information Browse

The information browse feature empowers all users to enhance their platform experience by efficiently exploring available project opportunities online. It goes beyond basic keyword search, offering advanced filtering options to tailor search results to users' specific requirements. Additionally, it includes sorting capabilities, enabling swift identification of opportunities closely aligned with their needs. Furthermore, this feature utilizes the skills recorded in student profiles to provide personalized project recommendations, particularly when applying the "relevance" sorting function.

User story 4.1: As a user (including academic supervisor, student, industry partner and guest), I want to be able to search currently available project opportunities on the system, so that I can collect useful information for further steps.

User story 4.2: As a user (including academic supervisor, student, industry partner and guest), I want to be able to apply a filter to search currently available project opportunities on the system, so that I can more easily find the opportunities I am interested in.

User story 4.3: As a user (including academic supervisors, students, industry partners and guest), I want to be able to apply a sorting function to rank currently available project opportunities on the system, so that I can easily find the opportunities I am interested in.

Project Hunt

The project hunt functionality plays a pivotal role that should not be underestimated, as it expands the horizons of opportunities for students and streamlines their search for project openings. It empowers students to create or join groups, allowing them to not only apply for individual projects but also collaborate on group projects. Additionally, it enhances convenience by offering a dedicated folder where academic supervisors and students can efficiently save and access project opportunities that stimulate their interests.

User story 5.1: As a student, I want to invite other students to form a group or apply to join the other group, so that I can be capable of participating in a group project opportunity.

User story 5.2: As an academic supervisor / student, I want to be able to manage a saver folder for the project opportunities, so that I can easily find opportunities that I am truly interested in next time.

Project Apply

The Project Apply feature acts as the cornerstone for connecting all parties involved in a project, providing comprehensive services.It empowers academic supervisors and students to apply for projects they find interesting, allowing them to track, respond to, and improve their applications, thus enhancing their user experience. Additionally, industry partners can streamline the review and response process for applications, utilizing sorting functions to select suitable candidates, which is similar to the capability extended to the selected students who have also accepted opportunity invitations.

User story 6.1: As an academic supervisor / student, I want to submit my application for specific project opportunities, so that I can apply for the project I want to participate in.

User story 6.2: As an academic supervisor/ student, I want to be able to track the status of all of my applications, so that I can better manage my future steps.

User story 6.3: As an academic supervisor / student, I want to respond to the invitation from industry partners, so that I can manage my career prospects effectively.

User story 6.4: As an Industry partner, I want to be able to examine applications that are submitted from academic supervisor / student, so that I can determine which candidate fits my project most.

User story 6.5: As an Industry partner, I want to have recommendations for academic supervisor / student candidate, so that the process of finding the ideal academic supervisor / student candidate for my project can be facilitated.

User story 6.6: As a student, I want to have recommendations for academic supervisor candidates, so that the process of finding the ideal academic supervisor for the selected project can be facilitated.

User story 6.7: As an Industry partner, I want to be able to manage saver folders for each project opportunity, so that I can easily assess the information of the academic supervisor / student candidate that I am truly interested in next time.

User story 6.8: As an Industry partner, I want to be able to respond to academic supervisor / student candidate applications, so that I can determine who I plan to work with.

User story 6.9: As an Industry partner, I want to be able to hear the responses back from candidates on my invitation, so that I can decide on the necessity of adjusting my current operations on candidate applications.

Project Deliver

The Project Delivery phase is an indispensable stage that enables students to iteratively enhance their projects in preparation for the final outcome. During this phase, students can submit

periodic demos and reports for evaluation and feedback from academic supervisors and industry partners. Additionally, it facilitates a continuous communication channel, ensuring students are aware of updated requirements and demands from industry partners throughout the project.

User story 7.1: As a student, I want to submit demos and reports of the project opportunity during delivering the project, so that industry partners and academic supervisors.

User story 7.2: As an academic supervisor / industry partner, I want to provide constructive feedback to students, so that I can help students to work on the right track.

User story 7.3: As an Industry partner, I want to be able to update the project information at any time, so that I can share my updated demands to students more clearly.

Project Finalize

The project finalization phase is the last stage of user experience on the platform. In this phase, students are required to submit their final projects for inspection. Simultaneously, academic supervisors and industry partners provide invaluable feedback throughout the collaboration process and during the final delivery, which plays a central role in nurturing a robust and enduring ecosystem on the platform.

User story 8.1: As a student, I want to submit my last iteration to the system, so that I can exhibit my final project outcome.

User story 8.2: As an academic supervisor / industry partner, I want to be able to provide feedback on the outcomes of students, so that I can provide a guideline for students to improve in the future.

User story 8.3: As an industry partner, I want to be able to rate the cooperation performance with academic supervisor and student, so that I can provide an indication of cooperation experience.

Novel functionality

In order to enhance the platform's competitive edge relative to Seek and Gradconnection and deliver a premium user experience to attract users, a range of innovative functionalities has been designed and applied on the platform, as outlined below.

- **One-stop Application Management**: While the existing system merely serves as a gateway for academic supervisors and students to submit applications for project opportunities, the platform goes further by offering a comprehensive one-stop application management feature, as depicted in User Stories 6.2 and 6.3. This feature empowers academic supervisors and students to monitor the status of all their applications, both past and ongoing, and respond to project invitations. Consequently, it streamlines the application management process, enhancing the overall user experience.

- **Personalized Candidate Recommendation:** In contrast to the current system, which solely offers a sorting function on project opportunities to offer recommendations on opportunities, this platform also provides an advanced capability. As highlighted in User Stories 6.5 and 6.6, this system possesses the ability to comprehensively analyze user profiles and uploaded resumes from applicants. It then leverages this data to provide personalized candidate recommendations to industry partners or students for the project cooperation, all facilitated through a carefully designed ranking system. This innovative feature expedites the candidate selection process, ultimately enhancing the overall user experience on the platform.

- **Iteration Support System:** This platform stands out by introducing a unique iterative support feature, a significant departure from existing systems that primarily focus on project launch periods. As detailed in User Stories 7.1, 7.2, and 7.3, this platform empowers students to submit periodic project outcomes for assessment by academic supervisors and industry partners, enabling them to receive valuable feedback to steer future project development. Moreover, it facilitates the updating of specification documents, providing students with a clear grasp of project expectations during different phases and enabling them to work more effectively toward project objectives. This distinctive functionality aligns seamlessly with the platform's central mission of facilitating successful project delivery.

- **Experience Rate**: As introduced in User Story 8.3, a standout feature that can set the platform apart from existing systems is the ability for industry partners to rate their cooperation experiences with academic supervisors and students. This functionality allows industry partners to provide valuable ratings, which serve as crucial indicators for stratification and evaluation. By incorporating this capability, the platform elevates transparency and accountability within the collaboration process and actively contributes to the platform's robust ecosystem.

Sprint 1 (week 3 September 29 - week 5 October 13)

Implement user Authentication,user profile and opportunities.

Sprint 2 (week 5 October 13 - week 8 November 3)

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Sprint 3 (week 8 November 3 - week 10 November 17)

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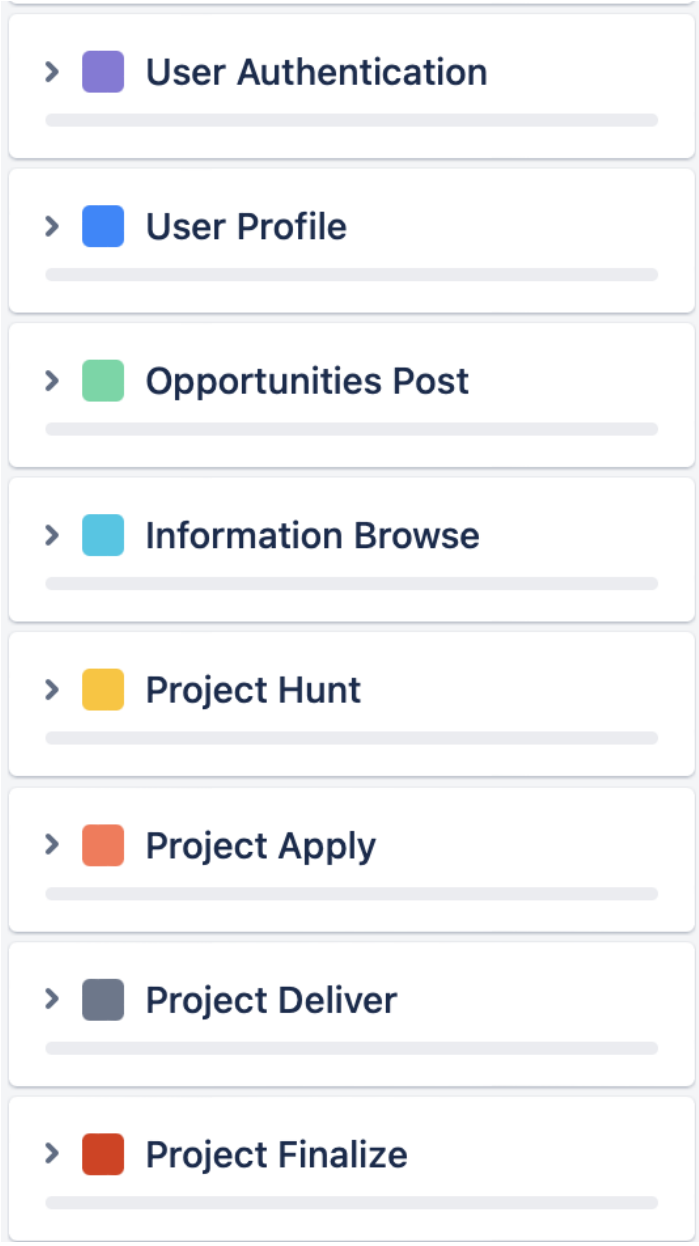
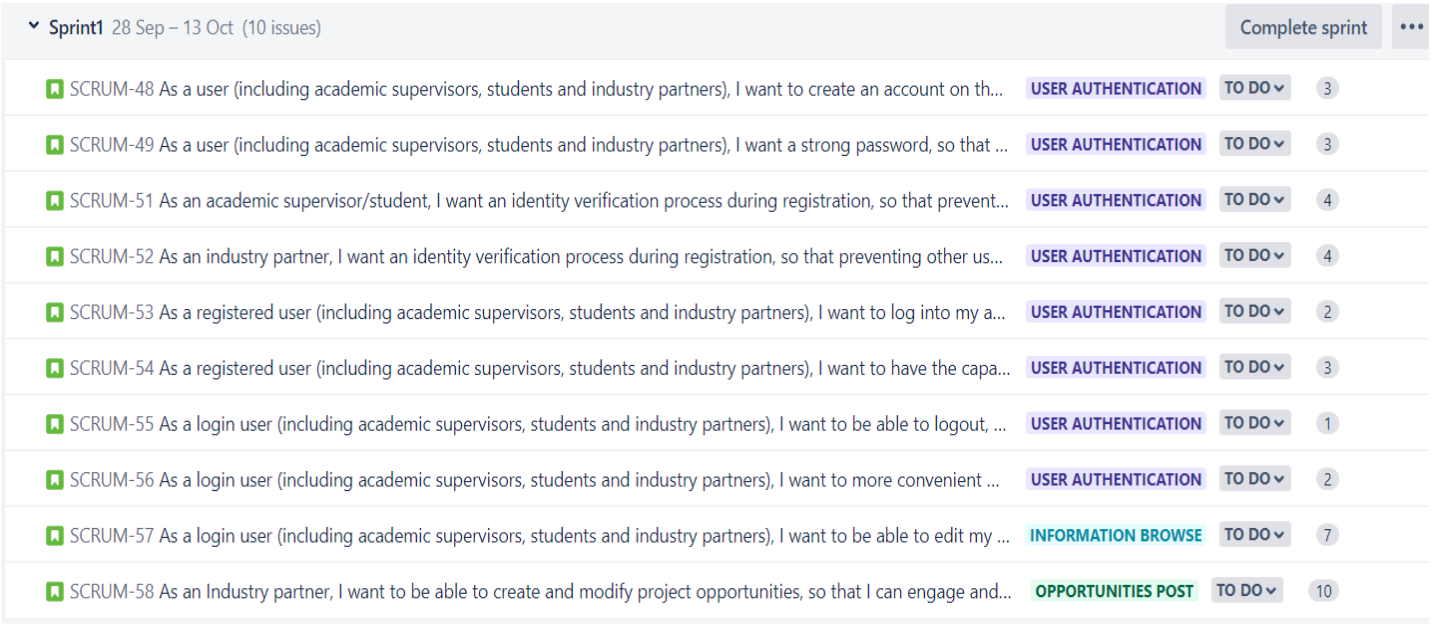
Backlog on jira



SCRUM-9 1.1.2: As a user (including academic supervisors, students and industry partners), I want a strong password, so that my inf...	USER AUTHENTICATION	TO DO	3
SCRUM-8 1.1.1: As a user (including academic supervisors, students and industry partners), I want to create an account on the website,	USER AUTHENTICATION	TO DO	3
SCRUM-14 1.2.1: As an academic supervisor/student, I want an identity verification process during registration, so that preventing other	USER AUTHENTICATION	TO DO	4
SCRUM-15 1.2.2: As an industry partner, I want an identity verification process during registration, so that preventing other user from in	USER AUTHENTICATION	TO DO	4
SCRUM-16 1.3 As a registered user (including academic supervisors, students and industry partners), I want to log into my account, so	USER AUTHENTICATION	TO DO	2
SCRUM-17 1.4: As a registered user (including academic supervisors, students and industry partners), I want to have the capability to r	USER AUTHENTICATION	TO DO	3
SCRUM-18 1.5: As a login user (including academic supervisors, students and industry partners), I want to be able to logout, so that I ca	USER AUTHENTICATION	TO DO	1
SCRUM-19 1.6: As a login user (including academic supervisors, students and industry partners), I want to more convenient method t...	USER AUTHENTICATION	TO DO	2
SCRUM-21 2.1: As a login user (including academic supervisors, students and industry partners), I want to be able to edit my personal profile, ...	USER PROFILE	TO DO	7
SCRUM-23 3.1: As an Industry partner, I want to be able to create and modify project opportunities, so that I can engage and collabor...	OPPORTUNITIES POST	TO DO	10
SCRUM-25 4.1: As a user (including academic supervisors, students, industry partners and guest), I want to be able to search current...	INFORMATION BROWSE	TO DO	5
SCRUM-26 4.2: As a user (including academic supervisors, students, industry partners and guest), I want to be able to apply a filter t...	INFORMATION BROWSE	TO DO	4
SCRUM-27 4.3: As a user (including academic supervisors, students, industry partners and guest), I want to be able to apply a sorting f	INFORMATION BROWSE	TO DO	6
SCRUM-29 5.1: As a student, I want to invite other students to form a group or apply to join the other group, so that I can be capable to particip	PROJECT HUNT	TO DO	9
SCRUM-30 5.2: As an academic supervisor / student, I want to be able to manage a saver folder for the project opportunities, so that I can easi	PROJECT HUNT	TO DO	2

SCRUM-32 6.1: As an academic supervisor / student, I want to submit my application for specific project opportunities, so that I can apply f...	PROJECT APPLY	TO DO	5
SCRUM-33 6.2: As an academic supervisor/ student, I want to be able to track the status of all of my applications, so that I can better mana...	PROJECT APPLY	TO DO	3
SCRUM-34 6.3: As an academic supervisor / student, I want to respond to the invitation from industry partner, so that I can manage my care...	PROJECT APPLY	TO DO	2
SCRUM-35 6.4: As an Industry partner, I want to be able to examine applications that submitted from academic supervisor / student, so that...	PROJECT APPLY	TO DO	5
SCRUM-36 6.5: As an Industry partner, I want to have recommendations for academic supervisor / student candidate, so that the process of...	PROJECT APPLY	TO DO	2
SCRUM-37 6.7: As an Industry partner, I want to be able to manage saver folders for each project opportunity, so that I easily assess the inf...	PROJECT APPLY	TO DO	3
SCRUM-38 6.8: As an Industry partner, I want to be able to respond to academic supervisor / student candidate applications, so that I can d...	PROJECT APPLY	TO DO	3
SCRUM-39 6.9: As an Industry partner, I want to be able to hear the responses back from candidates on my invitation, so that I can decide n...	PROJECT APPLY	TO DO	2
SCRUM-41 7.1: As a student, I want to submit demos and reports of the project opportunity during delivering the project, so that industry par	PROJECT DELIVER	TO DO	4
SCRUM-42 7.2: As an academic supervisor / industry partner, I want to provide constructive feedback to students, so that I can help student	PROJECT DELIVER	TO DO	2
SCRUM-43 7.3: As an Industry partner, I want to be able to update project information at any time, so that I can share my updated demand...	PROJECT DELIVER	TO DO	3
SCRUM-45 8.1: As a student, I want to submit my last iteration to the system, so that I can exhibit my final project outcome	PROJECT FINALIZE	TO DO	3
SCRUM-46 8.2: As an academic supervisor / industry partner, I want to be able to provide feedback on the outcomes of student, so that I ca	PROJECT FINALIZE	TO DO	2
SCRUM-47 8.3: As an industry partner, I want to be able to rate the cooperation performance with academic supervisor and student, so t...	PROJECT FINALIZE	TO DO	2
SCRUM-59 6.6: As a student, I want to have recommendations for academic supervisor candidate, so that the process of finding the ideal a...	PROJECT APPLY	TO DO	2

Sprint 1 on jira



Storyboard

User Authentication

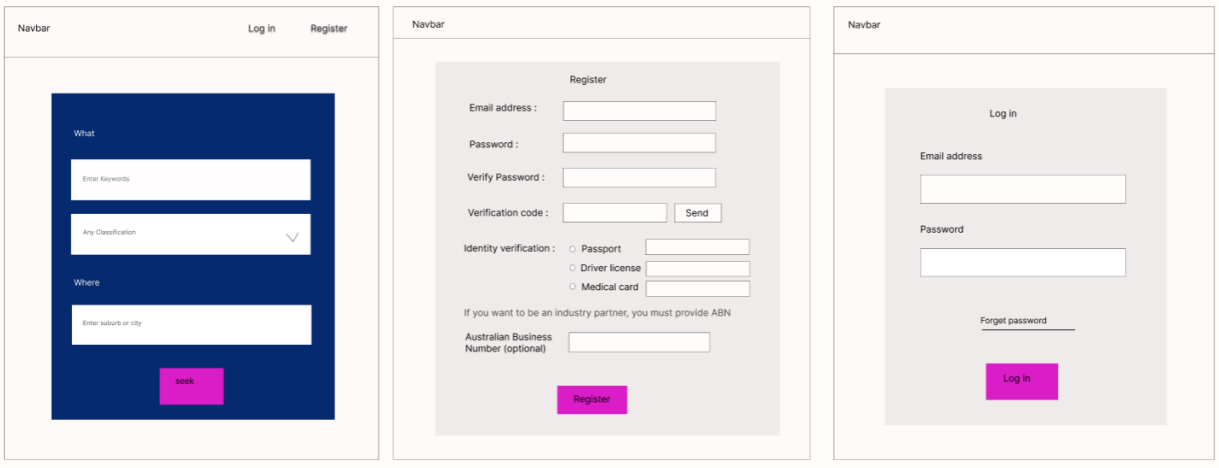


Figure 1.1, 1.2, 1.3

Users can browse the site as visitors, but visitors only have access to search items. If the user does not have an account, they can create one by registering and need to enter the same password twice to ensure that the password is correct. Then click send, the system will send the verification code to the user to fill in the email. In addition, users need to provide proper identity

verification. It is important to note that industry partners must provide the correct Australian business number. Once created, the user can log in directly. If you forget your password, click forget password to retrieve or reset it. Then repeat the above operation.

User Profile

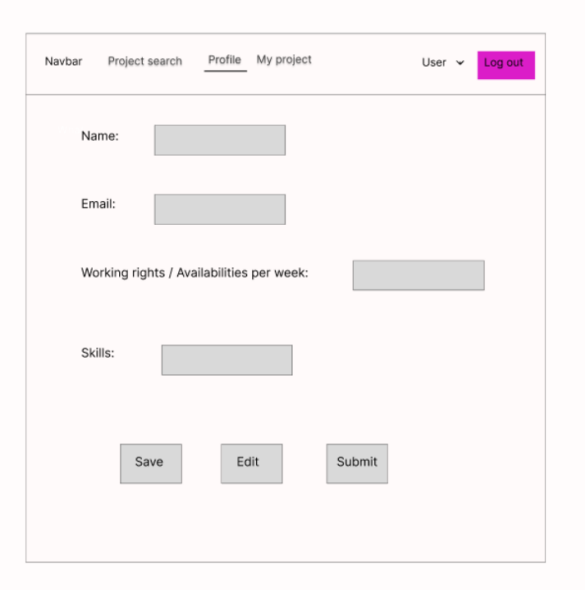


Figure 2

Users can edit their personal information and then save the submission.

Opportunities Post

After registering as an industry partner, you can click the "Create Project" button and fill in the details of the project you created. Then click "Publish", the published project will be included in the system, and it will also appear in the "My Created Projects" page. Click "modify" on the page to return to the "create job" page for changes.

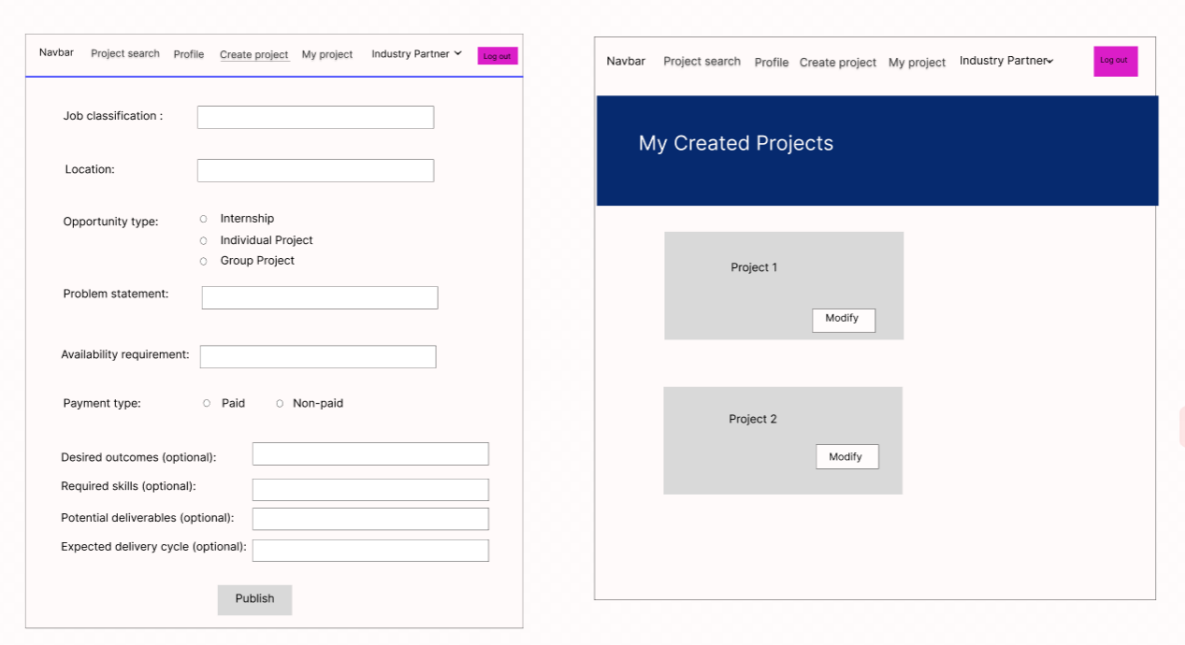


Figure 3

Information Browse

For the information browsing page, users can search by entering keywords, any classification, location, publish time and payment type. It will then jump to the results page, which will display the item card and the total number of items found. Search results can be sorted in two ways, and "relevance" can be sorted by skills and types of interest in the student's profile. date is sorted by the order of the latest time.

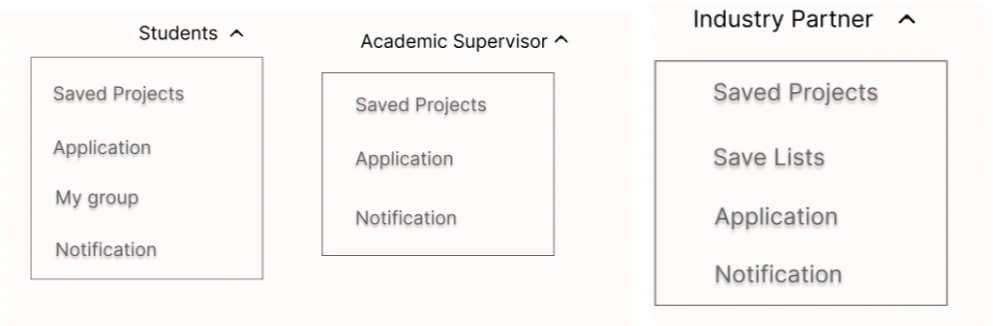


Figure 4.1

In the upper right corner of figure 4.2, "user", different users have different specific functions (as you can see in figure 4.1).

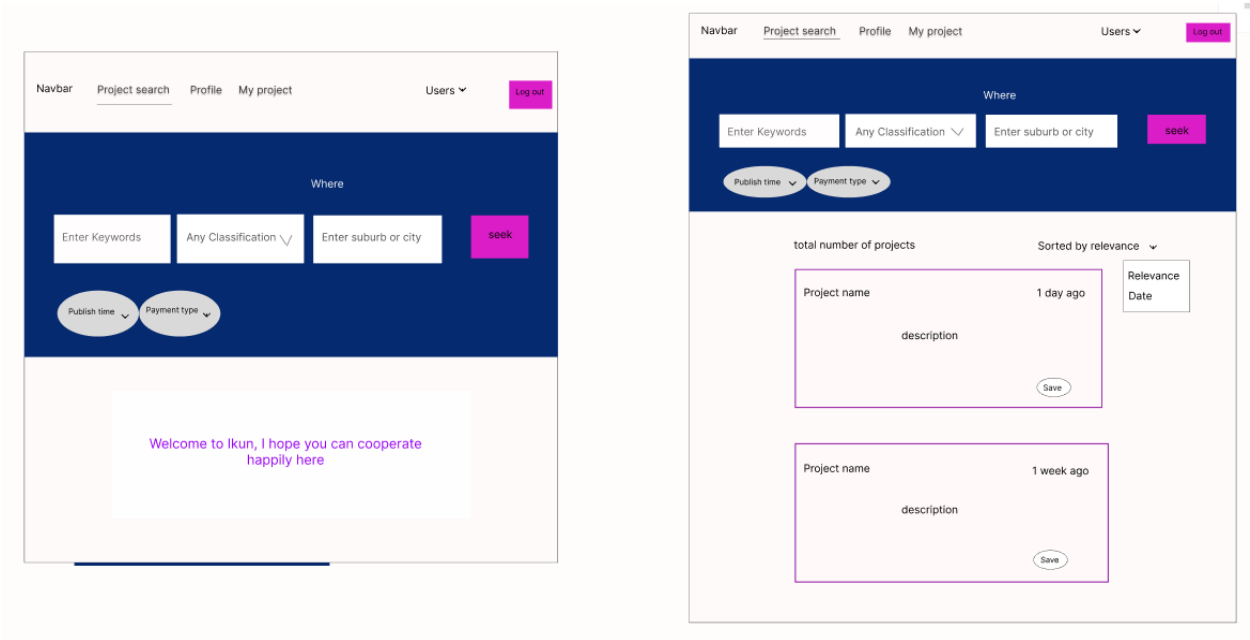
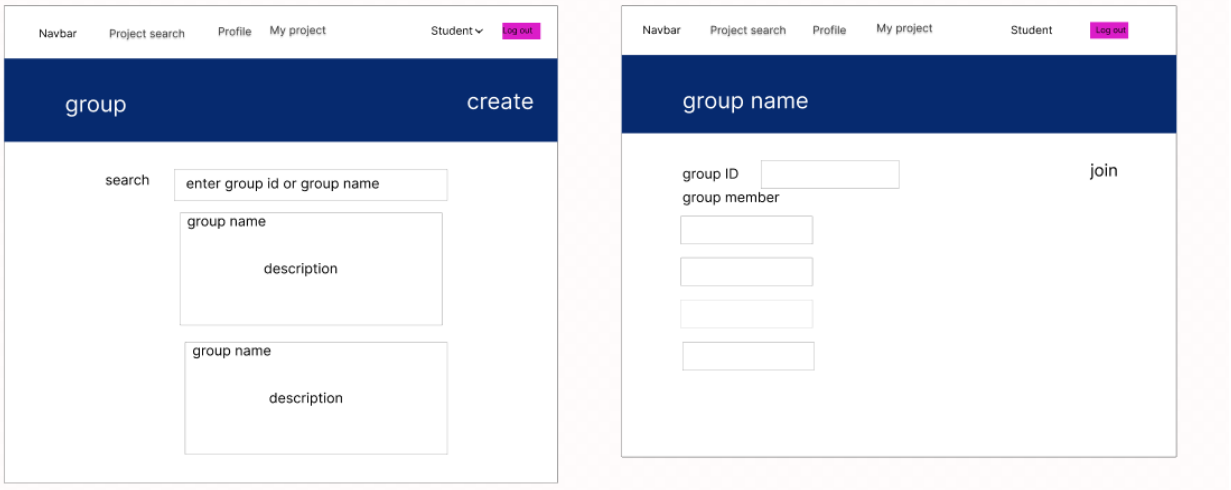


Figure 4.2

Project Hunt Period



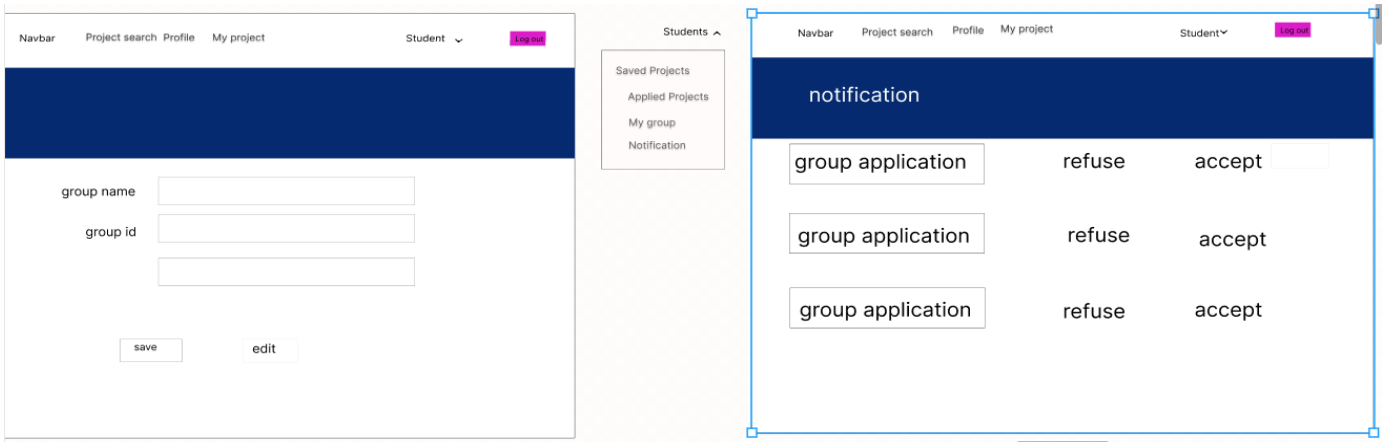


Figure 5.1

For the group page, the user can search a group by the group ID and group name or create a group as a group leader.After clicking group name, students can go in and view the id and number of members of the group, and then choose whether to join the group. In “create group”page, the group leader can save or edit the name,id and target description of the group. Also, the group leader accepts or decline the application of joining the group.

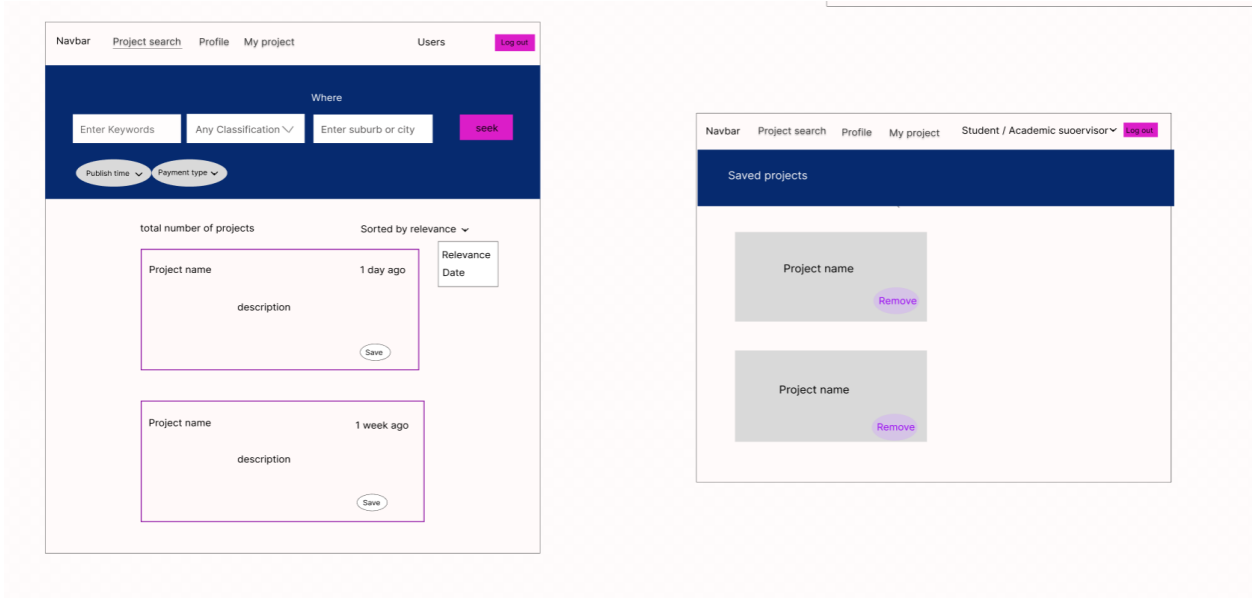


Figure 5.2

After searching for an item, all users can save the item by clicking the "save" button, after clicking the "Save" button will become “Unsave”, and clicking again will cancel the save. The saved project will be included in the save project page. You can find "save project" by clicking on the user name on the far right of Navbar.

Project application Period

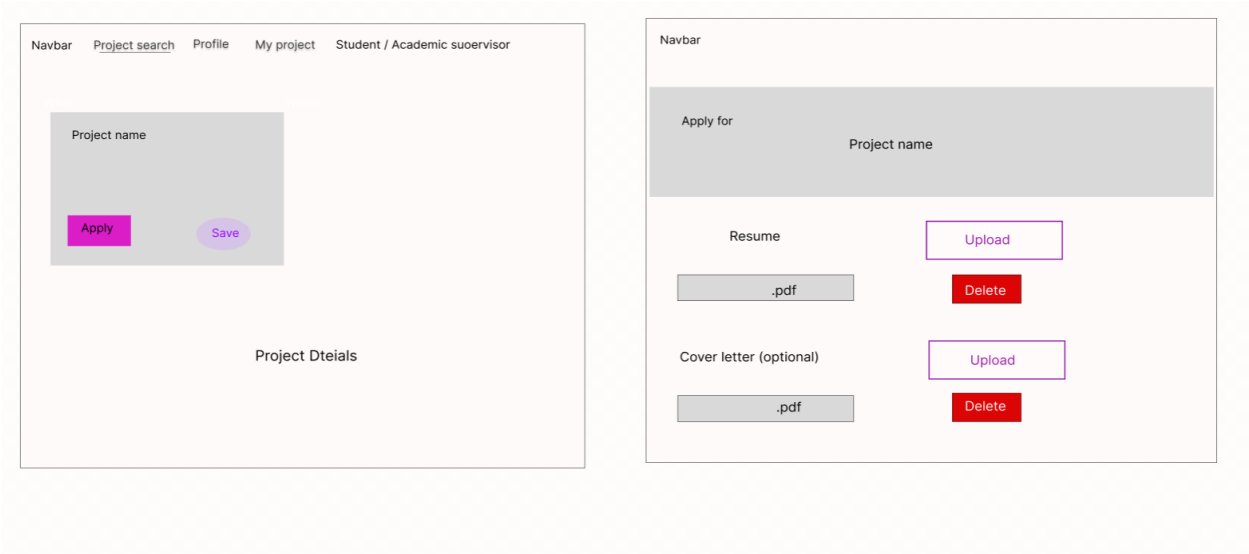


Figure 6.1

When students or academic supervisors enter the search project page, they can Apply to industry partners by clicking "Apply" and upload their resume and cover letter(optional). They can delete and modify their uploaded files at any time.

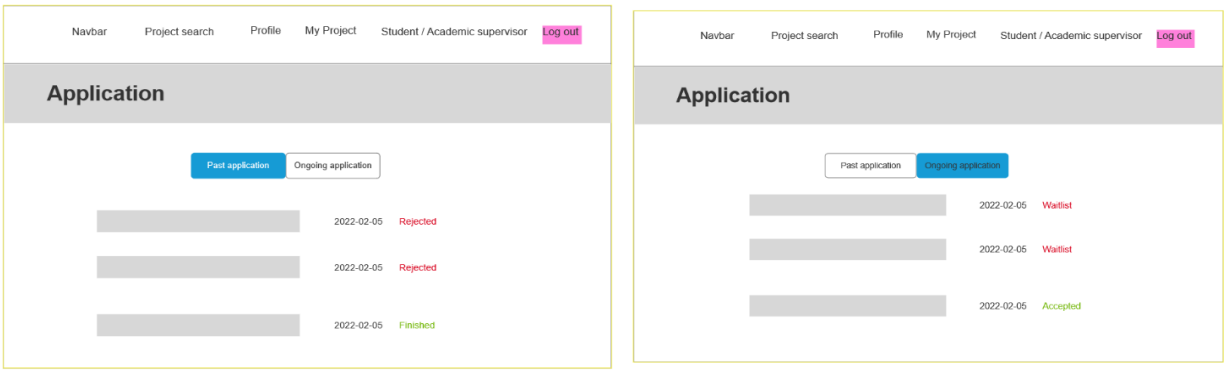


Figure 6.2

Display all applications of the Student/Academic supervisor, with a tab at the top that includes applications for "Pass" and "Ongoing". Clicking on it will display information about the types of applications, including their dates and status.

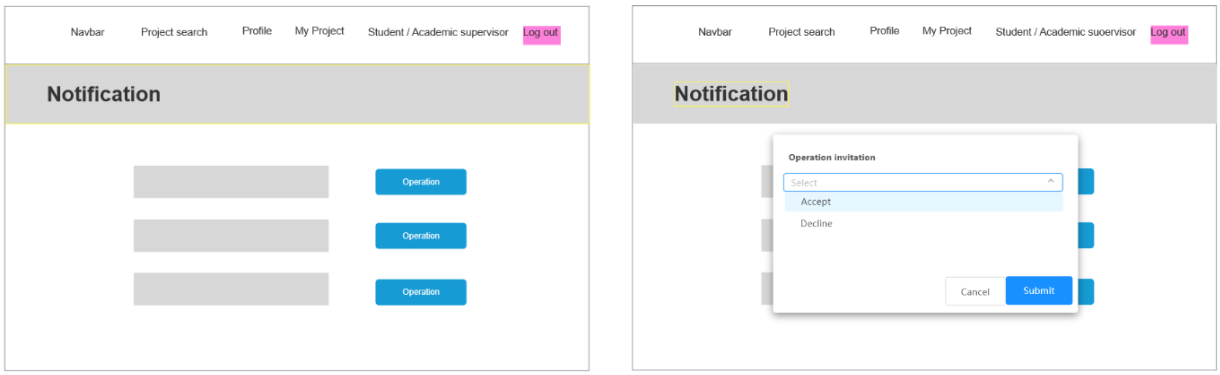


Figure 6.3

Display a list of all invitations from industry partners. Clicking on the "Operation" button will bring up a pop-up window for processing this invitation, with a dropdown box where you can choose "Accept" and "Decline" and then submit it.

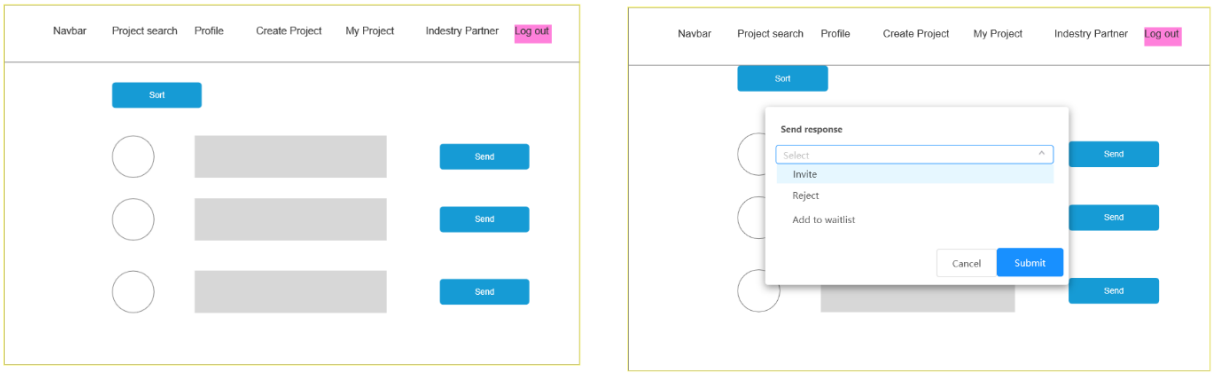
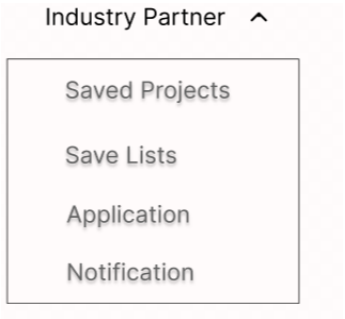


Figure 6.4,6.5,6.6

Display all applications for joining projects from Student/Academy. Clicking on the "Sort" button will sort them according to the system's recommendations. Clicking on the "Send" button will bring up a pop-up window to send a response. You can choose "Invite", "Reject", "Add to waitlist", and then submit it.



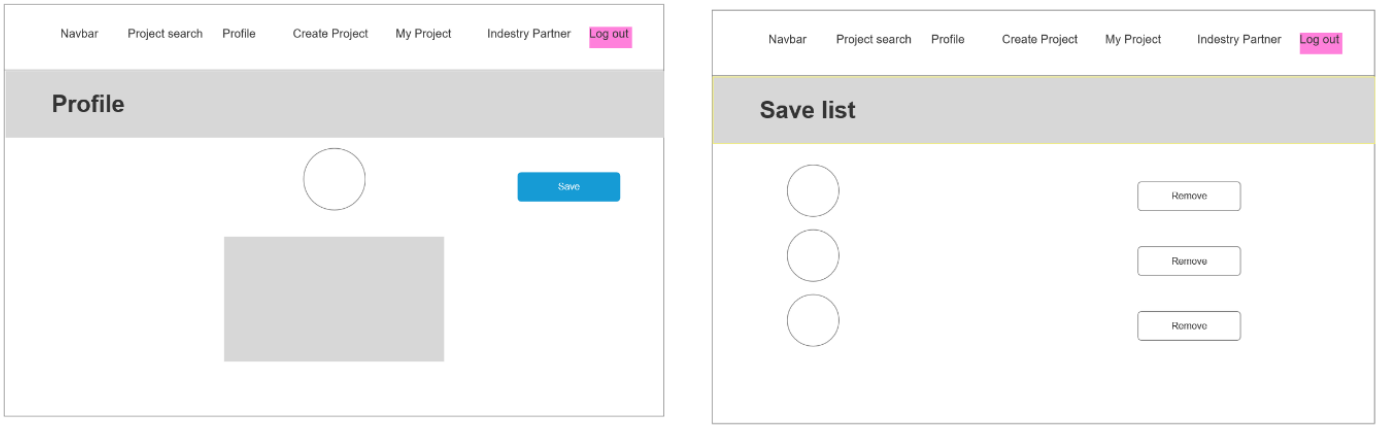


Figure 6.7,6.8

Display the personal information of the Student/Academic supervisor, and the Industry Partner can click the "Save" button next to the avatar to save this user.

Display all Student/Academic supervisors saved by partners, clicking the 'Remove' button will no longer save this user.

Project Deliver

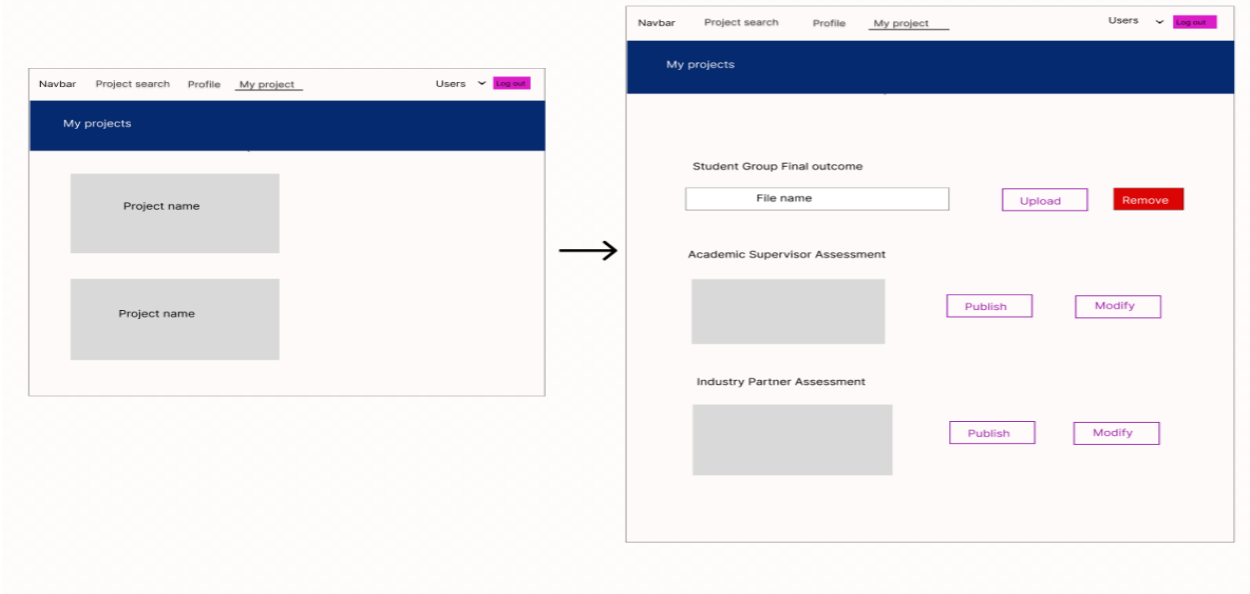


Figure 7

Once industry partners and students have been successfully matched and an academic supervisor has been identified. On the "My Project" page, one or more projects will be clicked into the Project, and industry partners will upload their specific project requirements and documents to

"My Project" and can modify them at any time. During delivery, students can upload and remove the demo files they send. Then academic supervisors and teachers can upload their own feedback and modify the feedback according to the students' demo.

Project Finalize

When the project time is almost up, click "Turn to fiance." This new page allows students to upload their final project or remove it. Academic Supervisor and Industry Partner can provide textual messages as assessment to "Academic Supervisor Assessment" and "Industry Partner Assessment" respectively for each student. Then click on "publish" to publish the student's assessment, which can be modified at any time.

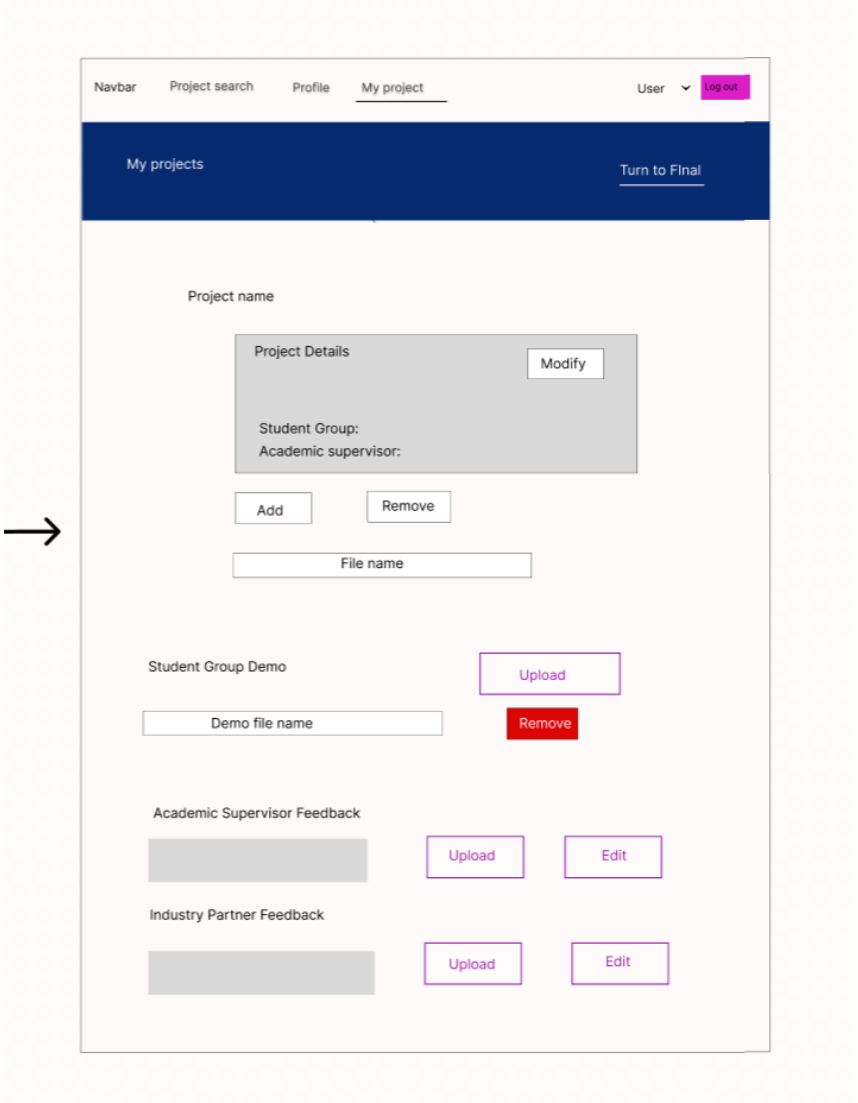
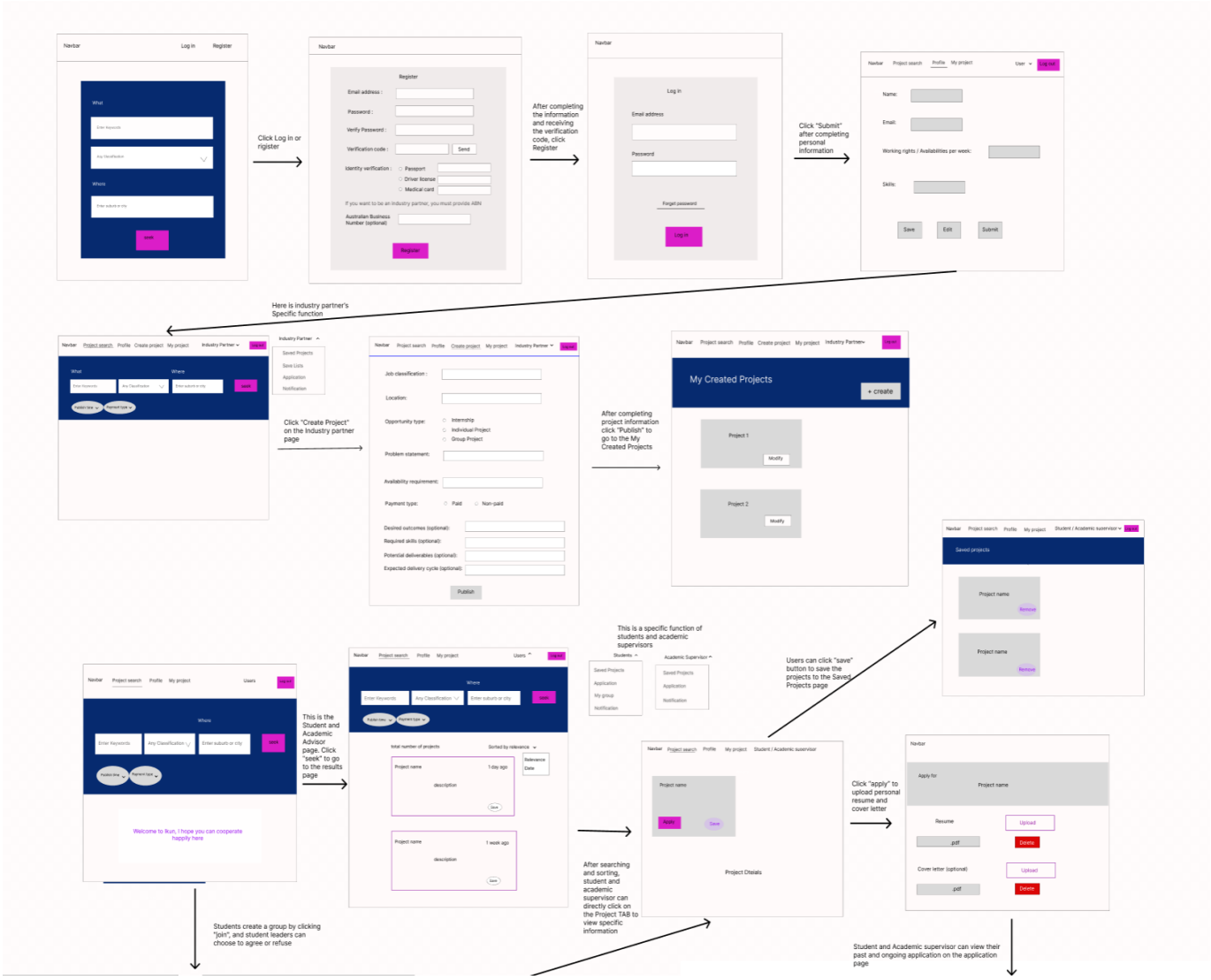


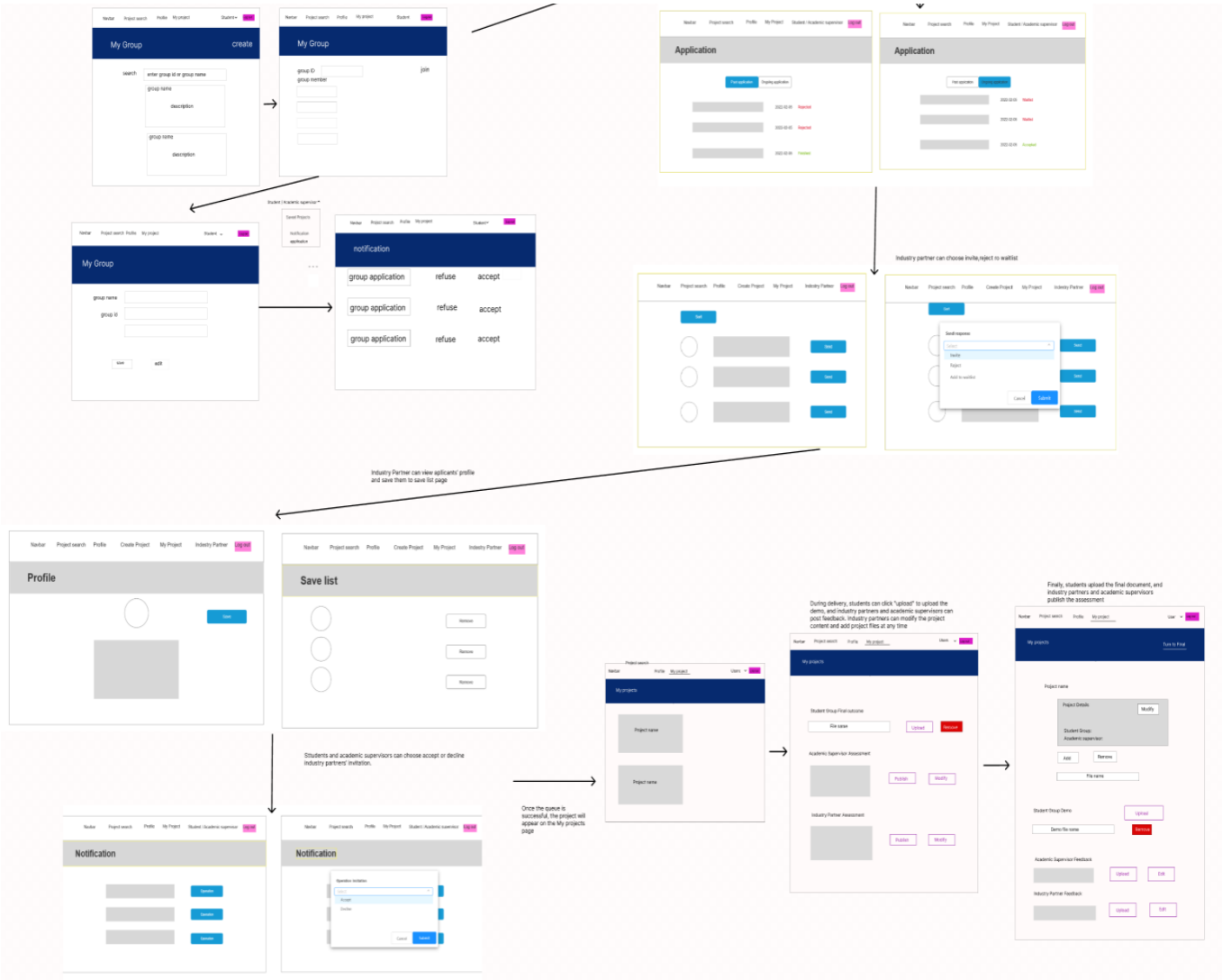
Figure 8

Flow Diagram

Here is the link of our graphic.

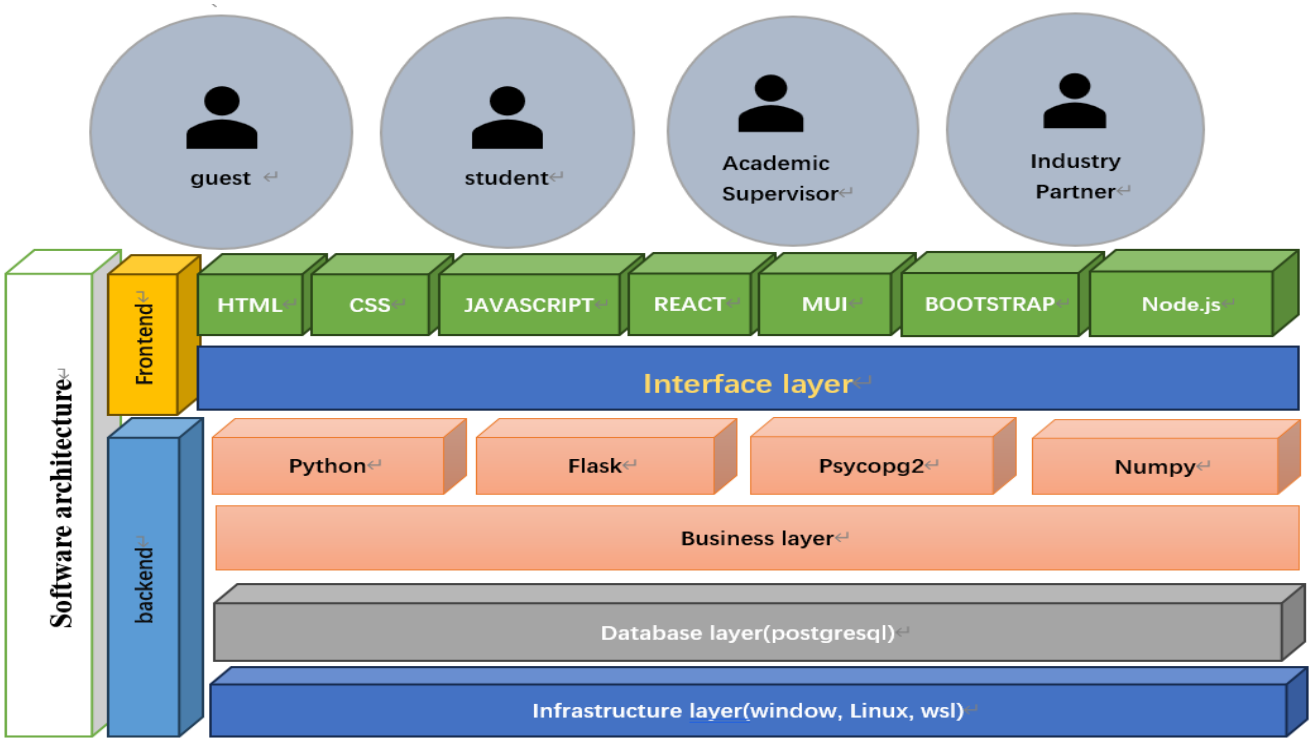
https://www.figma.com/file/Kd3Q74IlQp50TNVM2d2c7H/Untitled?type=design&node-id=0-1&mode=design&t=XIoeZNwjcwAbwA1a-0




My Group
create
My Group
join
Application
Application
My Group
notification
group application
refuse
accept
group application
refuse
accept
group application
refuse
accept
Industry partner can choose invite,reject to waitlist
Industry Partner can view applicants' profile and save them to save list page
Profile
Save list
Students and academic supervisors can choose accept or decline industry partners' invitation.
Notification
Notification
Once the queue is successful, the project will appear on the My projects page
During delivery, students can click "upload" to upload the demo, and industry partners and academic supervisors can post feedback. Industry partners can modify the project content and add project files at any time
Finally, students upload the final document, and industry partners and academic supervisors publish the assessment

Software architecture

Software architecture diagram：



External actors

The Student Industry Project Management System has four external actors: guests, students. Academic supervisors and industry partners.

Guest

As unlogged users, Guest can only search for and browse projects published by industry partners. They can register accounts as one of three roles(guests, students. Academic supervisors and industry partners) by clicking the sign up button.

Student

Students can access most of the functions of this system, including browsing industry problems and project opportunities, submitting and editing their resumes and portfolios, forming a group with other students and joining a project.

Academic supervisor

The main role of Academic supervisors is to promote cooperation between students and industrial partners. They can monitor and record the performance of students and give them some feedback.

Industry partner

Industry partners are individuals who are responsible for posting real-world problems and project opportunities.They can also give the details of the projects and rate their experience working with Students and Academic Supervisors.

Interface layer(front-end):

For interface layer, we used several technologies:

- Html
- Css
- Javascript
- React
- Mui
- Bootstrap

Html

Html is the standard markup language used to create web pages. It describes the structure and presentation of content on the web and we will use this to build web pages.

Css

CSS, which stands for Cascading Style Sheets, is a stylesheet language used to describe the look and formatting of a document written in HTML or XML. While HTML structures the content, CSS is used to style and layout this content, such as setting colors, fonts, and positioning elements.The project will use css to make the web page look better.

Javascript

JavaScript (often abbreviated as JS) is a high-level, interpreted programming language known for its role in web development which is used by us for the development of front-end. It allows for the creation of interactive and dynamic web pages. While it originated as a client-side scripting language, it has since evolved and can be used both on the client-side and the server-side.

React

React is a JavaScript library developed and open source by Facebook for building user interfaces, especially complex and interactive UI components in single page applications (SPA). It adopts a componentization approach, allowing developers to build reusable UI components and introducing hooks in version 16.8, allowing the use of states and other React features without the use of classes which includes useState, useEffect, and custom Hooks. Due to its efficient, flexible, and powerful features, our project will use this framework to make front-end development more efficient.

Mui

Mui (formerly known as Material UI) is a popular React UI framework that provides us with a series of prefabricated components, including buttons, dialog boxes, navigation bars, tabs, tables, form controls, etc. This greatly accelerates our development speed and enables us to quickly build beautiful and functional web and mobile applications.

Bootstrap

Bootstrap is an open source front-end framework that provides developers with a complete set of tools, including HTML, CSS, and JavaScript, for creating responsive and mobile first websites and applications. It has very strong usability, so our project will use it to create beautiful and responsive web pages and applications.

Business layer(Back-end):

python

Our team will use Python as the backend language.It is a popular, universal, and interpretive programming language that not only has concise and easy to understand syntax and powerful libraries, but also leads the way in execution speed and development efficiency among various programming languages. Everyone in our team is familiar with python and has written many programs using it. We believe we can use it to write powerful and efficient software in this course.

Flask

Flask is a lightweight web framework written in Python, known as a "microframe", which means it maintains the simplicity and lightness of its core functions and does not include preset functions such as database abstraction layer and form validation Its API design is concise, clear,

and highly modular and scalable, allowing for additional functionality through third-party extensions. Overall, Flask is a powerful and flexible tool that is very suitable for building web applications of all sizes.

Database layer(front-end):

Postgresql

In this project, we will use PostgreSQL to store a large amount of user data. PostgreSQL is an advanced open source object relational database (ORDBMS) that is fully open source and supports most SQL standards. In terms of performance, it has built-in query optimizer, JIT (just in time compilation) support, tablespace, etc., making it suitable for large and high load applications, which is why we chose it。

References

[1] *IBISWorld - industry market research, reports, and Statistics* (no date) *IBISWorld Industry Reports*. Available at: https://www.ibisworld.com/au/company/seek-limited/10847/ (Accessed: 27 September 2023).

[2] *About gradconnection, our products and our history* (no date) *GradConnection*. Available at: https://au.gradconnection.com/about-us/ (Accessed: 27 September 2023).