# Lab 1: UConnect Project Characteristics

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CS 411W

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## Table of Contents



## Listing of Figures

## 1 Introduction

Today, a bachelor's degree is simply not enough to qualify for many early-career positions. This has not always been the case; historically, a college degree was a way to show employers and the world that a graduate is ready to start a new job. It was understood that they could get started easily, without much training. However, several factors contribute to increasingly higher expectations on the part of employers.

The first of these factors is that bachelor's degrees have been growing increasingly more common, with both high school and college graduation rates showing a steady increase from 1960 to 2022 (Korhonen, 2022). This increase is shown in Figure 1.

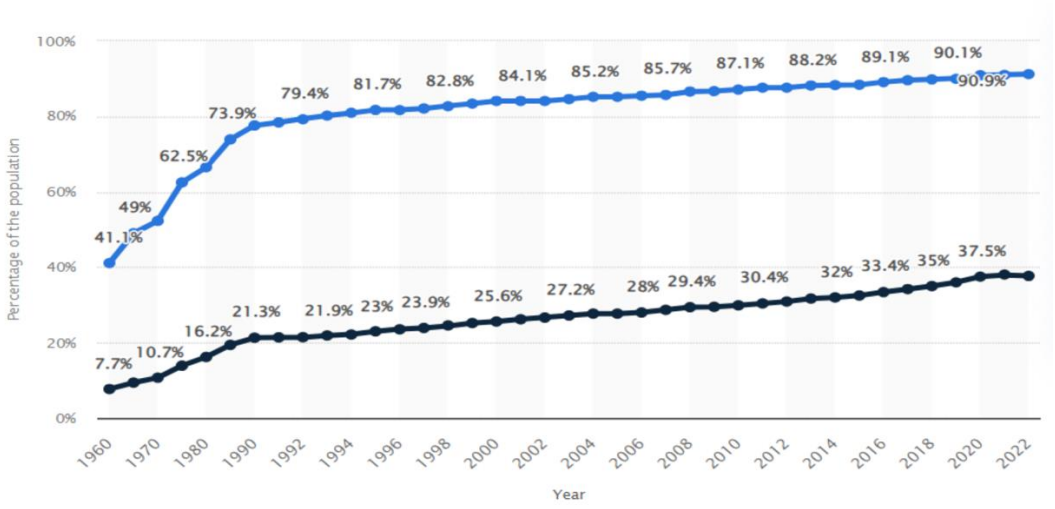


*Figure 1: Graph of enrollment increase from 1960 - 2022 (Korhonen, 2023).*

Furthermore, statistics indicate that internships are becoming rarer. A study performed in 2016 indicated that 75 percent of students had participated in some form of internship experience by graduation (Zehr, 2016); however, a later study from 2020 showed lower numbers, with only about 40% of computer science students having landed internships (Kapoor and Gardner-McCune, 2020). The distribution of internship participation by household income and gender as of 2020 is highlighted in Figure 2.

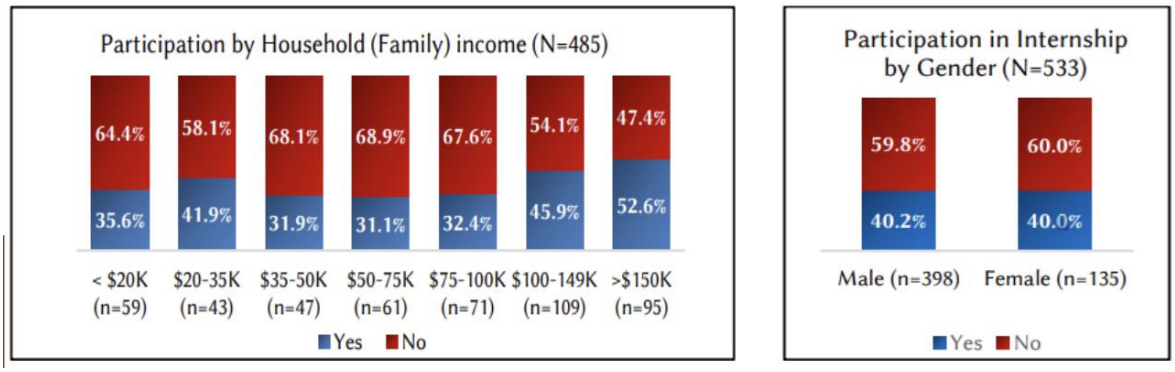


*Figure 2: Participation in internships by household income and by gender. (Kapoor & Gardner-McCune, 2020).*

A third factor contributing to the devaluation of bachelor's degrees is a phenomenon known as "experience inflation." Hanna Salton with Verve Search used this term to describe the observation that, as time goes on, employers tend to require more and more experience for entry-level jobs (Salton, 2022). Figure 3 shows the percentage of jobs, by industry, that required at least two years of experience or more on LinkedIn and Indeed as of 2022. The general trend is towards entry-level jobs in several fields requiring more years of relevant experience than in the past.

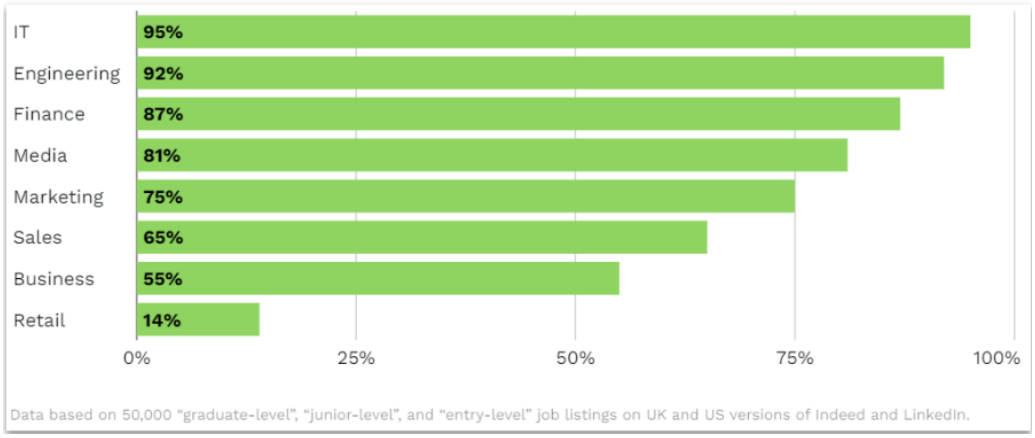


*Figure 3: Percentage of jobs, by industry, that required at least two years of experience or more, based on data from LinkedIn and Indeed (Search & Salton, 2022).*

The culmination of these various factors is that employers increasingly want proof that a candidate not only has the skills and knowledge they need, but that they have experience utilizing them. This poses a problem: how can students get the experience they need, if they can't land an internship or entry-level job, often due to a lack of this very kind of experience? For

college students, perhaps the solution can be found all around them: they are surrounded by other students with similar interests in developing their skills. Imagine, for example, a film student who wants to make a short movie. There are English majors, theater students, and others who might enjoy working on it as well. However, an issue arises in that the process of seeking other students out and organizing a joint effort around a project can be challenging and intimidating. After conceiving a project idea and identifying the skills required to bring it to fruition, a student must begin the extensive process of finding and recruiting members. This process presents ample potential roadblocks, each of which can be encountered repeatedly as the project organizer repeats the steps involved in identifying and reaching out to each potential member. The general form of this process, with its largely cyclical and pitfall-ridden nature, is depicted in Figure 4. The step of searching for each potential member is a hassle in its own right, owing to the sheer variety of potential avenues (e.g. Reddit, Discord, word of mouth) and the limitations brought by each.

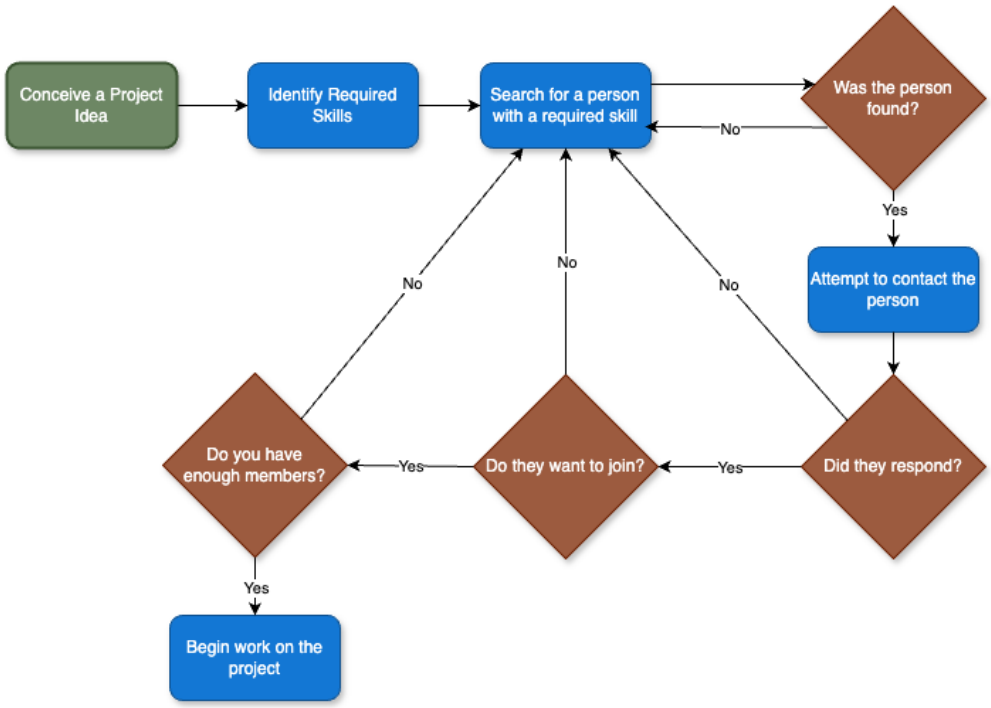


*Figure 4: Current process flow for project launchers.*

Meanwhile, some students may prefer to seek out an existing avenue for acquiring experience, rather than launching their own project. For these students, the option of searching

for internships or entry-level jobs is immediately relevant. However, as discussed earlier, these opportunities can be challenging to land for one lacking concrete experience on their resume. Furthermore, it may be difficult or impossible to find suitable positions at all in one's geographic area. A less-traditional option may be found in searching for student-proposed projects to work on. For students pursuing this avenue, finding a suitable project presents a primary challenge. Social media platforms such as Reddit might be helpful, but with none of these major existing platforms being oriented towards projects in particular, the search process is likely to be relatively tedious and involved. Indeed, there is no guarantee of finding anything suitable in a timely manner. Furthermore, even if a student finds a project they are interested in, it is entirely possible that its owner is not interested in the additional help, especially considering the inquiring student's relative inexperience. The general flow of this experience-seeking process is depicted in Figure 5.

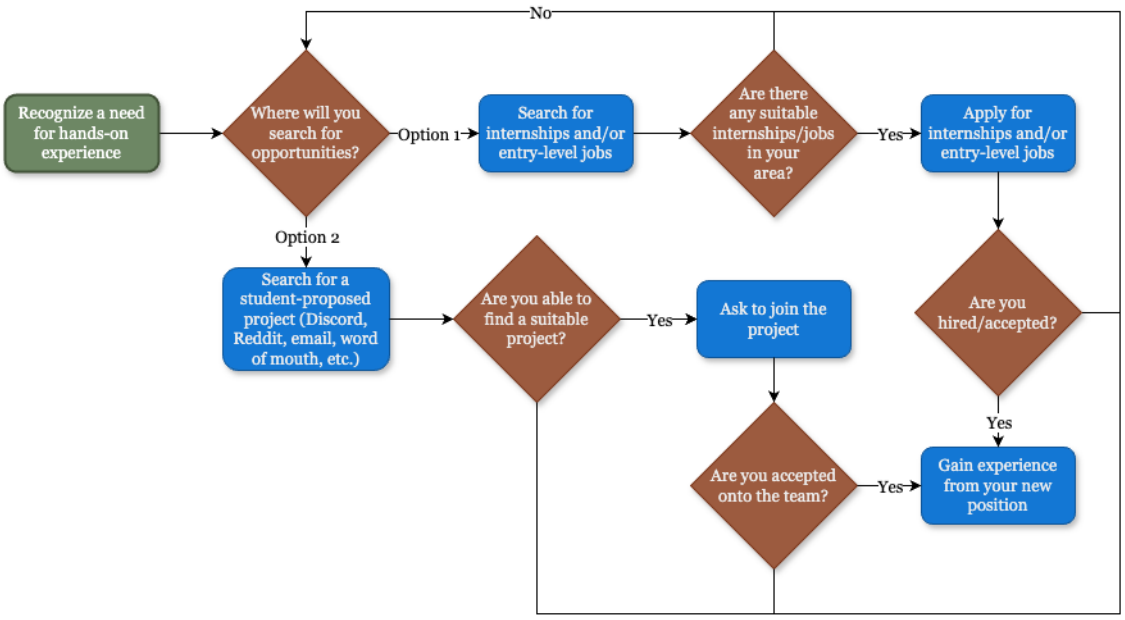


*Figure 5: Current process flow for project seekers.*

The ideal solution to this multifaceted problem, then, should have at least a handful of key characteristics. For the prospective project launcher, it should provide relatively simple and frictionless processes for attracting interested individuals, as well as reaching out to potential team members manually. For the student seeking a pre-existing project or idea to work on, it should provide similarly convenient processes for browsing projects and project ideas, as well as

for inquiring about and applying to join them. For both categories of user, it should provide a single, bespoke destination wherein like-minded students may reliably be found, and in a relatively quick manner. Above all, it should be conducive to fostering an active ecosystem of individuals cooperating to the end of gaining experience and bolstering resumes.

A specific vision for a solution embodying these characteristics can be found in UConnect: a service explicitly designed to allow college students seeking to launch projects to meet students looking to demonstrate and further develop their skills. It will aim to create a central platform for both advertising project ideas and finding projects to work on, in order to create a convenient avenue for students to gain valuable, hands-on experience.

## 2 *UConnect* Description

UConnect is a planned web application that seeks to provide college students a platform through which to network with one another and collaborate on experience-building projects. As intimated in Section 1, it is envisioned as having two main categories of users, namely "project launchers" and "project seekers". Project launchers will use UConnect to make posts describing projects they are interested in realizing. For such individuals, the process of finding collaborators for a project becomes quite simple: one only needs to advertise on the single platform of UConnect. The flow of the resulting streamlined process can be seen in Figure 6.

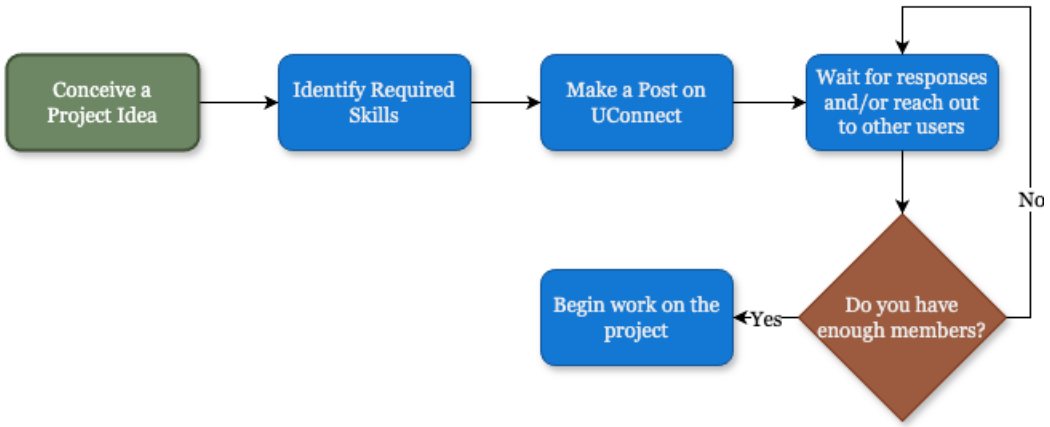


*Figure 6: Solution flow of a project launcher.*

Project launchers will also have the ability to take a hands-on recruiting approach by browsing user profiles and reach out to prospective collaborators directly.

On the other hand, project seekers are users who will browse posts to find projects they would like to contribute to. Once a seeker finds a project they are interested in, they can reply to the corresponding post (e.g. to inquire for further details or to ask to join the project). The launcher who created the post will receive any such replies and may respond to them as they see fit. Finding student-created projects thus becomes a centralized, streamlined approach, as can be seen in Figure 7. Though the overarching shape of this process is quite similar to that seen in Figure 5, UConnect seeks to simplify the logistics of the operation, as well as boost its ultimate propensity for success.

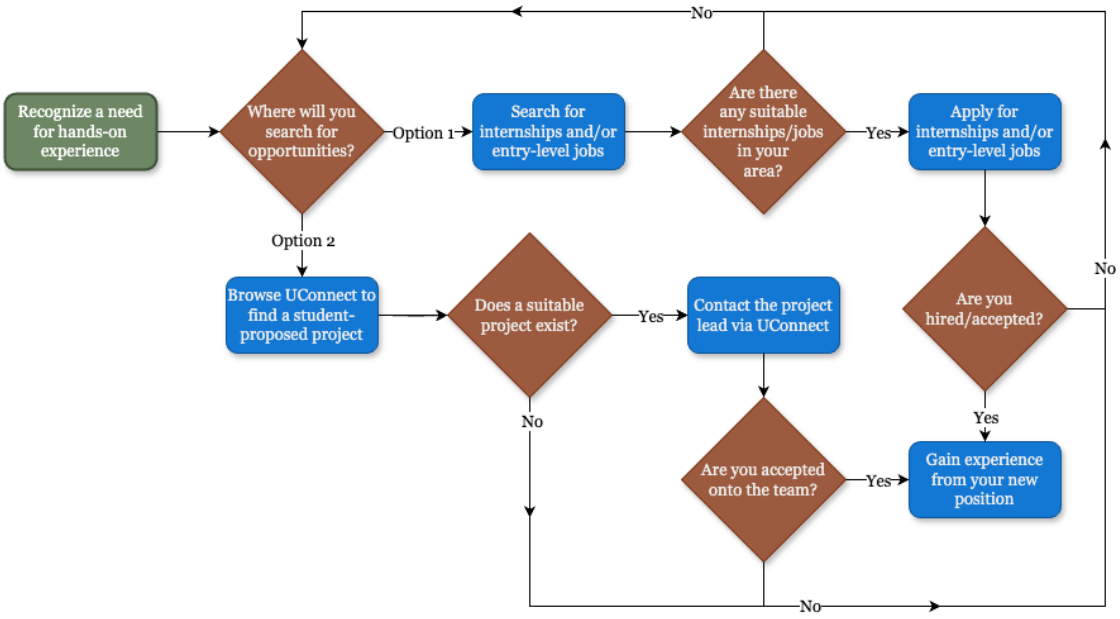


*Figure 7: Solution flow of a project seeker.*

Note that the distinction between launchers and seekers is made here pedagogically and is not particularly essential to the envisioned end user experience of the platform. In practice, users will freely act as either or both, depending on their individual needs and goals.

## 2.1 Key Product Features and Capabilities

There are several key features via which UConnect aims to solve the set of problems outlined in section 1 (all of which have been mentioned or intimated in some capacity already and will be described in more detail hereafter).

First is the ability to create project posts. An example of what a post may look like during the drafting process is depicted in Figure 8. The contents are comprised of a variety of details, including the project's name, the number of desired collaborators, the estimated timespan of work, a set of tags listing desired skills and/or areas of expertise, additional tags, and a general description. Only key details like the name and desired skills are required to create the post, but the full set of fields seeks to enable the launcher to create a comprehensive and compelling overview of the project's vision, so as to more effectively attract potential collaborators.

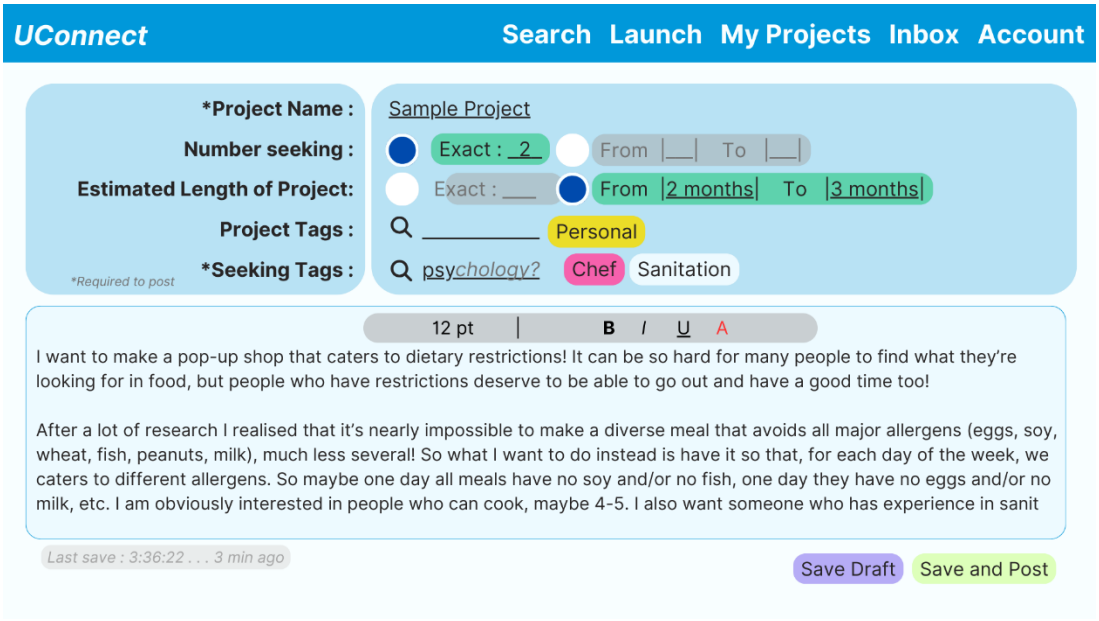


*Figure 8: A mockup of a project launcher creating a post on UConnect.*

As aforementioned, it will also be possible for launchers to actively seek out candidates by browsing user profiles and reaching out to candidates directly through UConnect's messaging system. A mockup of a user profile can be seen in Figure 9. Users will be able to populate their profiles with a variety of relevant details, including essential identification (e.g. name, photo) as well as a biography, tags indicating areas of skill and/or expertise, and reviews from past collaborators.

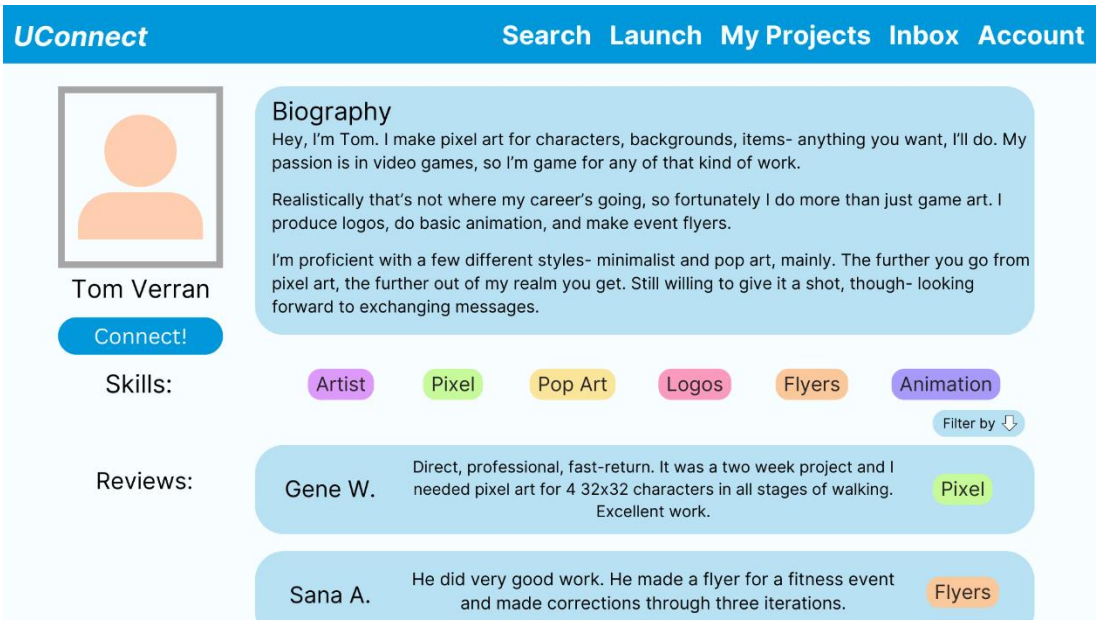


*Figure 9: A mockup of a user profile on UConnect.*

A mockup of another page, titled "My Projects," can be seen in Figure 10. Here, a user can view a list of all the projects they've posted, along with details on the status of each. For example, a count of seekers who have replied to the post indicating interest will be listed.

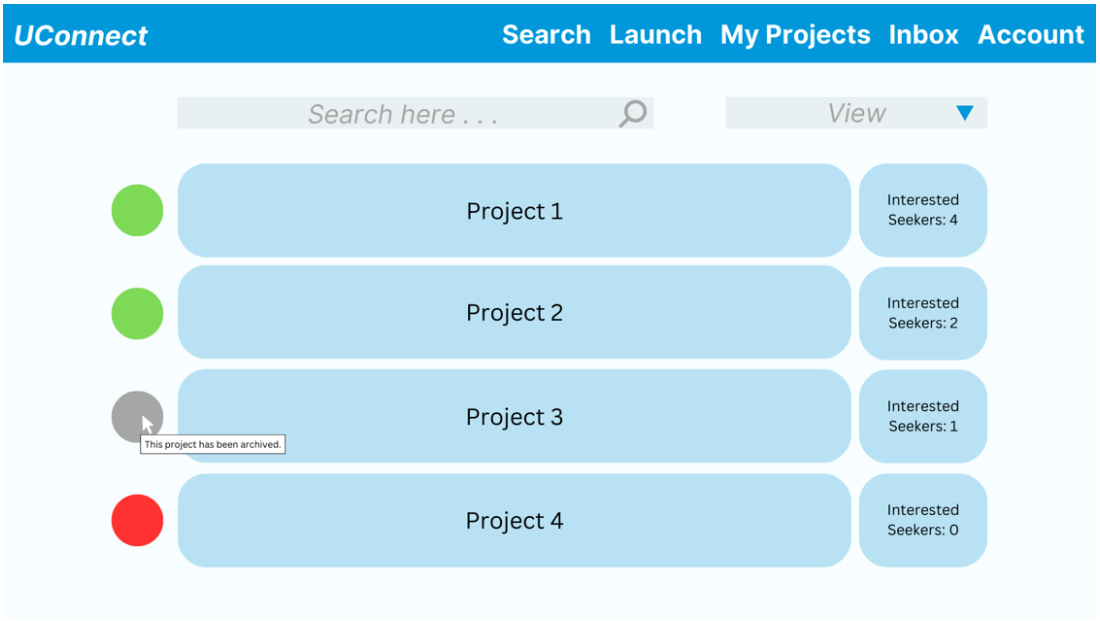


*Figure 10: A mockup of the "My Projects" page. An active project is green, an archived project is gray, and a deleted project is red. The number of interested seekers is shown on the right side next to the name of the project.*

Project seekers will spend much of their time browsing posts. A mockup of a post from the perspective of a seeker can be seen in Figure 11. All of the key information comprising a post is depicted, with the description and tags displayed prominently. A dedicated button will allow interested seekers to reach out to the launcher with a written reply.

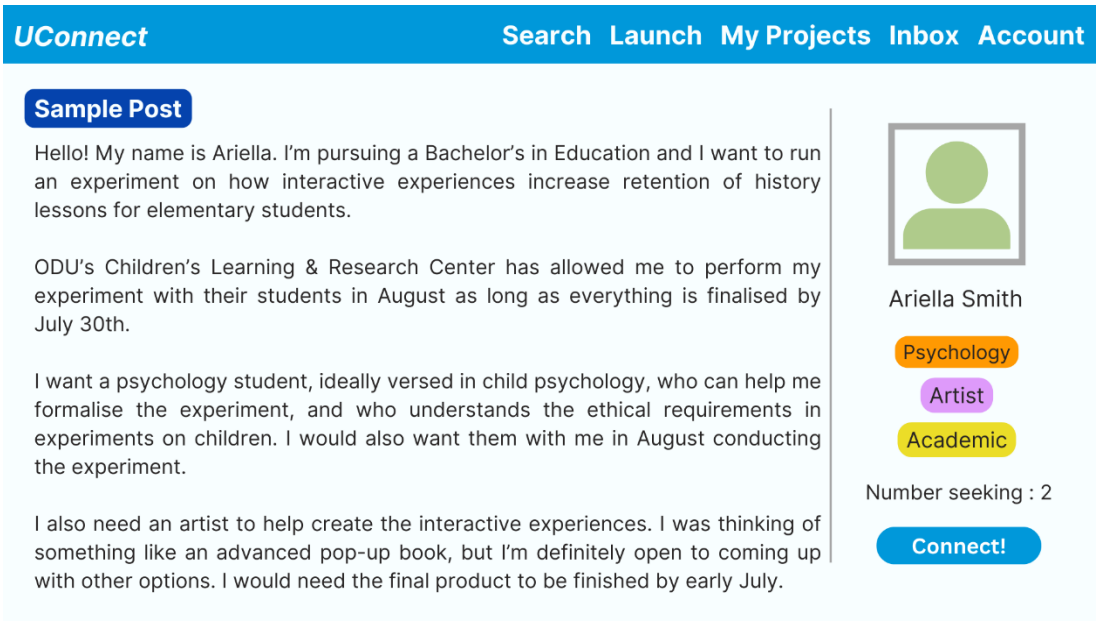


*Figure 11: A mockup of a post, from the perspective of a project seeker, on UConnect.*

Since communication via messaging is important to both launchers and seekers, a dedicated inbox is planned. A mockup of this screen is shown in Figure 12. Each message is shown with the name of the project it pertains to, the name of the sender, a timestamp, and the message itself. Previously unseen messages are shown with bolded subject lines.

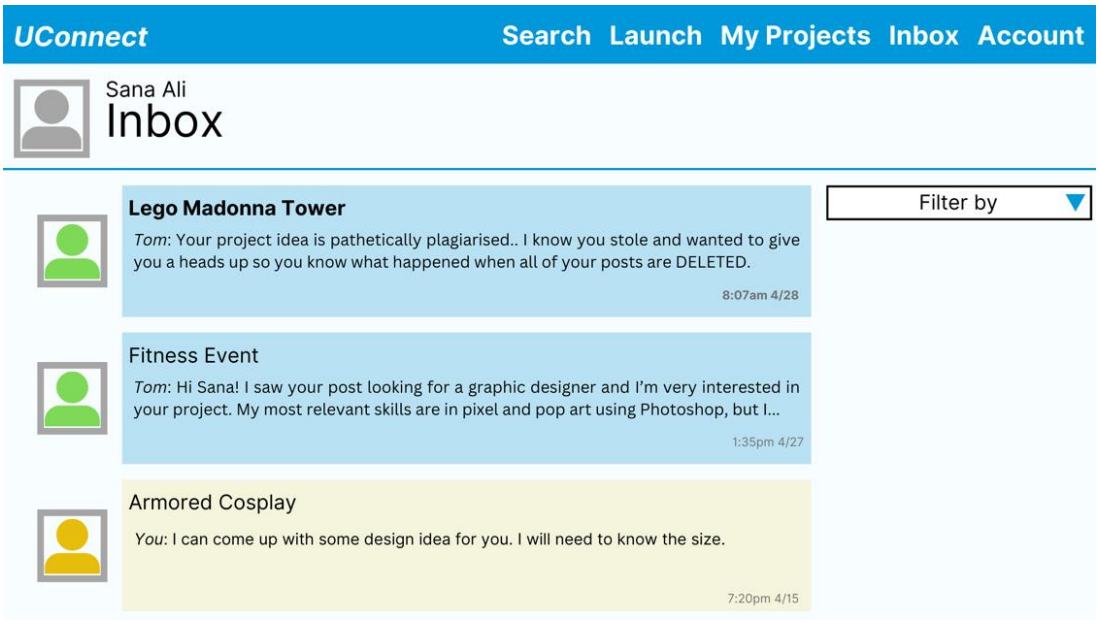


*Figure 12: A mockup of a user inbox. A blue message box shows a project the user launched. A yellow message box shows a project the user joined. A new message has a bolded subject line.*

A mockup of the interface for exchanging messages can be seen in Figure 13. Here, an exchange between a launcher and seeker is depicted. The title of the relevant project is shown at the top, with both users' messages listed below.

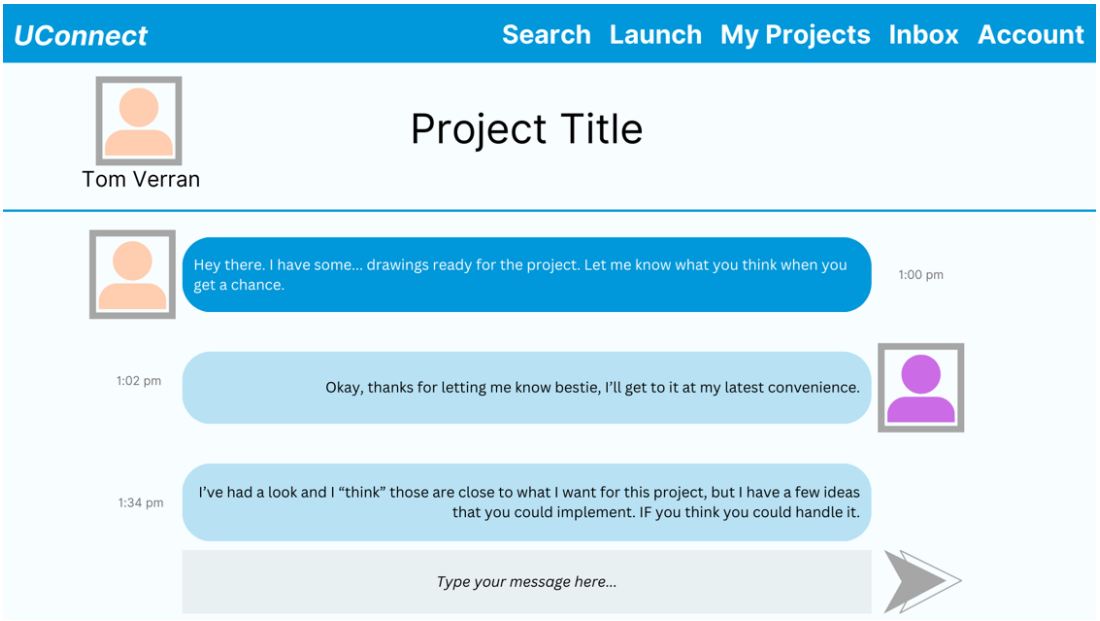


*Figure 13: A mockup of two users, a project launcher and project seeker, messaging. The title of the related project is at the top of the message. The recipient is dark blue; the sender is light blue.*

A central component to many of UConnect's functions is the tagging system. Many of these are used to indicate relevant areas of specialization, such as "graphic design", "psychology", "academic", "short-term", and so on. These tags are useful for indicating needed skills on project posts, as well as conveying individual users' areas of expertise and experience. Other tags may describe other general characteristics of a project, and may include terms like "short-term", "artistic", or "large-scale". These will of course be displayed on project posts only.

These tags are firstly practical for conveying key information about users and projects at a glance, but they also serve an important role as search terms. Given that UConnect is not envisioned as a matchmaking service, but rather as a networking platform, its search functionality represents the primary avenue through which users can find projects and potential collaborators. The search functionality can be accessed from UConnect's home page (depicted in Figure 14).

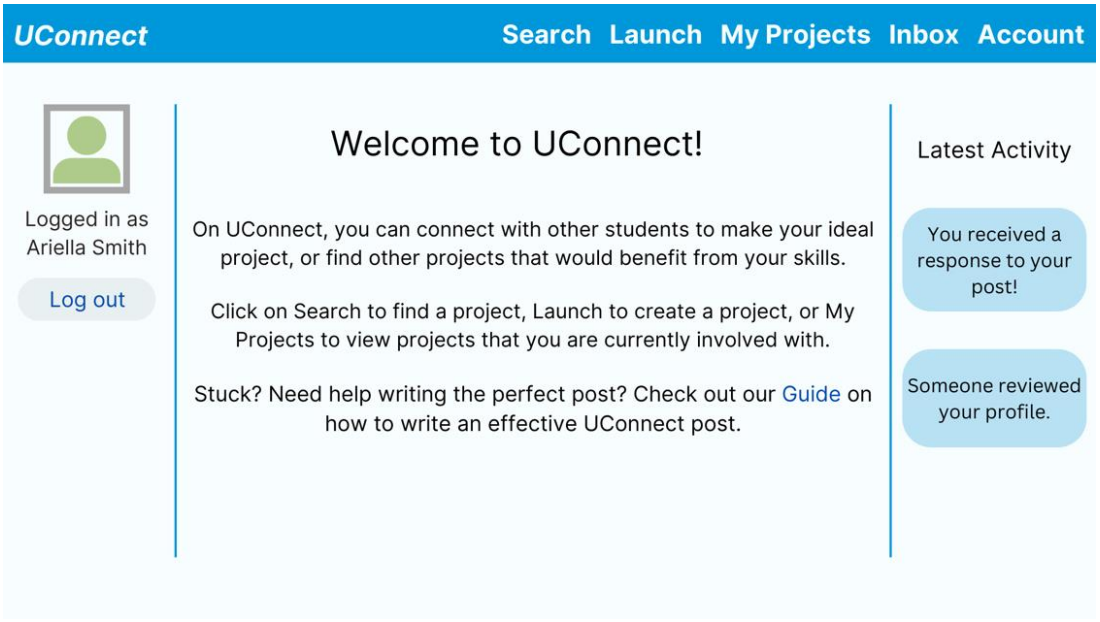


*Figure 14: A mockup of the UConnect homepage after a user has logged on.*

A mockup of the search page itself can be seen in Figure 15. Users can filter results by selecting tags; the search algorithm will prioritize the results accordingly (with projects and/or users matching the most tags being displayed at the top). Custom keywords can also be entered, providing another metric by which to measure relevance.

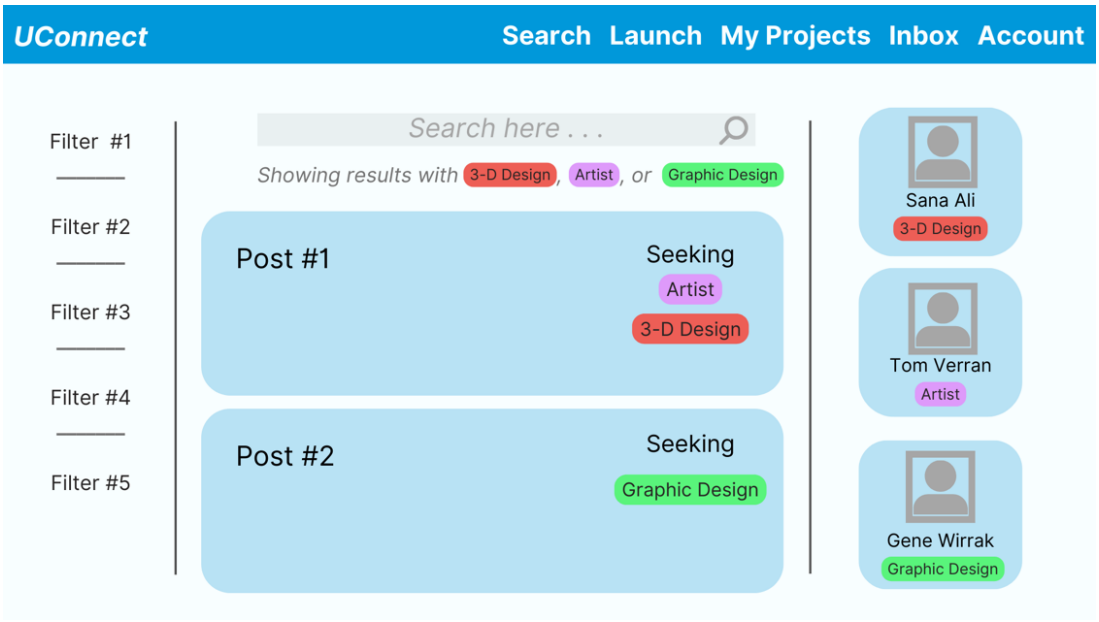


*Figure 15: A mockup of UConnect's search page, after making a search for the tags "3-D Design", "Artist", and "Graphic Design"*

Through the combination of these features, UConnect looks to streamline the processes undertaken by students seeking to gain experience through collaborative projects, as well as to enhance the likelihood of finding success in launching and/or joining such projects. For both prospective project launchers and seekers, this is accomplished by providing a single, bespoke platform, expressly clear in its purpose, through which to conduct their search. The former point is advantageous in simplifying the process, while the latter is helpful in ensuring that there is a mutual understanding of the typical user's relatively amateur experience level (so as to improve the odds of that user's acceptance). A final noteworthy advantage is that one is more equipped to take the traditional path of seeking internships and/or entry-level jobs after having gained experience through UConnect.

## 2.2 Major Components (Hardware/Software)

The planned major functional components of UConnect are shown in Figure 16. On the front-end side, sign in will be conducted through MyODU and OAuth; the UI will be powered by React. On the back-end side, Django will provide web server functionality, while PostgreSQL will be used for the user profile and user post databases.

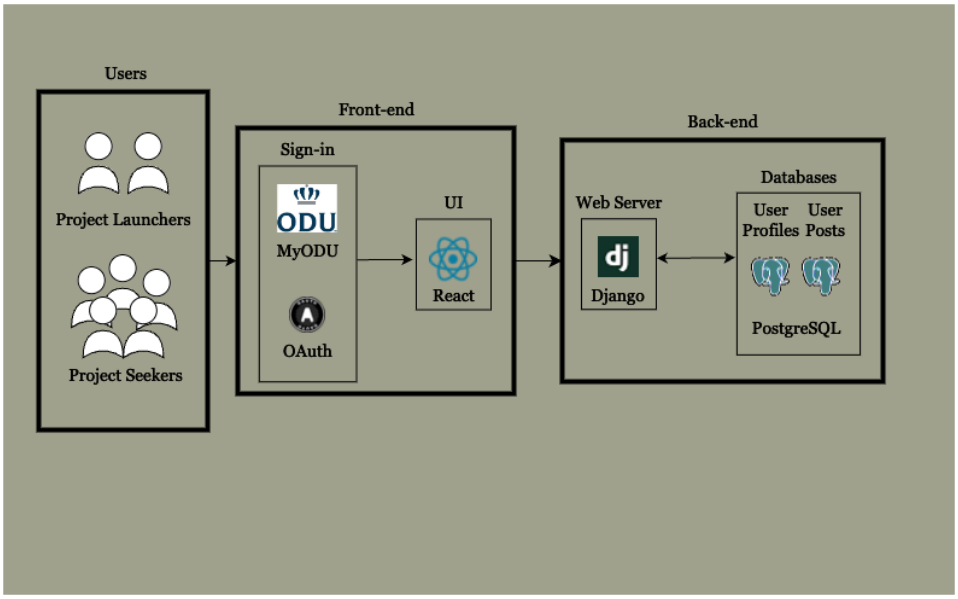


*Figure 16: Major Functional Component Diagram for UConnect*

## 3 Identification of Case Study

UConnect is envisioned, first and foremost, as a platform for students looking to build experience and bolster their resumes. Thus, the primary end user demographic is intended to be comprised of individuals enrolled in universities and colleges. However, it is expected that, rather than individual users paying for UConnect's services, the educational institutions at which these users are enrolled will pay a regular fee in order to provide their students with continual access to the platform.

Depending on the initial success of UConnect within this strictly academic setting, it may become feasible to expand the platform's availability so that individuals outside of institutions could use the platform. In this event, an individual fee would be available, as well as possibly a free version of UConnect with paid advertisements. UConnect's core features indeed stand to benefit anyone seeking to gain hands-on experience alongside like-minded peers; however, this general case is secondary to the initial aim to target the academic setting in particular.

## 4 Glossary

Project Launcher: User who has a project they are interested in recruiting students to work on

Project Seeker: User who is interested in using their skills to contribute to a project

## 5 References

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