

Caiden Petty  
Tygerlily Garner  
Jasmine Willis

# Team Sapphire Prototype Presentation

April 17, 2024

Zara Wasique  
Anna Foust  
Caelan Larsen

# Team Bio



Anna Foust



Caelan Larsen



Caiden Petty



Jasmine Willis



Tygerlily Garner



Zara Wasique

# Elevator Pitch

A Bachelor's degree is not enough to qualify for many early-career positions.

But how can one get experience if they aren't hireable due to their lack of experience?

College students are surrounded by other students who want an opportunity to use their skills.

Let's imagine that a film student wants to make a short movie. There are English majors, theatre students, and other students who might enjoy working on it as well.

...But students don't always seek out other students on their own.

The solution? A service that allows college students who want to create a project to meet students who need opportunities to use their skills.

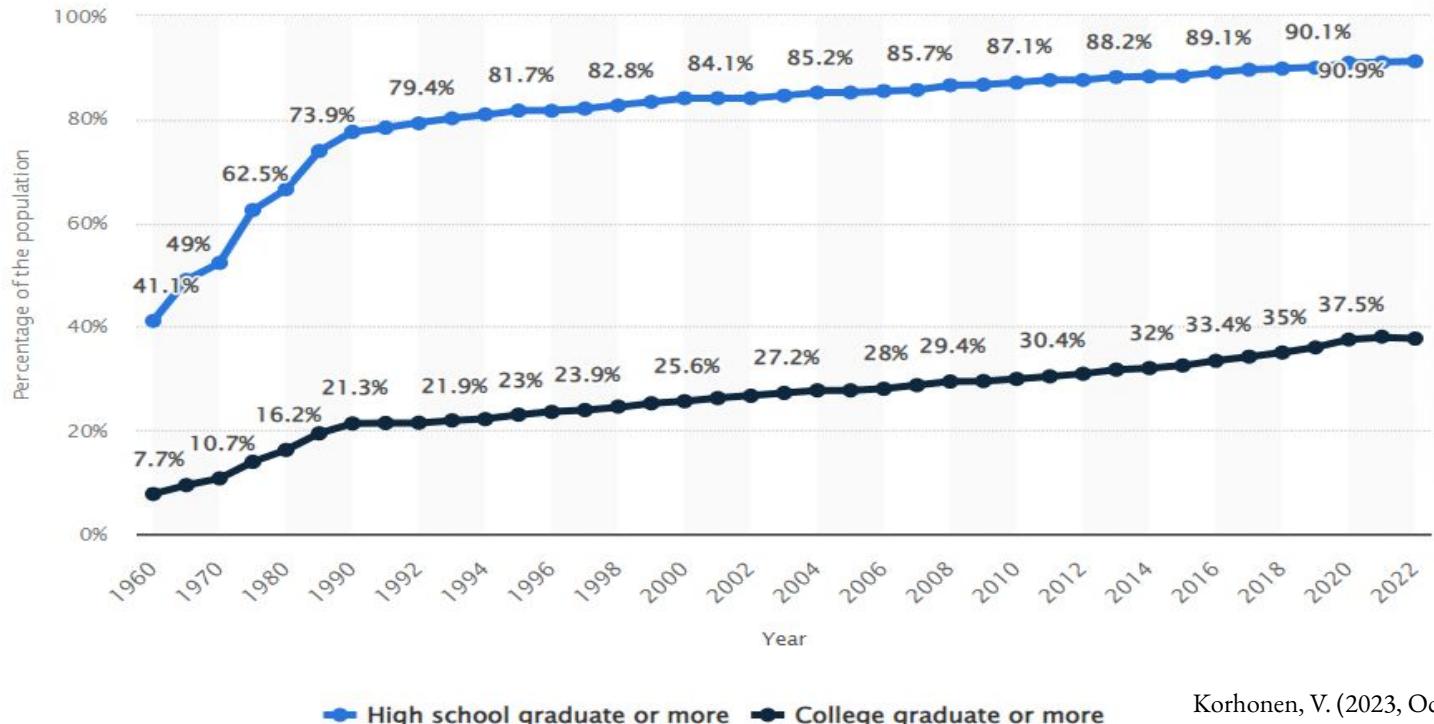
# Table of Contents

Problem Statement	5	Major Functional Components	27
Problem Characteristics	6-8	MFC Diagram	28
Glossary	9	Risks	29-34
Current Process Flows	10-11	RWP vs. Prototype	35-36
Solution Statement	12	Development Model	37
Product Features	13-14	Algorithms	38-43
Solution Process Flows	15, 19	Database Schema	44
Sample User Interfaces	16-18, 20-21	Conclusion	36
Competition Matrix	22-25	References	37-38
Development Tools	26	Appendix	39

# Problem Statement

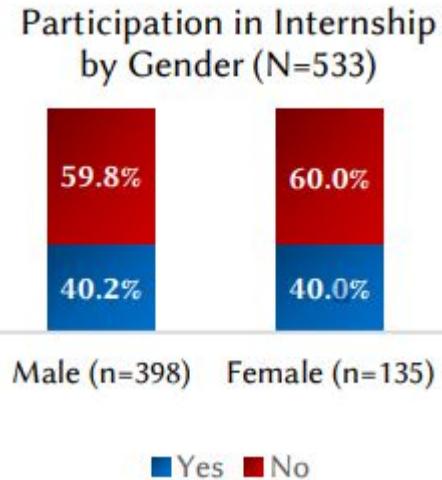
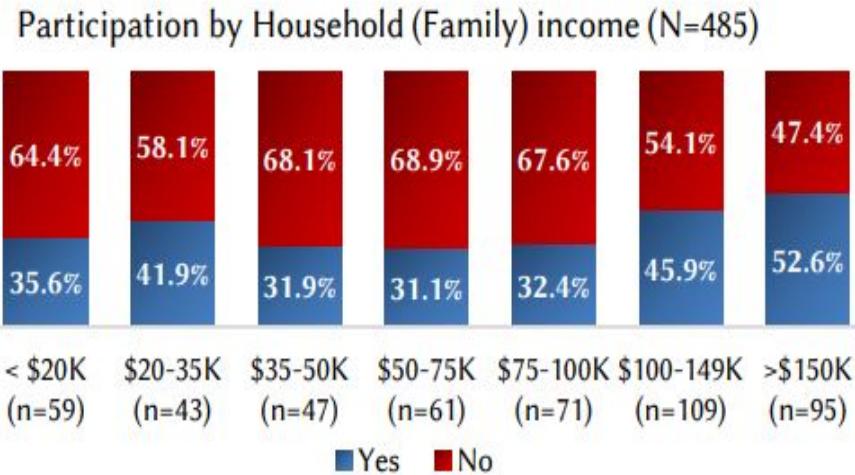
College students need experience, but internships and entry-level jobs often require the same type of experience that the student is searching for. Students are stuck with the catch-22 of finding out how to get experience in order to get experience.

# Problem Characteristics - Increased Enrollment



# Problem Characteristics - Few Internships

A study performed in 2016 showed that approximately 75% of students had some form of internship experience by the time they graduated. Sarah Zehr wrote in her dissertation that “the figure is likely higher today”.

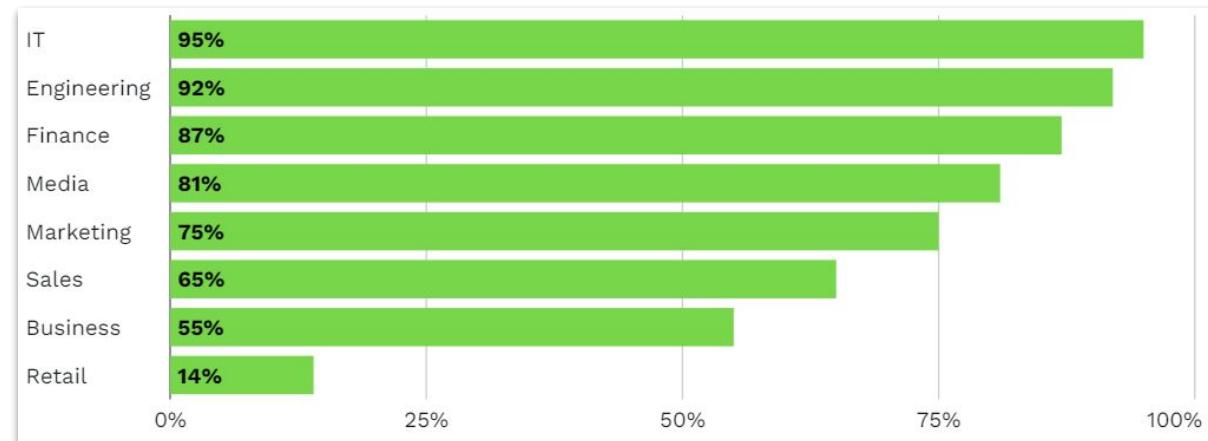


Kapoor, A., & Gardner-McCune, C. (2020)

# Problem Characteristics - Experience Inflation

Two research organizations examined an idea they call “experience inflation” where, as time goes on, more experience is required for entry level jobs.

They found that in the US, entry level jobs are requesting more years of relevant work experience each year. This is for the company to maintain experienced hires.



Search, V., & Salton, H. (2022, January 31)

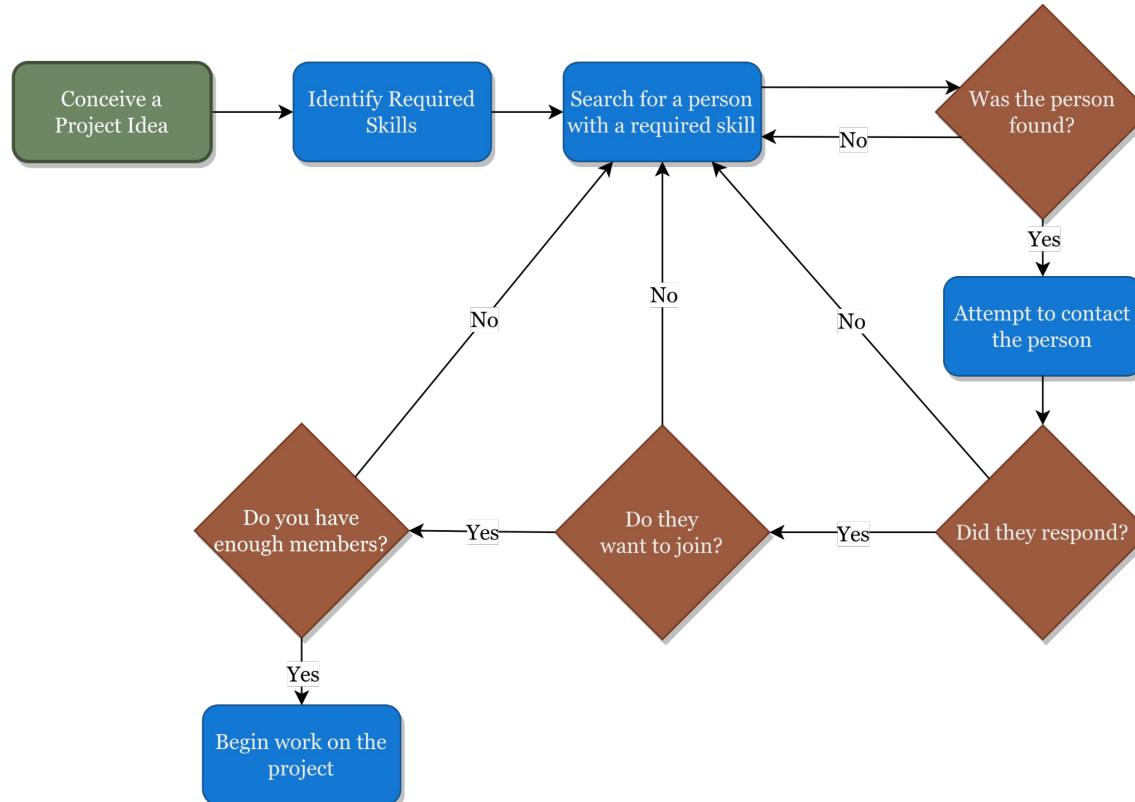
Data based on 50,000 “graduate-level”, “junior-level”, and “entry-level” job listings on UK and US versions of Indeed and LinkedIn.

# Glossary

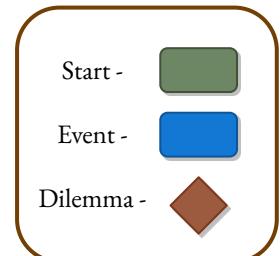
Project Launcher- a user who has a project that they are interested in recruiting students to work on

Project Seeker- a user who is interested in using their skills to contribute to a project

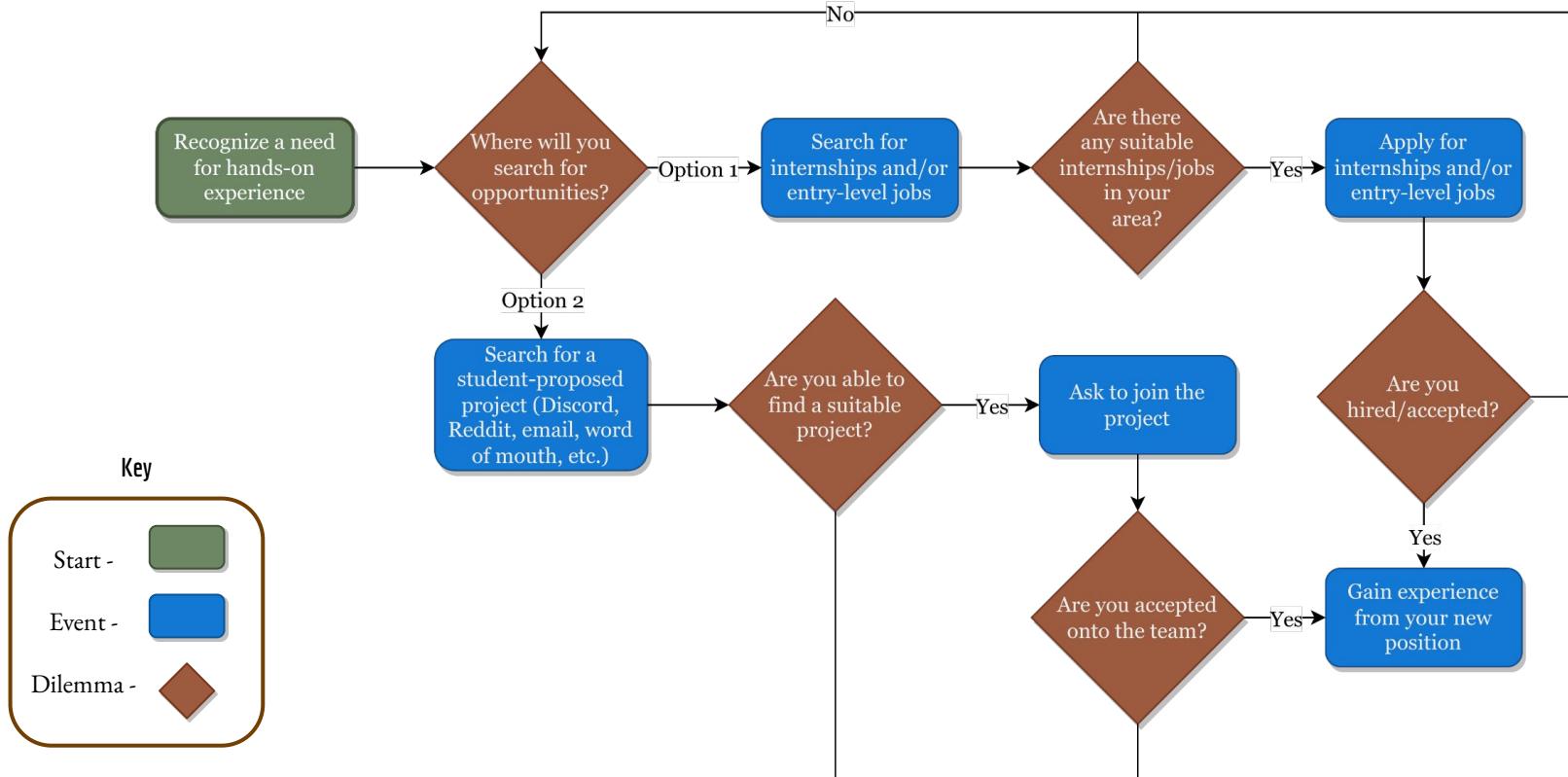
# Current Process Flow: Project Launcher



Key



# Current Process Flow: Project Seeker



# Solution Statement

*UConnect* is a web application that allows college students to reach out to each other and work on projects for experience that they can put on their resumes.

A user acting as a '*Project Launcher*' can make a post describing the project they wish to launch, along with the skills or fields of study they'll need expertise in.

'*Project Seekers*' can browse these posts to find projects they wish to join. They can reach out to launchers.

All users can browse student profiles and check skills and reviews, as well as whether that user is open for project invites or not.

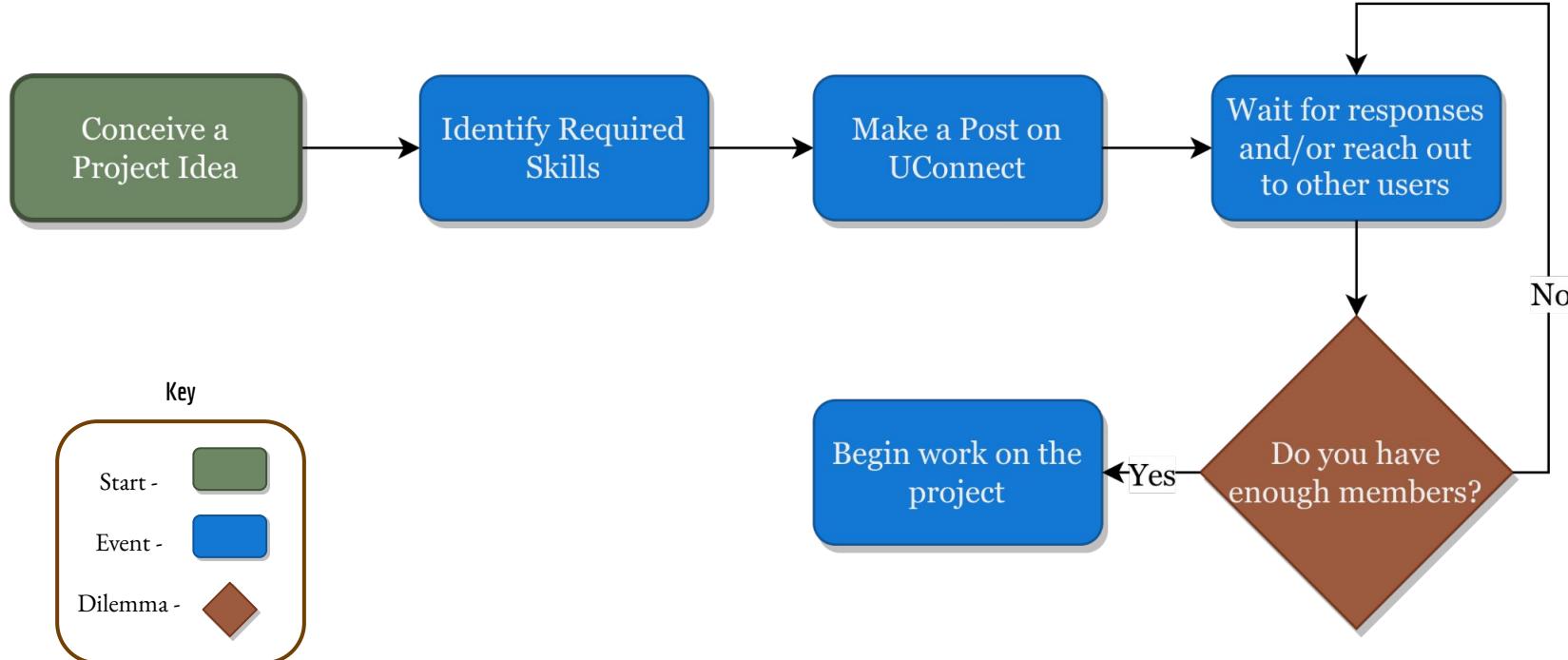
# What It Will Do

- It will allow a Project Launcher to write and tag posts with needed skills and majors.
  - A Project Seeker can browse posts by filter or by searching for keywords.
  
- It will allow students to browse user profiles.
  - One can see the skills a user possesses and read reviews of their work.

# What It Will Not Do

- It will not allow students to find internships or paid work.
  - It is specifically for students to find each other, not for employers or companies to find students.
- It is not a matchmaker. It does not have an algorithm to match students to each other.
  - It organizes information to allow students to find each other and reach out to each other.

# Solution Process Flow- Project Launcher



# Post Creation (mockup)

**\*Project Name :** Sample Project

**Number seeking :** Exact : 2

**Estimated Length of Project:** From    To   

**Project Tags :** Exact :    From 2 months To 3 months

**\*Seeking Tags :**  Personal

psychology? Chef Sanitation

\*Required to post

12 pt | **B** / U **A**

I want to make a pop-up shop that caters to dietary restrictions! It can be so hard for many people to find what they're looking for in food, but people who have restrictions deserve to be able to go out and have a good time too!

After a lot of research I realised that it's nearly impossible to make a diverse meal that avoids all major allergens (eggs, soy, wheat, fish, peanuts, milk), much less several! So what I want to do instead is have it so that, for each day of the week, we caters to different allergens. So maybe one day all meals have no soy and/or no fish, one day they have no eggs and/or no milk, etc. I am obviously interested in people who can cook, maybe 4-5. I also want someone who has experience in sanit

Last save : 3:36:22 . . . 3 min ago

Save Draft Save and Post

# Sample Post (mockup)

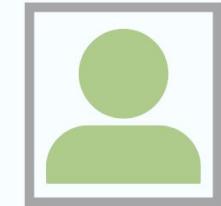
## Sample Post

Hello! My name is Ariella. I'm pursuing a Bachelor's in Education and I want to run an experiment on how interactive experiences increase retention of history lessons for elementary students.

ODU's Children's Learning & Research Center has allowed me to perform my experiment with their students in August as long as everything is finalised by July 30th.

I want a psychology student, ideally versed in child psychology, who can help me formalise the experiment, and who understands the ethical requirements in experiments on children. I would also want them with me in August conducting the experiment.

I also need an artist to help create the interactive experiences. I was thinking of something like an advanced pop-up book, but I'm definitely open to coming up with other options. I would need the final product to be finished by early July.



Ariella Smith

Psychology

Artist

Academic

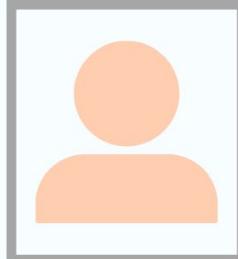
Number seeking : 2

Connect!

# User Profile (mockup)

**UConnect**

**Search Launch My Projects Inbox Account**



Tom Verran

**Connect!**

**Skills:**

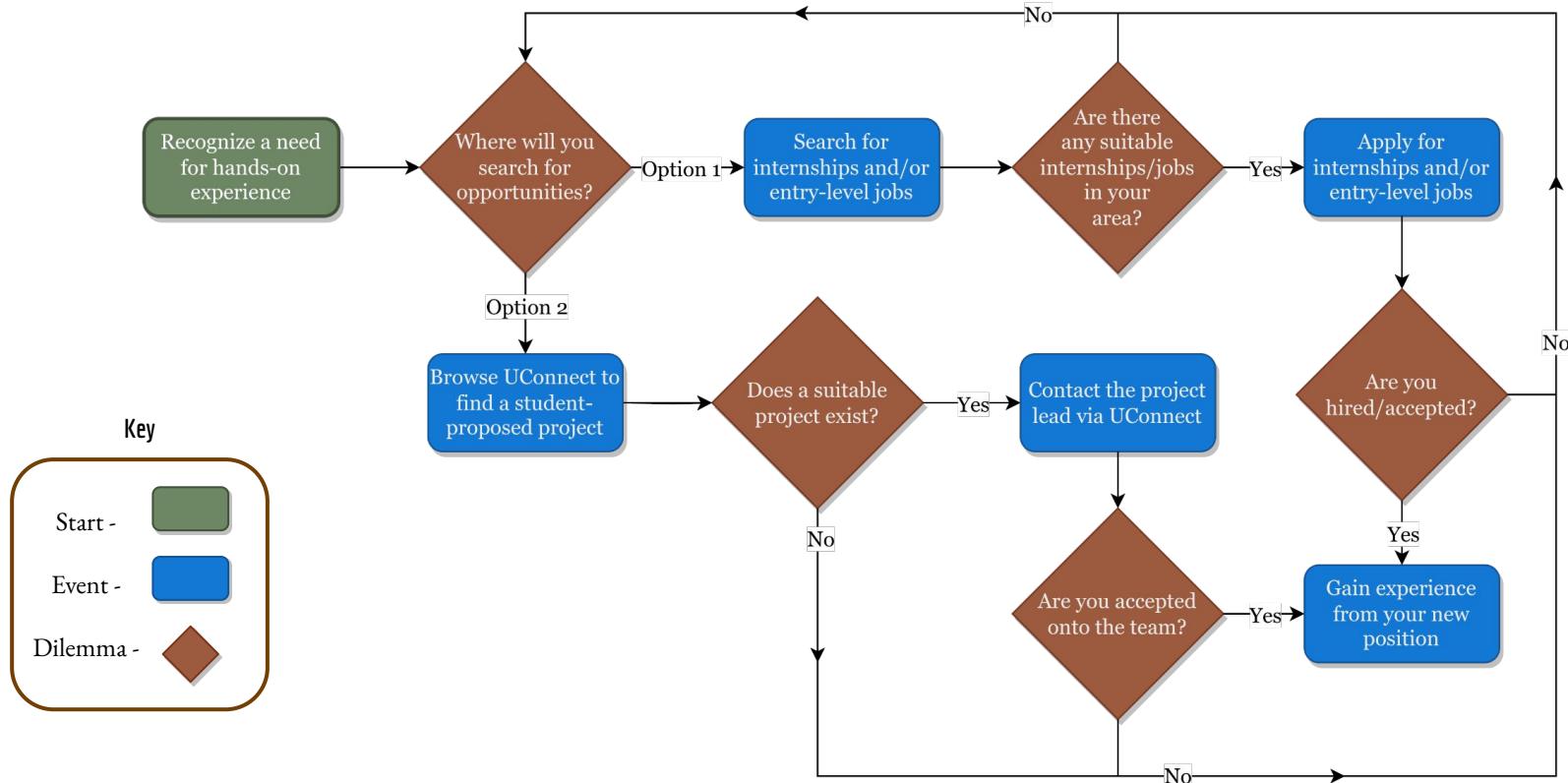
- Artist
- Pixel
- Pop Art
- Logos
- Flyers
- Animation

**Reviews:**

Gene W. Direct, professional, fast-return. It was a two week project and I needed pixel art for 4 32x32 characters in all stages of walking. **Pixel**  
Excellent work.

Sana A. He did very good work. He made a flyer for a fitness event and made corrections through three iterations. **Flyers**

# Solution Process Flow- Project Seeker



# Search Page (mockup)

Filter #1



Filter #2



Filter #3



Filter #4



Filter #5

 Search here... Showing results with **3-D Design**, **Artist**, or **Graphic Design**

Post #1

Seeking

Artist

3-D Design

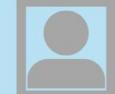
Post #2

Seeking

Graphic Design



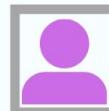
Sana Ali  
**3-D Design**



Tom Verran  
**Artist**



Gene Wirak  
**Graphic Design**



Sana Ali  
**Inbox**

# Inbox (mockup)

## Lego Madonna Tower



**Tom:** Your project idea is pathetically plagiarised.. I know you stole and wanted to give you a heads up so you know what happened when all of your posts are **DELETED**.

8:07am 4/28

Filter by ▾

## Fitness Event



**Tom:** Hi Sana! I saw your post looking for a graphic designer and I'm very interested in your project. My most relevant skills are in pixel and pop art using Photoshop, but I...

1:35pm 4/27

## Armored Cosplay



**You:** I can come up with some design idea for you. I will need to know the size.

7:20pm 4/15



Tom Verran

## Project Title



Hey there. I have some... drawings ready for the project. Let me know what you think when you get a chance.

1:00 pm

1:02 pm

Okay, thanks for letting me know bestie, I'll get to it at my latest convenience.



1:34 pm

I've had a look and I "think" those are close to what I want for this project, but I have a few ideas that you could implement. IF you think you could handle it.

Type your message here...



# Competition Background



**Fiverr:** Freelance work platform; focus on solo projects, advertisement based.



**Upwork:** Freelance work platform; focus on team-based work.

# Direct Competition

Feature	UConnect	Fiverr	Upwork
<b>Student-oriented</b>	✓		
<b>Early experience-oriented</b>	✓		
School-Exclusive Connections	✓		
For Teams	✓	partial	✓
Integrated Messaging	✓	✓	✓
Good for larger projects	✓		✓
Good for smaller projects	✓	✓	
Project Searching	✓	✓	✓
Project Posting	✓	✓	✓

# Competition Background



**Handshake:** Recruiting platform; connects students to employers through higher education institutions



**GroupMe:** Group messaging platform; students can join university-specific group chats.

# Competition

Feature	UConnect	GroupMe	Handshake
Designed for projects	✓		
Student-oriented	✓	partial	✓
Early experience-oriented	✓		✓
School-Exclusive Connections	✓	partial	✓
For Teams	✓	partial	
Integrated Messaging	✓	✓	✓

# Development Tools

- Integrated Development Environment (IDE) - VSCode
- Version Control- Git with GitHub
- Continuous Integration (CI) and Continuous Deployment (CD) - Github Actions & Workflows

Back-end: Python

Front-end: HTML, CSS, JavaScript

Testing Framework: Pytest

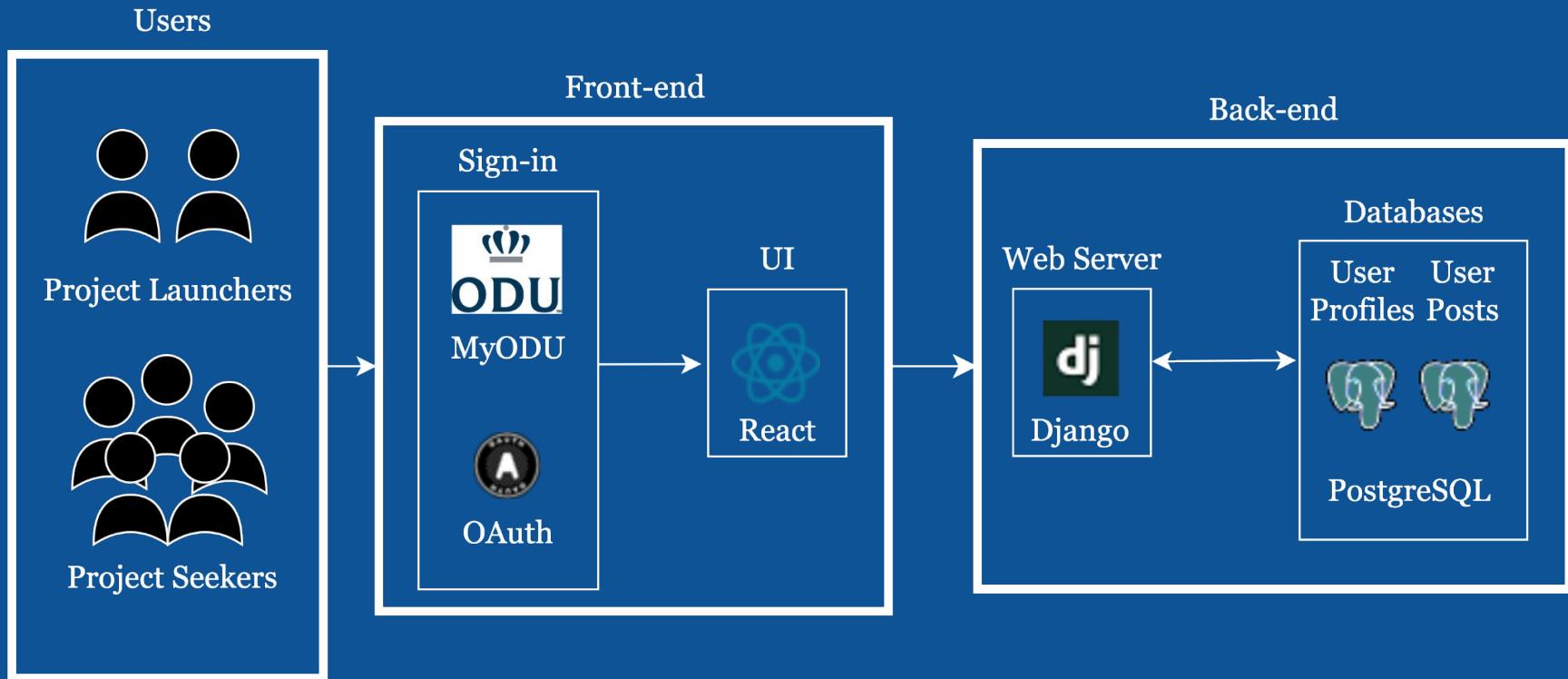
Documentation: Pydoc

# Major Functional Components

UConnect is a web-based application:

- Django for *web development*
- PostgreSQL for *databases*
- OAuth for *user authentication*

# Major Functional Components Diagram



# User Risks

## Risks:

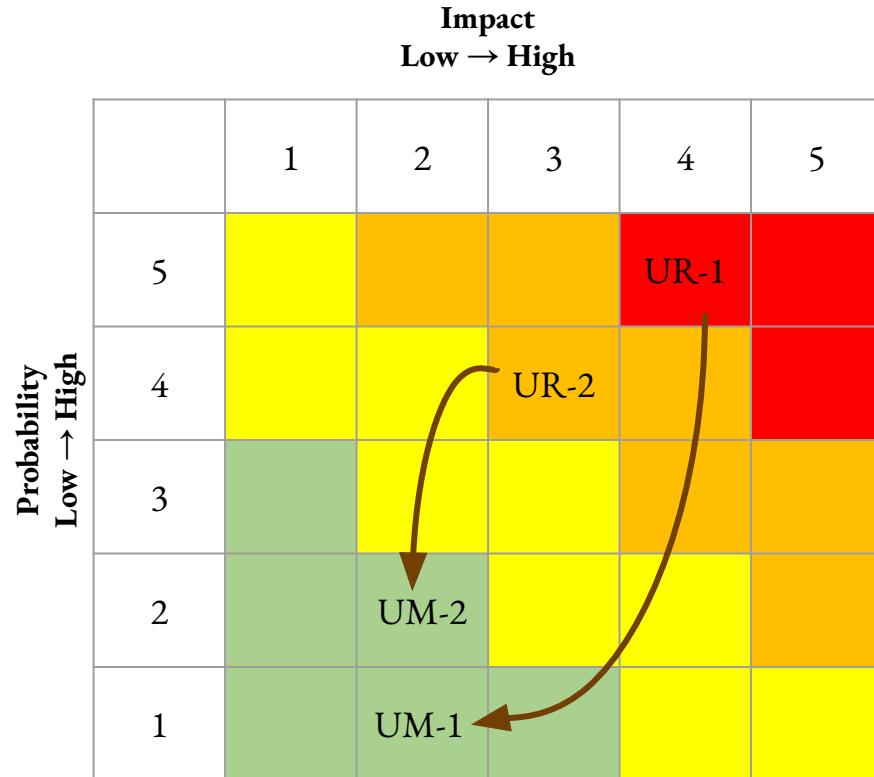
UR-1: No projects exist

UR-2 Projects are unappealing

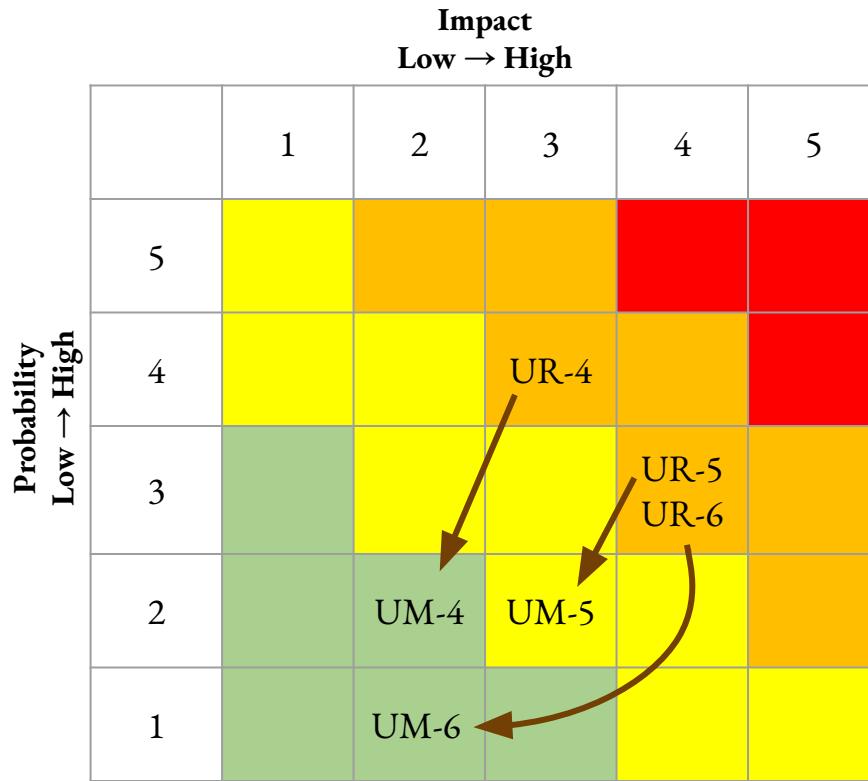
## Mitigation:

UM-1: Attach to online systems (myODU or equiv), recommend use in classes

UM-2: Add sample projects, recruit student organizations to add projects, recommend use in classes



# User Risks



# Technical Risks

## Risks:

TR-1: Loss of project data (post doesn't save)

TR-2: Database corruption

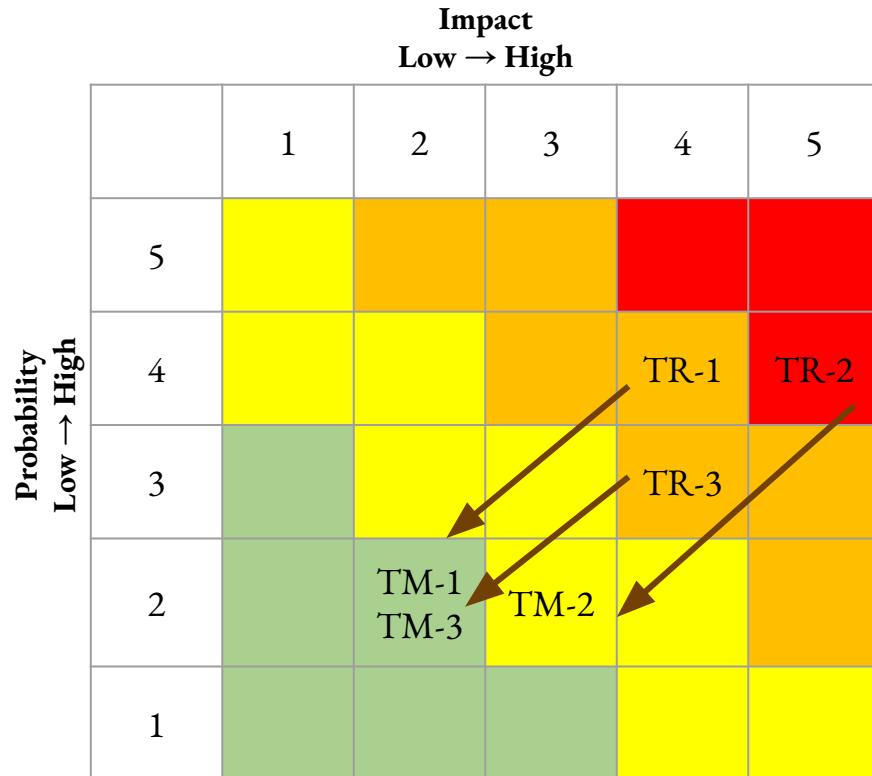
TR-3: Searches yield inconsistent results

## Mitigation:

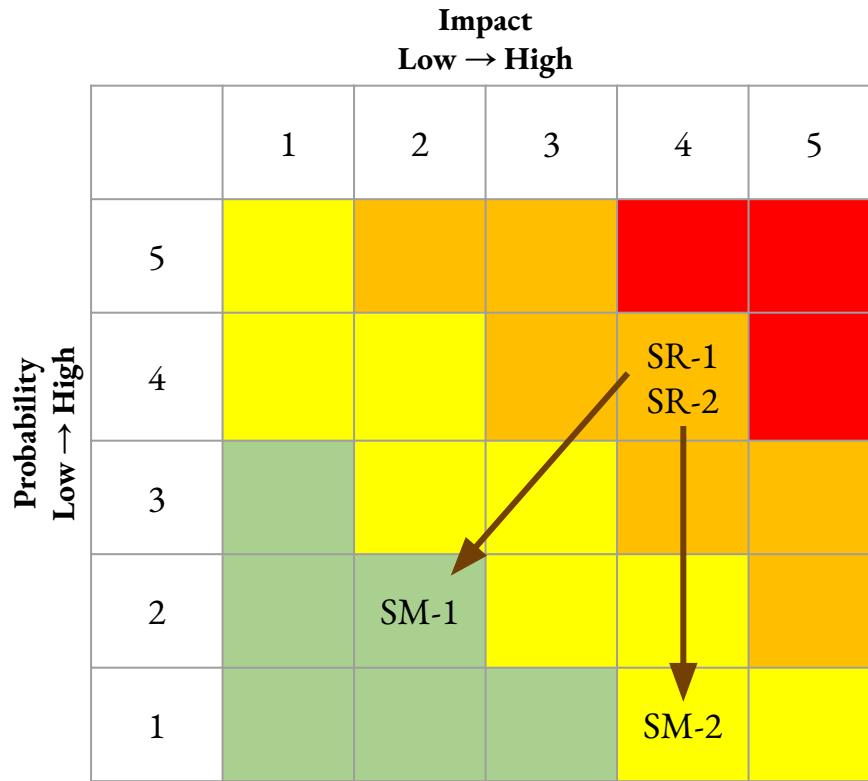
TM-1: Have backups of project data; pop-up

TM-2: Validate and sanitize all user input

TM-3: Test searching functions with datasets; filters and related search functions



# Security Risks



## Risks:

- SR-1: User is not enrolled in school
- SR-2: Unauthorized access to student accounts

## Mitigation:

- SM-1: Require verification through school email (.edu email)
- SM-2: Hash and salt passwords, utilize two-factor authentication

# Security Risks

## Risks:

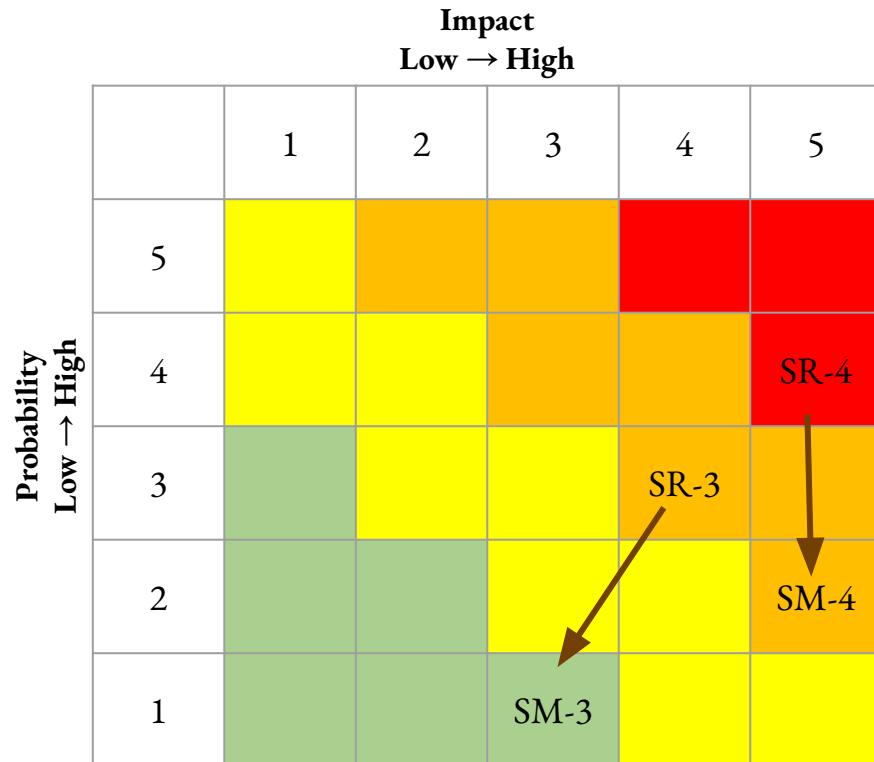
SR-3: Malicious files associated with project

SR-4: Malicious link is shared

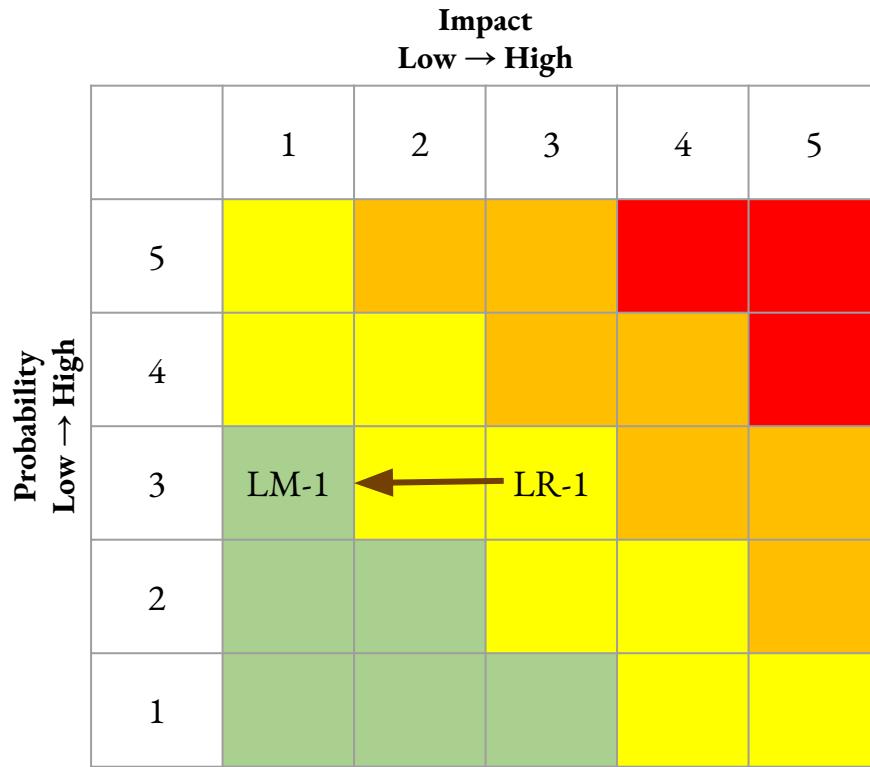
## Mitigation:

SM-3: Scan files for viruses and malware before accepting, restrict file types

SM-4: Warn users that a link leads to a third-party website



# Legal Risks



## Risks:

LR-1: Academic integrity violations

## Mitigation:

LM-1: Explicitly state in the Terms of Service; ban violating accounts

# Real World Product vs. Prototype

RWP Features & Functionality	Prototype
Create/edit posts	Planned
Create/edit user profile	Planned
Tagging system (for user profiles and posts)	Planned
Search posts (by keyword, by tag, filters)	Planned
Search profiles (by name, by tag, filters)	Planned
Leave reviews on user profiles	Deprioritized
View a list of posts by a particular user	Planned

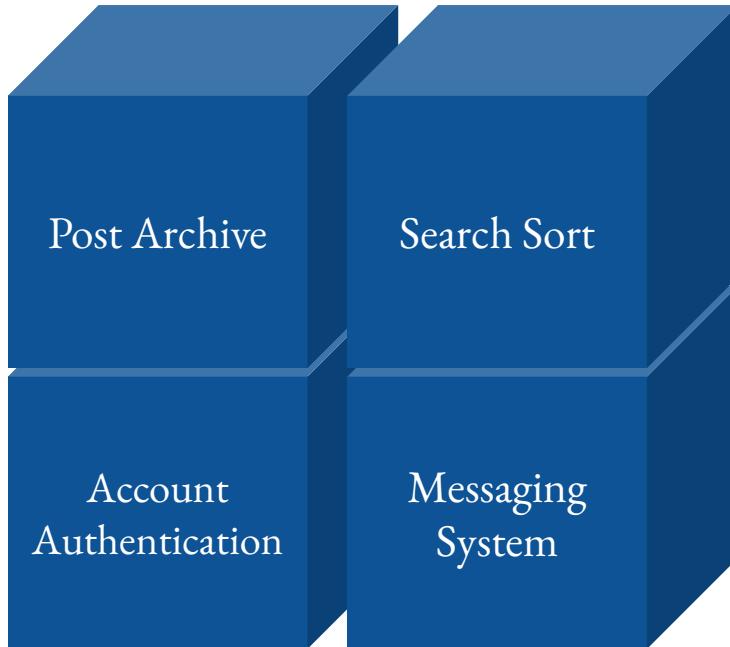
# Real World Product vs. Prototype (cont.)

RWP Features & Functionality	Prototype
Messaging system (via post, via profile)	Planned
Upload files (on posts, through messages)	Deprioritized
Language moderation system (for posts and messages)	Deprioritized
Report posts	Deprioritized
Log in (via school email; 2FA, hashed & salted passwords)	Planned (Partial)
Sample projects	Planned

# Development Model

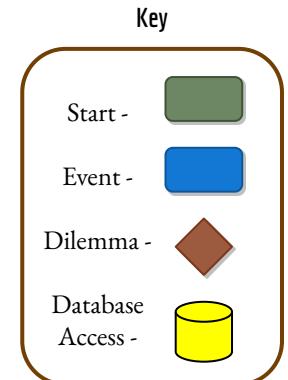
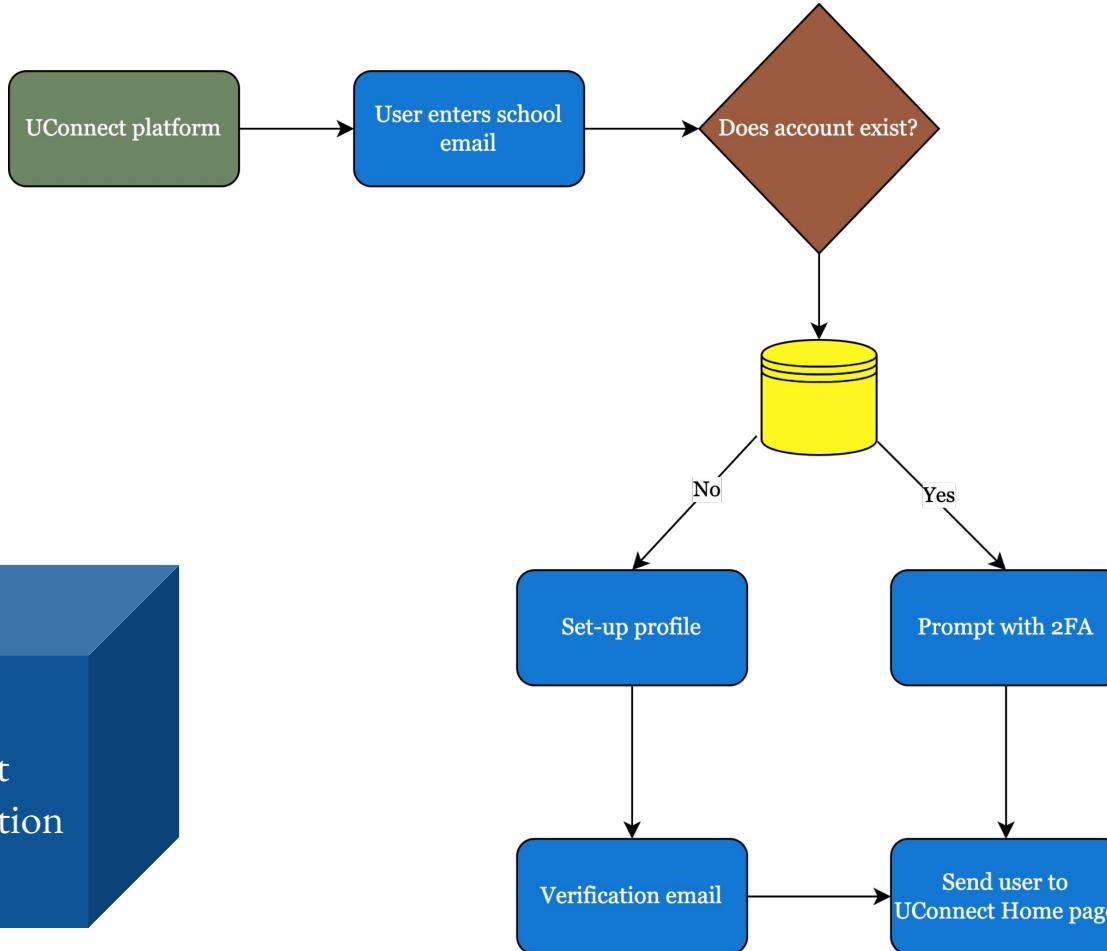
## Agile

- “Complete” project within a semester
- Adapt to unknown factors (problem complexity, time)



# Algorithms Overview

# Account Authentication



# Home Page (Mockup)

**UConnect**

Search Launch My Projects Inbox Account

 Logged in as Ariella Smith

[Log out](#)

## Welcome to UConnect!

On UConnect, you can connect with other students to make your ideal project, or find other projects that would benefit from your skills.

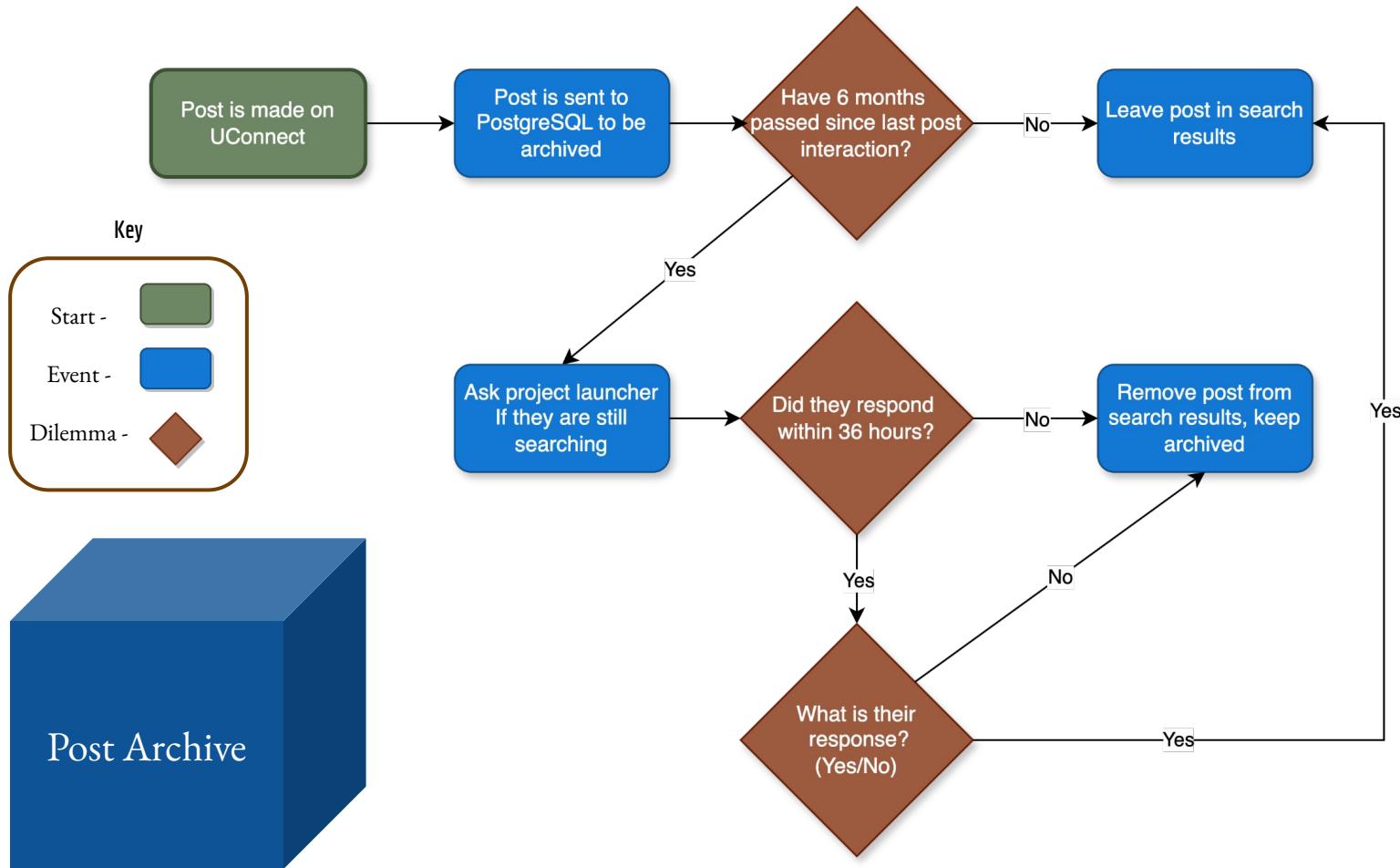
Click on Search to find a project, Launch to create a project, or My Projects to view projects that you are currently involved with.

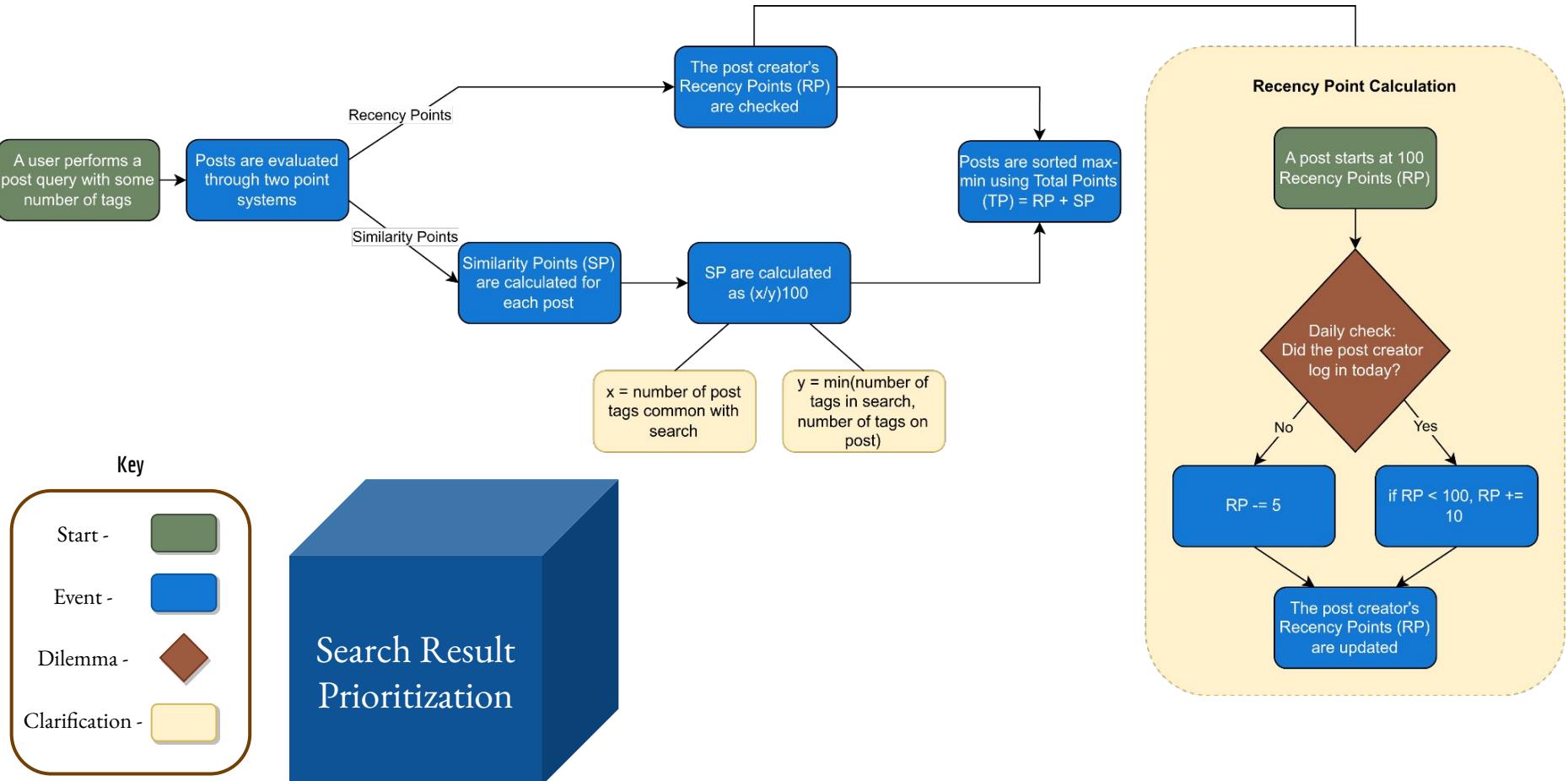
Stuck? Need help writing the perfect post? Check out our [Guide](#) on how to write an effective UConnect post.

Latest Activity

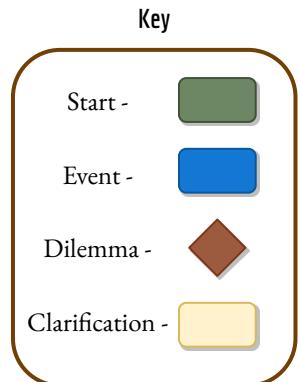
You received a response to your post!

Someone reviewed your profile.





# Search Result Prioritization



A user performs a post query with some number of tags

Posts are evaluated through two point systems

Recency Points

Similarity Points

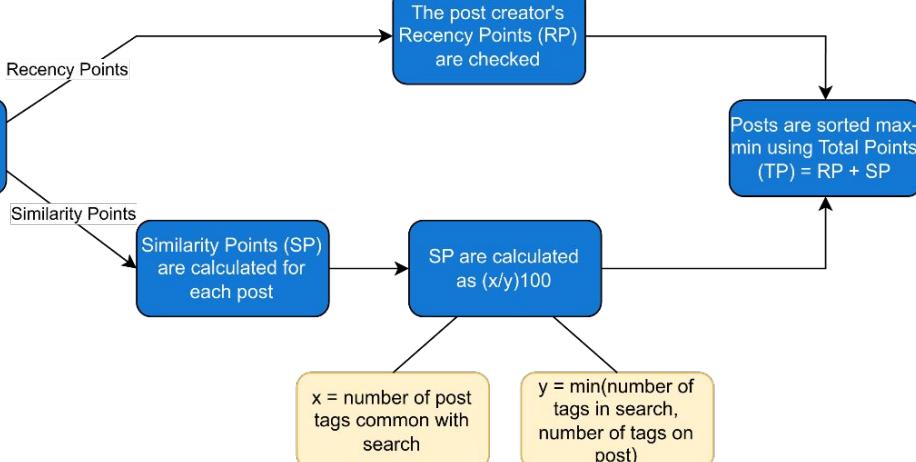
Key

Start -

Event -

Dilemma -

Clarification -



## Recency Point Calculation

A post starts at 100 Recency Points (RP)

Daily check:  
Did the post creator log in today?

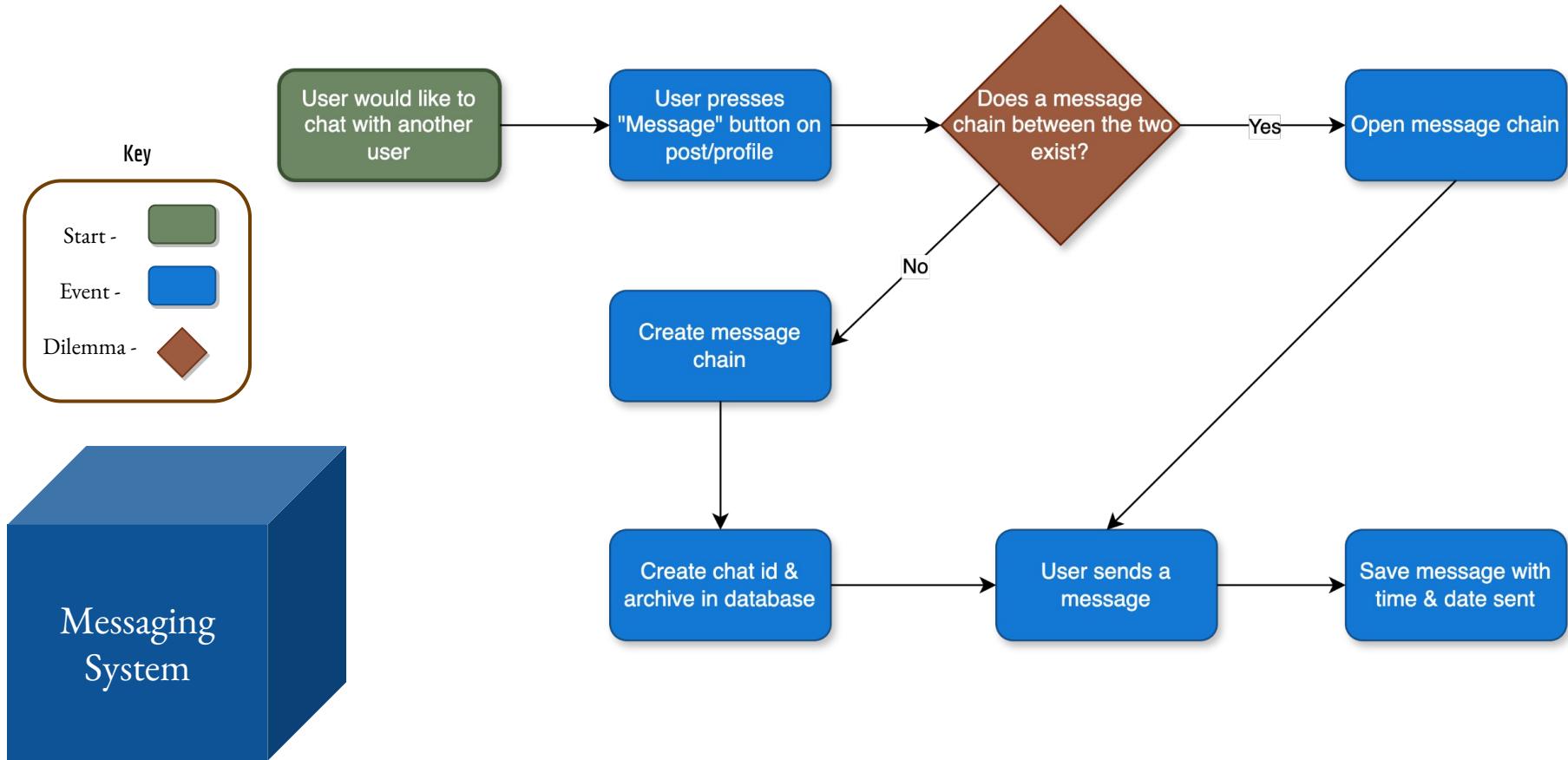
No

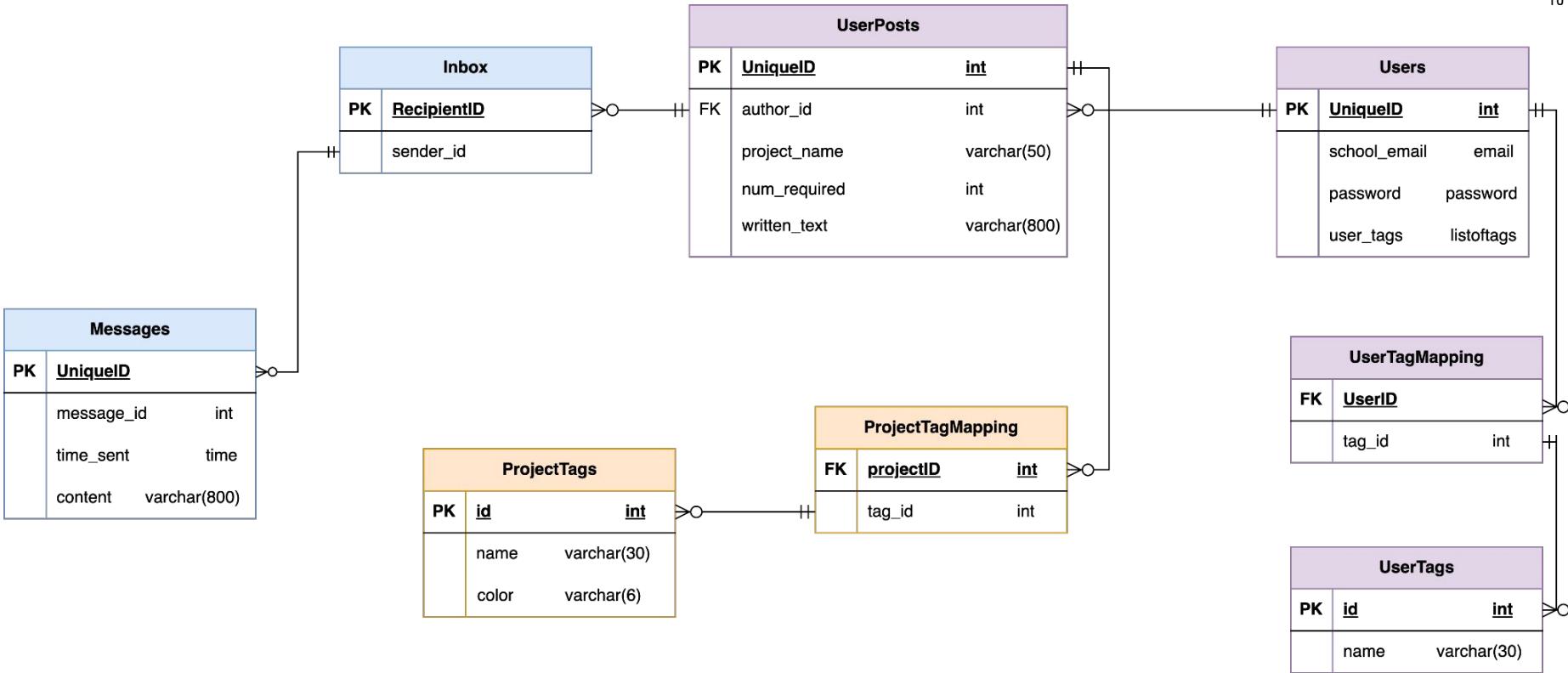
RP -= 5

Yes

if RP < 100, RP += 10

The post creator's Recency Points (RP) are updated





# Database Schema

# Conclusion

- Entry-level employers want candidates to be able to apply the skills they claim to possess on resumes.
  - Some skills are better demonstrated in tandem with other, unrelated skills (ex. “good” comedic acting requires writing and directing skills)
- *UConnect* provides students with a platform to post and search for projects to create experience before applying to the workforce.
  - Using *UConnect* will help students develop necessary social skills.

# References

Fiverr International Ltd. (2024). Fiverr - Freelance Services Marketplace. Fiverr - Freelance Service Marketplace.  
<https://www.fiverr.com/>

GroupMe. (2024). GroupMe - Where Your Group Chats Best. <https://www.groupme.com>

Kapoor, A., & Gardner-McCune, C. (2020). *Exploring the participation of CS undergraduate students in industry internships*. Proceedings of the 51st ACM Technical Symposium on Computer Science Education, 1103–1109.  
<https://doi.org/10.1145/3328778.3366844>

Korhonen, V. (2023, October 6). *Educational attainment in the U.S. 1960-2022*. Statista.  
<https://www.statista.com/statistics/184260/educational-attainment-in-the-us/>

Search, V., & Salton, H. (2022, January 31). *Experience inflation*. Verve Search.  
[https://dev.vervesearch.com/\\_temp/experience-inflation/#minimum-experience](https://dev.vervesearch.com/_temp/experience-inflation/#minimum-experience)

Upwork Global Inc. (2024). Upwork | The World's Work Marketplace. Upwork. <https://www.upwork.com>

Zehr, S. M. (2016). *Student internship experiences and learning opportunities: a mixed methods study* (dissertation).

Zhang, S. (2024). Handshake Overview. Handshake. <https://joinhandshake.com/blog/career-centers/handshake-overview/>

# References (Logos)

- Django Software Foundation. (2024). *Django logo*. The web framework for perfectionists with deadlines. Retrieved 2024, from [https://django.com/](https://.djangoproject.com/)
- Fiverr. (2024). *Fiverr logo*. Fiverr - Freelance Services Marketplace. Retrieved 2024, from <https://www.fiverr.com/>
- GroupMe. (2010). *GroupMe logo*. GroupMe. Retrieved 2024, from <https://groupme.com/>
- Handshake. (2024). Students | Handshake. Handshake. <https://joinhandshake.com/>
- Logo downloads*. Old Dominion University. (n.d.). <https://ww1.odu.edu/facultystaff/communication/toolkit/current-logos>
- The PostgreSQL Global Development Group. (2024). *PostgreSQL logo*. PostgreSQL: The world's most advanced open source database. Retrieved 2024, from <https://www.postgresql.org/>
- OAuth. (2024). *OAuth logo*. OAuth 2.0. Retrieved 2024, from <https://oauth.net/2/>
- React. (2024). *React logo*. React. Retrieved 2024, from <https://react.dev/>
- Upwork. (2024). *Upwork logo*. Upwork | The World's Work Marketplace. Retrieved 2024, from <https://www.upwork.com/>

# Appendix

Project Launcher, 5; a user who has a project that they are interested in recruiting students to work on

Project Seeker, 5; a user who is interested in using their skills to contribute to a project

UConnect, 11; a web application that allows college students to reach out to each other and work on projects for experience.

# User Stories

User	Story	Want or Need
Student	I would like to log into UConnect	Need
Student	I would like to be able to see reviews from other students	Want
Student	I would like to create my user profile to highlight my skill set and interests.	Need
Student	I would like to attach tags to my user profile so that my skills and areas of expertise can be quickly identified by viewers.	Need
College Admin	I would like to delete a student account so that toxic or problematic users cannot continue using the platform.	Want

# User Stories

User	Story	Want or Need
Project Launcher	I would like to create a descriptive post about my project idea in order to advertise it to potential team members	Need
Project Launcher	I would like to be able to attach tags to my project post so that the pertinent skills can be quickly identified by readers	Need
Project Launcher	I would like to be able to search for people who have the skills I need on my project so I don't always have to wait for messages.	Need
Project Launcher	I would like to be able to see my existing project posts so that I can keep track of which ideas I have already shared.	Need
Project Seeker	I would like to browse existing project posts in order to find an idea I am interested in working on.	Need
Project Seeker	I would like to message a project launcher to express interest in working on their project.	Need