

SW Engineering CSC648/848 Spring 2021

## **PipeWave**

*"The Fast-Track from Student to Professional"*

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Section 02, Team 04

Milestone 2-- 3/9/2021

### History Table (Revision Summary):

03/09/2021: Document Created

04/01/2021: Revised P1 & P2

04/03/2021: Revised P1 & P2

## **1. Functional Requirements**

### Priority 1-

1. *All users* from verified schools or companies shall be able to register and create accounts on the website
2. *All users* shall be able to update their profile information
3. *All users* shall be able to view other's profiles
4. *Students* shall be able to upload resumes to their profile in a pdf format
5. *Students* shall be able to enter any demographics, experience and education to customize their profile
6. *Industry Professionals* shall be able to search for new graduates or students by major and demographics
7. *Industry Professionals* shall be able to register and get alerts for matching student or new graduate profiles
8. *Industry Professionals* shall be able to leave recommendations on students or graduates
9. *Professors* shall be able to rate students on a scale from 1-5
10. *Professors* shall be able to enter recommendations/reviews for students

### Priority 2-

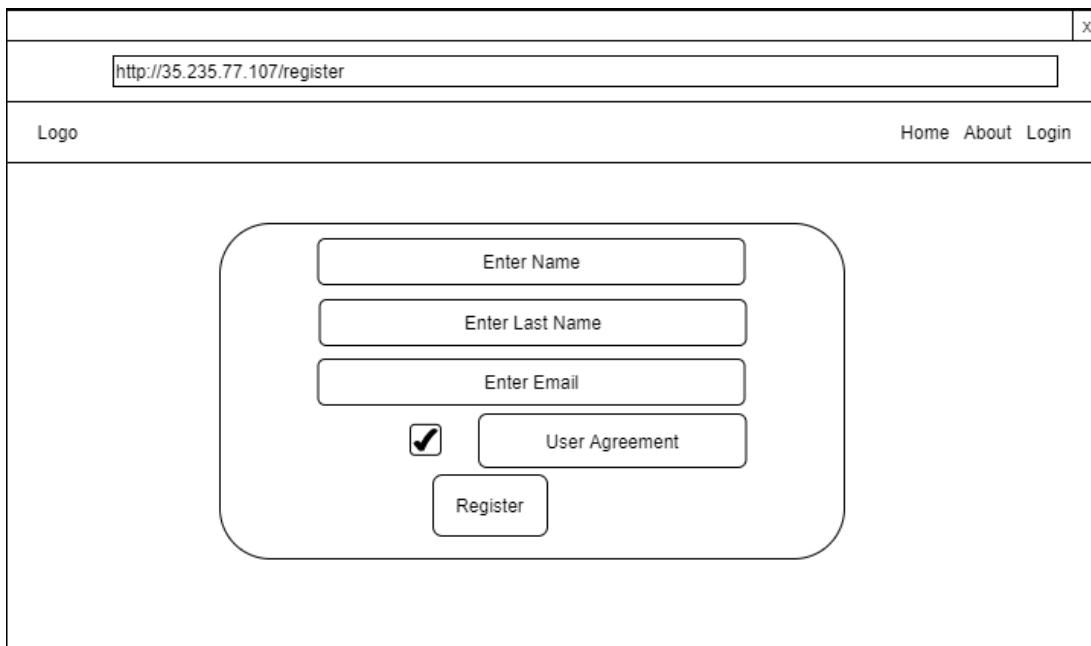
1. *All users* may be able to view reviews left on employer or employee profiles
2. *All users* may have the ability to use an in-site messaging system to communicate with other registered users
3. *Students* may be able to upload videos to their profile in supported video format
4. *Industry Professionals* may be able to follow profiles of candidates that they may be interested in without notifying them
5. *Industry Professionals* may be able to search for professors by demographics or subjects
6. *Industry Professionals* may be able to flag or notify a candidate that they are interested in interviewing through the press of a button

### Priority 3-

1. *Students* may be able to follow other students or companies that they are interested in without sending notifications
2. *Students* may be able to leave recommendations for other students
3. *Professors* may be able to enter any demographics, experience and subjects that they teach to customize their profile

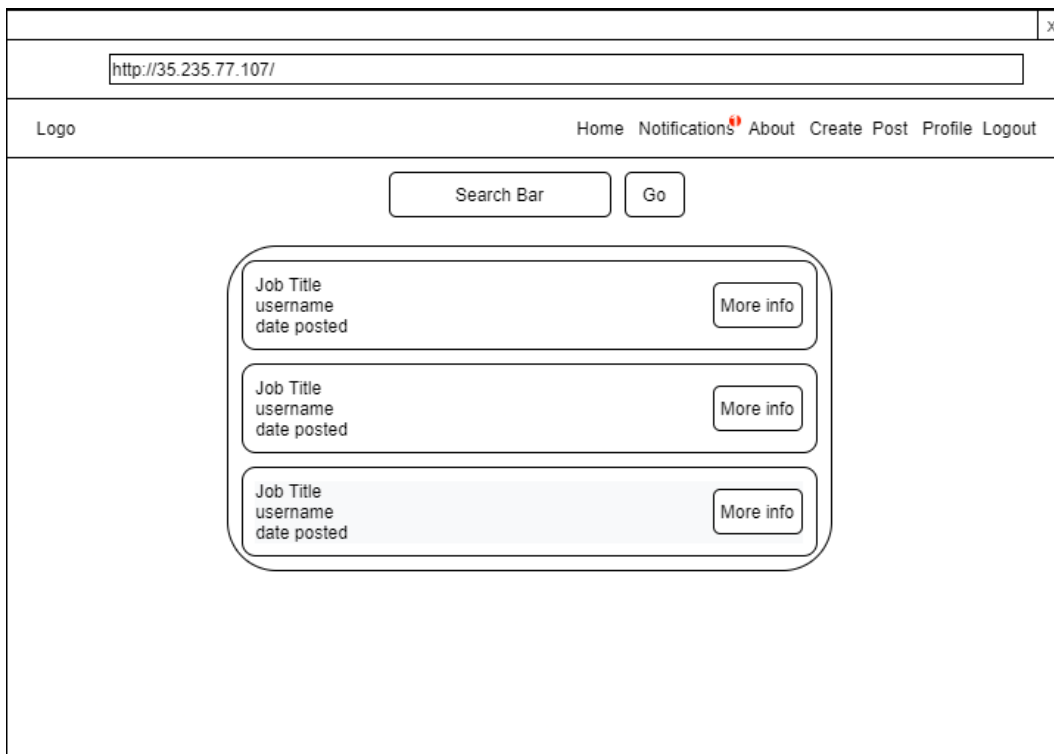
## 2. UI Mockups and Storyboards (front end)

### Main Use Case 1: Recent Graduate Looking for a Job



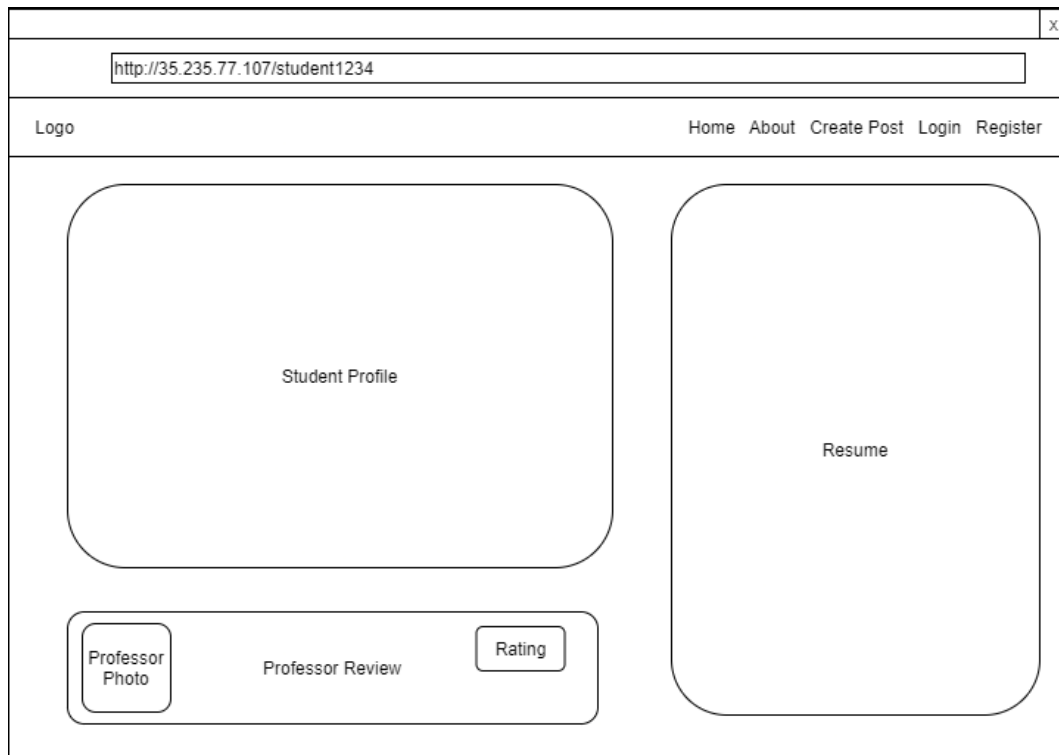
A web browser window showing a registration page. The address bar contains 'http://35.235.77.107/register'. The page has a header with 'Logo' on the left and 'Home About Login' on the right. The main content area features a rounded rectangle containing a registration form. The form has four input fields: 'Enter Name', 'Enter Last Name', 'Enter Email', and 'User Agreement' (which includes a checked checkbox). Below these fields is a 'Register' button.

John is new to the website so he enters his information on the registration page and clicks on 'Register' to create a profile.



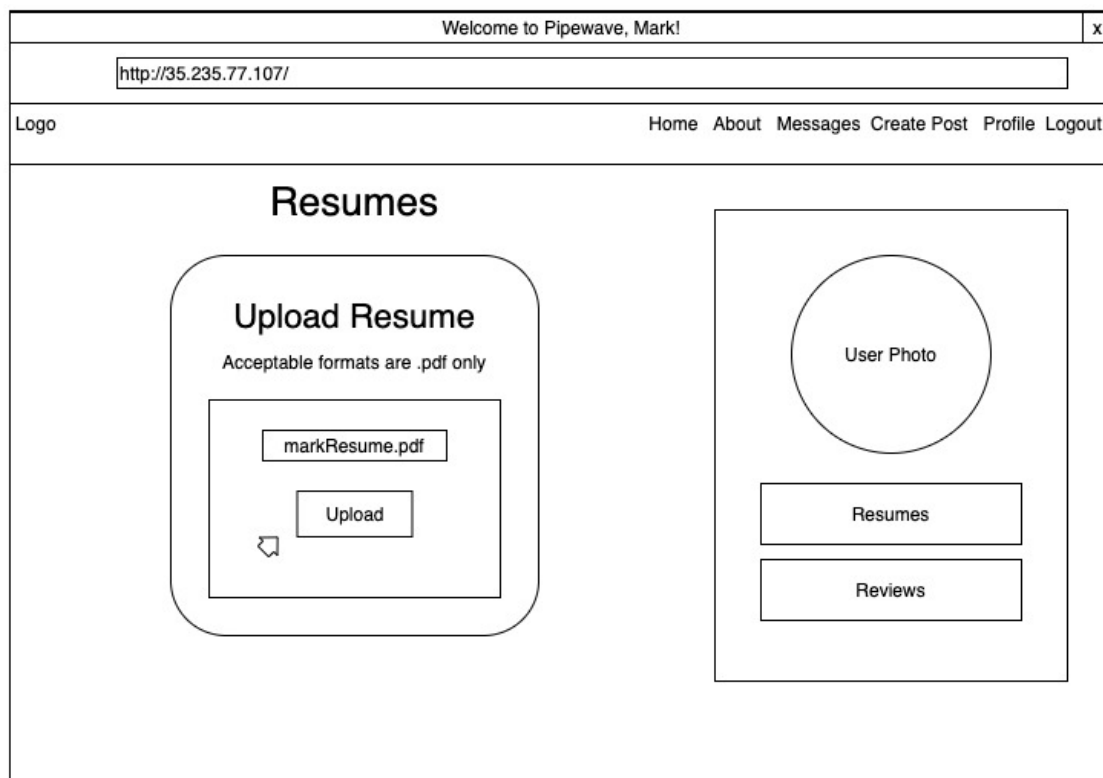
A web browser window showing a job listings page. The address bar contains 'http://35.235.77.107/'. The page has a header with 'Logo' on the left and 'Home Notifications About Create Post Profile Logout' on the right. The main content area features a search bar with a 'Go' button. Below the search bar is a rounded rectangle containing three job listing cards. Each card displays 'Job Title', 'username', and 'date posted', along with a 'More info' button.

A professor viewing the website gets a notification that John has joined pipewave and is in need of a review.



The professor leaves a review which is now displayed on John's profile.

## Main Use Case 2: Current student looking for internship



Mark selects a resume from his local device to upload to his profile, then clicks upload

Welcome to Pipewave, Mark!

x

http://35.235.77.107/

LogoHomeAboutMessagesCreate PostProfileLogout

Messages

search

Recruiter

Person 2

Person 3

Person 4

Person 5

Person 6

Chat with Recruiter

1 New Message

Recruiter 10:00AM, Today

Hi, Mark! I am a recruiter from Google and was impressed with your high rating and professor recommendations. We have some open positions for someone with your skillset, would you like to know more about it?

Yes, I'd love to!

Send

User Photo

Resumes

Reviews

Mark discovers a message from a recruiter with a potential job offer and replies.

### Main Use Case 3: Recruiter looking for overall talent

The screenshot shows a web browser window with the address bar containing `http://35.235.77.107/`. The page has a navigation bar with links: Logo, Home, Notifications, About, Create Post, Profile, and Logout. Below the navigation bar is a search bar with the text "Search Bar" and a button labeled "Go". The search results are displayed in a list of three items, each with a "More info" button. Each item contains the following text: "Job Title", "username", "date posted", and "Cloud Computing Experience".

Linda is viewing the website for potential talent and filters based off of cloud computing experience.

The screenshot shows a web browser window with the address bar containing `http://35.235.77.107/student1234`. The page has a navigation bar with links: Logo, Home, Notifications, About, Create Post, Profile, and Logout. The main content area is divided into two columns. The left column contains a large box labeled "Student Profile" and a smaller box labeled "Professor Photo" with a "Rating" button. The right column contains a box labeled "Resume" and a section titled "Recommendations" with three buttons: "Professor Recommendation", "Google Recommendation", and "Microsoft Recommendation".

Linda sees the profile she's interested in and clicks the tabs to view to view the company and professor recommendations

## Main Use Case 4: Current student looking for internship

x

http://35.235.77.107/

LogoHomeAboutCreate PostLoginRegister

Search BarGo

Filter

Race

African-American

Hispanic

Asian

Latin

Pacific Islander

Indigineous

Gender

Male

Female

Non-Binary

Job Title

Software Engineer

Disability ☒

U.S. Citizen ☐

Veteran ☐

Working Parent ☒

Single Parent ☐

Joseph, an employer, looks to recruit candidate using the search function, filtering by disability and working parent.

7

x

http://35.235.77.107/

Logo

HomeAboutCreate PostLoginRegister

Search Bar

Go

Filter

Job Title

Race

Gender

Disability☒

U.S. Citizen☐

Veteran☐

Working Parent☒

Single Parent☐

John Schmidt

Software Engineer

Disability

Working Parent

More info

Peter Wang

Software Engineer

Disability

Working Parent

More info

Greg Letterman

Software Engineer

Disability

Working Parent

More info

Michael Jack

Software Engineer

Disability

Working Parent

More info

Search results show up for Joseph, showing only disabled and working parent employees.

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### Main Use Case 5: Recruiter Creates Alert Page

Brenda begins to set up an alert page to follow recent graduates based on profile.

Alerts

Race

Community Service

Keywords

Leadership

Parent

GPA > 3.0

Disability

Sex

Gender

Veteran

Citizen

Create Alert

When a new candidate is found, Brenda is notified via website message system.

Welcome to Pipewave,Brenda!

x

http://35.235.77.107/

Logo

Home About Messages Create Post Profile Logout

Messages

search

Recruiter

Person 2

Person 3

Person 4

Person 5

Person 6

Alert

Alert 2:00AM , Today

1 new candidate has been found with your listed requirements. [\[Rebecca Smith\]](#)

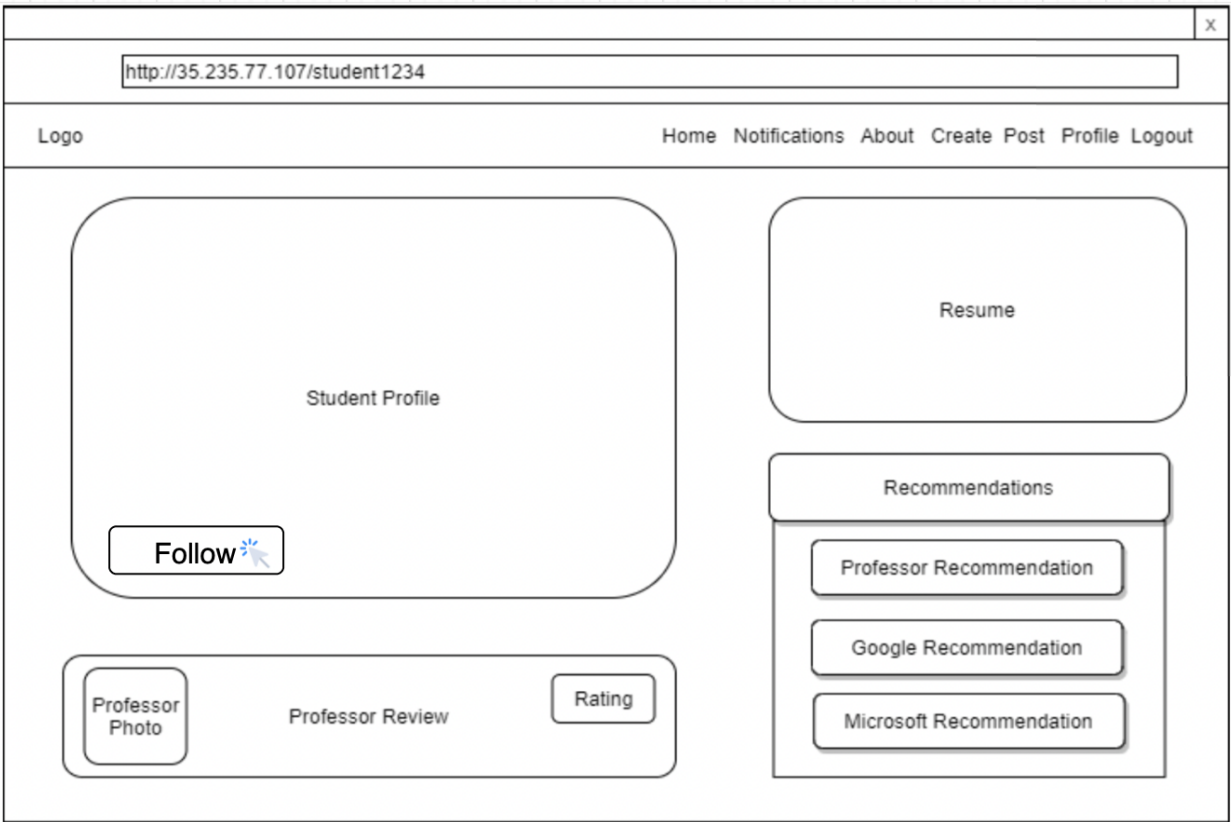
Send

User Photo

Resumes

Reviews

Additionally, Brenda can choose to follow other pages individually.



### 3. High Level Architecture and Database Organization

#### Database Organization:

Our team uses Mysql2 along with the mysql2 node package.

Currently we have a rough sketch of how our database will look.

#### Users Table

Column Name	Datatype	PK	NN	UQ	B	UN	ZF	AI	G	Default/Expression
id	INT	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
username	VARCHAR(64)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
email	VARCHAR(128)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
password	VARCHAR(128)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
usertype	INT	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	'0'
active	INT	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
created	DATETIME	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

#### Posts Table

Column Name	Datatype	PK	NN	UQ	B	UN	ZF	AI	G	Default/Expression
id	INT	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
title	VARCHAR(128)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
description	VARCHAR(4096)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
photopath	VARCHAR(4096)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
thumbnail	VARCHAR(4096)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
created	DATETIME	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
fk_userid	INT	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

#### Comments Table

Column Name	Datatype	PK	NN	UQ	B	UN	ZF	AI	G	Default/Expression
id	INT	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
description	VARCHAR(1096)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
fk_postid_c	INT	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
fk_userid_c	INT	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
created	DATETIME	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

#### Media Storage:

Our files (videos, images, audio) will be stored in file systems for our server.

**Search/filter architecture and implementation:**

To use search, we concatenate first and then search by using haystack. After users have entered their search request, the results would organize where users scroll down of all the results matching what they were searching for. The database terms would be centralized around the title of other users posts that they have created as well the username of other users.

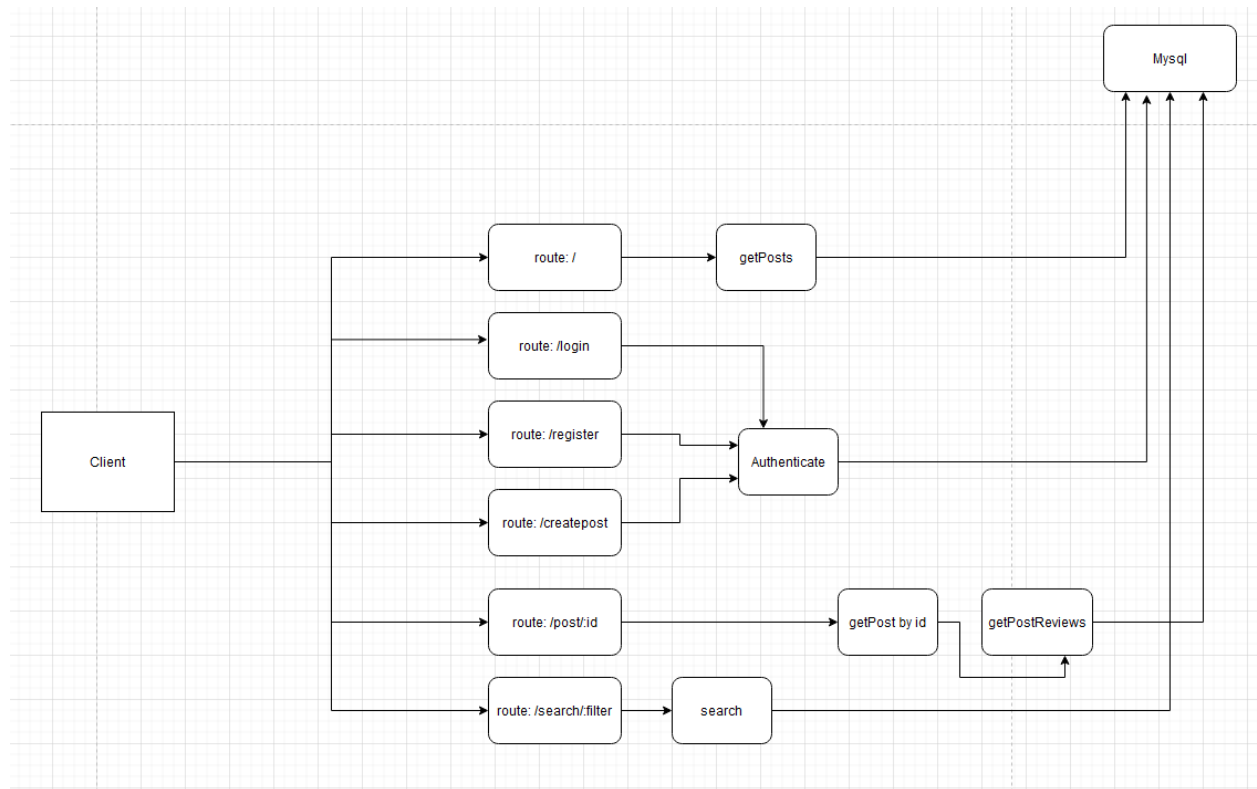
**Our own APIs (if any):**

Currently, there's no plan of using our own APIs.

**Non-Trivial Algorithms or processes (if any, like ranking, etc):**

Utilizing mysql functions to get the reviews, where users are reviewed based on their profile. The review system can be based on a rating of 1-5 stars, as well as a post on their profile by a professor that will display some written feedback.

## 4. High Level UML Diagrams



## **5. Key Risks**

1. (*legal/content*) Possible legal issues surrounding the search filter system. Allowing people to filter by marginalized groups tends to be a controversial social justice issue that could work against those who disclose any protected classes.

Solution: It is decided to move forward with this functionality while understanding that it may at some point need to be changed or modified.

2. (*skills*) We have decided upon using Handlebars as a frameworks, however, only one team member from the back-end currently is familiar with it.

Solution: All of the front-end team will have to study up on how to use it in order to take advantages of the benefits and conveniences of using it.

3. (*skills*) Our current codebase was primarily built by one individual team member and as such, the rest of the team may not understand all of the ways that the code is connected and how to modify it. This creates unnecessary obligation to the individual who built it, as they have to spend time guiding other teammates through the process.

Solution: The builder may have to meet with the team to explain the code base in detail, to familiarize everyone with the specifics of exactly how it works

4. (*skills*) Some teammates are not familiar enough with web dev in order to make autonomous contributions to the project without guidance or mentoring by another teammate.

Solution: The solution to part 3 may be able to assist in this. Otherwise, these teammates will have to do some independent study in order to prepare themselves to contribute. Or the teammate most familiar with the project can assign small attainable tasks for them to complete.

5. (*teamwork*) It can be difficult to delegate individual tasks to all members of the group because of the problems listed above in number 3.

Solution: The teammate most familiar with the code base should be the one to assign these tasks, or effectively communicate or list the precise features that need to be implemented.

6. (*teamwork*) Coordinating meetings and communicating tasks to members can become a problem if some or all teammates don't regularly check our Discord channel for updates or info.

Solution: Team leader should be responsible for making sure all teammates are regularly checking the channel, and if necessary sending group text messages to alert the team of any updates.

7. (*schedule*) Team members might have personal issues and other commitments that will prevent them from working as hard as needed on this project.

Solution: Members can update the team or team lead whenever anything comes up that may present a problem, so that tasks can be redistributed, or that certain features can be adjusted in terms of priority.



## **6. Project Management**

\_\_\_\_\_ In the planning of Milestone 2, we decided to break up the team into its respective front and back-end teams. The front end team decided to meet and discuss plans for revising and organizing the functional requirements, as well as plan out storyboards and assign each use case. After the front end team planned and distributed tasks, it was to all be completely asynchronously.

The back end team was given autonomy to plan their meeting and work sessions to tackle the high-level architecture and database organization sections, for them to complete asynchronously and independently. We are keeping track of progress through a shared google document, as well as the creation of a Milestone2 channel on our team's Discord channel, in which the team lead listed all of the tasks to complete and their status. It was decided by the team lead against using an external service like Trello for the sake of keeping all of the team's updates, resources, and discussions all in one place which is easy to manage. It is worth noting that a google group was created for Team Pipewave to easily keep track of and share all documents related to this project.

As for future tasks, the team will be dividing the Vertical Prototype milestone into front and back end teams. The back end will be responsible for tweaking and polishing our already existing search prototype, and the front-end will adjust the user interface to be more streamlined and in-line with the wireframe designs in this document.