

# **Final Report**

# **Bubble: The Study Buddy Finder**

**By**

Cirjeffrey Baldomero, Ivan Vu, Sarah Nuno, Yufei Ma,  
Robert Gama, Christopher Gonzalez

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## Project Scope

Our group created a web application project called Bubble. The purpose of this project was to create a social application that encouraged students to meet together in order to work on anything school related. To accomplish this, users can create study groups that other students can see and join. These user created groups would contain information that would interest potential group mates such as meeting locations, majors and class sections that the group plans on focusing on, and other notes. A secondary function that the website provides is a public bulletin board function that can be used to publicly post information for all users to see. We aim to help students not only be more proactive in their studies, but to also socialize with students in their field or classes.

## Team Roles

- Cirjeffrey Baldomero: Web design team member. Styled website based on theme
- Ivan Vu: Created theme of website and helped create web pages
- Sarah Nuno: Helped plan web design interface and aided in building the web pages
- Yufei Ma: Aided in building web pages, created UML and a navigator that links pages
- Robert Gama: Database designer and PHP implementor
- Christopher Gonzalez: In charge PHP implementation and database linking

## Technology/Tools

### Languages

- HTML/CSS
- Javascript
- PHP
- mySQL

### Other

- Database Design
  - phpMyAdmin
- XAMPP and apache
- Webstorm
- Github.com
  - Managing code
- <https://www.w3schools.com>
  - Used for reference in DB design

## **Previous Iterations**

### **First Sprint**

In our first sprint, we began by brainstorming ideas for our project. We decided on which tools we are going to use to complete the project. We also completed the basic designs of the first three web pages using wireframes, and created user stories for them. We were able to create basic UML diagram and CRC cards.

### **Second Sprint**

In our third sprint, our front end developers implemented some of the wireframes into actual webpage's in basic HTML, while our back end developers implemented our ER diagram into an actual database, and began the process of linking our login page and database.

Along with this, our graphic designer created an early version of our logo design and overall theme of our web application.

### **Third Sprint**

The third sprint, which was our final sprint for the class, we finished all the webpages and were able to have them follow the overall theme that was created in this second sprint. We also provided more labels and descriptions to make each of the web pages more user friendly and easy to navigate and consistent.

As for the functionality of the site, we were able to accomplish most of functionality we set out to have, with a few exceptions that are planned to be finished in the next few sprints. This means we were able to allow users to create groups, search for groups, as well as post to the websites bulletin board.

For the design of the logo and website, we were able to get a more polished logo that will represent the application as well as character designs for future mascots of the website that for now are used as default profile pictures.

## **Accomplishments/Setbacks**

### **Website Implementation**

We decided to not use a framework when designing the website. This provided our team with the advantage of being able to control every single part of the website without having to worry about components we did not need. We were able to keep our code minimal and clean which also made it easy to find errors and debug. This was a big accomplishment for our group since the pages we wanted to work were functional without any big errors.

In our most recent iteration, we came across a few issues. We did not think about how our theme would look like in a brightly lit classroom which led to the colors looking very bright during the demo. Another issue was that we did not have a good variety of user stories. The testing was heavily contained within the group and so we did not have a variety of feedback from outside sources.

One thing we were not able to get working was hosting our website on the internet. We decided to focus on getting the website to work locally for the sake of the demo. In future iterations, we had planned on implementing a web hosting service that we can get outside users to use and test our project.

### **Database Implementation**

For the creation of the database, due to lacking prior knowledge of MySQL language, as well as the software MySQL Workbench, a lot of research was done before the implementation of the database. Once this research was done, we began troubleshooting issues brought by MySQL Workbench and it not allowing us to connect to the local host. After successfully getting MySQL Workbench to work properly, the creation of the tables that will hold the data in the database was completed with no issues.

Next, we set out to link the login and sign up page with the database using PHP. Linking the login and sign up page took some time because we didn't know much about PHP. It also took a while to setup a machine to actually code in PHP. After a full day's research and installations, we were able to start coding in PHP to add users to the database and check the database during login. We have taken measures to make sure the password entered into the database is secure. Once we started working with PHP and PHPmyadmin, we dropped MySQL workbench and started solely using PHPMyAdmin for the rest of the project.

A problem that occurred while linking the pages to the database was that since the login and signup page were in one html file, and the signup form was inside of the login form, it was necessary to create separate pages for a login and signup. Another problem we faced is that the signup page had unnecessary input fields that needed to be cleared out and replaced for inputs we needed for the web app. The way we dealt with this was hard coding test variables to insert into the database until we tackled the issue.

As the creation of the website continued, we found that the database had to keep growing. We not only had to keep adding new tables with multiple rows as well as adding relationships across the tuples inside the tables.

In order to test the functionality of the website in a browser, we had to install a local server, in our case we used XAMPP. For the back end developers this worked fine since we just had to change the extension of the early HTML files and then we could write PHP in the files and successfully run in the browser. The issue occurred when the rest of our team wanted to style the PHP files that we had been working on.

The way we overcame this issue was by teaching our team mates on how to install the needed software in order to run the PHP files in a browser. After this the front end developers were able to work on the styling of the site with CSS.

Ultimately, we were able to accomplish a lot of the functionality we set out to accomplish and we were happy with that.

## Website Theme and Logo Design

For the rough draft of our logo, we decided to go with the three animal buddies hanging out together. The bunny and the dog represent two-somewhat-of-a-strangers thus given the unemotional faces. The cow in the middle represent our webapp, Bubble. One of Bubble's goal is to go help individuals gather together to form a study group. And this is demonstrated by having the cow smiling in the middle putting its arm around the bunny and the dog to help the two to get along. As a whole, everyone is hanging out just like a bubble.

For the final draft of the logo, we decided to get rid of the three buddies and went more of a professional looks and feel. The three buddies, though, gave the a friendly welcoming feel for the user, it took away the professional looks and feels out of the website. Thus, we took out the three buddies. One functionality of the logo button is to link back to the homepage. We know that we had to make the logo somehow feel welcoming to click on. Thus, coming up with a design that looks professional is important. So for the design of the new logo, the foreground is a three solid colored bubbles with the phrase "BUBBLE STUDY BUDDY FINDER" in the middle. These bubbles represent the three previous buddies. The colors of these bubbles were dark color contrasting with a bright yellow text in the middle to stand out.

Again, one of the challenges when designing the overall theme was the balance of aesthetic and the ease-to-navigate. The design definitely had to be easy for the user to navigate through each component of the page and at the same time having enough aesthetic elements for easing the eyes. For the background, we decided to go with a light creamy color theme to make the website visually appealing and make the main components of the website stand out. Another benefit of having a light color theme is that the light color can mix well with other dark colors on the spectrum. This means text with colors such as black can easily stand out more making it easy to read.

## Testing Bubble

During the development of each part of the website, we each did simple tests to see if we got the results we wanted. During the development of the login and signup components, we did testing to make sure that we did not get blank or invalid inputs. During the styling of the pages, we decided on the colors/look through trial and error while in development.

We also tested each other's completed component as we integrated the components together. When the bulletin board was done, we tested to see what would happen if we entered blank inputs, the pages didn't handle them as expected, so we contacted whoever made it and told them the bug for a quick and easy fix. When the pages were nicely styled we checked to see how long inputs were handled, they went off page and made the page look weird, so again we tried to fix that.

We weren't able to do any load testing because we didn't get the website running on a server.

## Reflection on Overall Project

One thing we could have improved was setting up more deadlines besides the deadlines set for the whole class in order to focus on working on one individual task at a time. However, we were able to accomplish the task that we set out to in each iteration because our communication was excellent between the members. Messages were replied to quickly and thoroughly so that everyone was on the same page.

When planning on what to work on this project, team members split up to work on aspects of the website that they were comfortable with. Coming from different backgrounds and experiences, each team member had their own set of skills that they were able to apply to their parts. Throughout the development process, we all had to learn new programming languages and processes in order to get the website to work how we wanted. Members had no problem teaching one another and providing support when it came to areas that others were unfamiliar with. This helped everyone not only learn new individual skills but also how to work together as a team.

## **Future Iterations**

### **Fourth Sprint**

- More functionality on user profiles
  - edit profile
  - change your default picture
- Friends functionality
  - add friends
  - manage your friends list(delete friends)
- Edit Group functionality
  - invite a friend to your group
  - if you are a creator of one group, you have access to manage members of your group
  - be able to quit group
- Detailed restrictions on username, password, email address

### **Fifth Sprint**

- Web hosting
- Chat system between users
  - group chat
  - private chat
- Integration with universities
- More security
  - password on private groups,
  - secure database for storing data,
  - SSL for an encrypted link between our web and a browser
- A “forgot my password” functionality using user’s email or cell phone number to find the password

### **Sixth Sprint**

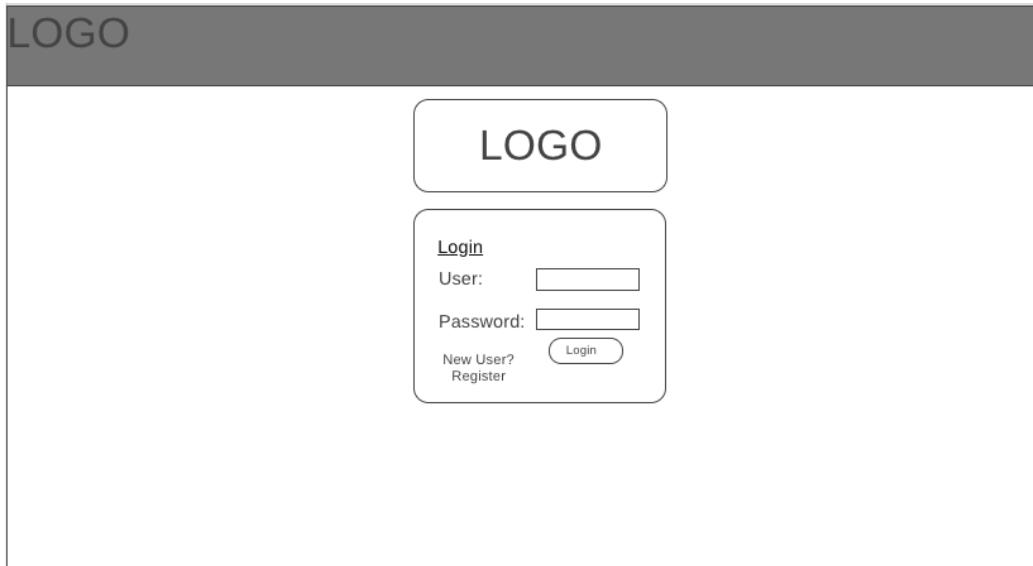
- Give access for visitors (non-members) to the recent groups and recent bulletin board
- Showing recent groups and bulletin board on login page
- Introducing certified accounts for instructors of the university

## **Wireframes and User Stories**

Below we have most of the wireframes that were created along with their respective user stories. We set out to have wireframes in order to give us a sense of direction for the navigation

of our site, as well as functionality but we made sure to not be restricted by these diagrams, which is why some appear different from our current product.

## Login Wireframe



### **Login User Stories:**

**User:** I want to be able to register as a new user.

**Administrator:** I want the user to be led to a different page made for the sole purpose of registering as a new user.

**User:** I want to be able to sign-in as a pre-existing user.

**Administrator:** I want the user to enter their username and password. When the user hits login I want the user to be sent to a different webpage, which gives them more accessibility.

## After Login Wireframe



### Page After Login User Stories:

**User:** I want to click on the “Find Study Group” that will lead me to a “search group” page that will display the existing groups and let me input a search to find the group i want.

**User:** I want to click on Create Study Group, that will lead me to the create study group page.

**User:** I want to click on View Bulletin Board, that will lead me to a page containing the bulletin board.

**User:** As a user I want to be able to navigate to editing/viewing my profile/account.

## Create Group Wireframe

The wireframe shows a user interface for creating a group. It includes a logo placeholder at the top left, a user name dropdown menu at the top right containing 'my profile', 'my groups', and 'sign out', and a main form area with fields for Section/Subject/Class, Group Name, Participants Wanted, Introduction, Location, Date, and Time. Below these fields are two buttons for 'Public' and 'Private' visibility, and a central 'Create Group' button.

canvas: 1025/600px

## **Create Group User Stories:**

**User:** As a user, I want to create an event to finalize when my group members and I are going to meet in real life.

**Administrator:** I want the user to enter their class information and a name for the group.

**User:** As a new user, I want to introduce myself and communicate with my group members.

**Administrator:** Allow the users to create a chat group to easily communicate with each other.

**User:** As a user, I want to be able to leave my group once I'm done with the class.

**Administrator:** I want the user to enter their class information and a name for the group.

## Find Group/Search Group Wireframe

The wireframe illustrates a user interface for finding or searching for study groups. At the top, there is a dark grey header bar with the word "LOGO" in white. Below this is a white content area containing a table of study groups. The table has three columns: "Class", "Creator", and "Participants". Each row contains a group name, its creator's name, the number of participants, and a "Join" button. A vertical scroll bar is visible on the right side of the content area. At the bottom of the content area, there is a message saying "Didn't find what you were looking for?" followed by a "Create a Group" button. At the very bottom of the page is a dark grey footer bar with links to "Home | About | FAQS".

Class	Creator	Participants	
CPSC 315	BOB	1/4	<input type="radio"/> Join
CPSC 362	JANET	3/4	<input type="radio"/> Join
MATH 338	DAVE	5/6	<input type="radio"/> Join
POSC 100	WU	3/4	<input type="radio"/> Join
MATH 270A	IVAN	1/6	<input type="radio"/> Join

Didn't find what you were looking for?  
Create a Group

Home | About | FAQS

## **Find Group/Search Group User Stories:**

**User:** As a user, I want to be able to find an existing study group so that I can join the group.

**Administrator:** When given a search criteria, if no results are found, ask the user if they would like to create their own group.

**User:** As a user, I want to click the group name and be sent to a webpage that displays the group info.

## Bulletin Board Wireframe

The wireframe shows a 'Bulletin Board' title at the top. Below it is a table listing five posts. Each post row contains the subject, creator, number of replies, and a 'View' button. A vertical scroll bar is on the right side of the table. At the bottom right of the main area is a 'Post New Thread' button.

Subject	Creator	Replies	
Book 4 Sale	Bob	3	<button>View</button>
cpsc 362 Prof recommendations???	Janet	5	<button>View</button>
wuts gud to eat around csuf!?	Wilson	10	<button>View</button>
help!!!!!!	Becky	0	<button>View</button>
best nap spots?	Ivan	21	<button>View</button>

**Post New Thread**

### **Bulletin Board User Stories:**

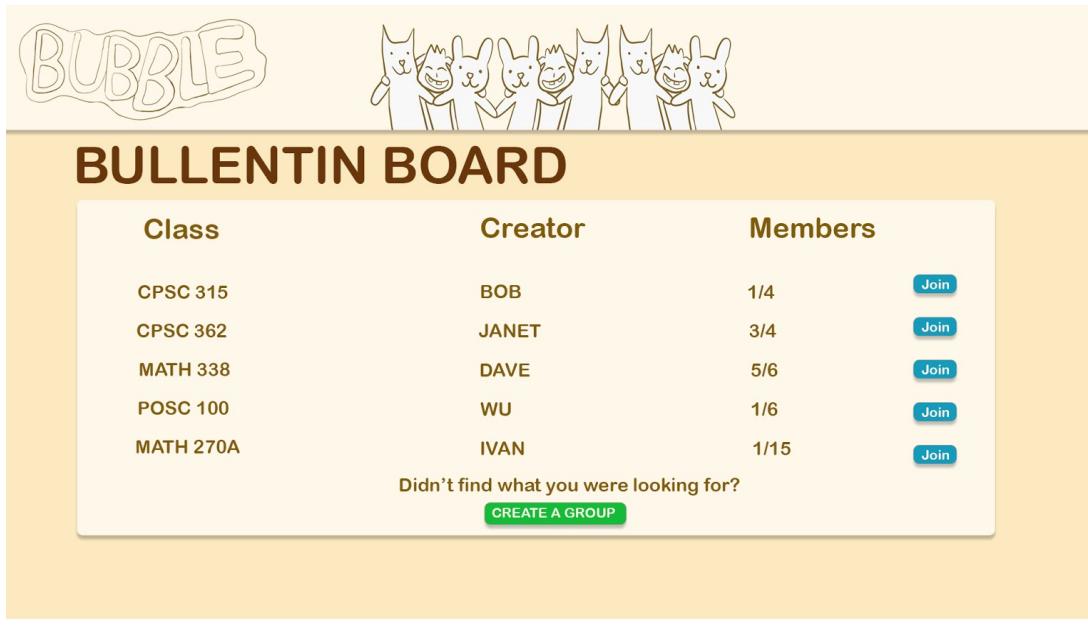
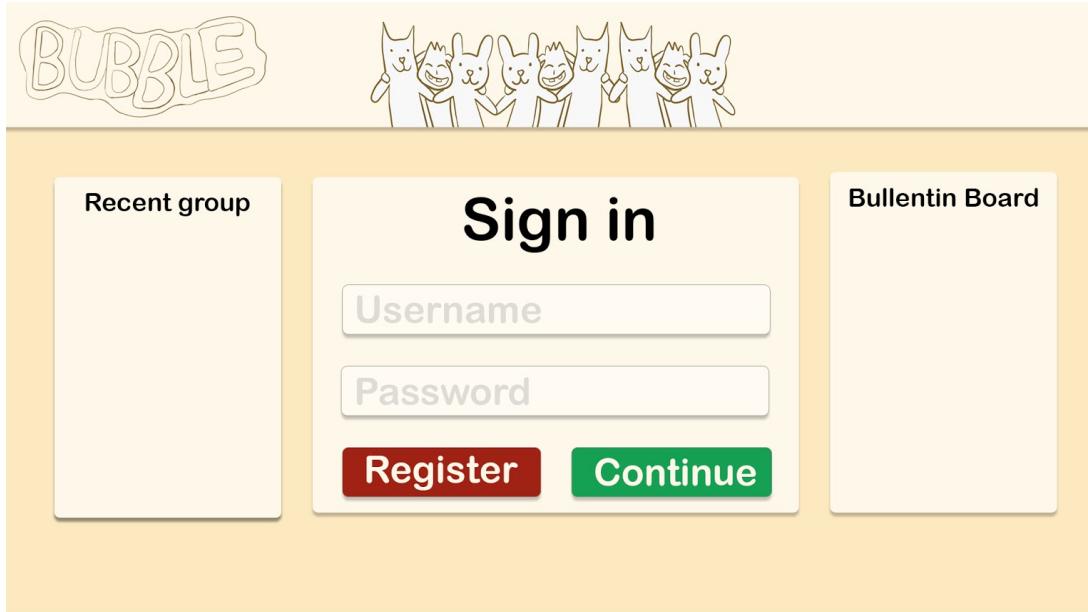
**User:** As a user I want to be able to view posts in the bulletin board as well as make a new post.

**Administrator:** As an administrator I want to allow the user to view the recent posts as well as let click a button that lead them to a page where they can create the new post.

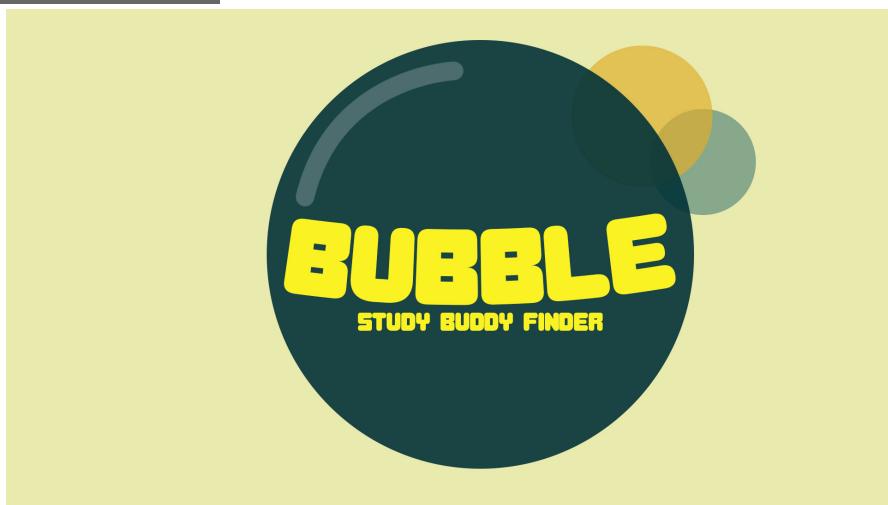
**User:** As a user I want to be able see the subject of the post as well as view the number of replies a post has.

## Website Theme Designs

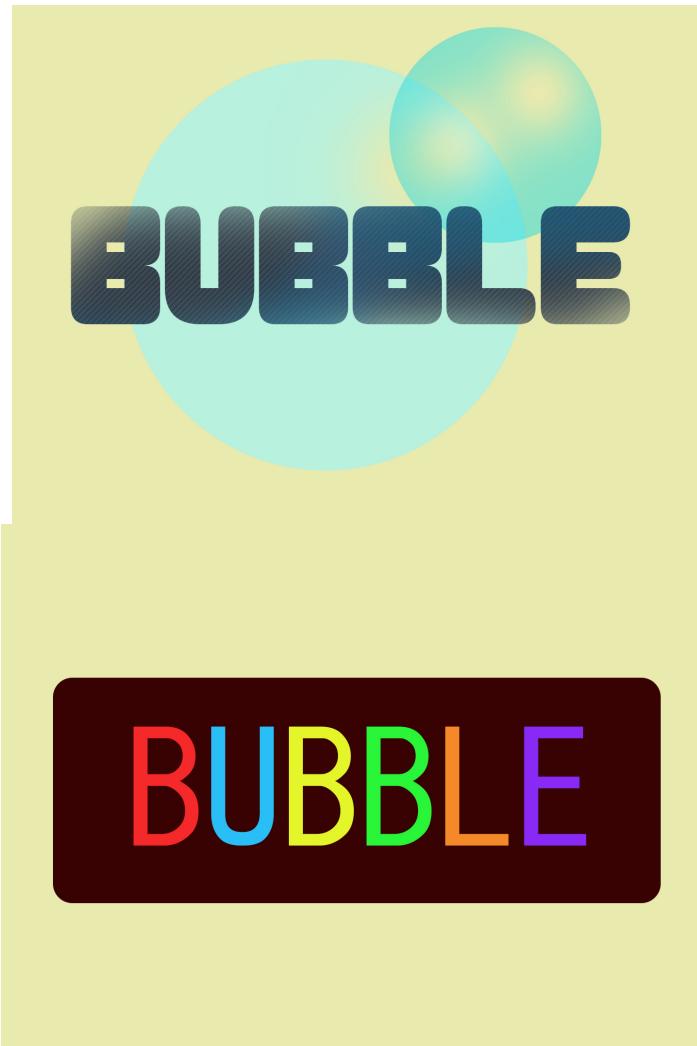
Below we have the early ideas and design of the themes for the logo and website design we were going for. Take note that these are non functional designs that were created using photoshop. Some designs were improved upon while other designs were cut and will not make it to the final product.



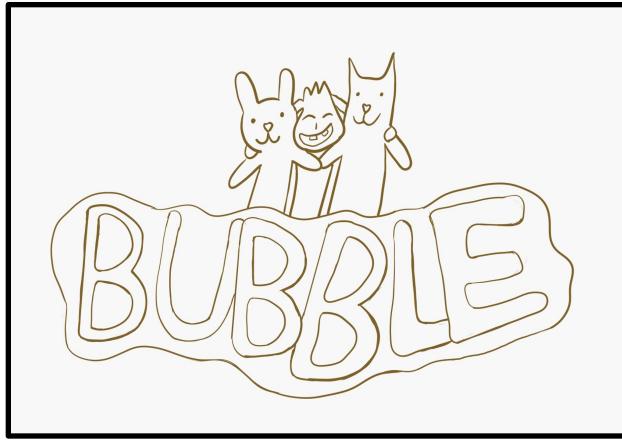
Final Overall Logo Design



Logos that did not make it



Early Logo Design Idea



Final Homepage Logo Design



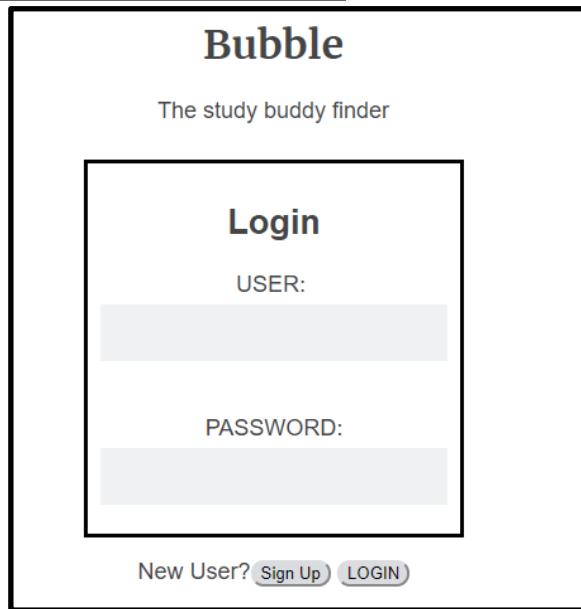
Default Profile Picture



## Old vs New Website Design

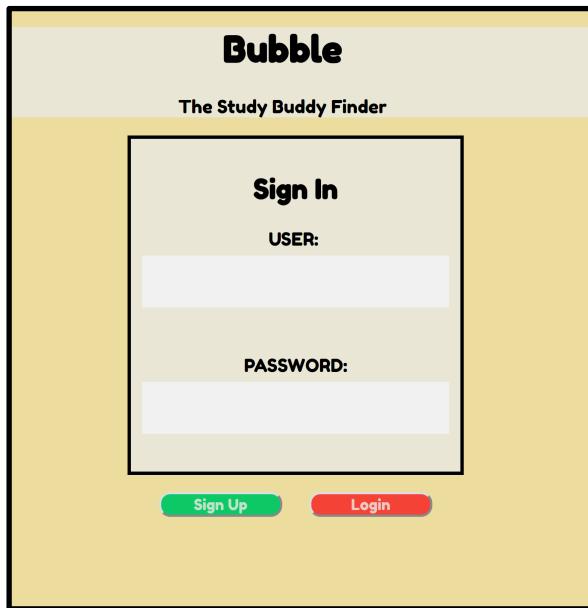
Below we are displaying the early versions of our webpages in order to give a sense of how far along the design of the website came. Take note that the new web pages being shown are actual working and functioning webpages.

### Login(Old Version)



The Old Version Login form is contained within a large white rectangular box. At the top center, it says "Bubble" in a dark font. Below that, in a smaller font, is the tagline "The study buddy finder". Inside this main box is a smaller, centered rectangular form. This inner form has "Login" at the top. Below it, the word "USER:" is followed by a light gray input field. Below that, the word "PASSWORD:" is followed by another light gray input field. At the bottom of the inner form, there are three buttons: "New User?", "Sign Up" (in green), and "LOGIN" (in red).

### Login(New Version)



The New Version Login form is contained within a large yellow rectangular box. At the top center, it says "Bubble" in a dark font. Below that, in a smaller font, is the tagline "The Study Buddy Finder". Inside this main box is a smaller, centered rectangular form. This inner form has "Sign In" at the top. Below it, the word "USER:" is followed by a light gray input field. Below that, the word "PASSWORD:" is followed by another light gray input field. At the bottom of the inner form, there are two buttons: "Sign Up" (in green) and "Login" (in red).

## Sign Up Page (Old Version)

The page has a light gray header with the title "Sign Up" and a sub-instruction "Create an account.". Below this is a horizontal line. The first input field is labeled "Email" and contains the placeholder "Enter Email". The second input field is labeled "Password" and contains the placeholder "Enter Password". The third input field is labeled "Repeat Password" and contains the placeholder "Repeat Password". Below these fields is a checkbox labeled "Remember me". At the bottom, a note states "By creating an account you agree to our [Terms & Privacy](#)". A red "Cancel" button is on the left, and a green "Sign Up" button is on the right.

## Sign Up Page (New Version)

The page has a yellow header with the title "Sign Up" and a sub-instruction "Create an account.". Below this is a horizontal line. The first input field is labeled "Name" and contains the placeholder "Enter Full Name". The second input field is labeled "User Name" and contains the placeholder "Enter Username". The third input field is labeled "Major" and contains the placeholder "Enter Major". The fourth input field is labeled "Email" and contains the placeholder "Enter Email". The fifth input field is labeled "Password" and contains the placeholder "Enter Password". The sixth input field is labeled "Repeat Password" and contains the placeholder "Repeat Password". Below these fields is a note stating "By creating an account you agree to our [Terms & Privacy](#)". A red "Cancel" button is on the left, and a green "Sign Up" button is on the right. The entire form is set against a yellow background.

## Homepage(Old Version):

logo

[Find Study Group](#) [Create Study Group](#) [View Bulletin Board](#)

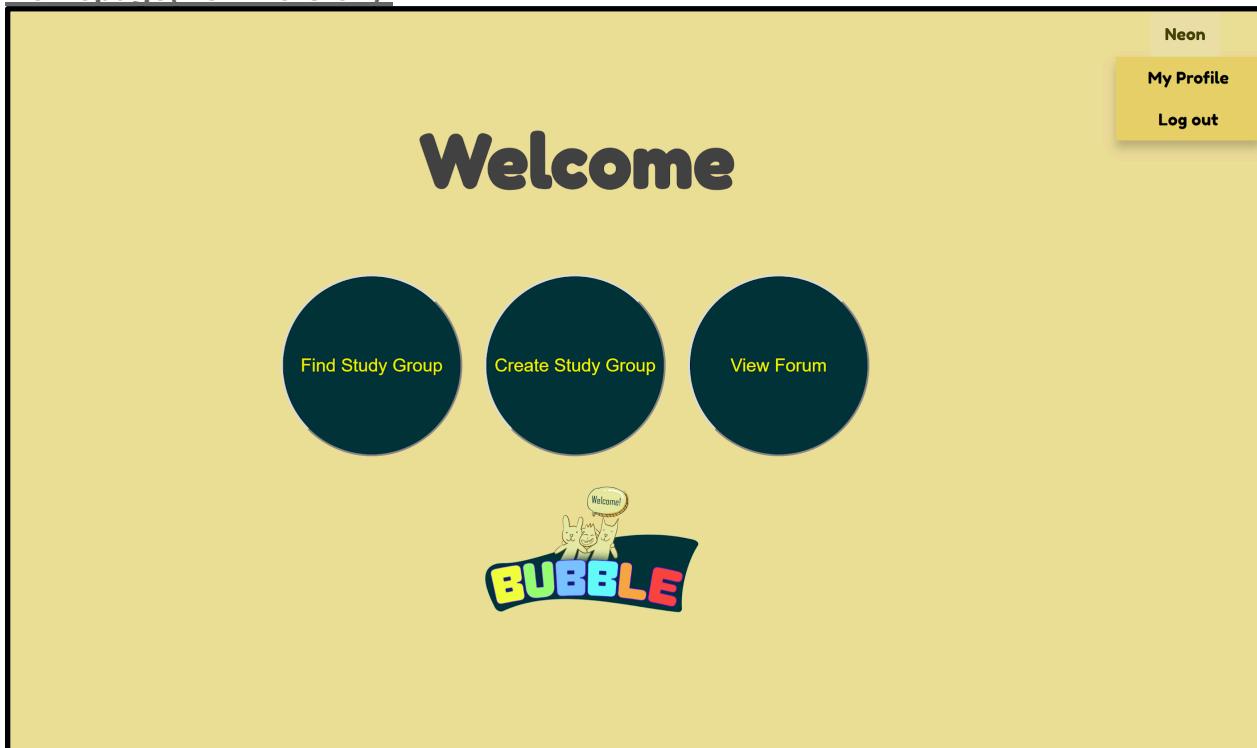
username

My Profile

My Group

Sign Out

**Homepage(New Version):**



Search For Group page(Old Version)

# LOGO

Search..

Class	Creator	Participants	Join
CPSC 315	BOB	1/4	Join
CPSC 362	JANET	3/4	Join
MATH 338	DAVE	5/6	Join
POSC 100	WU	1/6	Join
MATH 270A	IVAN	1/6	Join

**Didn't find what you were looking for?**

[Create a Group](#)

## Search For Group page(New Version):



Neon

Home   Bulletin Board   Find Group   About

**Search by Class/Major/Creator**

Search...

Class	Creator	Participants	View	Join
362	<a href="#">123</a>	4	<a href="#">VIEW</a>	<a href="#">JOIN</a>

**Didn't find what you were looking for?**

[Create a Group](#)

## Create new group page(Old Version)

# Create New Group

<b>Subject/Class/Section</b>	<input type="text" value="subject"/>	username
<b>Group Name</b>	<input type="text" value="Group"/>	
<b>Number of Members</b>	<input type="text" value="0"/>	
<b>Subject/Class/Section</b>	<input type="text" value="subject"/>	
<b>Introduction</b>	<input type="text"/>	
<b>Location</b>	<input type="text" value="location"/>	
<b>Date</b>	<input type="text" value="mm / dd / yyyy"/>	
<b>Time</b>	<input type="text" value="-- : -- --"/>	
<b>Public</b>	<input checked="" type="radio"/>	
<b>Private</b>	<input type="radio"/>	
<input type="button" value="Create Group"/>		

Create new group page(New Version)

The screenshot shows the BUBBLE Study Buddy Finder website's "Create New Group" form. At the top center is the BUBBLE logo. Below it is a yellow header bar with links for Home, Bulletin Board, Find Group, and About. On the right side of the header is a "Neon" button. The main form area has a light gray background and a title "Fill Out This Form To Create A Group". It contains fields for Subject/Class/Section, Group Name, Number of Members (with Major), Description, Location, Date, Time, and Public/Private status. The "Public" option is selected. A "Create Group" button is at the bottom of the form.

Forum page(old version):

## Bubbles Bulletin Board

Title	Posted By	Date Posted	Views	Replies
<a href="#">Criminal Justice Field Trip</a>	mkane	2018-05-06	37	2

[add a new topic](#)

### Forum page(new version):

The screenshot shows the updated forum interface. At the top center is the 'BUBBLE STUDY BUDDY FINDER' logo. Below it is a navigation bar with links: Home, Bulletin Board, Find Group, and About. On the right side of the navigation bar is the user's name, jsmith. The main title 'Bubbles Bulletin Board' is centered above a table displaying three forum topics. The table has columns for Title, Posted By, Date Posted, Views, and Replies. The topics are:

Title	Posted By	Date Posted	Views	Replies
<a href="#">Tired of the food here</a>	jsmith	2018-05-07	8	1
<a href="#">Best Nap Spots at CSUF?</a>	willy	2018-05-07	6	2
<a href="#">CPSC 362 Professor Reccomendations???</a>	jdoe	2018-05-07	9	2

At the bottom of the page is a link to 'Add a New Topic'.

## End User Document

### Signing up for Bubble

If you are **not a recurring** user then you can click on the green “Sign Up” button which will navigate you to a form in which you give your information in order for your profile to be made. Once you have finished signing up, you will be sent to a welcome screen where you click the “Login” button redirecting you to the Login screen.

### **Logging in**

If you are **a recurring** user then you may go ahead and enter your login information and click on the red “Login” button. This will then redirect you to the Homepage which acts as the main navigational system of our website.

### **Logging out**

In order to sign out, just simply hover over your username in the navigation bar located at the top right of the screen. There you will see a “Logout” button that should successfully end your session with Bubble.

### **Navigating through the Homepage**

Once you are at the Homepage, there are three big circular buttons labeled “Find Study Group”, “Create Study Group”, and “View Forum.” As stated previously, this web page acts as a main navigation system once you are logged in.

### **Navigation Bar**

In order to save you time from having to go back to the Homepage everytime you want to reach one of the other webpages in our site, we provide a navigation bar located at the top of all other web pages apart from the homepage. You may simply click on the tabs and they will redirect you to their respective web pages.

### **Find Study Group**

When you have clicked on the “Find Study Group” button you will find yourself in the webpage in which it lists the existing study groups. In order to make it easier for you to find an existing group that may interest you, there is search box located at the top of the group list.

You may click on “View” button which will take you to the group page which holds all their info and decide to join in there or you may join an existing group immediately from this page.

Finally, if you did not find what you were looking for you may create your own group by clicking on “Create a Group” button located towards the bottom of the page. This button redirects you to the create group page in which you fill out the form and submit it, creating your own group.

### **Create Study Group**

If you know you want to create an entirely new group instead of searching for one first, you may click the “Create Study Group” button from the homepage. This will lead you to a form that you fill in with the group information and then submit in order to create the group. You should be redirected to the group information page from here.

## **Bulletin Board**

If you wish to simply make a new forum post in our websites “Bulletin Board” then you may click on the “View Forum” button that will lead you to our bulletin board webpage where you may look through existing posts, reply to those posts, or create your own post by clicking on “Add a New Topic” hyperlink located towards the bottom of the page.

## **Profile Pages**

In order to reach your own profile page you may view it by hovering over your username located at the top right of the navigation bar. This will lead you to your profile with personal information that you may only see as well as the groups you are apart of. If you wish to see these groups information, simply click on their “View “ button.

When clicking on other users names that appear as hyperlink, it should redirect you to their profile page only displaying information that the user has allowed for you to see.

## CRC Cards and UML Diagram

### CRC Cards

Below we have the crc cards, uml diagrams, and the eer diagram for our web application.

<b>Class:</b> <b>Student</b>	
<b>Responsibilities:</b>  Defines student's name/major Login Create a Profile Create a Study Group Join an existing Study Group Contact other students	<b>Collaborators:</b>  <b>Study Group Profile</b>

<b>Class:</b> <b>Study Group</b>	
<b>Responsibilities:</b>  Defines study group name/class/subject Shows students involved Displays location/date/time to meet as a group	<b>Collaborators:</b>  <b>Student Profile</b>

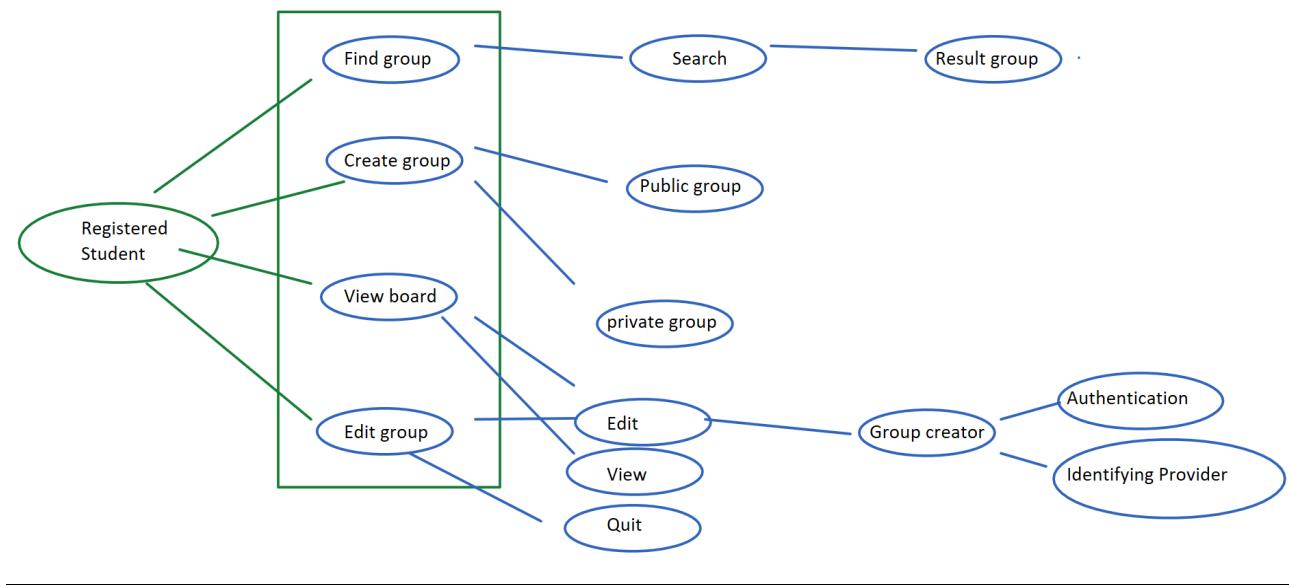
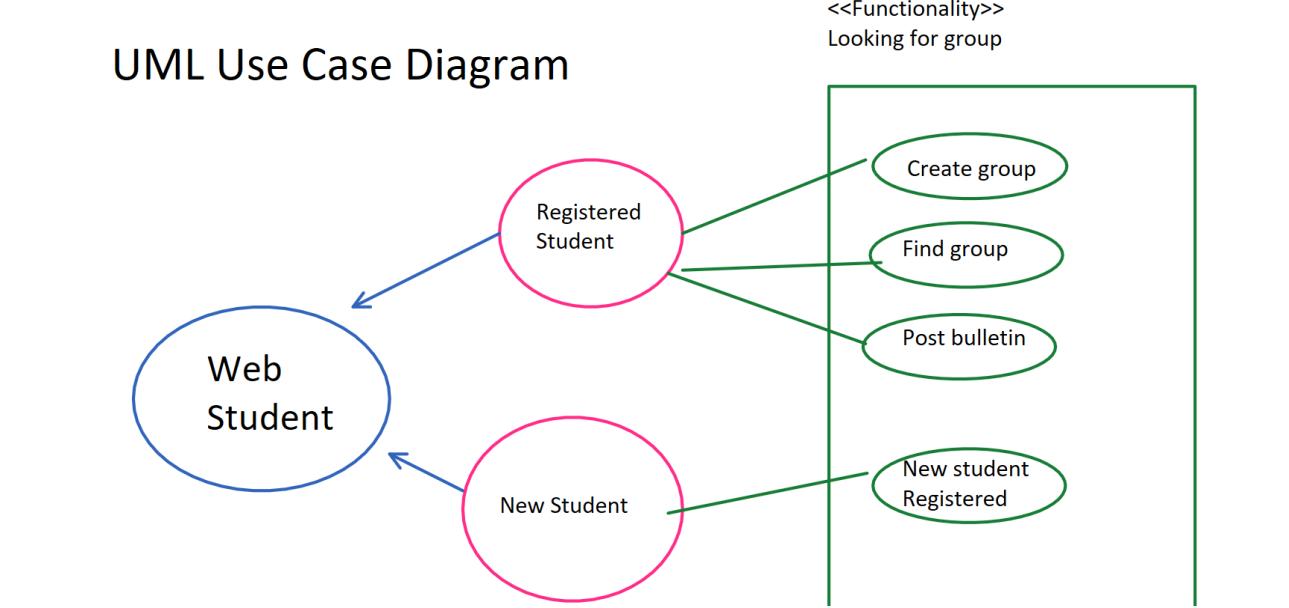
### Understanding the CRC cards

As mentioned above, we created CRC cards during our first iteration in the beginning stage of designing the website. The CRC cards helped us identify some of the classes that are applicable to our project requirements. By using index cards we were able to narrow down some responsibilities and come up with specific responsibilities of the class. For instance, the Student CRC card above identifies the responsibilities as basic functions that the user is able to do, while the collaborators are other classes that the Student interacts with.

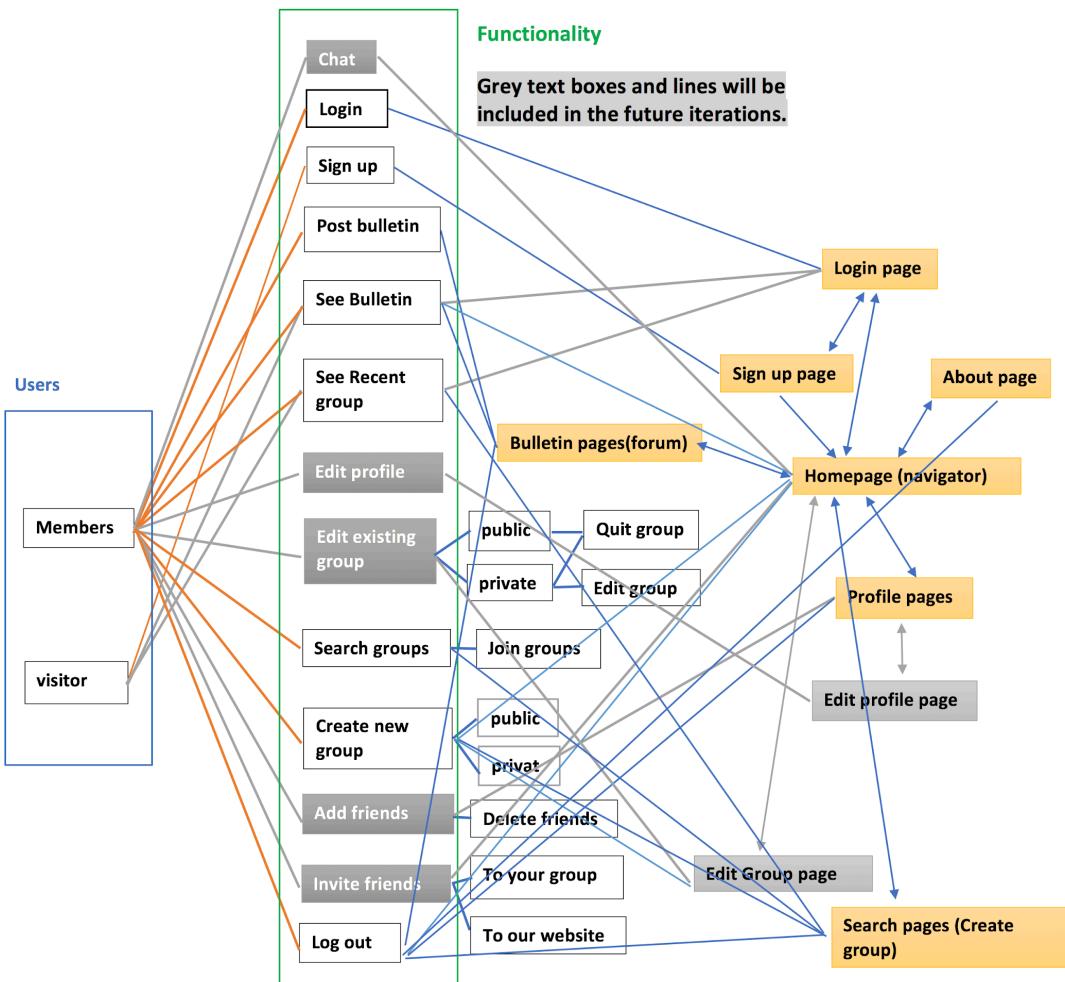
## UML Diagrams

**UML diagram(old version):**

UML Use Case Diagram



## UML diagram (new version):



## Understanding the UML Diagram

In the diagram above, on the left-hand corner we can see a blue box which includes our two users: members and visitors. Our members can access all the functionalities of our website, visitors can just access parts of them, say, “sign up, see bulletin, and see recent groups”.

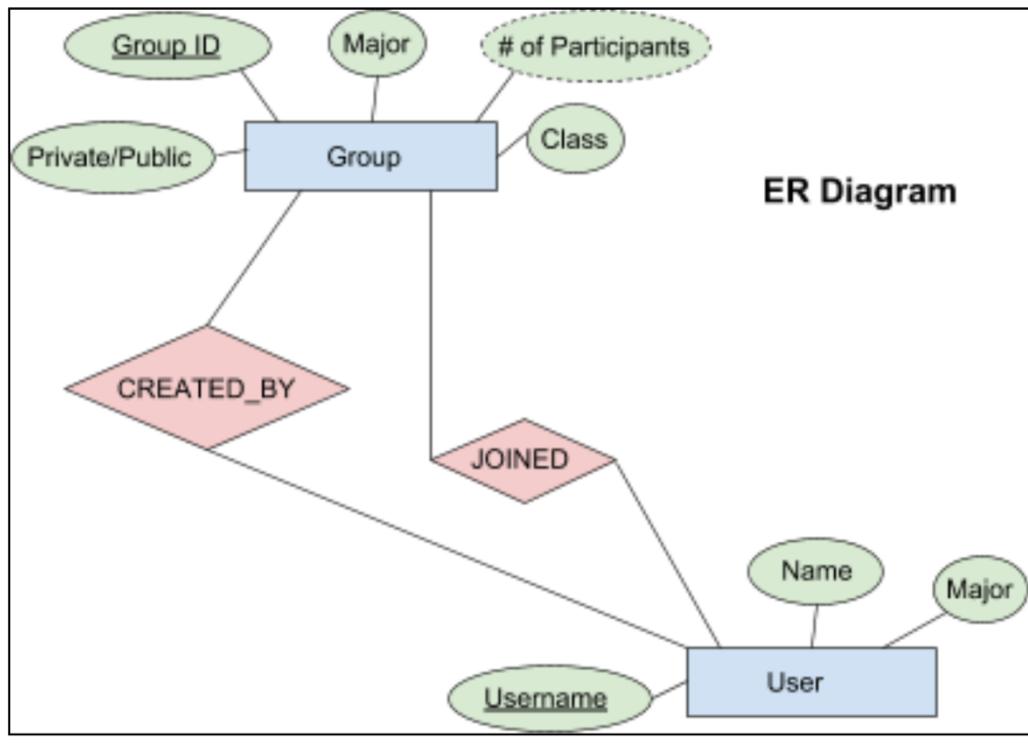
Next to the blue box, we have a green box which includes all the functionalities of our website.

And, there are some grey boxes and lines, say, “chat, edit profile, edit existing group, add friends, invite friends, etc”, they will be included in the future iterations.

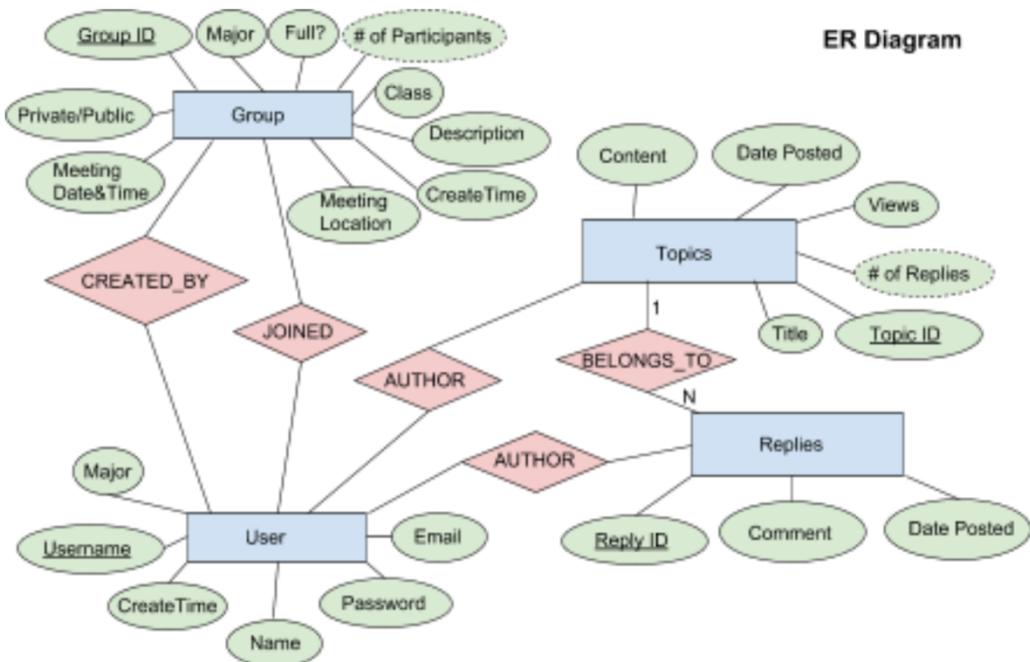
Lastly, for the yellow boxes, they are the actual websites we have made, each of them has different functionalities.

## ER Diagrams

### ER (old version):



### ER (new version):



## Understanding the ER Diagram

ER diagram is shown above as an illustration of how the database was constructed. The blue rectangles are entities that we created and the green ovals are the attributes in each entity. The red triangles display the relationships between our database.