Google Workspaces Alternative Application

Project Solution Approach

Wahkiakum School district, Naselle School district, and Wahkiakum 4-H

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I. Introduction

This document is a record of Team Toto's solution design for Wahkiakum School district, Naselle School district, and Wahkiakum 4-H. It briefs the reader the approach to build a communicative platform available for ChromeOS and Android. It dives deep into the blueprint of the application and projects how a future prototype should portray data and interact with users. This document is intended for developers, faculty and anyone that is curious about how the application was constructed.

Wahkiakum School district, Naselle School district, and Wahkiakum 4-H are in need of an application that allows student users to communicate with each other across classrooms, clubs, groups, etc. To satisfy these district needs, our team is planning on analyzing, designing, and building a stand-alone application from scratch to improve student learning and connection.

II. System Overview

The application we are creating will be made using the Flutter Software Development Kit. We chose Flutter since it offers cross-platform capabilities which satisfies the need for running on Chromebooks while also being available to most mobile devices. Our team does not have experience working with Flutter, but experienced developers say that it is easy to learn and similar to Django. Flutter allows for different types of architectural patterns, so we will be using the Model-View-Controller pattern since we have all worked with it before. In terms of the User Interface, we decided to model our application like similar applications such as Discord and Google Spaces. That means having the user's post spaces being accessible from anywhere in the app using a sidebar. Overall, we are taking a cautious approach in developing the system and are sticking with things we have experience with.

III. Architecture Design

III.1. Overview

The Team Toto development team has decided on a Model-View-Controller architectural pattern for this application. The team came to this conclusion with the justification that this application is meant to be a Cross-Platform Application. Thus, there will be a user view, a database model, and a business logic-driven control. We believe that given the context of this application, any other architectural design pattern doesn't make sense.

(See Appendix A Image 1)

Our team is using this diagram to base our development around, and it was used for subsystem decomposition, which is expanded upon in the next section. Here, we will provide an overview of every component within the diagram, with expanded details to follow in the next section.

III.2. Subsystem Decomposition

III.2.1. Controller

III.2.1.1. Description

In general, the Controller aspect of our application, and any MVC-based application, takes input from the user and converts it into commands that either the model or view can use and execute. Specific to this application, the Controller subsystem will represent the connection between the user on the front end of the application, to the database and view of the application. It will utilize business logic in order to create posts, comments, spaces, and more.

III.2.1.2. Concepts and Algorithms Generated

The Controller subsystem will be composed of a Controller class, with some smaller systems as part of the greater Controller subsystem.

III.2.1.3. Interface Description

We will leave the Controller's Interface Description empty, as the Controller subsystem consists of the Authentication and Computational Logic sections, and we can go into more detail within those individual subsystems.

III.2.2. Authentication

III.2.2.1. Description

The authentication subsystem is tied to the controller and the view subsystems. It is a smaller subsystem, in charge of the constant authentication of user permissions, log-in checks, superuser privileges, and more. Linked closely to the view subsystem, since it does some checks in the View subsystem, and more in the Controller subsystem.

III.2.2.2. Concepts and Algorithms Generated

This subsystem has been created to encapsulate any behavior or functions in regard to authentication, permission handling, and password checking. It is necessary so that the subsystems that utilize authentication don't need to do their own authentication checks, and can instead focus on their more specific functions. This helps promote encapsulation.

III.2.2.3. Interface Description

III.2.2.3.1. Services Provided:

1. *Service name:* Login
   Service Provided to: Controller
   Description: This service will authenticate the user's provided credentials with those present in the PostgreSQL database. After authentication, a new user session is created.

2. *Service Name:* Logout
   Service Provided to: Controller
   Description: This service will end the user session.

3. *Service Name:* hasPermissionTo

Service Provided to: Controller
Description: This service, provided to many functions throughout the application, will state whether a given user has any given permission to any given requested resource or action. The permissions are pulled from the PostgreSQL database, dependent on the specific function from the queried table.

III.2.2.3.2. Services Required:

1. PostgreSQL Database

III.2.3. Computational Logic

III.2.3.1. Description

The logic handling and running both the model and the view processes. This is where a majority of the code is, as it must handle the connection between the View subsystem and the Model subsystem. Part of the greater Controller subsystem.

III.2.3.2. Concepts and Algorithms Generated

This subsystem will have methods to handle the many different requests for the many different tables we have. These functions will retrieve data through the data access subsystems in order to run the application. There may be add<>(), update<>(), or delete<>() functions in which data comes from the View to Controller to update in the Model. There may be get<>() functions in which data comes from the Model to Controller to display in the View.

III.2.3.3. Interface Description (such as GET, POST, DELETE, PATCH, and PUT)

III.2.3.3.1. Services Provided:

1. *Service name:* GET
   Service provided to: View
   Description: A GET request, or a get<> function, is used to retrieve/request data from a database or server, in this application, from the PostgreSQL database. It retrieves whatever information is identified within the request.

2. *Service name:* POST
   Service provided to: Data Access Logic
   Description: A POST request, or a post<> function, is used to create a resource. In this application, it creates a new resource within one of the tables, within the PostgreSQL Database.

3. *Service name:* DELETE
   Service provided to: Data Access Logic
   Description: A DELETE request, or a delete<> function, is used to delete an existing resource. In this application, it deletes an existing resource from a specific table, within the PostgreSQL Database.

4. *Service name:* PATCH

Service provided to: Data Access Logic
Description: A PATCH request, or a patch<> function, is used for updating an existing resource. In this application, it updates an existing resource within the specific table, within the PostgreSQL Database.

5. *Service name:* PUT
   Service provided to: Data Access Logic
   Description: A PUT request, or a put<> function, is used for checking if a resource already exists then updating, or otherwise creating a new resource if it doesn't already exist. In this application, it either updates an existing resource within the specific table or creates a new resource within one of the tables, within the PostgreSQL Database.

III.2.3.3.2. Services Required:

1. PostgreSQL Database
2. View

III.2.4. Model

III.2.4.1. Description

The Model subsystem will be composed of a Model class, and some smaller systems part of the greater Model subsystem. The general purpose of the model class is to connect and communicate with the database, take that information and parse/translate it, and send it to the specific Controller function called from the Controller subsystem.

III.2.4.2. Concepts and Algorithms Generated

The Model subsystem consists of the Data Access Logic, the PostgreSQL, and the DartKB subsystems. These subsystems work together to allow for the transferal, updating, and deleting of information between the Controller, and the Database.

III.2.4.3. Interface Description

We will leave the Model's Interface Description empty, as the Model subsystem consists of the Data Access Logic, Google Cloud SQL, DartKB, and PostgreSQL sections, and we can go into more detail within those individual subsystems.

III.2.5. Data Access Logic

III.2.5.1. Description

The logic allows for data updating and retrieval. Also known as the Data Access Layer, this subsystem is housed within the Model subsystem, and is responsible for providing access to data stored in persistent storage. In this example, the persistent storage is our PostgreSQL database, within which our data is stored.

III.2.5.2. Concepts and Algorithms Generated

The Model's Data Access Logic generates queries to add or retrieve data to the USER, POST, COMMENT, POST SPACE, and PERMISSIONS tables. It must instantiate objects for these data types when necessary and add new entries to the appropriate tables.

III.2.5.3. Interface Description

III.2.5.3.1. Services Provided:

1. *Service name:* Postgres Protocol
   Service provided to: PostgreSQL Database
   Description: This service provides a connection between the PostgreSQL Database and the Data Access Logic.

2. *Service name:* AddEntry
   Service provided to: PostgreSQL Database
   Description: This service adds any given new entry to the appropriate model table, using data received from the Controller subsystem.

3. *Service name:* UpdateEntry
   Service provided to: PostgreSQL Database
   Description: This service updates any given entry in its corresponding table, using data received from the Controller subsystem.

4. *Service name:* RemoveEntry
   Service provided to: PostgreSQL Database
   Description: This service removes a given entry from its corresponding table, provided by the Controller subsystem. .

5. *Service name*: returnData
   Service provided to: PostgreSQL Database
   Description: This service receives data from the PostgreSQL Database using getData (see below), parses and translates the data to the correct object, and returns it to the process it was called within.

III.2.5.3.2. Services Required:

1. *Service name*: getData
   Service Provided from: Controller

III.2.6. Google Cloud SQL

III.2.6.1. Description

"Cloud SQL for PostgreSQL is a fully-managed database service that helps you set up, maintain, manage, and administer your PostgreSQL relational databases on Google Cloud Platform" (*Cloud SQL for PostgreSQL Documentation*). The (potential) way that we will access and utilize the PostgreSQL database, allowing for the application to be stored online.

III.2.6.2. Concepts and Algorithms Generated

This subsystem allows for the connection between the application and the database, which would be stored in Google Cloud.

III.2.6.3. Interface Description

The group is not 100% on how the database will be utilized, between cloud hosting vs server hosting. As we are awaiting a decision from the client, and throughout development will be using PostgreSQL on our local machines, we will be leaving the Interface Description empty.

III.2.7. View

III.2.7.1. Description

What the user is physically seeing. The View subsystem controls and handles the application's data representation and user interactions. Typically, the View consists of HTML templates for multiple pages, embedded with CSS markup, which interact together, along with some methods from the Controller subsystem, to run the webpage that is sent to the client through IIS. The view will be different for the Mobile view, and for the Chromebook view. Both are handled through the same subsystem.

III.2.7.2. Concepts and Algorithms Generated

The View's many functions are dispersed across many smaller subsystems, similar to that of the Model and the Controller subsystems. However, since it is more general in the View subsystem compared to the others, these will all be handled under the general View subsystem.

III.2.7.3. Interface Description

III.2.7.3.1. Services Provided:

1. *Service name*: DisplayPage
   Service provided to: IIS
   Description: This service displays all the widgets of the requested page.

2. *Service name*: UpdatePage
   Service provided to: IIS, Computational Logic System
   Description: This service updates the requested page's widgets after receiving an update from the Computational Logic System.

3. *Service name*: DisplayPopup
   Service provided to: IIS
   Description: This service displays a popup with the corresponding requested popup.

4. *Service name*: UpdatePopup
   Service provided to: IIS, Computational Logic System
   Description: This service updates the requested popup after receiving an update from the Computational Logic System.

5. *Service name*: ClosePopup
   Service provided to: IIS
   Description: This service closes the requested popup.

6. *Service name*: sendGetRequest
   Service provided to: Computational Logic subsystem
   Description: This service takes user-updated information and send it to the Computational Logic subsystem to be handled.

III.2.7.3.2. Services Required:

1. IIS
2. Controller Subsystem

III.2.8. IIS

III.2.8.1. Description

The Internet Information Service is how the user gets their application page loaded from the program to their screen. Basically, users have to be connected to the internet in order to access the application, and the application's back end also has to be connected to the internet to serve users.

III.2.8.2. Concepts and Algorithms Generated

In terms of our project, this subsystem is a gateway/buffer between the user, and the View subsystem.

III.2.8.3. Interface Description

III.2.8.3.1. Services Provided:

1. *Service name*: sendData
   Service provided to: View
   Description: This service sends data from the User to the Controller subsystem.

2. *Service name*: receiveData
   Service provided to: Computational Logic
   Description: This service receives data from the Controller subsystem, to then display to the User.

III.2.8.3.2. Services Required:

1. View
2. Computational Logic

III.2.9. User

III.2.9.1. Description

This subsystem is self-explanatory, but the user is anyone using the application. They have to be connected to the internet in order to use the application, and their device has to be an allowed device.

III.2.9.2. Concepts and Algorithms Generated

There are no concepts or algorithms present in the User subsystem.

III.2.9.3. Interface Description

The Interface Description is extremely simplified in this “subsystem”. There is user input, and the user’s connection to the IIS.

IV. Data design

(See Appendix B Image 1)

The **User** entity will hold every created user (both Faculty and Students) and will distinguish the different types of users with the **userType** attribute. This entity includes basic profile attributes such as **firstName**, **lastName**, **password** and **profilePicture**. The **parentEmail** will be required for students as their parents will be constantly receiving a report of their child’s activity in the application. The **email** attribute is the primary key which the user will be able to login with. The **User** entity has a many-to-many relationship with **PostSpace**. This relationship has a **Permissions** composite attribute, meaning every **User** will have unique **Permissions** in each **PostSpace**. These permissions include **canComment**, **canInvite**, **canEdit**, **canPost**, **canRemove**, and **canDelete**. The **User** entity also has a one-to-many relationship with **Post.**

The **PostSpace** entity is distinguished by the **spaceName** attribute and has basic attributes such as **spacePicture** and **spaceDescription**. The **isPrivate** attribute indicates whether the Post Space can be discovered by the “search post space” function where users can request to join. The **PostSpace** entity has a one-to-many relationship with **Post**.

The **Post** entity is a weak entity that uses the **timePosted** attribute as a weak key. It uses **isPinned** and **canComment** to hold the settings of each post. Other attributes include **title** and **contents**. The **Post** entity has a one-to-many relationship with **Comment**. Since the **Post** entity is a weak entity, it is identifiable by the primary keys of the **User** and **PostSpace** entities along with its weak key.

The **Comment** entity is a weak entity that uses the **timePosted** attribute as a weak key. The only other attribute is **contents**. Since the **Comment** entity is a weak entity, it is identifiable by the primary keys of the **User** and **PostSpace** entities along with the weak keys of itself and **Post**.

V. User Interface Design

Our team has created UI Mock-Ups for most (>80%) of all different pages and boxes for our application. While these can give an idea of what the application may look like, pages are all subject to change as the development team or as the client deems fit. The UI Mock-ups are used to help guide development over deciding on the look of the application. Additionally, these mock-ups only show the Chromebook view, not the mobile view - they will look similar. It help establishes and determines links in a way that’s easier to come up with, from that visual perspective. Thus, the mockups should give you an idea of how the application will be used.

Note: We have not created anything pertaining to the **Superuser** pages, since those will look much different. They may include pages such as *Add User*, *View All Users*, *View All Spaces*, etc.

V.1. Login Page

(See Appendix C Image 1)

First, we have the login page. This will be the landing page when users first open up the application. The background is images of Wahkiakum County's landscape but can be any image determined by the client. It can be any particular image, a simple graphic, a blank colored background, or a slideshow of many images. Regardless of which one is used, the images must not contrast in a way that is too distracting from the login block. The application name can be displayed in the corner.

Users will log in with their school-associated email, and a password. Students (whose accounts are created for them) will have to change their password from a temporary password to their own password, provided it meets all password requirements. As long as the email and password match in the database, they can log in. If incorrect, they return to the same page, with a corresponding message of "Incorrect username or password. Please try again". Users can also press "Forgot your password" to go to a password reset page (see item V.2). Superusers can press "Superuser Login" to go to the Superuser Login page (see item V.3).

V.2. Forgot Password Page

(See Appendix C Image 2)

Users will come to this page from the Main Login Page (see item V.1). Users will be able to enter their school-associated email, and submit it to reset their password. We do not know which method we will take for this yet, but it will most likely end up back on the application and look like the password reset page (see item V.18).

V.3. Superuser Login Page*

(See Appendix C Image 3)

Users will come to this page from the Main Login Page (see item V.1). Users who have superuser privileges (IT, Ron, etc.) will be provided with a Superuser Key which allows them administrative privileges, and a different Superuser main page view. As per the note above, we do not have UI mock-ups of these pages as they are more specific, and will be completed in the second half (or later) of the development lifecycle.

V.4. Main Home Page

(See Appendix C Image 4)

The Main page is where you come after a user successfully logs in, from the Main Log In page (see item V.1). The application is split between the current page, the side bar on the left side, and pop-outs for specific functions. The current page of the Main home page is the landing page of all users. It will contain the personalized Mecha-Mules home page, containing links that the client will provide. It can open those links into new browser tabs. The side bar will contain a Home button (to return here), buttons for all the class spaces the logged in user is a part of (see item V.10), and the user's profile page button (see item V.5).

V.5. Side Tab Extended

(See Appendix C Image 5)

Here, we can see what happens when you press the logged in user's profile picture (in the bottom left). It will extend the side bar (from taking ~1/8th to ~1/3rd of the screen). In this view, the user will see their profile picture, name, a logout button, a link to the notifications page, a link to edit their profile page, and a link to the settings page.

V.6. Mouse-over any Button

(See Appendix C Image 6)

Here, we can see what it looks like when you hold the mouse over any clickable link or button. It will display some text pertaining to its function. In this example, the mouse is over the New Class Space button, which when clicked will take the user to the Join/Create Class Space Popout (see item V.7).

V.7. Join/Create Class Space Popouts

(See Appendix C Image 7)

Here, we arrive here when the user clicks the New Class Space button from the Sidebar (see item V.6). The user can see one of these two different popouts, depending on the permissions given to their account. Faculty (or those with permissions) will see the right image, that is, they can create a class space in addition to joining a class space. To join a class space, users must have a class space code, which will be provided to them when invited by the space owner (see item V.14).

V.8. Mouse-over Profile Image

(See Appendix C Image 8)

Similar to Item V.6, this is a view of when the user mouses over their profile picture, in the extended profile sidebar (see item V.5). If they click this, they go to the profile popout (see item V.9), specifically their own.

V.9. View any profile popout

(See Appendix C Image 9)

We arrive here when the user clicks their own Profile Image through the extended side bar, or any other user's profile image. The Profile Page popout is a popout that shows a user's profile picture, their name, their description, the class spaces they are a part of, and an edit profile button (if they are viewing their own), or edit/delete profile aspects buttons (if they are a faculty/superuser viewing a student's profile).

V.10. Class Space Page

(See Appendix C Image 10)

We Arrive to the Class Space when a user clicks the corresponding Class Space button from the side bar. Here, users can see information about the class space, and the post history, where posts are placed. Posts have have some comments (all can be viewed in the post view), and this view shows all posts filtered by most recent. Any user can create a post. All users can click view post, bringing them to the View Post Page (see item V.11). Users with administrative privileges can edit or delete any post. We are still considering if we want these buttons to be visible on this page, or only on the view post page.

V.11. View Post Page

(See Appendix C Image 11)

Users arrive to the View Post Page when a user clicks "View Post" from the Class Space Page (see item V.10). Here, they can see Post details such as the title and post date, the full description, and all comments. Additionally, there is a Post Comment text box, where users can post a comment response to the current post. Users with administrative privileges can edit or delete any comment, or the current post (see item V.12).

V.12. Delete Post (or Post Space) Popout

(See Appendix C Image 12)

Users can delete their own post, post space, or comment. Users with administrative privileges can delete any post, post space, or comment. Users arrive here when a user clicks "Delete

Post", "Delete Comment", or Delete "Post Space". Here, the users have to confirm deletion before the database is updated and the post/post space/comment is deleted.

V.13. Mouse-over Member Count

(See Appendix C Image 13)

Similar to Item V.6, this is a view of when the user mouses over the member count in the Class Space view (see item V.10). If they click this, they go to the view member list popout (see item V.14).

V.14. View Member List Popout

(See Appendix C Image 14)

Users arrive here when they click the member count from the Class Space view. This displays the list of members in the class. Here, any user can view the profile popout of any other user, or message them. Users with administrative privileges can invite/add new users, or remove users from the space.

V.15. Remove User Popout

(See Appendix C Image 15)

Users with administrative privileges arrive here when they click "Remove User" from the View Member List Popout. They have to confirm that they want to remove the user from the space.

V.16. Search for/add User Popout

(See Appendix C Image 16)

Users with administrative privileges arrive here when they click "Add User" from the View Member List Popout. They get to a list of all users in the database, where they can add users to their space, or view user profiles. The list can be filtered (by year, by name, etc.).

V.17. Edit Profile Page

(See Appendix C Image 17)

Users arrive to this page when they click "Edit Profile Page" from the Extended Side Tab (see item V.5). This allows users to change their profile picture, their description, and their password,

in addition to text talking about how their posts/comments/profile pictures/profile descriptions can be edited by users with administrative privileges at any time. There is a “Change Password” button (see item V.18) and a “Change Profile Picture” button (see item V.19). Administrative users who are editing a student’s profile page will have a similar page.

V.18. Change Password Popout

(See Appendix C Image 18)

Users arrive to this popout when they click “Change Password” from the Edit Profile Page (see item V.17). They must provide their old password, their new password, and their new password again to update it. Checks will be performed to verify all this information. User can click Save Changes. If there are mistakes or errors, a corresponding error message will be displayed. If no errors or mistakes, users return to the previous page, and the database is updated.

V.19. Change Profile Picture Popout

(See Appendix C Image 19)

Users arrive to this popout when they click “Change Profile Picture” from the Edit Profile Page (see item V.17). They can upload a picture file to display as their profile picture. Users click save changes to update their profile picture in the database, and return to the previous page. Administrative users who are editing a student’s profile page will have a similar page.

VI. Glossary

Administrative Moderation - Faculty users with administrative accounts have extra permissions that student users do not, such as editing and deleting other user’s posts. These accounts also have permissions to moderate the behavior of student users.

Authentication - A form of validating a user’s ID and password are within the database and correct. Once validated, users can log in.

Back-End - The server side; Everything necessary for an application that users do not see, including code/scripting, databases, software architecture, security, etc.

Cross-platform - Software that is designed to work on several computing platforms. In this application, software must work on both Chromebooks and mobile devices.

Chromebooks - Runs using Chrome OS. The main platform students use and the main platform for this project.

CIPA Compliance - The Children's Internet Protection Act our application must comply with.

Database - An organized collection of structured information, or data, typically stored electronically in a computer system.

Discord Voice Communication - A very popular VoIP (Voice over Internet Protocol) and instant messaging social platform that the school previously used.

Front-End - The client-side; everything that users actually see on an application, including the web pages, performance, UI, etc.

Full-Stack Application - The entire depth of an application, both front-end and back-end.

Software Architecture - The fundamental structures of a software system and the discipline of creating such structures and systems

Stakeholders - Individuals, groups, or organizations directly involved with, or indirectly affected by, a project, product, service, or enterprise.

UI (User Interface) - The space where interactions between humans and applications occur; all the physical buttons, text boxes, etc. that users interact with within an application.

User - Any entity that has an account on the application. Users will have specific permissions depending if they are a faculty or student.

User Records - Data of user's posts, comments, space and profile. These are all stored on a database used for functions throughout the application.

VII. References

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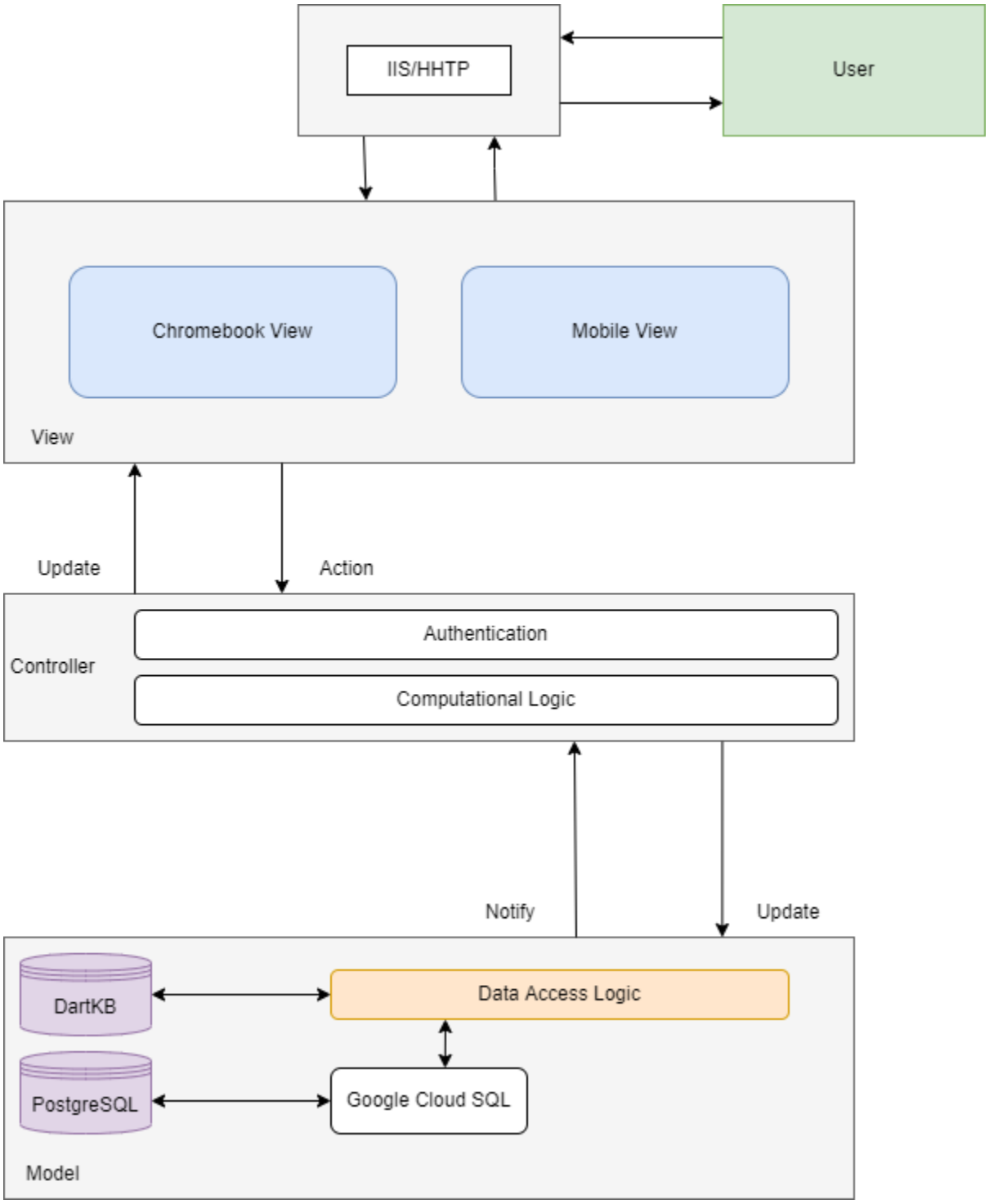
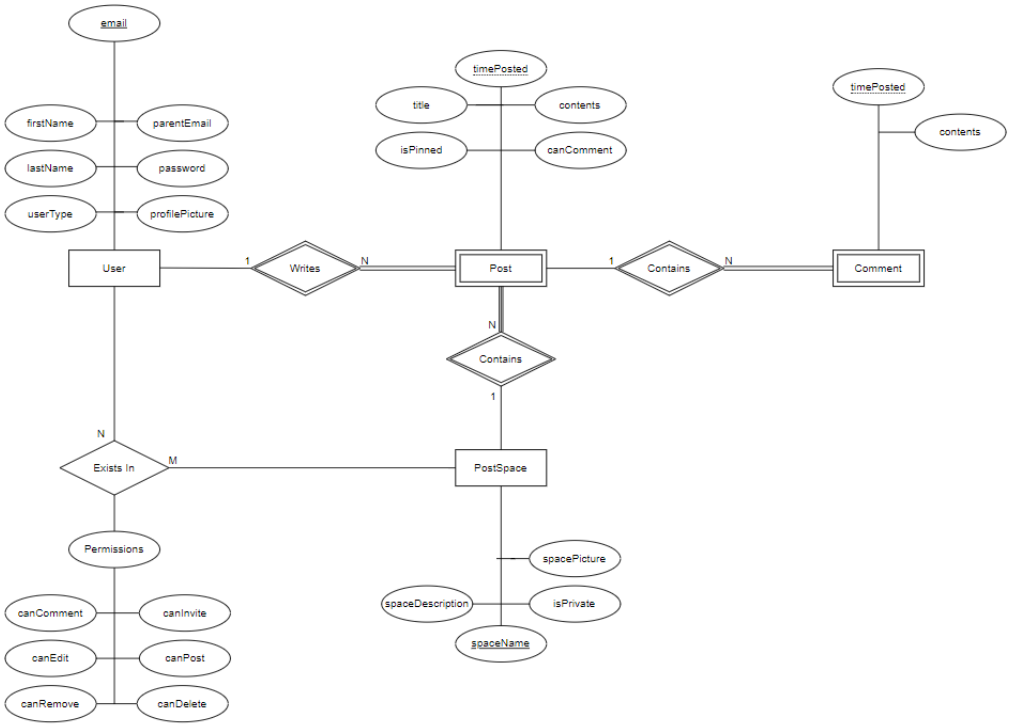
VIII. Appendices

VIII.1. Appendix A - Software Architecture



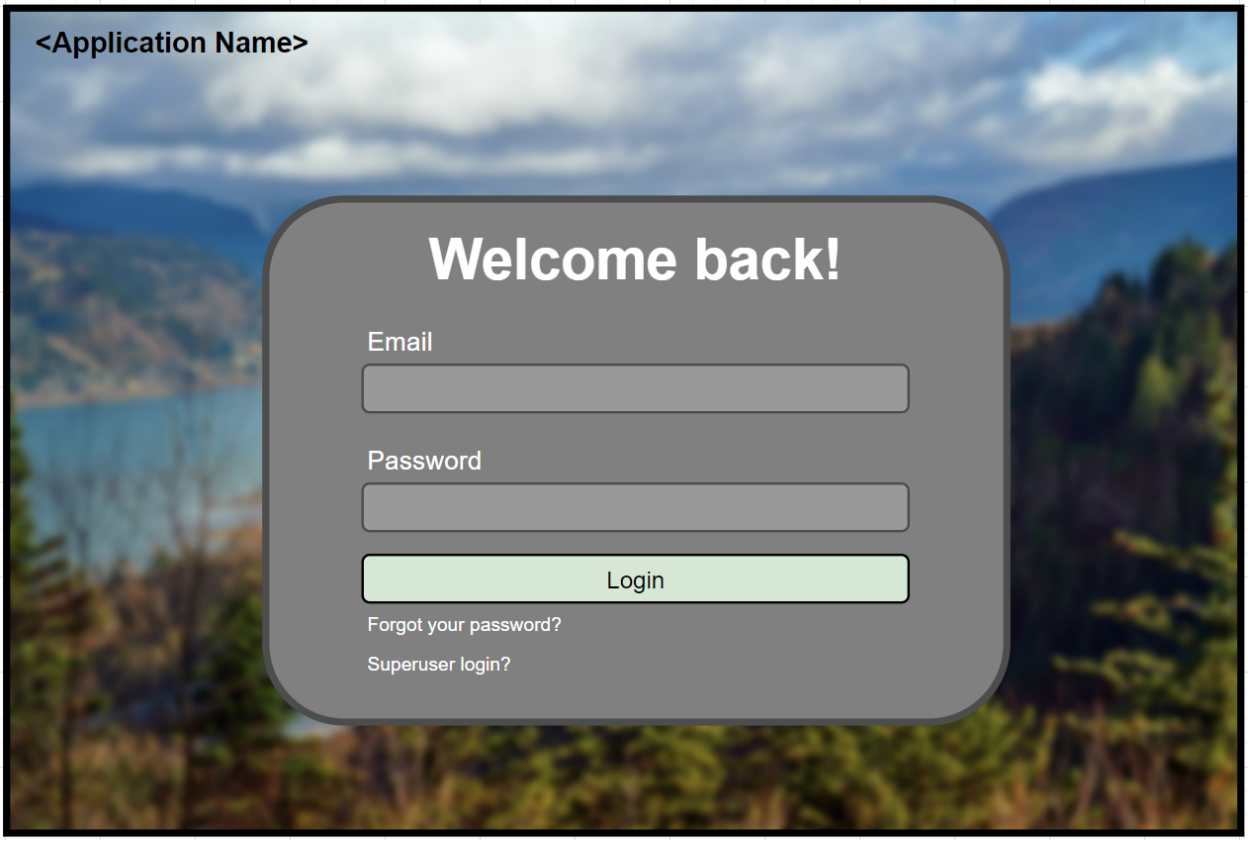
(Image 1)

VIII.2. Appendix B - Data Design

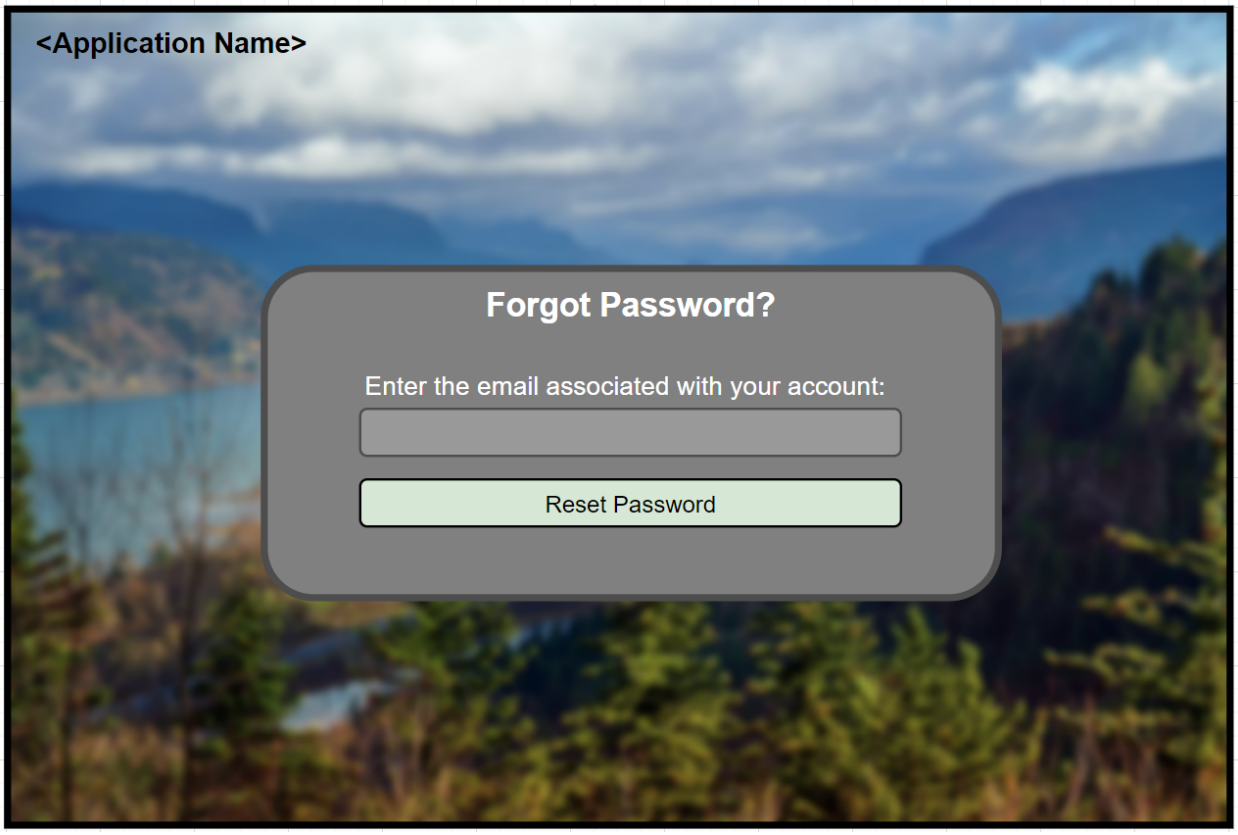


(Image 1)

VIII.3. Appendix C - User Interface Design



(Image 1)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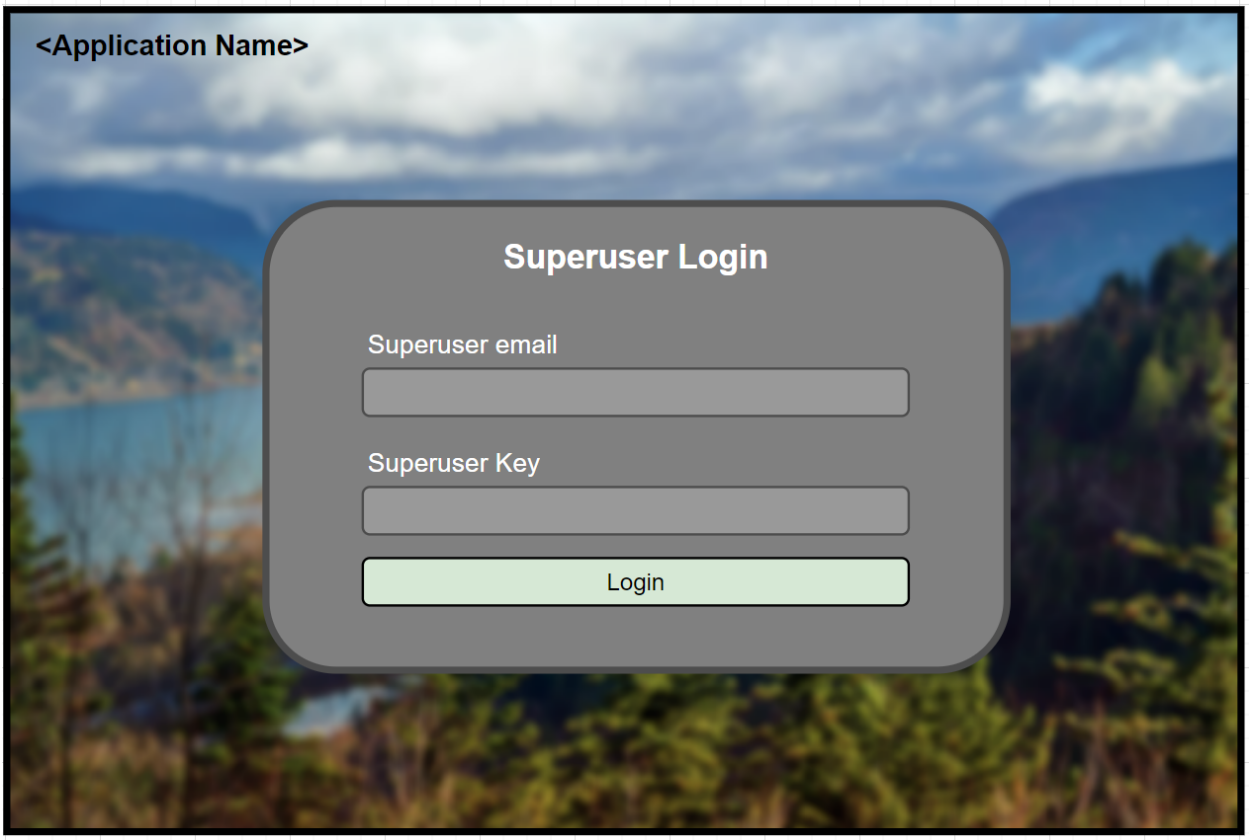
Forgot Password?
Enter the email associated with your account:
Reset Password

(Image 2)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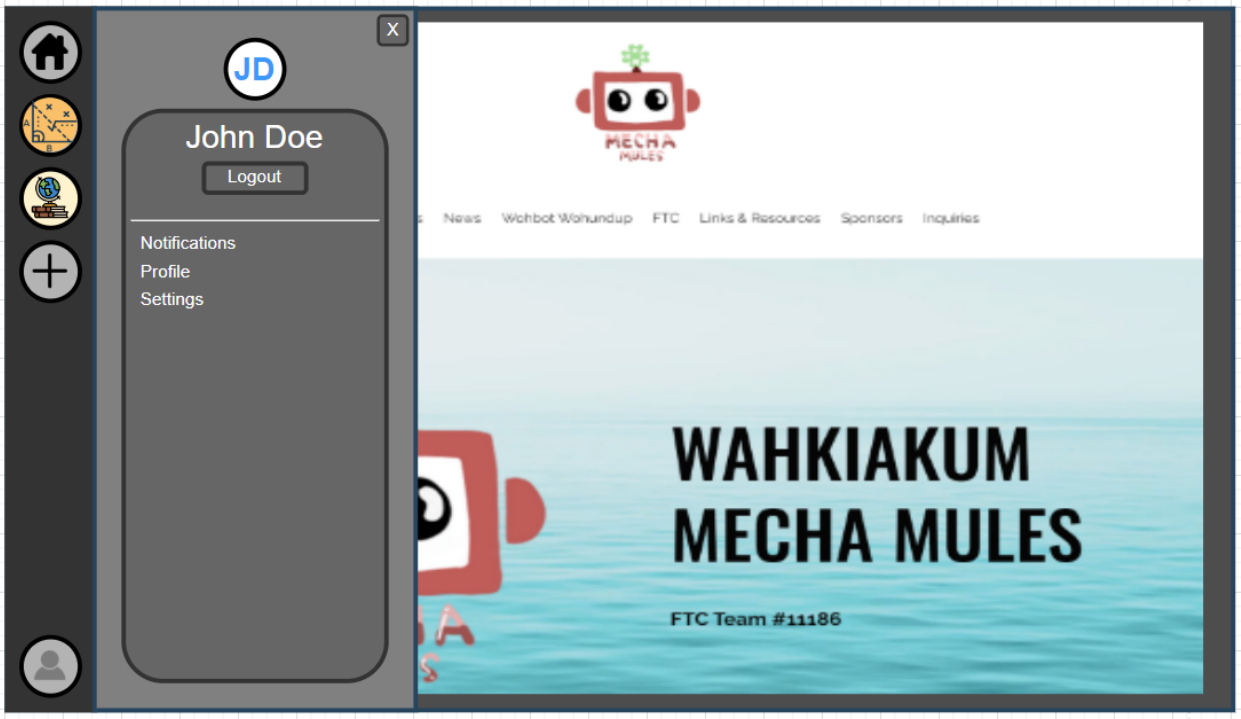
Superuser Login
Superuser email
Superuser Key
Login

(Image 3)

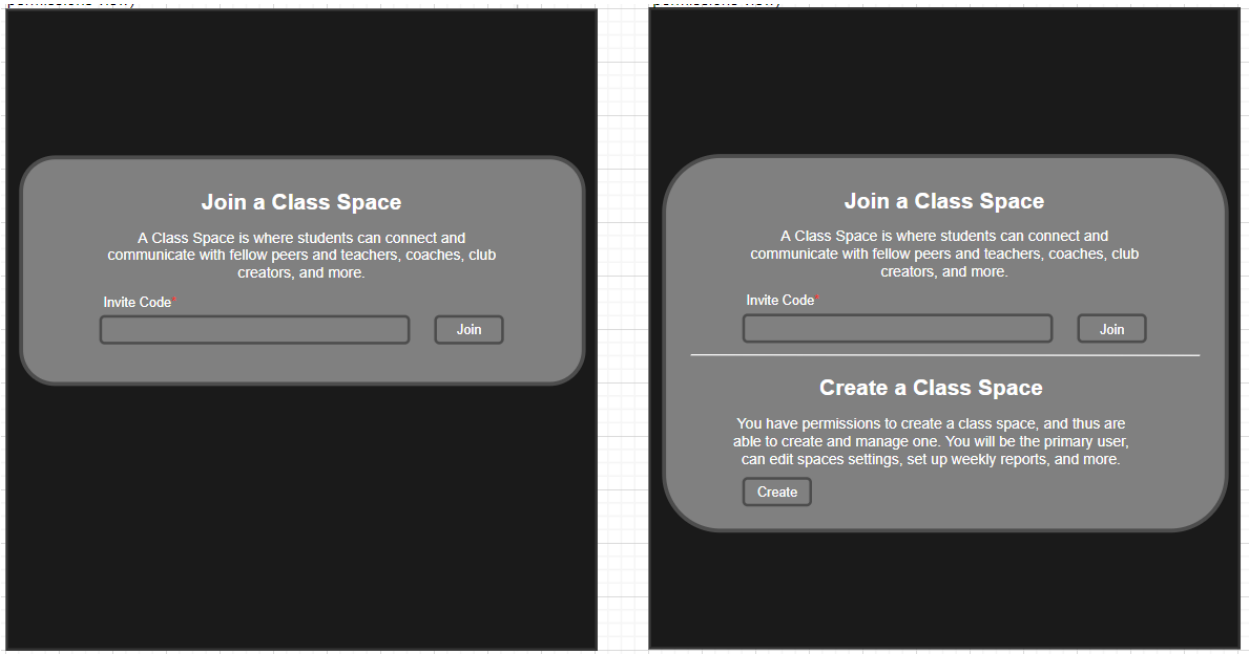

Home
About Us
News
Wahbot Wahundup
FTC
Links & Resources
Sponsors
Inquiries
WAHKIAKUM
MECHA MULES
FTC Team #11186
MECHA
MULES

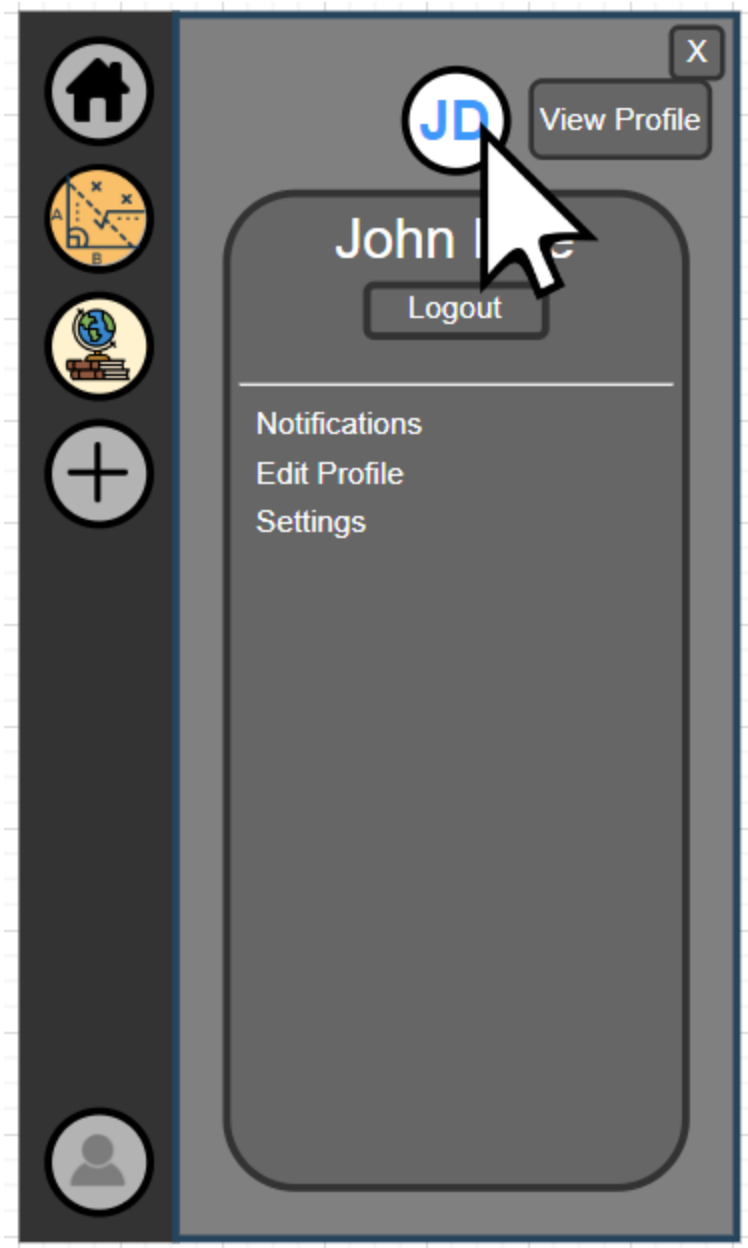
(Image 4)



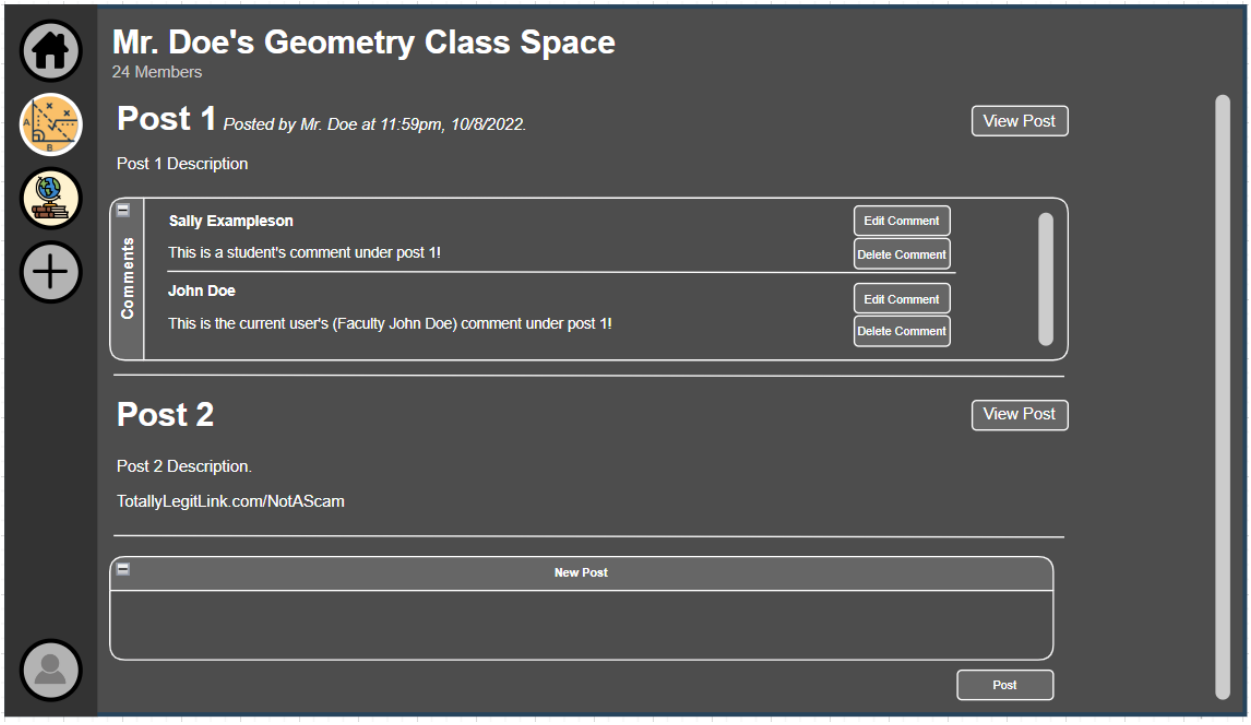
(Image 5)

(Image 6)

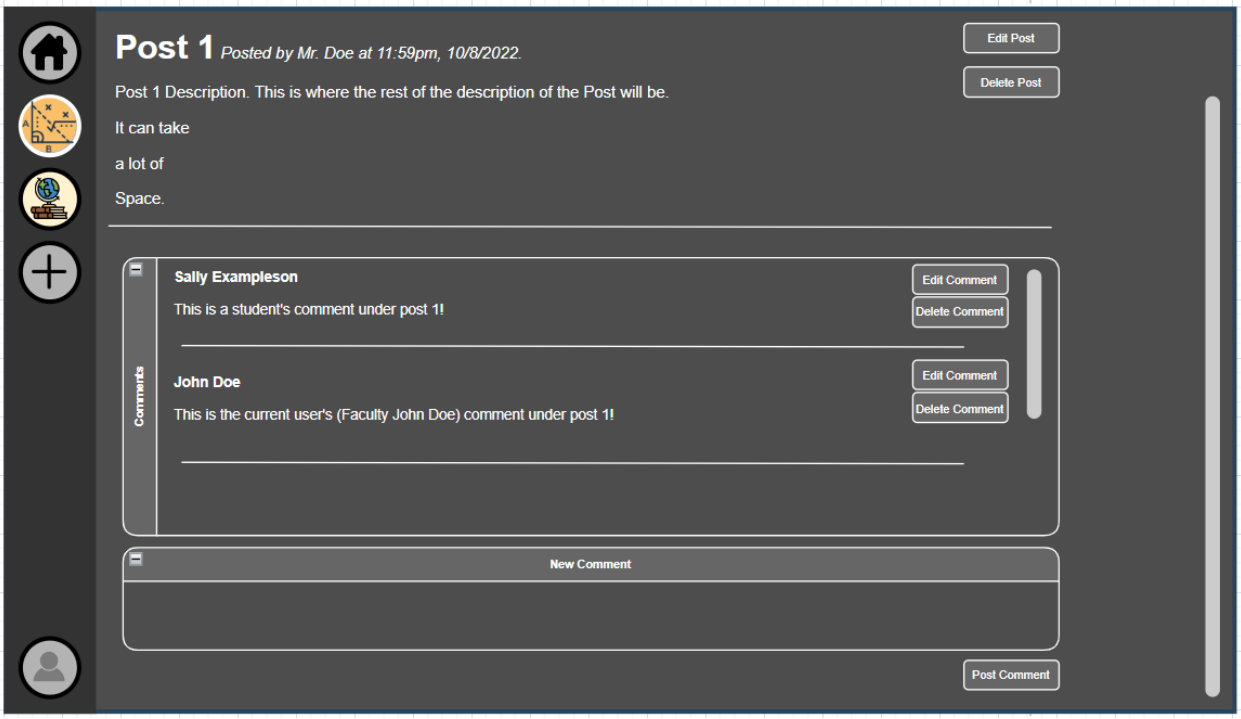

Join a Class Space
A Class Space is where students can connect and communicate with fellow peers and teachers, coaches, club creators, and more.
Invite Code*
Join
Join a Class Space
A Class Space is where students can connect and communicate with fellow peers and teachers, coaches, club creators, and more.
Invite Code*
Join
Create a Class Space
You have permissions to create a class space, and thus are able to create and manage one. You will be the primary user, can edit spaces settings, set up weekly reports, and more.
Create
(Image 7)


X
JD
View Profile
John
Logout
Notifications
Edit Profile
Settings
(Image 8)

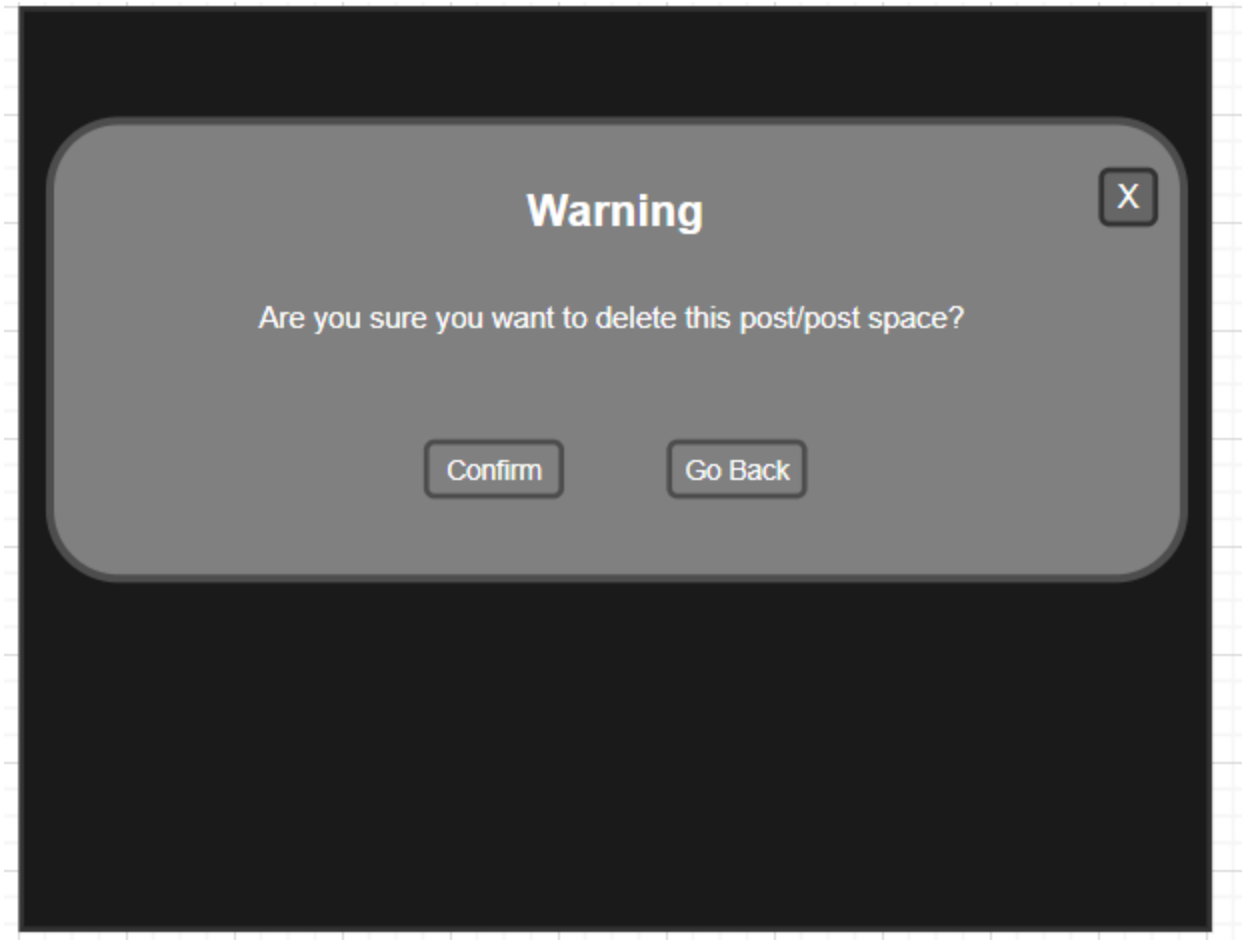
(Image 9)

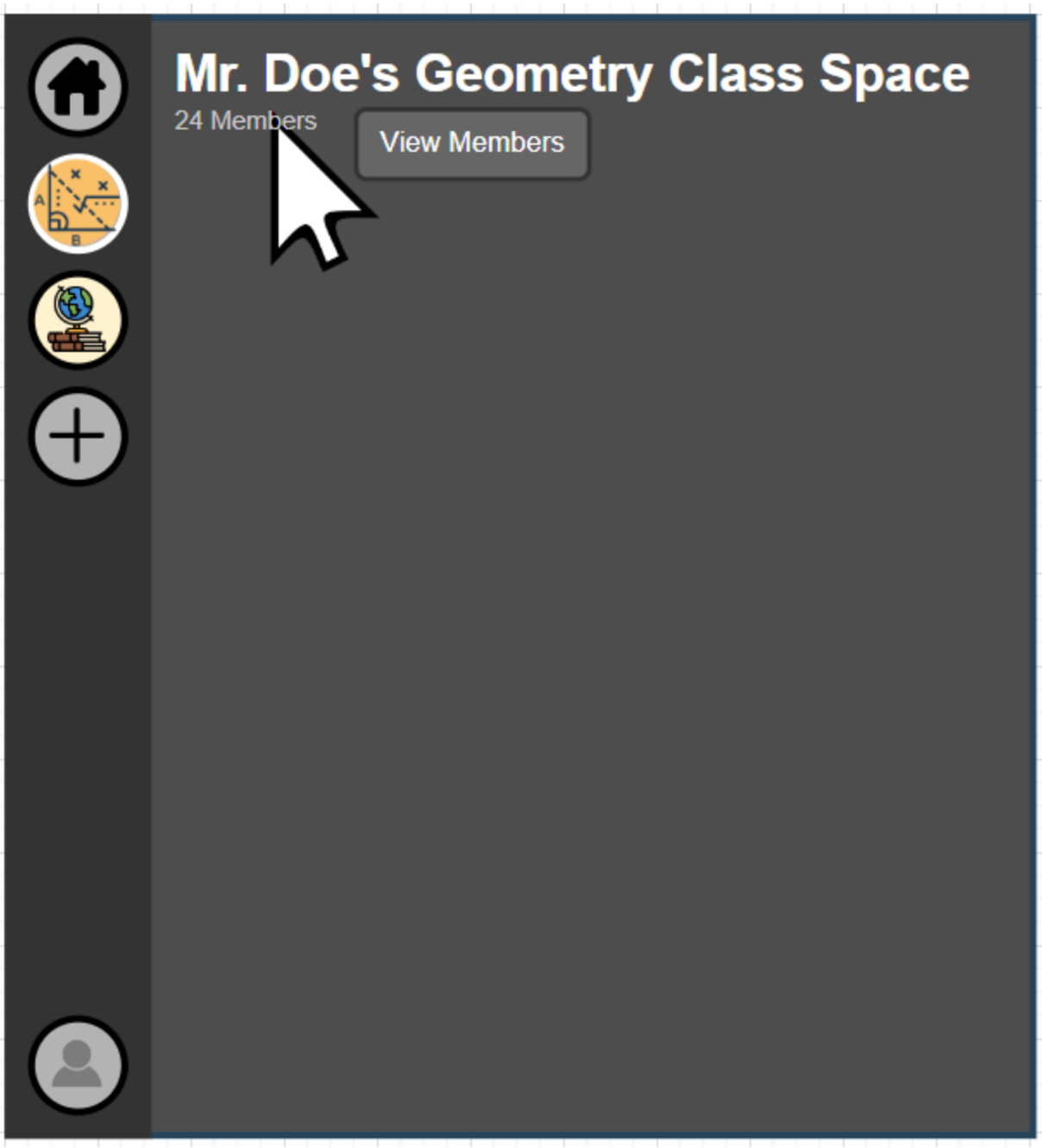


(Image 10)

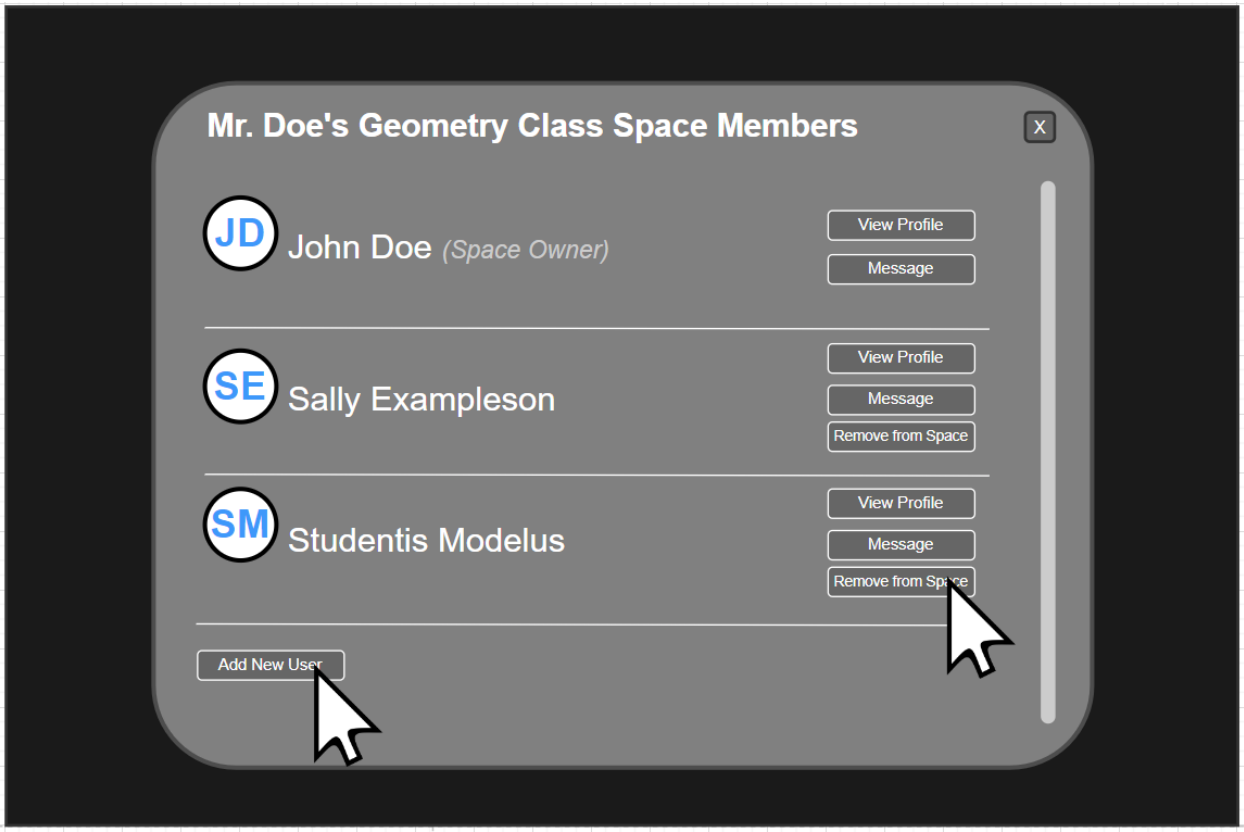

Post 1 Posted by Mr. Doe at 11:59pm, 10/8/2022.
Edit Post
Delete Post
Post 1 Description. This is where the rest of the description of the Post will be.
It can take
a lot of
Space.
Comments
Sally Exampleson
This is a student's comment under post 1!
Edit Comment
Delete Comment
John Doe
This is the current user's (Faculty John Doe) comment under post 1!
Edit Comment
Delete Comment
New Comment
Post Comment

(Image 11)

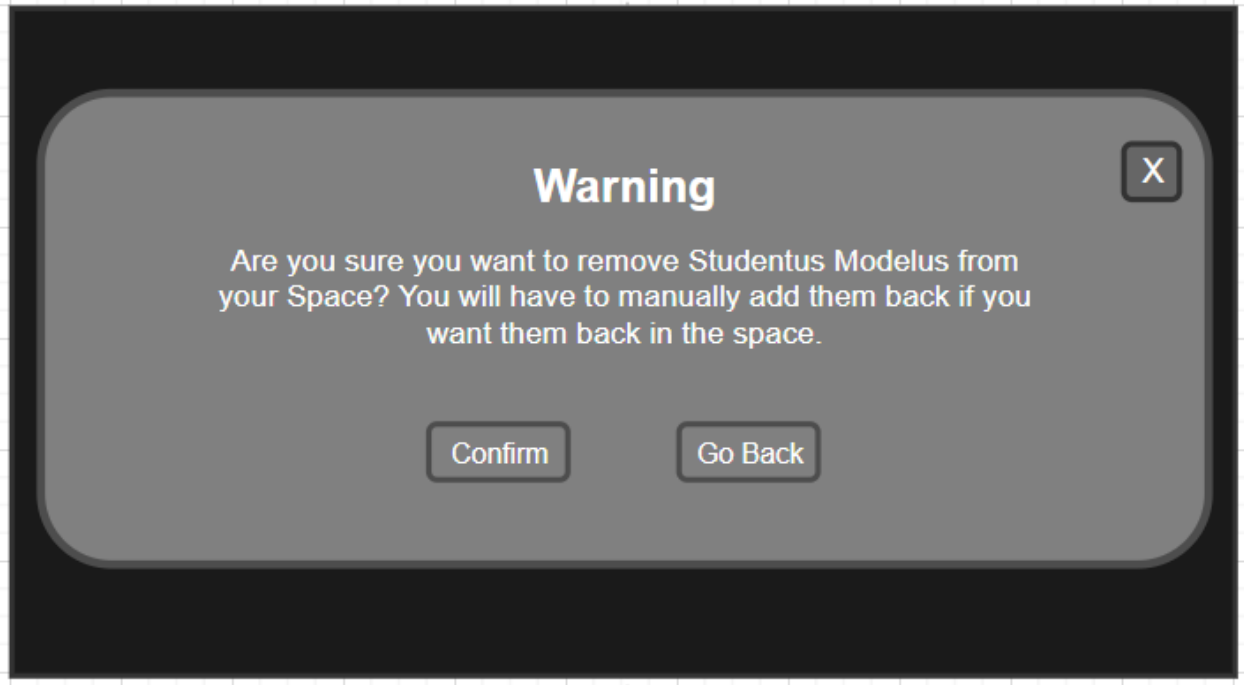

Warning
X
Are you sure you want to delete this post/post space?
Confirm
Go Back
(Image 12)



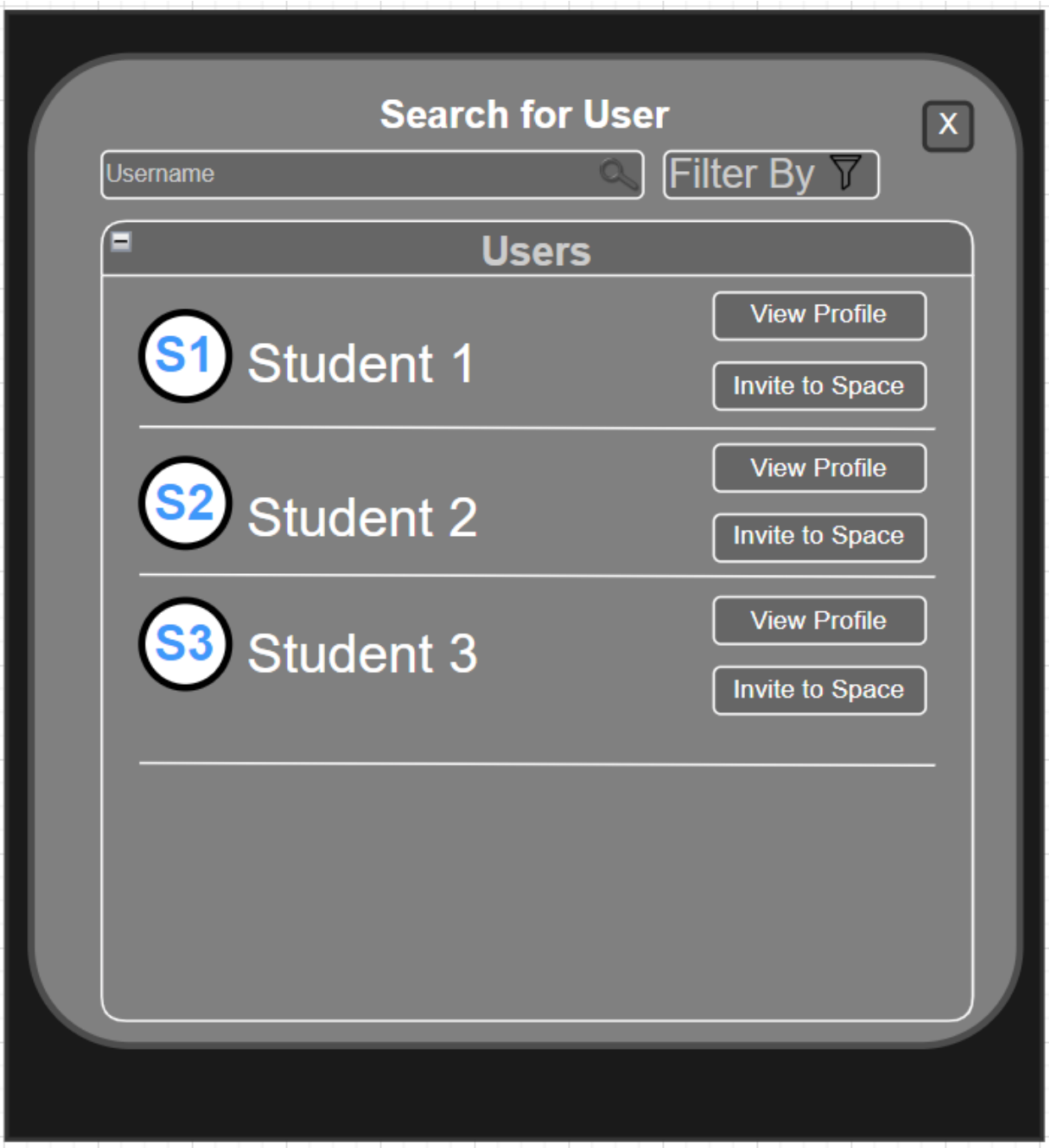
(Image 13)



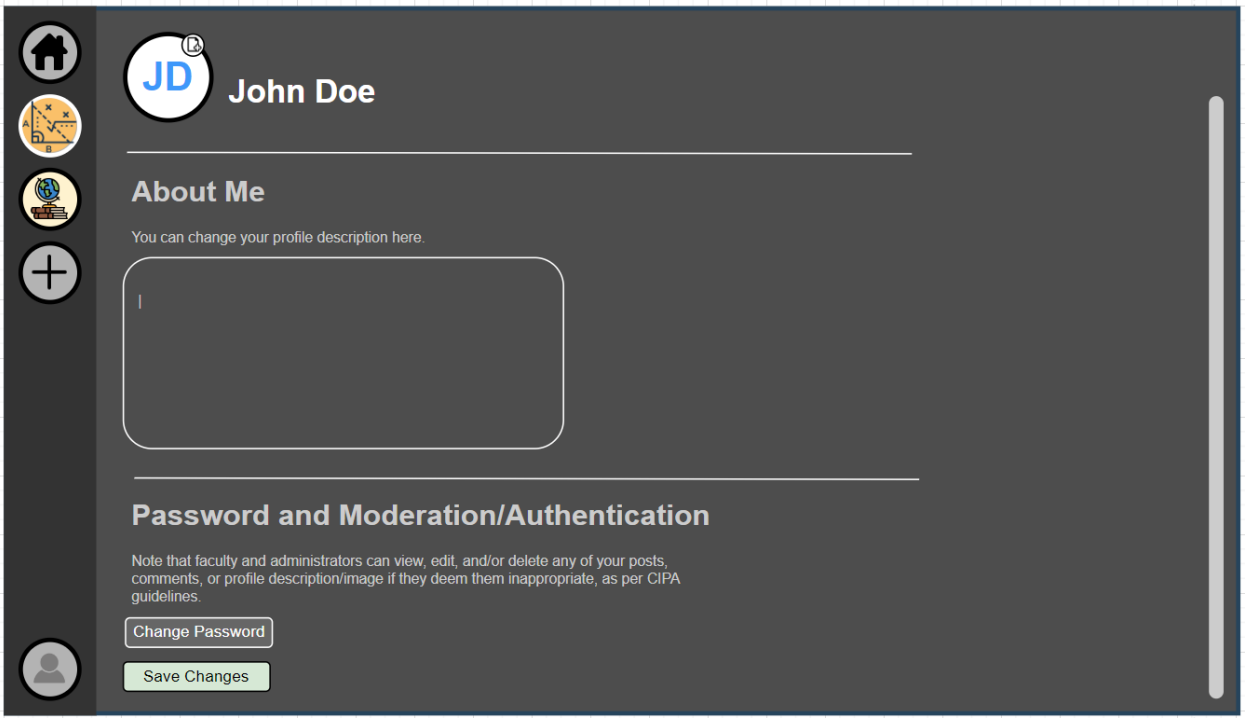
(Image 14)



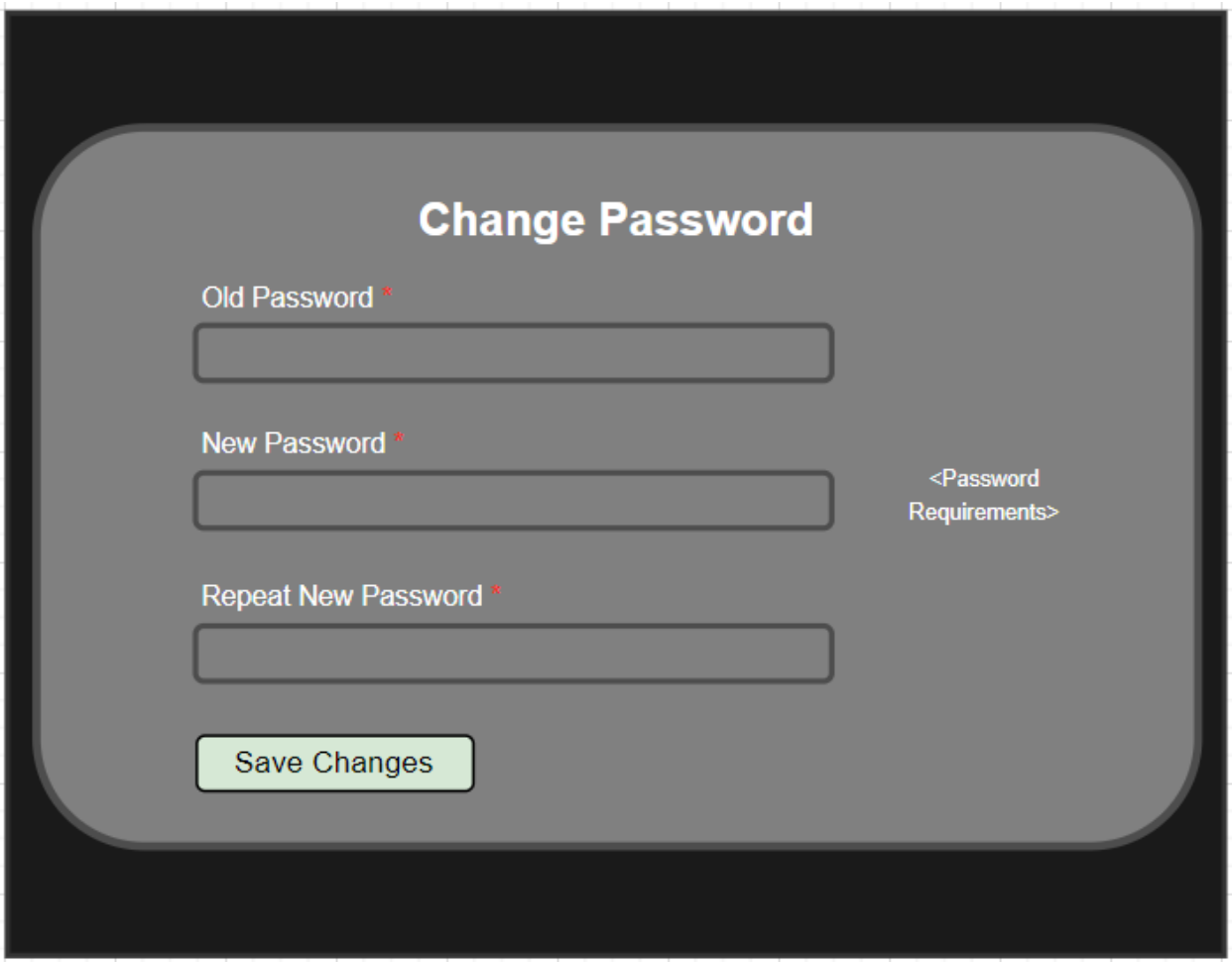
(Image 15)


Search for User
X
Username
Filter By
Users
S1
Student 1
View Profile
Invite to Space
S2
Student 2
View Profile
Invite to Space
S3
Student 3
View Profile
Invite to Space

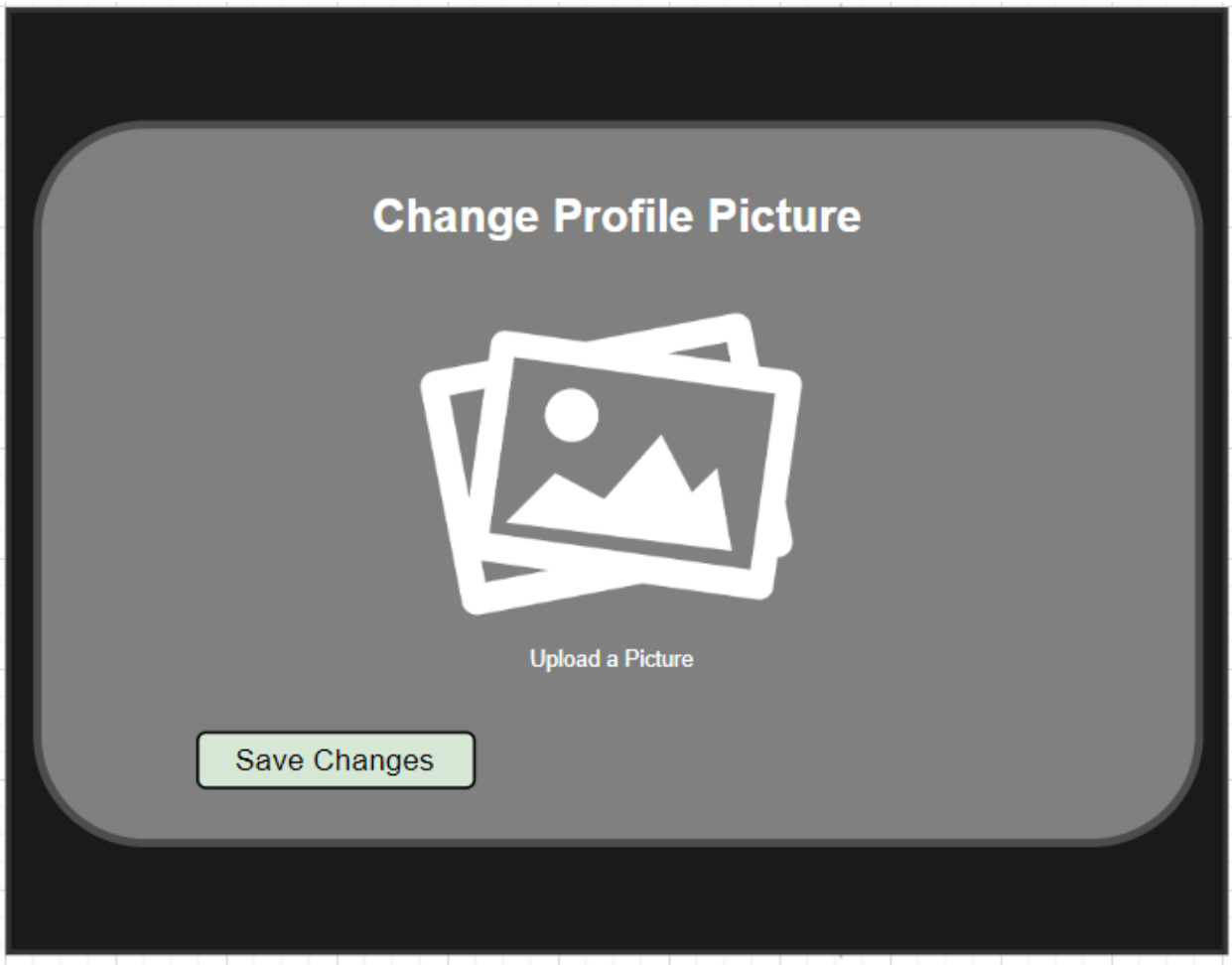
(Image 16)


JD
John Doe
About Me
You can change your profile description here.
Password and Moderation/Authentication
Note that faculty and administrators can view, edit, and/or delete any of your posts, comments, or profile description/image if they deem them inappropriate, as per CIPA guidelines.
Change Password
Save Changes

(Image 17)


Change Password
Old Password *
New Password *
<Password Requirements>
Repeat New Password *
Save Changes

(Image 18)



(Image 19)