

Florida International University
Knight Foundation School of Computing and Information Sciences

Software Engineering Focus

Final Deliverable

Project Title: Blog Post

Team Members: Josue Arreaga, Michelle Pancier, Michael Berenguer, Alvaro Licea

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Mentor(s): Dr. Masoud Sadjadi

Instructor: Dr. Masoud Sadjadi

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Abstract

This document provides a comprehensive overview of the Blog Post project, a capstone initiative aimed at developing a robust, user-friendly communication platform supporting multiple devices and operating systems. The app enables users to create accounts, authenticate securely, manage posts, bookmark content, and consolidate news. Developed using React Native and Supabase, the application ensures a consistent experience across iOS and Android platforms.

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INTRODUCTION

The development of the Blog Post application serves to enhance the user experience in communicating with other users and fostering connections. Currently users are able to:

- Register an account and log-in to the platform
- Modify their profile page and information with various fields
- Create text channels with any user of their choosing
- Communicate with other users via communication channels with support for multiple file types
- React and bookmark messages of note

This first iteration of the implementation of the Blog Post application can serve as a foundation for others trying to embed messaging functionality across other platforms. As the functionality of the application becomes more robust and nuanced, users can form connections with others sharing their interests. It can also be employed on a smaller scale to facilitate easier communication between a group of users.

Current System

Currently, there are limited options for secure, user-friendly communication applications that support seamless interaction across multiple platforms.

Purpose of New System

The Blog Post application aims to provide a secure, intuitive communication platform with features like account creation, post management, bookmarking, and news consolidation. The application is designed to be accessible on both iOS and Android, ensuring a consistent user experience.

USER STORIES

The following section provides the detailed user stories that were implemented in this iteration of the project. These user stories served as the basis for the implementation of the project's features. This section also shows the user stories that are to be considered for future development.

Implemented User Stories

- **Account Creation:** Users can create their own accounts.
- **Authentication:** Secure login to protect user data.
- **Post Management:** Users can delete or modify their posts.
- **Consistent Interface:** Consistent user experience that is simple and intuitive to use.
- **Bookmarking:** Users can bookmark posts for future reference.
- **Cross Platform Support:** Application can work on iOS and Android.
- **Profile Creation:** Users can create and edit their profiles.

Pending User Stories

- **Feedback and Rating System Development**
- **Backend for User Notifications**

PROJECT PLAN

This section describes the planning that went into the realization of this project. This project incorporated the agile development techniques and as such required the sprints to be planned. These sprint plannings are detailed in the section. This section also describes the components, both software and hardware, chosen for this project.

Hardware and Software Resources

Visual Studio Code

Expo Go

Stream

Supabase

Android and iOS Emulation

Android/iOS Device (for testing only)

Sprint Planning

Sprint 1

Sprint Planning Meeting Minutes:

Start time: <9:00pm>

End time: <9:30pm>

After discussion, the velocity of the team was estimated to be 20 hours.

The product owner chose the following user stories to be done during the next sprint. They are ordered based on their priority.

- User Story 1: **User Familiarization** <As a user I want to familiarize myself with other users interests to get to know them better.> **4h**
- User Story 2: **Simple Interface** <As a user I like a simple interface that is easy to follow > **5h**
- User Story 3: **Customizable Interface** <As a user I would like the ability for a more customizable interface so that I can separate my favorite bloggers from bloggers I casually follow.> **3 h**
- User Story 4: **Communication** <As a social user I like to be able to post about my life and contact my friends> **5hr**
- User Story 5: **Up to Date News** <As a user impacted by the news I like to get notification feedback for the latest events> **3h**
- User Story 6: **Personalized Page** <As a user I like to get a newsfeed based on what I like> **10h**

The team members indicated their willingness to work on the following user stories.

<Josue Arreaga>

- User Story 1, User Story 2, User Story 5

<Michael Berenguer>

- User Story 2, User Story 3, User Story 4

<Alvaro Licea>

- User Story 2, User Story 4, User Story 6

<Michelle Pancier>

- User Story 1, User Story 4, User Story 6

Sprint 2

Sprint Planning Meeting Minutes:

Start time: <9:00pm>

End time: <9:30pm>

After discussion, the velocity of the team was estimated to be 20 hours.

The product owner chose the following user stories to be done during the next sprint. They are ordered based on their priority.

- User Story 1: **User Familiarization** <As a user I want to familiarize myself with other users interests to get to know them better.> **4h**
- User Story 2: **Accessible Interface** <As a user I like a accessible interface that can adapt to my needs> **4h**
- User Story 3: **Customizable Interface** <As a user I would like the ability for a more customizable interface so that I can separate my favorite bloggers from bloggers I casually follow.> **3 h**
- User Story 4: **Communication with Tags** <As a social user I like to be able to add tags to my post so those following the tags can access my posts readily.> **3hr**
- User Story 5: **Up to Date News at Selected Times** <As a user impacted by the news I like to get notification feedback for the latest events at my most desired time to prevent impediments in my routine> **3h**
- User Story 6: **Personalized Page** <As a user I like to get a newsfeed based on what I like> **10h**

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- User Story 1, User Story 2, User Story 5

<Michael Berenguer>

- User Story 1, User Story 3, User Story 5

<Alvaro Licea>

- User Story 2, User Story 4, User Story 6

<Michelle Pancier>

- User Story 1, User Story 2, User Story 6

Sprint 3

Sprint Planning Meeting Minutes:

Start time: <9:00pm>

End time: <9:30pm>

After discussion, the velocity of the team was estimated to be 20 hours.

The product owner chose the following user stories to be done during the next sprint. They are ordered based on their priority.

- User Story 1: **Organization Familiarization** <As a user I want to familiarize myself with organizations to get to know them better.> **4h**
- User Story 2: **Accessible Interface** <As a user I like a accessible interface that can adapt to my needs> **4h**
- User Story 3: **Customizable Cosmetic Interface** <As a user I would like the ability for a more customizable interface so that I can have the platform look the way I want.> **3 h**
- User Story 4: **Communication with Tags** <As a social user I like to be able to add tags to my post so those following the tags can access my posts readily.> **3hr**
- User Story 5: **Up to Date News at Selected Times** <As a user impacted by the news I like to get notification feedback for the latest events at my most desired time to prevent impediments in my routine> **3h**
- User Story 6: **Personalized Follow Recommendations** <As a user I like to be recommended to follow others pages based on their interests> **10h**

The team members indicated their willingness to work on the following user stories.

<Josue Arreaga>

- User Story 4, User Story 5, User Story 6

<Michael Berenguer>

- User Story 1, User Story 4, User Story 5

<Alvaro Licea>

- User Story 2, User Story 3, User Story 4

<Michelle Pancier>

- User Story 1, User Story 2, User Story 6

Sprint 4

Sprint Planning Meeting Minutes:

Start time: <9:00pm>

End time: <9:30pm>

After discussion, the velocity of the team was estimated to be 20 hours.

The product owner chose the following user stories to be done during the next sprint. They are ordered based on their priority.

- User Story 1: **Organization Familiarization** <As a user I want to familiarize myself with organizations to get to know them better.> **4h**
- User Story 2: **Consistent Interface** <As a user I like a consistent interface so that I am not confused when navigating the platform> **4h**
- User Story 3: **Customizable Cosmetic Interface** <As a user I would like the ability for a more customizable interface so that I can have the platform look the way I want.> **3 h**
- User Story 4: **Bookmarking** <As a user I like to be able to bookmark posts so I can save them for later use in case I need them.> **3hr**
- User Story 5: **News Consolidation** <As a user I would like to have the news placed in one section so the platform is easier to navigate> **3h**
- User Story 6: **Personalized Follow Recommendations** <As a user I like to be recommended to follow others pages based on their interests> **10h**

The team members indicated their willingness to work on the following user stories.

- <Josue Arreaga>
User Story 3, User Story 5, User Story 6
- <Michael Berenguer>
User Story 1, User Story 4, User Story 5
- <Alvaro Licea>
User Story 2, User Story 3, User Story 4
- <Michelle Pancier>
User Story 1, User Story 2, User Story 6

Sprint 5

Sprint Planning Meeting Minutes:

Start time: <9:00pm>

End time: <9:30pm>

After discussion, the velocity of the team was estimated to be 20 hours.

The product owner chose the following user stories to be done during the next sprint. They are ordered based on their priority.

- User Story 1: **Account Creation** <As a user I want to create my own account so I do not need to associate my name to everything posted.> **4h**
- User Story 2: **Authentication** <As a user I like securely authenticated into an account so the website is secure.> **4h**
- User Story 3: **Post Management** <As a user, I would like to delete or modify posts in case I made a mistake before posting it.> **3 h**
- User Story 4: **Bookmarking** <As a user I like to be able to bookmark posts so I can save them for later use in case I need them.> **3hr**
- User Story 5: **News Consolidation** <As a user I would like to have the news placed in one section so the platform is easier to navigate> **3h**
- User Story 6: **Profile Creation** <As a user I like to edit a profile so others can see who I am like> **4h**

The team members indicated their willingness to work on the following user stories.

<Josue Arreaga>

- User Story 3, User Story 5, User Story 6

<Michael Berenguer>

- User Story 1, User Story 4, User Story 5

<Alvaro Licea>

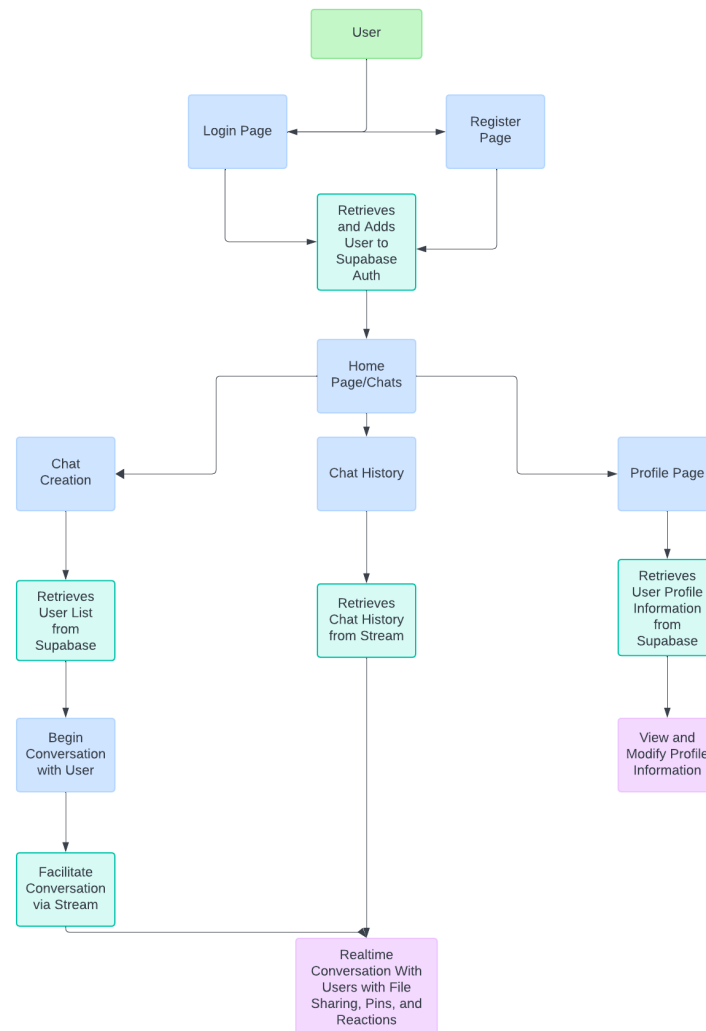
- User Story 2, User Story 3, User Story 4

<Michelle Pancier>

- User Story 1, User Story 2, User Story 6

SYSTEM DESIGN

In this section, we delve into the design decisions underlying this project. We provide insights into the chosen architecture patterns, elucidating their significance. A comprehensive package diagram illustrates the entire system, accompanied by explanations of its subsystems. Lastly, we explore the design patterns employed throughout the project, offering insights into their implementation and impact.



Architectural Patterns

The app leverages a combination of MVC (Model-View-Controller) and microservices architectures to ensure modularity and scalability. React Native is used for cross-platform front-end development, while Supabase handles backend services including authentication and data management.

System and Subsystem Decomposition

The system is divided into several subsystems:

- **User Management:** Handles account creation, authentication, and profile management.
- **Content Management:** Manages posts, bookmarks, and news consolidation.
- **Communication Module:** Ensures seamless interaction between users.

Deployment Diagram

The app is deployed on both iOS and Android platforms, utilizing cloud-based services for backend operations.

Design Patterns

Key design patterns include:

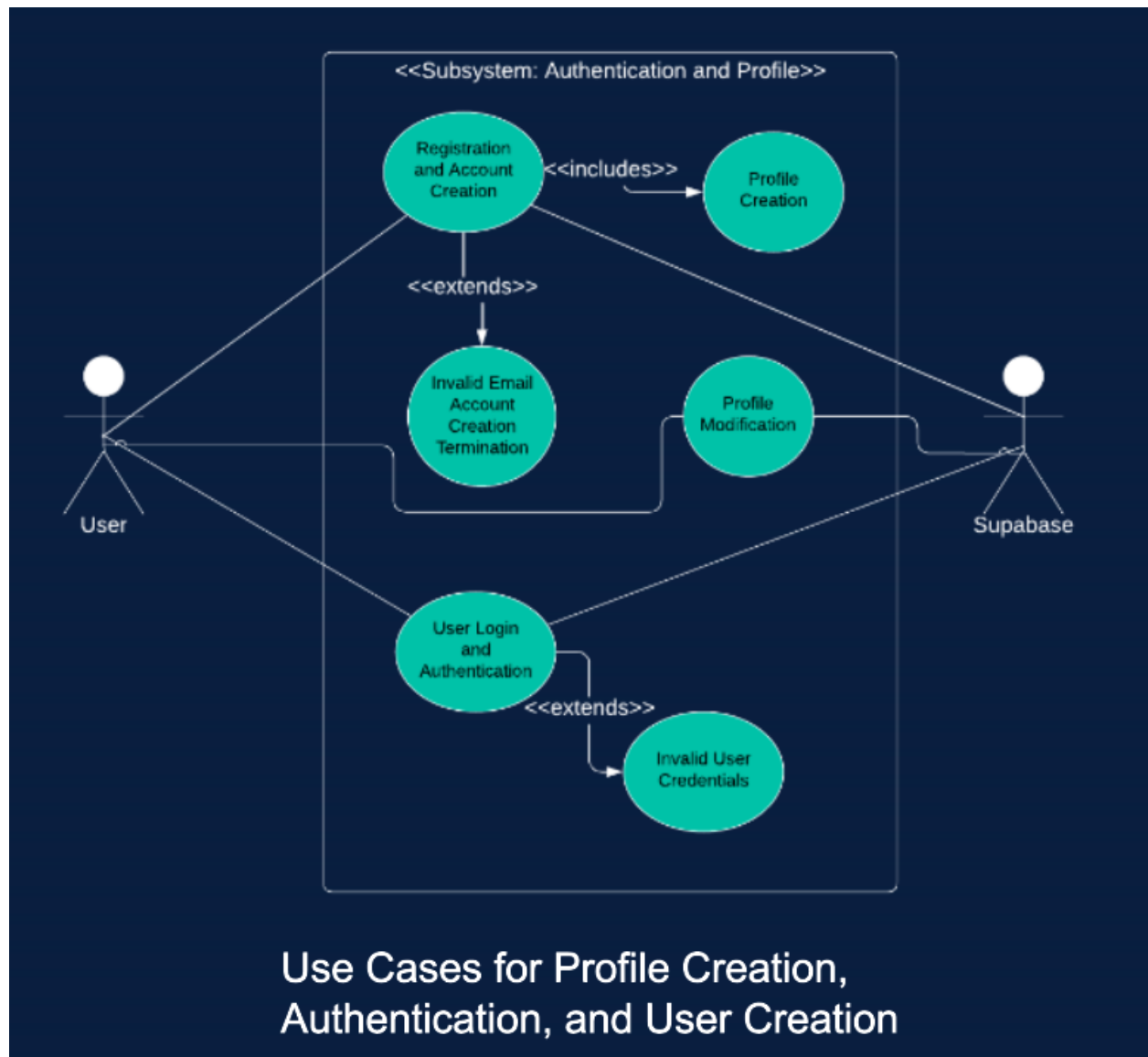
- **Observer Pattern:** For updating UI components in response to state changes.
- **Singleton Pattern:** Ensures a single instance of core services like authentication.
- **Factory Pattern:** For creating instances of various UI components dynamically.

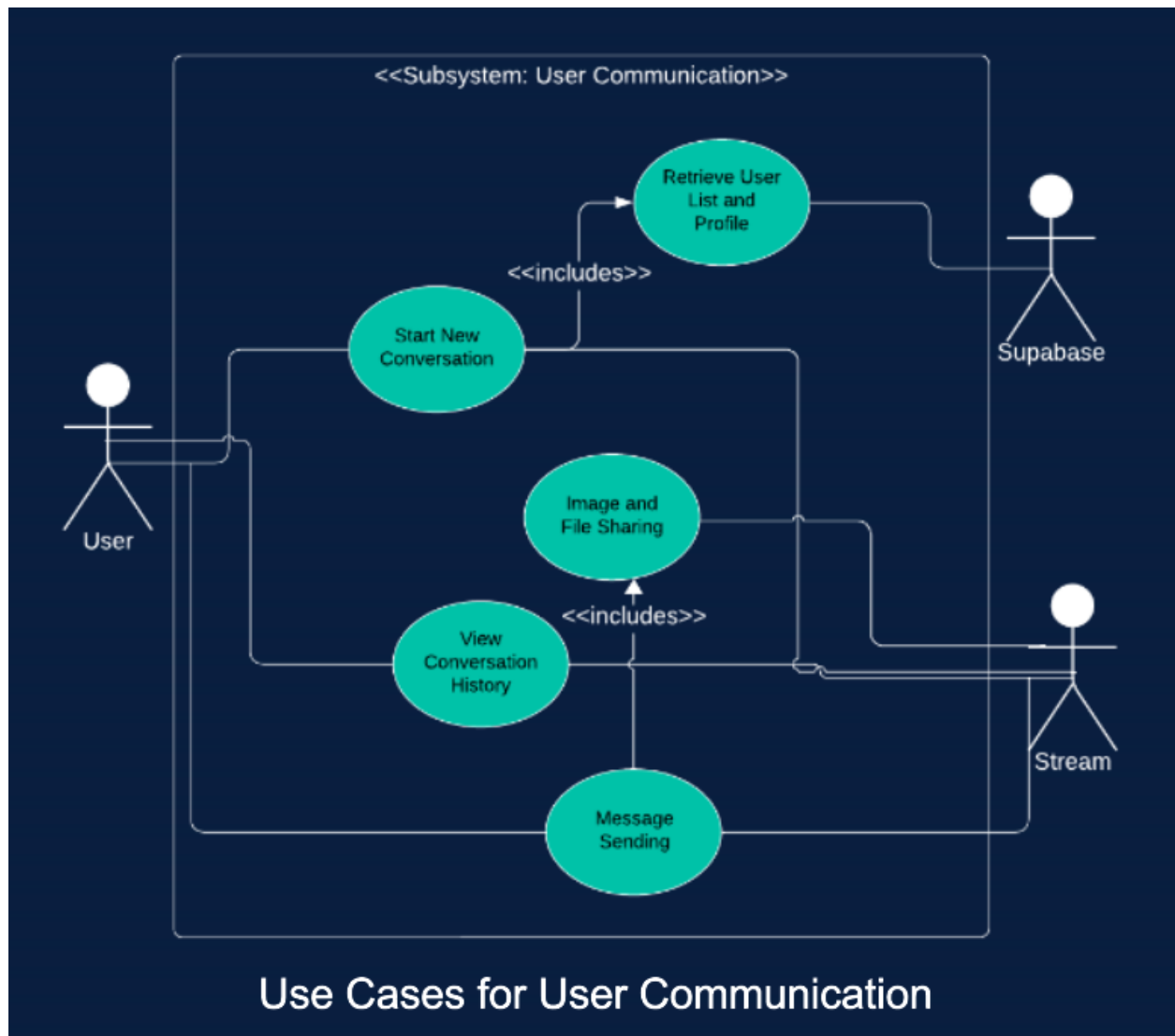
SYSTEM VALIDATION

The Blog Post application underwent rigorous testing procedures, primarily conducted locally through emulators and mobile devices. Error checking was facilitated by monitoring console log outputs to identify and debug any issues. Testing efforts were concentrated on primarily three main aspects, this includes the application's functionality, layout, and communication with the desired database. Functionality testing involved thorough examination of buttons and components to ensure seamless operation. Additionally, the layout was scrutinized across various screen sizes to guarantee optimal user experience. Furthermore, backend testing was executed to validate the accurate creation of user profiles and verify the authentication process during login. This comprehensive testing approach ensured the reliability and effectiveness of the Blog Post application across all its functionalities.

APPENDIX

UML Diagrams





User Interface Design

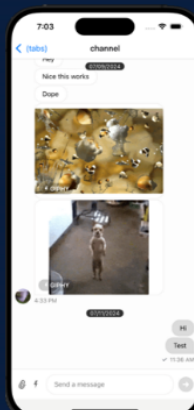
Chat Channel System



Depicts bookmarking and reaction functionality



Selecting a user to engage with.



Depicts file sharing and text sharing



Conversation History

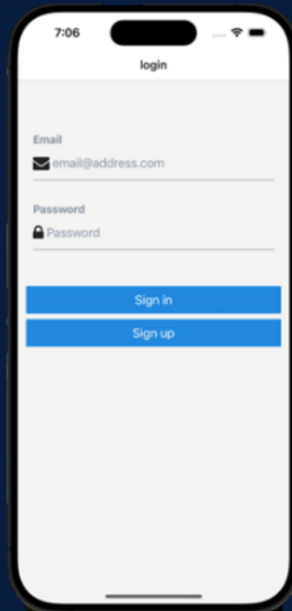
Profile and Edit Profile Page



Users are able to navigate to their profile page by selecting the profile icon at the right of the navigation bar.

Once at the profile page, users can edit their profile by adding their name, username, and other demographic information such as their website. The email listed is the one associated with their account. Users can also upload an image to serve as their profile image.

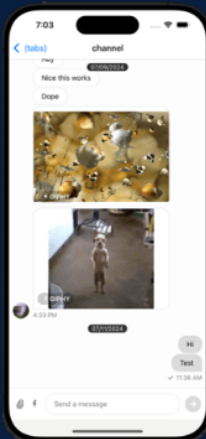
Authentication



Users are able to create an account and register by typing in an email, password, and clicking sign up. When a user registers, a notification will appear saying the account has been created.

Users can utilize the same screen to sign in utilizing the email and password they had provided. Once logged in, users will be launched into their chat history.

Cross Platform Support



Application running efficiently atop iOS platform. Depicts communication across multiple users across a text channel. Supports image functionality.



Application running on Android platform. Depicts communication across multiple users across a text channel where users are highlighting messages of interest.

Application can run on latest versions of both iOS and Android, supporting iOS 17 and Android 14 .

Sprint Review Reports

Sprint 1

Review Meeting Minutes

Start time: <8:00pm>

End time: <8:30pm>

After a show and tell presentation, the implementation of the following user stories were accepted by the product owners:

User Story 2: **Simple Interface** <As a user I like a simple interface that is easy to follow>

User Story 4: **Communication** <As a social user I like to be able to post about my life and contact my friends>

User Story 5: **Up to Date News** <As a user impacted by the news I like to get notification feedback for the latest events>

The following ones were rejected and moved back to the product backlog to be assigned to a future sprint at a future Sprint Planning meeting.

- User Story 1: **User Familiarization** <As a user I want to familiarize myself with other users interests to get to know them better.>
- User Story 3: **Customizable Interface** <As a user I would like the ability for a more customizable interface so that I can separate my favorite bloggers from bloggers I casually follow.> **3 h**
- User Story 6: Personalized Page <As a user I like to get a newsfeed based on what I like> **10h**

Sprint 2

Review Meeting Minutes

Start time: <8:00pm>

End time: <8:30pm>

After a show and tell presentation, the implementation of the following user stories were accepted by the product owners:

- User Story 1: **User Familiarization** <As a user I want to familiarize myself with other users interests to get to know them better.>
- User Story 3: **Customizable Interface** <As a user I would like the ability for a more customizable interface so that I can separate my favorite bloggers from bloggers I casually follow.> **3 h**
- User Story 6: **Personalized Page** <As a user I like to get a newsfeed based on what I like> **10h**

The following ones were rejected and moved back to the product backlog to be assigned to a future sprint at a future Sprint Planning meeting.

- User Story 2: **Accessible Interface** <As a user I like a accessible interface that can adapt to my needs> **4h**
- User Story 4: **Communication with Tags** <As a social user I like to be able to add tags to my post so those following the tags can access my posts readily.> **3hr**
- User Story 5: **Up to Date News at Selected Times** <As a user impacted by the news I like to get notification feedback for the latest events at my most desired time to prevent impediments in my routine> **3h**

Sprint 3

Review Meeting Minutes

Start time: <8:00pm>

End time: <8:30pm>

After a show and tell presentation, the implementation of the following user stories were accepted by the product owners:

- User Story 2: **Accessible Interface** <As a user I like a accessible interface that can adapt to my needs>
- User Story 4: **Communication with Tags** <As a social user I like to be able to add tags to my post so those following the tags can access my posts readily.>
- User Story 5: **Up to Date News at Selected Times** <As a user impacted by the news I like to get notification feedback for the latest events at my most desired time to prevent impediments in my routine>

The following ones were rejected and moved back to the product backlog to be assigned to a future sprint at a future Sprint Planning meeting.

- User Story 1: **Organization Familiarization** <As a user I want to familiarize myself with organizations to get to know them better.>
- User Story 3: **Customizable Cosmetic Interface** <As a user I would like the ability for a more customizable interface so that I can have the platform look the way I want.>
- User Story 6: **Personalized Follow Recommendations** <As a user I like to be recommended to follow others pages based on their interests>

Sprint 4

Review Meeting Minutes

Start time: <8:00pm>

End time: <8:30pm>

After a show and tell presentation, the implementation of the following user stories were accepted by the product owners:

- User Story 1: **Organization Familiarization** <As a user I want to familiarize myself with organizations to get to know them better.>
- User Story 2: **Consistent Interface** <As a user I like a consistent interface so that I am not confused when navigating the platform>
- User Story 3: **Customizable Cosmetic Interface** <As a user I would like the ability for a more customizable interface so that I can have the platform look the way I want.>
- User Story 6: **Personalized Follow Recommendations** <As a user I like to be recommended to follow others pages based on their interests>

The following ones were rejected and moved back to the product backlog to be assigned to a future sprint at a future Sprint Planning meeting.

- User Story 4: **Bookmarking** <As a user I like to be able to bookmark posts so I can save them for later use in case I need them.>
- User Story 5: **News Consolidation** <As a user I would like to have the news placed in one section so the platform is easier to navigate>

Sprint 5

Review Meeting Minutes

Start time: <8:00pm>

End time: <8:30pm>

After a show and tell presentation, the implementation of the following user stories were accepted by the product owners:

- User Story 1: **Account Creation** <As a user I want to create my own account so I do not need to associate my name to everything posted.>
- User Story 2: **Authentication** <As a user I like securely authenticated into an account so the website is secure.>
- User Story 3: **Post Management** <As a user, I would like to delete or modify posts in case I made a mistake before posting it.>
- User Story 4: **Bookmarking** <As a user I like to be able to bookmark posts so I can save them for later use in case I need them.>
- User Story 5: **News Consolidation** <As a user I would like to have the news placed in one section so the platform is easier to navigate>
- User Story 6: **Profile Creation** <As a user I like to edit a profile so others can see who I am like>

The following ones were rejected and moved back to the product backlog to be assigned to a future sprint at a future Sprint Planning meeting.

- None rejected

Appendix D - User Manuals, Installation/Maintenance Document, Shortcomings/Wishlist Document and other documents

User Manual Installation

Requirements:

This installation requires two devices, a laptop or desktop and a mobile device. They must both be connected to the same Network.

Steps (Desktop/Laptop):

1. Download [node.js](#)
2. Download [VSCode](#) (Recommended) or the IDE of your choice
3. Download [Homebrew](#) and install
4. Open the terminal in VS Code. Try (**Control + `**), this may work for you.
5. Inside the terminal at the Interface folder enter "**npm install**" this will download the required project dependencies.
 - a. If you see any warnings notice VS code will give you commands to address them. Copy them, paste them into the terminal, and run them.
6. After downloading the dependencies enter "**npm expo start**", [this is best practice](#).
 - a. If there are any warnings or errors VS code will give you commands to fix them. In order to enter the given commands press (control + c), this will stop the program from running. You can then enter the commands into the terminal and run them. Afterwards, enter "**npm expo start**" to re-run the app, this time without problems.
7. If at this point you are able to see a QR code (scroll up) you have successfully completed this part.

Steps (Mobile):

1. Download the Expo Go app in your Play Store or App Store. (create an account if required)
2. Inside of Expo Go in the Home tab, look for "Scan QR code", click it.
3. Give Expo Go permissions to capture images, and scan the QR code from your desktop/laptop
4. Cross your fingers, the application will begin to load into your phone automatically
 - a. Notice if your app at points becomes disconnected or laggy within your desktop press "r" this will reload the application for your device. At times you may have to quit the mobile application and enter it again. If the problem persists, stop the application in VS code (control + c), start it again (npx expo start), and start the mobile application again.

Maintenance

If there are ever any problems make sure to clear the cache and the data of the app.

Shortcomings

- Due to difficulties in receiving news feeds, the functionality of users receiving news information could not be realized as intended. Users could communicate to each other about news information, but it could not be placed within its own feed.
- As a result of performance issues and a lacking test user base, a recommendation engine could not be realized. Users can view a user's profile to gauge their interests at the moment.
- The level of customizability that was originally planned for the interface needed to be cut down due to time constraints. Future implementations will attempt to allow a greater degree of customization that can coincide with customization settings existing on the user's device.
- The notification system is limited, in that users are only informed of new messages on the platform itself. Realizing a customizable push notification system would be prudent in future iterations of the application.

Wishlist

- When sharing images, users can place a spoiler or warning feature for sensitive content they can share with users.
- A robust recommendation algorithm that takes information from a user's profile and recommends to users who to chat with
- A functionality to make posts for the whole community to see instead of directly messaging others.
- Increasing cross platform support to include web applications and installable software, including potential to implement embedded version of application
- Greater customizability within authentication and account creation, as users can use multiple accounts from 3rd party websites to log-in to the platform, alongside more secure log-in functionality such as MFA.