CEN 4010 Principles of Software Engineering Spring 2021

Milestone 5: Final Project Portfolio
Group 11: DIVOC Forum

Team Project URL:
https://lamp.eng.fau.edu/~cen4010_s21_g11/forum-topic-prototype/www/home.html

Group About Us Page: https://lamp.eng.fau.edu/~cen4010_s21_g11/

Team Members	Emails	Roles
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20 April 2021

Version History:

1.01	Document Template	11 February 2021
1.02	Initial Draft	15 February 2021
1.03	Final Draft	16 February 2021
1.04	Milestone 3 Adjustments	6 April 2021
1.05	Milestone 4 Adjustments	13 April 2021
1.06	Milestone 5 Adjustments	20 April 2021

3.2 Project Summary

The DIVOC Forum combines elements of social media platforms as well as elements from resource forums to create an educational and community-based site all in one. DIVOC achieves this by having an online community of people to share information, educate each other, and provide emotional support during these difficult times of being socially distant from others.

Priority one functional requirements are as follows:

The DIVOC Forum allows <u>signed-out users</u> to:

1. Create an account,
2. Search through posts using the search bar,
3. View basic user profiles.
4. View posts,
5. View comments.

While <u>signed-in users</u> can:

6. Search through posts using the search bar,
7. View basic user profiles,
8. Edit personal profiles,
9. Choose from a selection of icons to set as their profile picture,
10. Create a post within a specific topic,
11. Give the post a title and body of text,
12. Interact with posts by giving the post a "like" or "dislike",
13. Or commenting on posts created by other users.

Click on the URL below to see our website in action!

https://lamp.cse.fau.edu/~cen4010_s21_g11/forum-topic-prototype/www/home.html

3.3 Milestone documents

Executive Summary

The COVID-19 Forum, "DIVOC" is a software project in development by CEN4010 Group 11. DIVOC will be used to associate people whose lives have been affected by the world's current pandemic.

DIVOC will be accessible via web browser and will allow users to view posts created by others. Users can create accounts to interact with other people within the forum. Features such as creating, liking, and commenting on posts will be made available to further enhance the engagement amongst the users. DIVOC will be organized by topics such as "news" and "mental health" in order to let users navigate to content they wish to see in a seamless manner. Additionally, DIVOC will be optimized for viewing on mobile devices, ensuring that anyone can access anything within the forum with ease no matter where they are - be it news, emotional support, etc.

The goal of DIVOC is to connect users through shared experiences and feelings that have been caused by the Corona virus pandemic. This global catastrophe has drastically changed the lives of everyone in the entire world. Group 11 hopes that DIVOC will encourage people to join and share information about the ongoing epidemic; whether it be scientific data or emotional support resources, DIVOC will be a place to bring a sense of normalcy upon users during such an abnormal time.

People who choose not to create an account will still be able to navigate through the site, but with some limitations on the features they may interact with. Features such as creating, commenting on, or liking posts will only be available to those with an account. Therefore, in order to experience everything that DIVOC has to offer, Group 11 recommends creating an account. We in Group 11 believe such valuable information should be available to everyone, thus we have made posts available for viewing by anyone at any time.

Users who are registering for an account will input information such as their username, email address, and desired password. Group 11 is dedicated to protecting the information of all users and will put in place top-tier security measures to ensure that data is encrypted and secure.

Group 11 understands that connecting during these times of social distancing can feel impossible. We hope that DIVOC will bring people together by offering a supportive community that encourages educational and positive discussion regarding an objectively negative situation.

Competitive analysis

	DIVOC	Reddit	Patient Forum	WSMA COVID-19 Discussion	ACOEM COVID-19 Resource Center
Central COVID Theme	✓	X	X	✓	✓
Posting	✓	✓	✓	✓	✓
Reactions and Commenting on Posts	✓	✓	✓	✓	X
Forum Search Engine	✓	✓	✓	X	✓
Organized Topics	✓	✓	✓	X	X
Community Based/Sourced	✓	✓	✓	X	X

DIVOC will have a search engine that easily filters through posts via keywords. When posting to DIVOC, the authorized user will be prompted to enter a title and a body of text to include as part of their post. As far as interacting and building a community out of DIVOC, the authorized users will be able to comment on posts as well as give reactions through likes and dislikes.

Unlike our competitors, DIVOC will combine elements of social media platforms as well as elements from resource forums to form an educational and community-based site all in one. The WSMA and ACOEM discussion boards are not accessible to the public and focus primarily on information sharing between physicians and medical practitioners. DIVOC will keep information easily accessible to all authorized and unauthorized users.

Data definition

User Account		
Attribute	*Description*	*Type*
username	A user's display name on the website displayed for both unauthorized and authorized users	Text
password	A user's hashed password to log in to the website	Text
first_name	A user's first name that is displayed for both authorized and unauthorized users	Text
last_name	A user's last name that is displayed for authorized users only	Text
email	A user's email that is used for account creation and log in that is displayed for an authorized user viewing their personal account	Text
total_post	Number of posts created by a user that is displayed for both unauthorized and authorized users	Integer
Topics		
topic_name	The name of a topic	Text
topic_posts	All posts made to a topic	Firebase Document
Posts		
Created	The date for when a post was first created	Timestamp
Text_body	The body of text for the main portion of a post	Text
likes	Number of positive reactions on a post	Integer

dislikes	Number of negative reactions on a post	Integer
comments	Number of comments on a post	Integer

Overview, scenarios and use cases

Accessible to anyone who has a personal computer or a smartphone, DIVOC is a platform created to help people from all over the world to connect with each other during this difficult time. It is a place for users to create, share, and discuss their personal experiences related to COVID, while managing to stay in the loop regarding official news about the CoronaVirus. DIVOC attracts a wide set of audience and can easily become the preferred platform to exchange/gain knowledge about the COVID-19 virus.

Users are able to create flexible posts/replies. Database administrators will be able to remove any discussion, and/or reply they see unfit for the site. DIVOC visitors who do not have an account will be able to view the forum but are limited in terms of engagement. These individuals may not like, create, or comment on posts. Users with an account will have access to all the aforementioned features and additionally will have their own profile page.

When creating a post, users will be able to choose which topic they wish to contribute to. Users will be prompted to add a post title and body of text.

DIVOC can be used to share information such as tips for soothing one's anxiety levels, finding new ways to keep safe, and expanding one's general knowledge about the virus.

Thus, DIVOC can be an excellent research tool where users can easily kindle new ideas/opinions about the virus. No matter if a user is simply an observer or someone who participates regularly in discussions, everyone will be allowed to observe the same amount of information.

Initial list of high-level functional requirements

FR Priority:

1 (must have) – FR01, FR01.1, FR01.3, FR02, FR02.1, FR02.2, FR03, FR03.1, FR03.2, FR05, FR05.1, FR06, FR06.1, FR06.2

2 (desired) – FR01.2, FR02.3, FR02.4, FR05.2, FR5.3, FR07, FR07.1

3 (opportunistic) – FR06.3, FR07.2, FR08, FR04, FR04.1

FR01 – An unauthorized user will be able to create a unique account.

>   FR01.1 – An authorized user will have a unique username.

>   FR01.2 – An authorized user will have a unique profile picture.

>   FR01.3 – An authorized user will be able to comment on posts, create posts, and like posts.

FR02 – An unauthorized user will not be able to create posts.

>   FR02.1 – An authorized user will be able to create a post that contributes to a defined set of topics.

>   FR02.2 – An authorized user will be prompted to give the created post a title and a body of text.

>   FR02.3 – An authorized user will be prompted to give the post an optional amount of predefined tags based on topics, to enable people to easily find the given post.

>   FR02.4 – An authorized user will be able to add an image instead of a body of text.

FR03 – An unauthorized user will not be able to interact with posts, only view them.

>   FR03.1 – An authorized user will be able to react to posts with a "like" or "dislike."

>   FR03.2 – An authorized user will be able to comment on other posts.

FR04 – An unauthorized user will not be able to "follow" specific topics.

>   FR04.1 – An authorized user will be able to customize what they see by "following" any desired topic.

FR05 – An unauthorized user will be able to search through forum posts using keywords.

FR05.1 – An authorized user will be able to search through forum posts using keywords.

FR05.2 – The system will search for the keywords in the tagged section of a post first.

FR05.3 – The system will then find results of the keywords as part of the text body after.

FR06 – An unauthorized user will be able to view the profiles of other users.

FR06.1 – An authorized user will be able to view the profiles of other users.

FR06.2 – The system will display the username, first name, posts created by that user, and the number of posts created when viewing another user's profile whether the viewing user is authorized or not.

FR06.3 – The system will display your username, first and last name, location, email you signed up with, a bio, a list of topics you follow, posts you've created, number of posts you've created, other social media links or telephone number if you include it, admin status, as well as an edit profile button under your own profile tab.

FR07 – The system will organize the posts in chronological order, with most recent at the top for both authorized and unauthorized users.

FR07.1 – The system will organize different topics in chronological order, with most recent at the top for both authorized and unauthorized users.

FR07.2 – The system will display suggested topics to follow to authorized users on the home page.

FR08 – The system will display COVID-19 data from a COVID-19 Data API for both authorized and unauthorized users.

List of non-functional requirements

1. Security
   a. Password hashing to ensure data security for users.
2. Portability
   a. Website optimization for access on a personal computer or mobile device.
   b. Compatible with all modern browsers including Firefox, Safari, Chrome, and Edge.
3. Expected Load
   a. Limit the number of requests made by a single user to avoid server crashes due to high traffic (handled by firebase).
4. Usability
   a. Information is available to any site visitor.
   b. Features such as commenting on, liking, and creating posts are limited to only those who possess an account.
5. Storage
   a. Data retained will be restricted to the capabilities of the Firebase Firestore Database.
   b. Posts will have a 1,000 character limit.
6. Accessibility
   a. Site is easy to use and intuitive for users of any age.
   b. Aesthetically pleasing and organized UI.
   c. Site will not require any specialized training for use.

High-level system architecture and database organization

Software/Tools:
- Firebase Firestore Database will be used as the primary database for the software.
- npm: package management system
- Brackets/Visual Studio Code: Code editor used for HTML, CSS, JavaScript, etc.
- GitHub: Version control software used for source code management.

Programming Languages:
- HTML: Programming language will be used for website appearance and design.
- CSS: Programming language will be used for overall presentation of the website.
- Javascript: Scripting language will be used for programming site functionality.

Frameworks:
- Bootstrap - Responsive CSS framework used for website presentation.
  - Discussion page template:
    https://www.bootdey.com/snippets/view/bs4-forum
  - User profile page template:
    https://www.bootdey.com/snippets/view/User-profile-with-friends-and-chat
  - Forum homepage template:
    https://www.bootdey.com/snippets/view/Forum-post-list

DB organization:
- Database will consist of a collection that will contain every user's document.
- There will be a topic collection containing documents for each topic.
- Within a user's document will be an array of all said user's posts and comments. Additionally, this collection will store the profile information for the user.
- Within each topic document will be a subcollection of the posts pertained to that topic. Each post will have a randomly generated ID.
- Searching will be conducted by fetching all post documents for a topic and then filtering through the data using the search query.

High-level UML diagrams

Moderator

+approvePost(Post)
+resign()

Forum

-title: String
+subs: [Subforum]

+getTitle(): String

1

*

Subforum

+category: String
+posts: [Post]

+addPost(Post)

User

-id:String
+displayName:String
+email:String
+dateCreated:date
+posts:[Post]

+signOut()

1   1

1..*

0..*

*

Thread

+id: String
+subforum: Subforum
+head: Post
+comments: [Post]

+delete()

*   1   1..*

Post

+title: String [0..1]
+body: String
+owner: User
+dateCreated: date
+likes: int

+delete()
+edit(text)

<<component>>
website.db

<<component>>
forum

<<component>>
subforum

<<component>>
thread

<<component>>
post

Identify actual key risks for your project at this time

1. **Skill risks –** The back-end developers have prior experience with Firebase and PHP. We will have to take time however to research on how to integrate Firebase into a website. The front-end developers have taken courses in web design and so already have the required skills for developing the front-end of the website.

2. **Schedule risks –** Since the start of the development cycle we had to strip down planned features to make sure we can meet the scheduled release. As of now we are on track to release on time.

3. **Technical risks –** We can only make an approximate estimation for how much storage will be required to store every post. Throughout the development cycle we will have to monitor the storage requirement of the website as we open it up for beta testing. Another risk we must monitor is bandwidth. If a lot of users are connected to the website at once it will drive up the bandwidth of the website and could cause it to crash.

4. **Teamwork risks** - Team members naturally have different schedules/agendas, therefore not everyone in the team will be available to participate in meetings and discussions 100% of the time. With that said, communication can be hindered because participation is a key factor when it comes to teamwork. All team members are encouraged to free a specific time of the week in order to update one another about the progress of development. Additionally, due to the pandemic, team members are not able to meet face to face so they are forced to participate in voice chats or zoom meetings only.

5. **Legal/content risks** - Some of the legal risks involved in our website involve, Data Protection Legislation, Licensing for API's, Defamation, and Copyright. We ask for personal information on our website such as first name and last name and we plan to have some other social media links as well as telephone numbers so that could be a civil claim. We will have at least one API supplying us COVID-19 information, we could run into complications for licensing the API. On our website we allow authorized users to edit the information on our website so that can cause defamation. The last legal risk we could run into is copyright, we are considering allowing authorized users to upload their own picture but using google to log in they could have a copyrighted photo already.

Vertical Software Prototype

A demo version of a sample topic page can be found at the link below. Users are able to sign in with an existing google account or by creating a username and password. Login functionality is enabled through firebase. Upon logging in, visitors can view the posts that have been contributed to the "Mental Health" topic. Additionally, posts can be created by users and added to the forum. All of the posts are saved to the user's collection as well as the topic's collection.

https://lamp.eng.fau.edu/~cen4010_s21_g11/forum-topic-prototype/www/login.html

Sample user collection with saved posts in firebase

Sample topic collection with saved posts in firebase
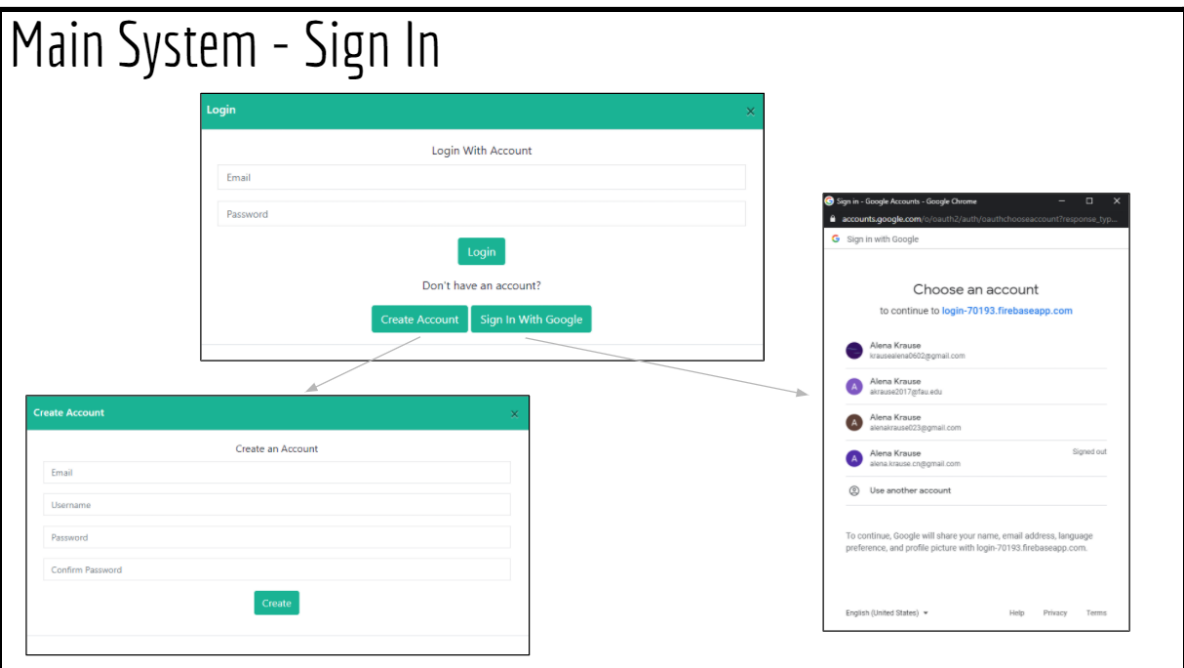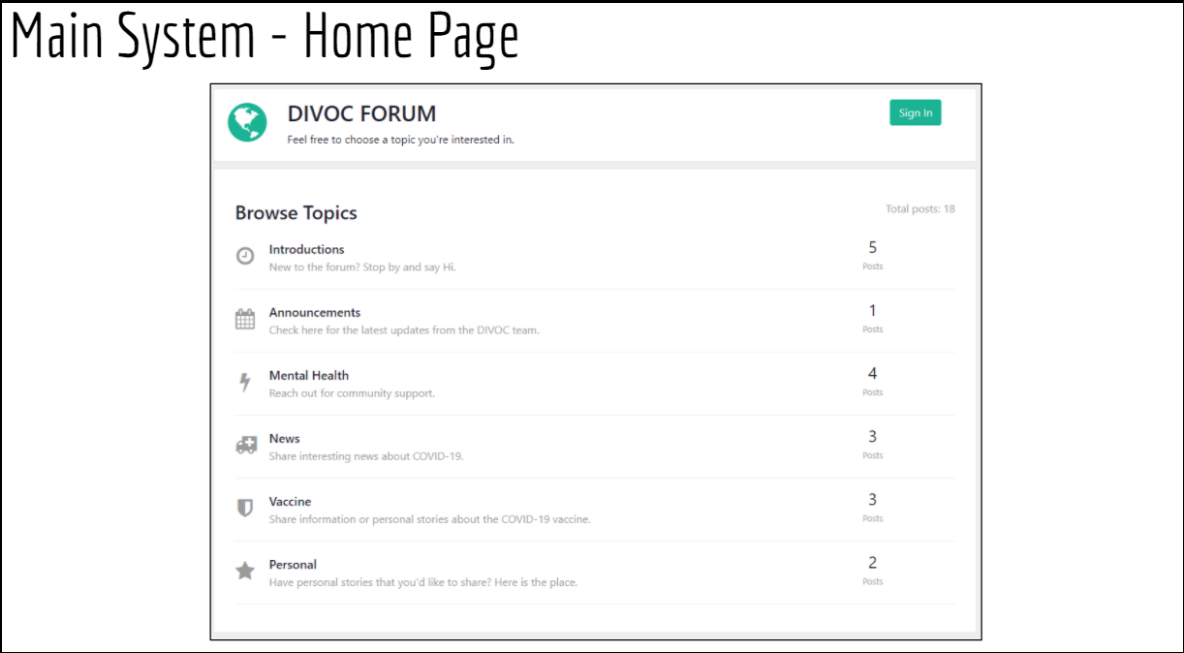
Login page for prototype

Sample topic page of prototype

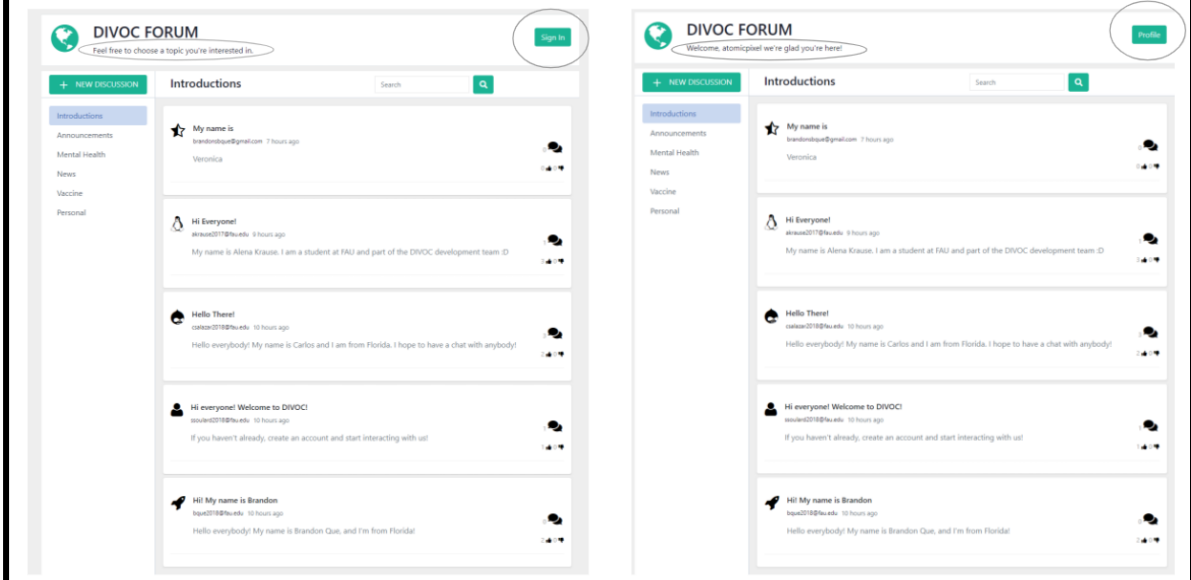## Summarize Instructor's feedback of Milestone 3 and 4

Milestone 3 feedback: "Good job! Looking forward to your final product!"

Milestone 4 feedback: "Very good job! For your forum, I would add a possibility to upload a picture and to rate posts for more fun!"

3.4 Screenshots of actual final product as shown in the demo

Main System - Topics (Signed In vs Not Signed In)

Main System - Topics (Commenting and Reactions)
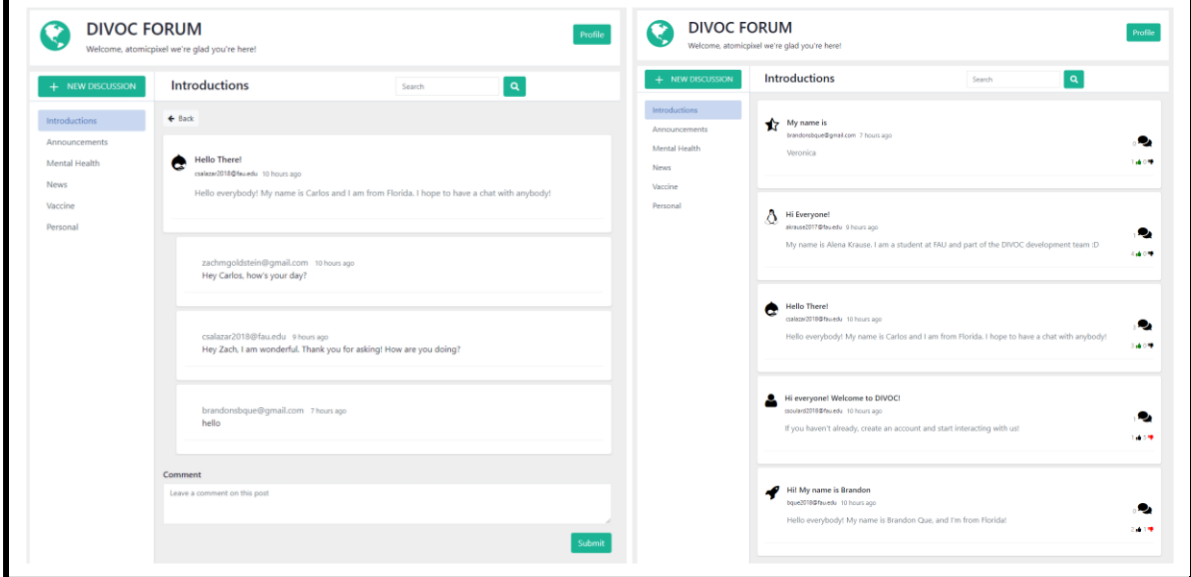
Main System - Topics (Post Creation)

Main System - Topics (Searching)

Main System - Viewing Profiles

DIVOC FORUM
Welcome, atomicpixel we're glad you're here!

+ NEW DISCUSSION

News

Introductions
Announcements
Mental Health
News
Vaccine
Personal

COVID-19 Vaccine News
alenakrause023@gmail.com 1 second ago
New contribution to the news section! Has

COVID cases are going down!
ssoulard2018@fau.edu 9 hours ago
Happy to hear COVID cases have been goi

Have you had the vaccine?
akrause2017@fau.edu 9 hours ago
Did you experience any side effects?

J&J news?
bque2018@fau.edu 10 hours ago
Anybody got any news about Johnson an

Member

Posts: 3 total posts

Home

User info
First Name Shannon
Last Name Soulard
Display Name Shannon Soulard
Email ssoulard2018@fau.edu

Post activity

Shannon Soulard made a post in the News topic	9 hours ago
Shannon Soulard made a post in the MentalHealth topic	9 hours ago
Shannon Soulard made a post in the Introductions topic	10 hours ago

Main System - Personal Profiles

atomicpixel

Member

Posts: 1 total post

Home

Sign Out

User info
First Name Alena
Last Name Krause
Display Name atomicpixel
Email alenakrause023@gmail.com

Edit profile

Post activity

atomicpixel made a post in the News topic	3 minutes ago

Profile Picture ▾

- 🌐 Globe
- 🐙 Github
- 🚀 Rocket
- 🐧 Linux
- 🚗 Automobile
- 🔒 Secret
- 🚀 Shuttle
- 🐛 Bug
- 🛡 Shield
- 📦 Box
- ⭐ Star
- 💧 Lil Drup
- 👤 User

Edit Profile ×

Edit Profile

Alena

Krause

Profile Picture ▾

Save

3.5 Google analytics plot for your website (1 page)

Users in last 30 minutes

1

Users per minute

Top conversion events   Count

StreamView →

👆 **Events**   👆 22 | 🚩 0 | 🐞 0   ✕

page_view	14	63.64%	ga_session_id	1618965393	14	100%
user_engagement	8	36.36%	ga_session_number		
			origin		
			page_title		
			page_location		
			page_referrer		
			ignore_referrer		
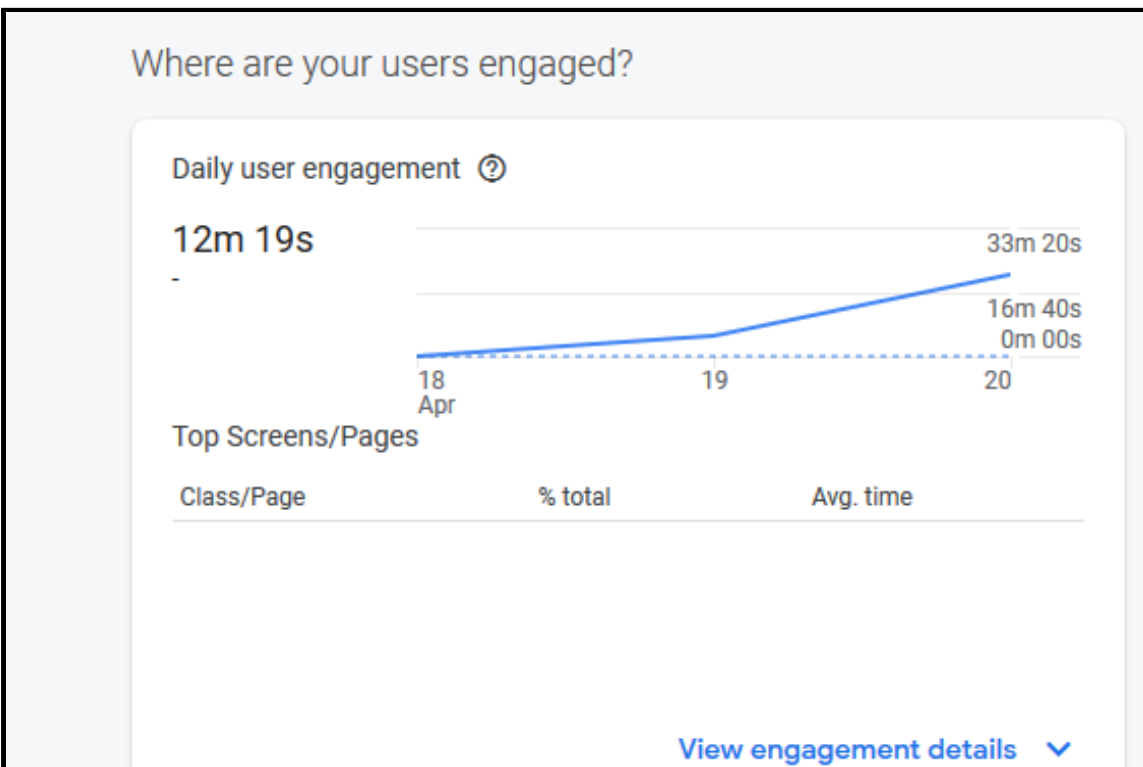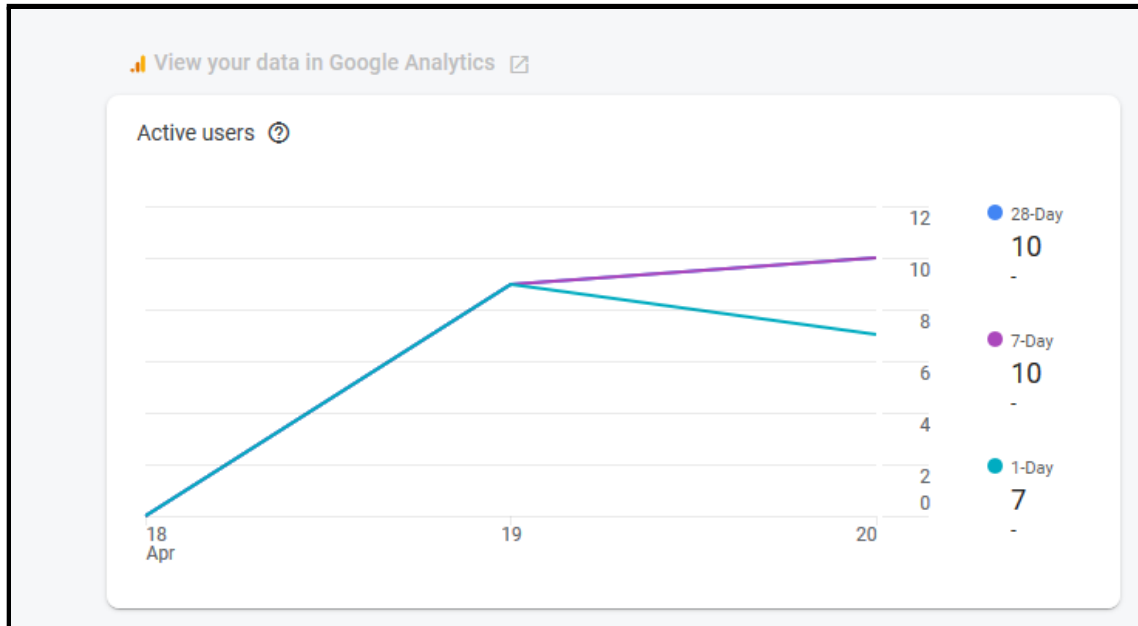
3.6 Team members contribution

1) List each team members' contribution to the project.
- Carlos Salazar: Handled sign in authentication and user profile page functionality - **20 points**
- Zachary Goldstein: Handled commenting, searching, and Google Analytics - **25 points**
- Alena Krause: Handled the creation of posts, liking/disliking, profile picture customization, and user interface for the website - **25 points**
- Brandon Que: Handled the user interface for the website - **15 points**
- Shannon Soulard: Handled the user interface for the website - **15 points**

2) Describe each team member's contribution to teamwork (technically and any other contribution).
- Carlos Salazar: Organized and scheduled team meetings, assigned roles to members for milestone tasks
- Zachary Goldstein: Assisted with the creation of posts. Helped troubleshoot most firebase issues.
- Alena Krause: Assisted with user interface for the website. Helped troubleshoot UI issues. Hosted visual studio code live sharing for UI contributions made by Brandon and Shannon.
- Brandon Que: Assisted with user profile page functionality
- Shannon Soulard: Assisted with majority of documentation

3) Number of submissions each team member made to GitHub team development branch
- Carlos Salazar: **29 commits**
- Zachary Goldstein: **38 commits**
- Alena Krause: **34 commits**
- Brandon Que: **2 commits**
- Shannon Soulard: **2 commits**

3.7 Post-project analysis (one page or so)

In about one page team lead should summarize:

a) main challenges

- We did not dedicate enough time to completing milestones. Tasks for the milestones were completed around deadlines.
- We were too ambitious with this project given the time constraints

b) what would you do better next time to address those challenges

- We can improve on this by dedicating time when a new milestone is open to ensure that there is enough time to do revisions before the deadline.
- For future projects, we should be more realistic with what can be implemented given time constraints

c) Features you have finished and those you'd like to finish but couldn't be able to, and the reasons

Finished features:

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While <u>signed-in users</u> can:

6. Search through posts using the search bar,
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8. Edit personal profiles,
9. Choose from a selection of icons to set as their profile picture,
10. Create a post within a specific topic,
11. Give the post a title and body of text,
12. Interact with posts by giving the post a "like" or "dislike",
13. Or commenting on posts created by other users.

Features for the future:
- Emote/Emoji reaction to posts: time constraints
- Liking and commenting history page through each personal user's profile: time constraints
- Clicking a user's email address should take you to their profile page: time constraints
- Tagged posts: time constraints
- Personal inboxing and direct messaging: limited skillset

d) Knowledge gained and lessons learnt from your project and teamwork

Throughout the course of creating this product, our team has learned to:

- Have a better structure for our database to make it more efficient and organized
- Collaborate as a team more effectively to produce a high quality product
- Understand each other's strengths and weaknesses to help guide each other in the right direction
- Organize our workflow to track our progress individually and as a team

4 Submission

Submit the following to Canvas by due date:

a. Final project report, in word format,

b. Your presentation PPT

c. Your project demo and presentation recorded and uploaded to YouTube. Give its URL here.

Youtube URL: https://youtu.be/r_tKbdH9JTY

Presentation Slides:

https://docs.google.com/presentation/d/19EmzGAyAi0WIlNibK6zcZm8IaSOWtATAOSl VNBXYqY/edit?usp=sharing