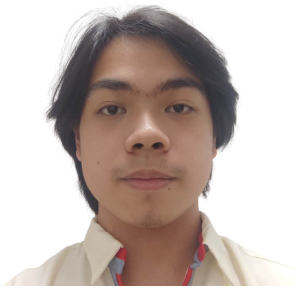
CalcuLIST

**"Be a planner,
list the problem,
and learn together."**

Team Members:

Ballesteros, Justin Earl P.

Gatpandan, Mervin Joseph C.



Gabotero, Jacob A.

Inventado, Charles Fredric G.

1-CSB

May 2, 2023

University of Santo Tomas

Institute of Information and Computing Sciences
Department of Computer Science

Attestation of Participation, and
Commitment to Adhere to Copyright Laws

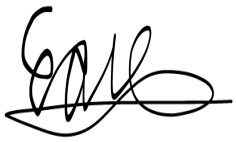
We, the members of the HCI team who designed the prototype of the proposed application for mobile and web user interface (UI) design named **CalcuLIST**, attest to fulfill all the deliverables and other outputs in the connection with this application with hard work and determination .

We fully attest that each and every member of the team, whose name and signature appears beneath this statement, gave full effort on contributing in a degree of participation calling them as “active members.”

This attestation is being signed faithfully with honest intentions of acquiring and applying the knowledge and skills in designing the UI of an app, the webpage, and other software we may continue to develop in the near future.

We actively participated without prejudice to the real intention and expectation of this course, Human Computer Interaction (HCI). We, therefore, members of the team must not, in any way, share any piece of information unless being allowed through consent or agreement, and this content adheres to the fundamentals of “fair use” under the copyright laws.

If, and when, however, proven that any part of this documentation or prototype design has been proven involved or committed an infringement of copyright laws, same members of this team shall constitute to get a grade of 5.0, and be subjected to the University’s tribunal for appropriate sanctions.



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Date Signed: 01/28/23

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Chapter 1: The Proposed Application

1.1 Rationale

Mathematics is an integral part of learning in Computer Science where computations and algorithms require a wide knowledge of the simplest up to the most complex Math topics to solve the problem. Some aspirants, especially those who are new to the field may lack experience and have a hard time understanding the lessons being studied . Thus, the team has decided to develop an application that will give opportunities to the Math-topic related learners in which they can create a plan about the parts they have been struggling with, list the specific problems, and be able to learn more together. This app will focus on helping new programmers, but can also help programmers of any level who want to enhance their skills and expertise in a certain branch of the field.

This application will allow the ComSci students and professors to create their own strategic plan on how they would focus on the Math topics. A user will have a DIY planner, which is customizable. Then CalcuLIST will provide users topic-related recommendations and suggested videos from professionals who have experience in the field. After accomplishing any of their tasks, users can have an open-forum with other users using discussion boards to make the plans more efficient and effective for future users. Other features such as the bookmark and an easy-to-navigate UI will also help them to remember crucial information that they will need for the topics they are yet to learn.

1.2 Objectives

The team aims to achieve the three following objectives;

First, understand the Math topics they have been studying and be able to apply it to real world problems. The study of Mathematics does not end with the theoretical concept, users must use their learnings as steps to formulating solutions in the present world.

Second, is to determine their most effective routines on learning Math concepts. Each student has their own ways of learning, which is the reason for having a customizable planner. The users are able to keep changing the content until they attain the top-preferred plan to have.

Third is to establish a healthy-happy community that is satisfied using the application. That the users can freely interact with other users to make a friendship or even connections in a Computer Science field.

1.3 Target Users

The target users of this app are the Computer Science students who struggle in math topics, especially advanced ones where they need help with it and get educated.

1.4 Best Features and Weaknesses

This segment highlights the various features that the proposed application offers and how these features aid in the overall user experience that the target audience would encounter, with some weaknesses regarding the application also being mentioned.

1.4.1 Best Features

a. **Do-it-yourself Planner** - One of the app's highlights allows users to construct their own planner. A planner that allows you to plan out what you want to learn first and then what you want to study after that. Not only will it help our users become more organized, but it will also teach them how to manage their time.

b. **CalcuLIST** - The app will first present a selection of topics. The user can now simply explore topics needed to study using this list. After they've explored the topics, they can now add them to their own CalcuLIST.

c. **PlanList** - The app will display numerous planners submitted by different users. It enables them to incorporate one idea into another, allowing our users to assist one another in learning.

d. **Discussion Board** - Initially, a discussion board is offered for each planner generated, allowing our community to assist one another in determining which topics should be included in the planner and which do not. Finally, each topic has a discussion board where other users can assist when a user has a question. (Moderated by a professional)

e. **Easy navigating UI** - The app will feature a simple UI allowing easy navigation across the app and locating the right topic for the user.

f. **Bookmark** - If a user believes that a particular topic will be encountered regularly, a bookmark feature will allow them to instantly access that topic.

g. **Suggested List** - The app will recommend a list of topics to the user based on the algorithm of his/her prior topics examined.

1.4.2 Weaknesses

The app only covers various Computer Science Math-Related topics. This may pose a weakness to those that are not familiar with or are members of the Computer Science community as the topics covered in the app will cover those that are essential in studying the program. However, this application can still be used to purely study these topics as other programs also have some of the same topics. This means that the exclusivity of the application is both a weakness and in some cases, an opportunity to spread to other fields as well.

1.5 Similar Apps

Figure 1.1: Quora Logo

Quora – This app is similar when it comes to the feature of questions and answers website and app where users post questions on any topic and other users respond but our proposed app is strictly focused on math topics. When it comes to account creation it is quite similar to Quora where users can sign up using Facebook, Twitter, Google, or email.

Figure 1.2: Chegg Logo

Chegg – This app is also similar when it comes to the feature of questions and answers, the only difference between it is that this app has a paywall in order to check the full solution and answers of some similar problem or question that the student has.

Figure 1.3: Brainly Logo

Brainly – This app is also similar when it comes to the feature of question and answer where it has a learning environment where students can get educated to their asked questions with the expert answers and solutions and the feature of searching for similar problems.

Figure 1.4: MyAnimeList Logo

MyAnimeList – This app is also similar when it comes to planning and the similarities of the features like profile of the user where it shows the list of user bookmarks, searching for a specific topic, and the availability of the topic.

1.6 Three Design Briefs

1.6.1 Glance

The application, dubbed “CalcuLIST”, may seem as just an application that lists all the topics that can be covered by a calculator; however, the application

covers a wider range of topics apart from the basic mathematics and algebras of the world. The application will cover those advanced topics typically included in the Computer Science field such as Calculus, Linear Algebra, even Statistics and all those can easily be accessed due to the UI of the application that will make accessing various topics easier for the user. The main page would have topics, discussion boards, and the user's own planner all accessible with a click of the action they want to do. The application will make accessing and studying these difficult topics more fun and engaging as community interactions will also be possible to some extent.

1.6.2 Time

The information on the various mathematics topics this app provides is accessible anywhere with access to wi-fi. Because this application is mostly usable with internet access, there will be a "Save Offline" feature that will make topics that users would like to study even away from the comfort of their homes accessible. This makes studying a lot easier since the convenience of having basically a downloadable set of information a user can open any time will save more time compared to searching and scrolling through various websites.

1.6.3 Change

Many students around the world find mathematics to be a difficult concept to understand. They try several methods in order to find one that will help them better comprehend it; however, even if students search the internet for a specific topic, they will struggle to understand it as most websites only offer brief descriptions and examples of said topics.

However, these problems are easily resolved with the use of this application. CalcuLIST can assist students in changing their perspective on the idea of Mathematics as it covers a wide range of topics that are relevant not only to Computer Science students but also to courses covering similar topics. Additionally, using the application will aid in students trying to become better in their grades and in their general studying habits.

Chapter 2 : The Needfinding

2.1 Introduction

This chapter highlights the process in which the team gathered information and data pertaining to the similar experiences of the target audience on advanced mathematics. The gathered information will generate results, which will then help the team make steps on how the application could further be developed and what other features the team must be concerned about in developing or adding. This chapter includes the approach the team took in gathering data, the respondents and size of the population, and the survey and its results and interpretations.

2.2 The Approach and Strategy

The approach of gathering information regarding the proposed application is primarily through Google Forms. Due to restrictions of online distance learning and health protocols within College of Information and Computing Sciences (CICS), the team will ensure interaction will only occur online using a social media application called Facebook.

The strategy for formulating the interview question is to think about the main issues we may encounter that have a huge impact on our application such as the interface , quality of content, and other features that may help the users.

2.3 Respondents

For the selection, the team specifically points out the requirement to have at least encountered advanced Math-related topics in their studies. To ensure this qualification, students must have graduated from the STEM Senior High School academic track or are currently taking the BS - Computer Science program.

Considering the factors needed in our interviewees, the UST BS - Computer Science Freshmen students fits the criteria. From the present curriculum, the students already take advanced mathematics subjects in their first year such as Discrete Mathematics and Linear

Algebra. There is also another course that requires a lot of math-related logic; Logic and Digital Circuit Design. Meanwhile, the STEM strand has Math-focused subjects like Algebra, Pre-Calculus, Geometry, Trigonometry, Statistics, and Calculus.

2.4 Sample Size

A total of 10 students, who agree with consent, will undergo a set of questions prepared by the team and approved by the course advisor, Ma'am Perla P. Cosme

The population consists of 1st-year University of Santo Tomas (UST) students from Bachelor of Computer Science. Furthermore, the team will gather any information to those who participated in the interview regardless of their gender and section-block.

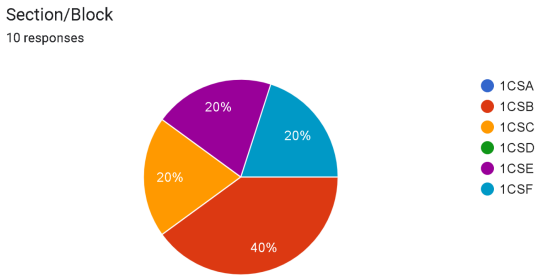


Figure 2.1 Sample Size

Samples :

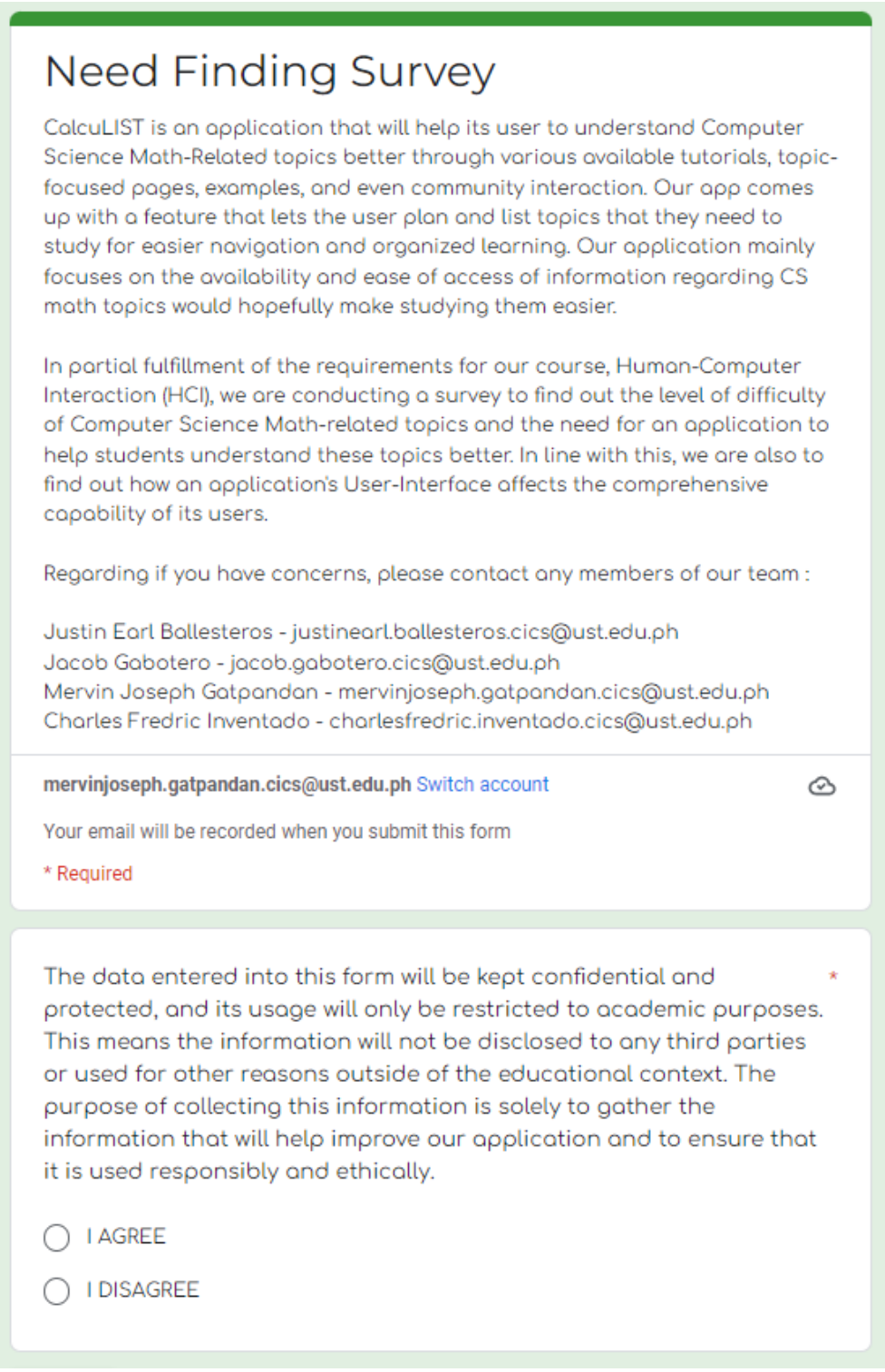
1CSB - 4 (40%)

1CSC - 2 (20%)

1CSE - 2 (20%)

1CSF - 2 (20%)

2.5 Survey Questionnaire



Need Finding Survey

CalcuLIST is an application that will help its user to understand Computer Science Math-Related topics better through various available tutorials, topic-focused pages, examples, and even community interaction. Our app comes up with a feature that lets the user plan and list topics that they need to study for easier navigation and organized learning. Our application mainly focuses on the availability and ease of access of information regarding CS math topics would hopefully make studying them easier.

In partial fulfillment of the requirements for our course, Human-Computer Interaction (HCI), we are conducting a survey to find out the level of difficulty of Computer Science Math-related topics and the need for an application to help students understand these topics better. In line with this, we are also to find out how an application's User-Interface affects the comprehensive capability of its users.

Regarding if you have concerns, please contact any members of our team :

Justin Earl Ballesteros - justinearl.ballesteros.cics@ust.edu.ph
Jacob Gabotero - jacob.gabotero.cics@ust.edu.ph
Mervin Joseph Gatpandan - mervinjoseph.gatpandan.cics@ust.edu.ph
Charles Fredric Inventado - charlesfredric.inventado.cics@ust.edu.ph

mervinjoseph.gatpandan.cics@ust.edu.ph Switch account

Your email will be recorded when you submit this form

* Required

The data entered into this form will be kept confidential and protected, and its usage will only be restricted to academic purposes. This means the information will not be disclosed to any third parties or used for other reasons outside of the educational context. The purpose of collecting this information is solely to gather the information that will help improve our application and to ensure that it is used responsibly and ethically. *

- ◯ I AGREE
- ◯ I DISAGREE

Figure 2.2 Survey Questionnaire Page 1

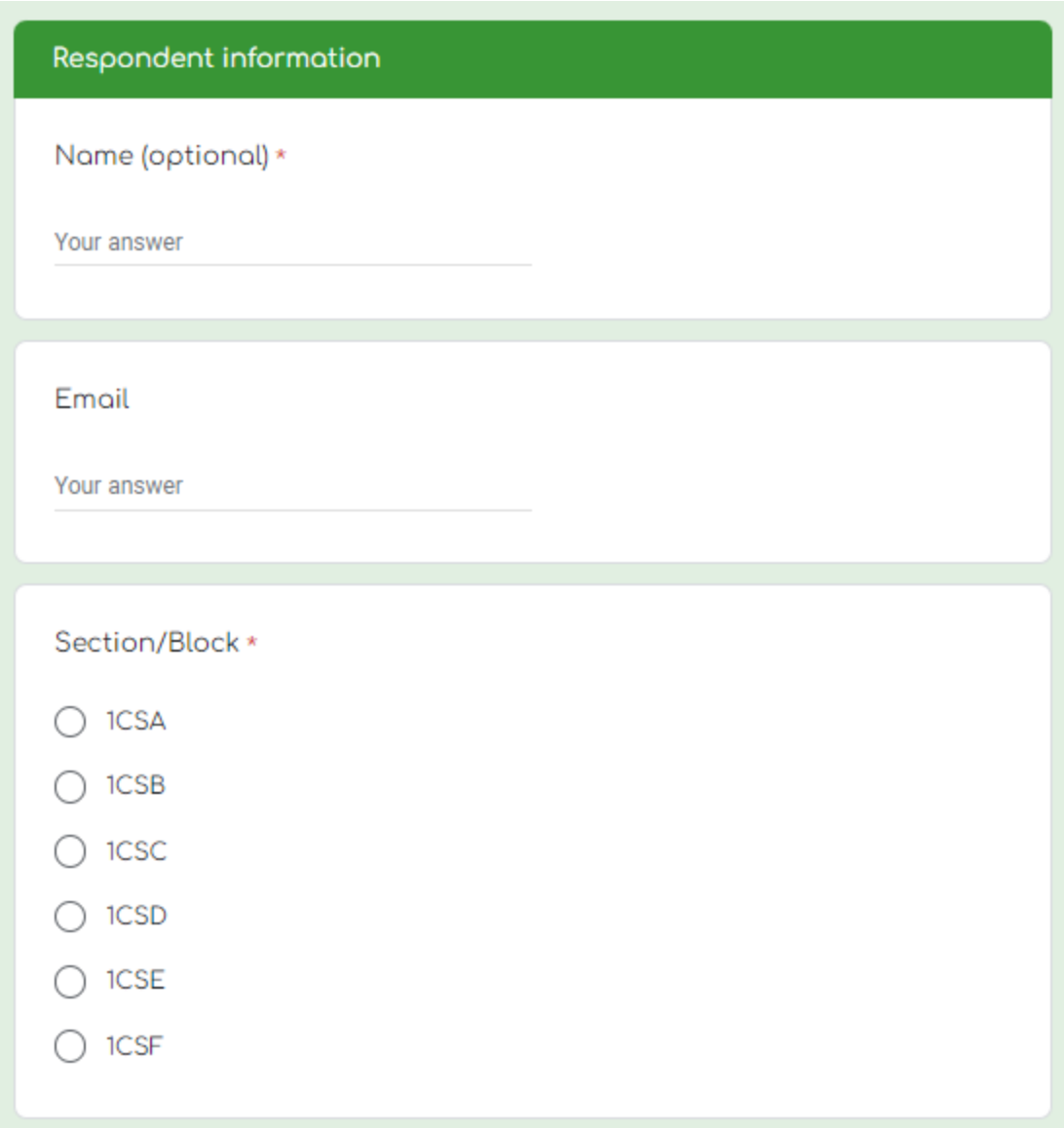


Figure 2.3 Survey Questionnaire Page 2

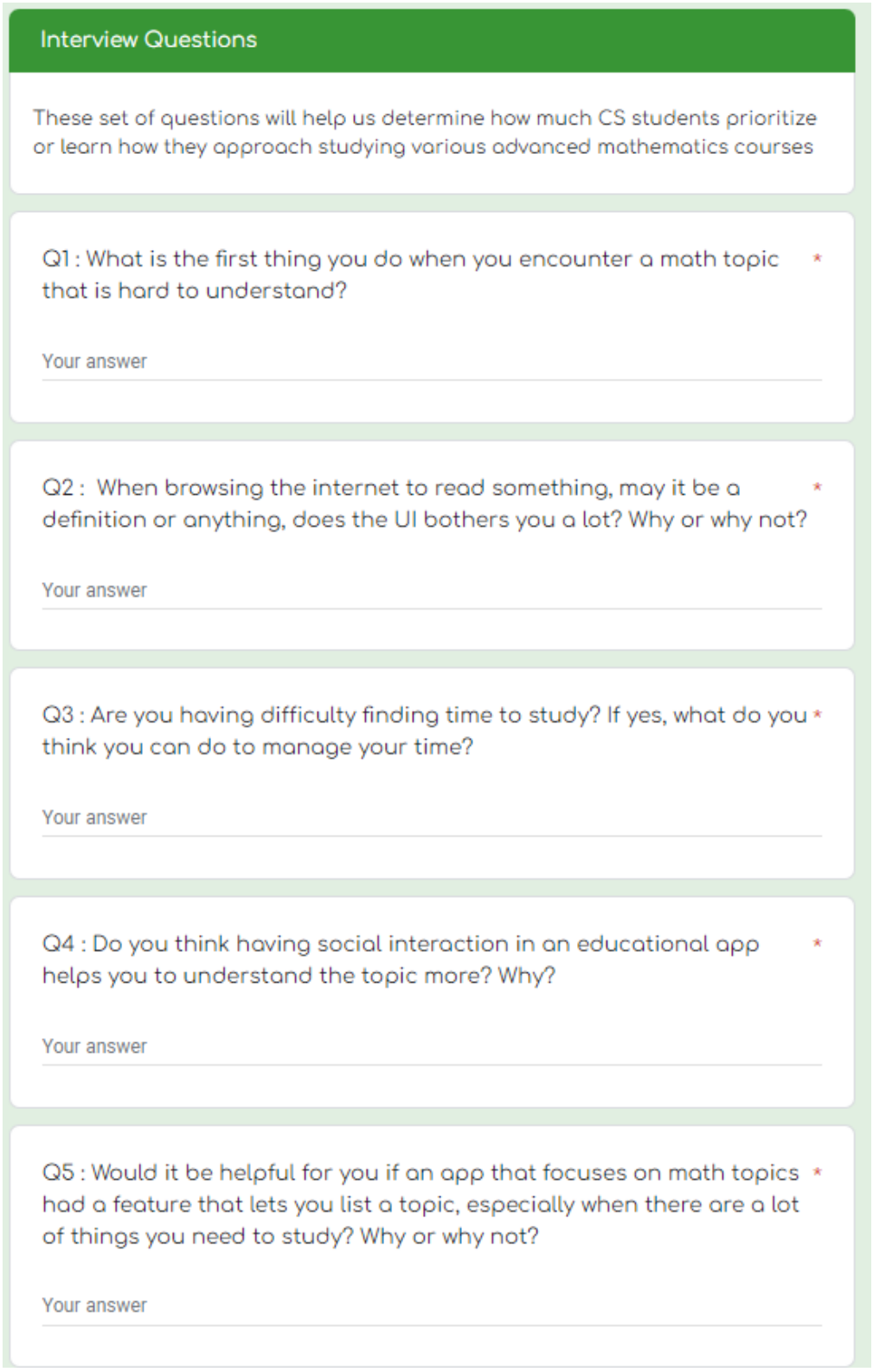


Figure 2.4 Survey Questionnaire Page 3

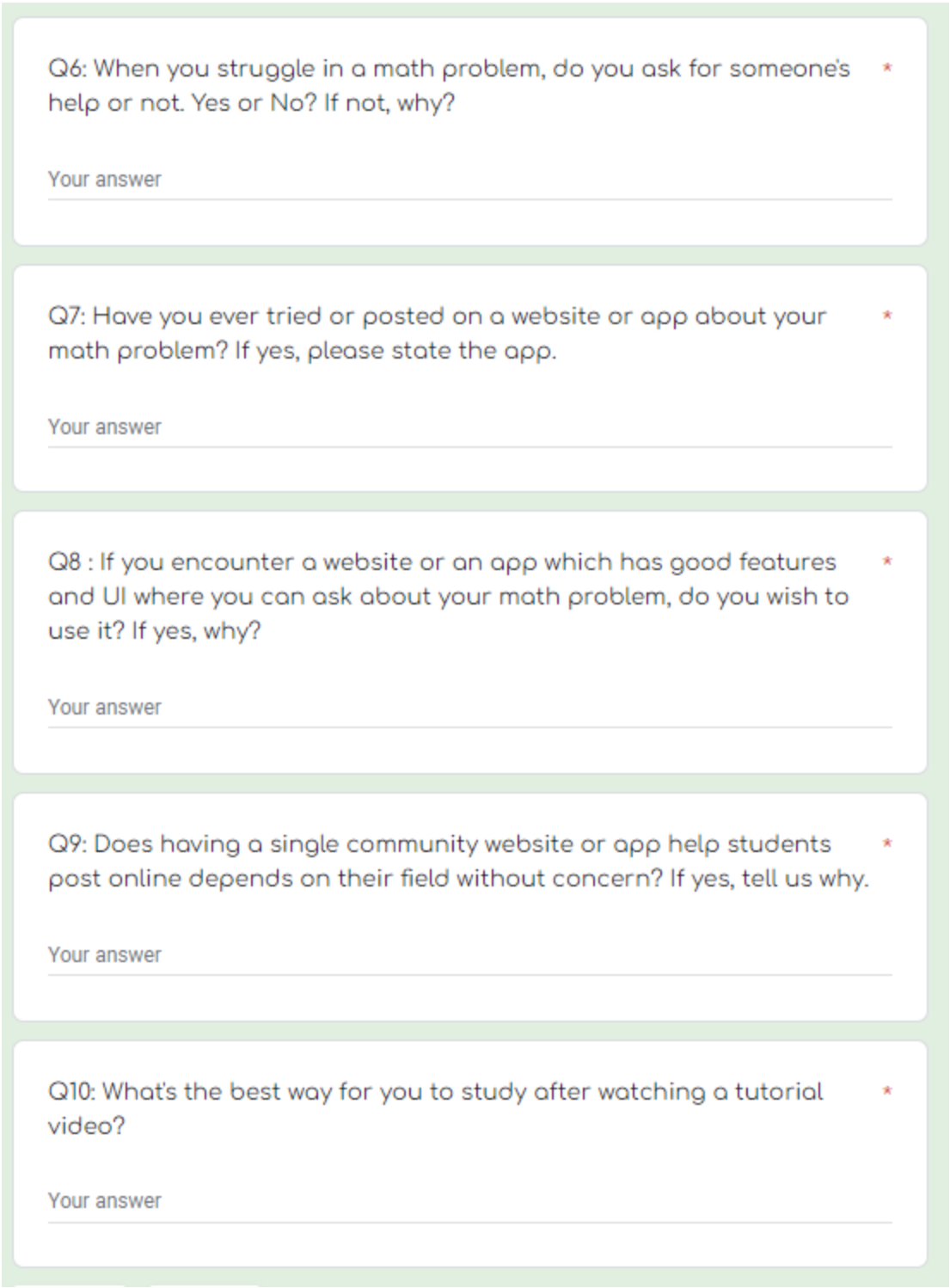
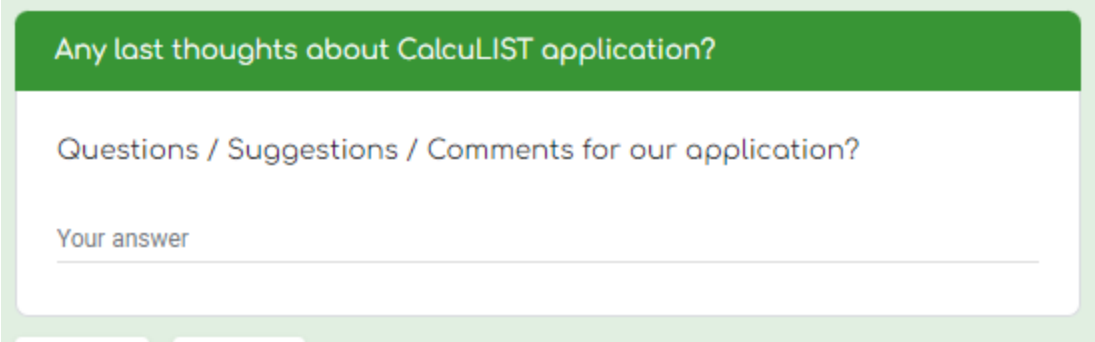


Figure 2.5 Survey Questionnaire Page 3



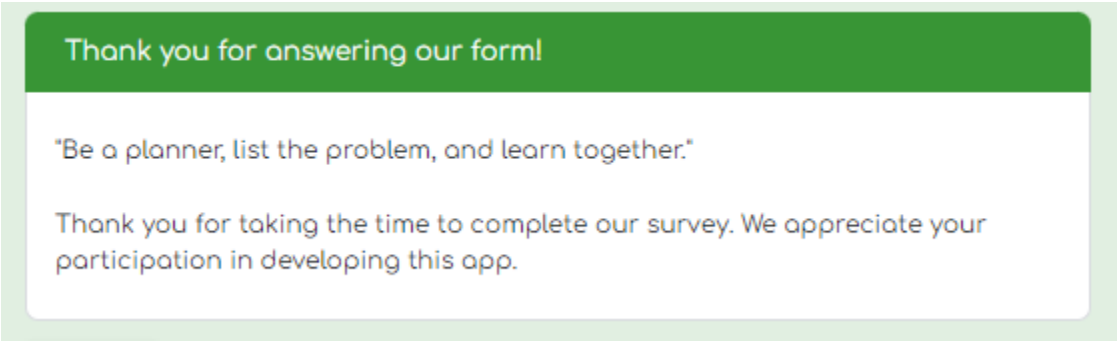


Figure 2.6 and 2.7 Survey Questionnaire Page 4 and 5

2.6 Survey Results (from Google forms in March 2023)

- As shown in the following figures, the information seen in the results tab of Google Forms or what the respondents said exactly in the interview questions are provided.

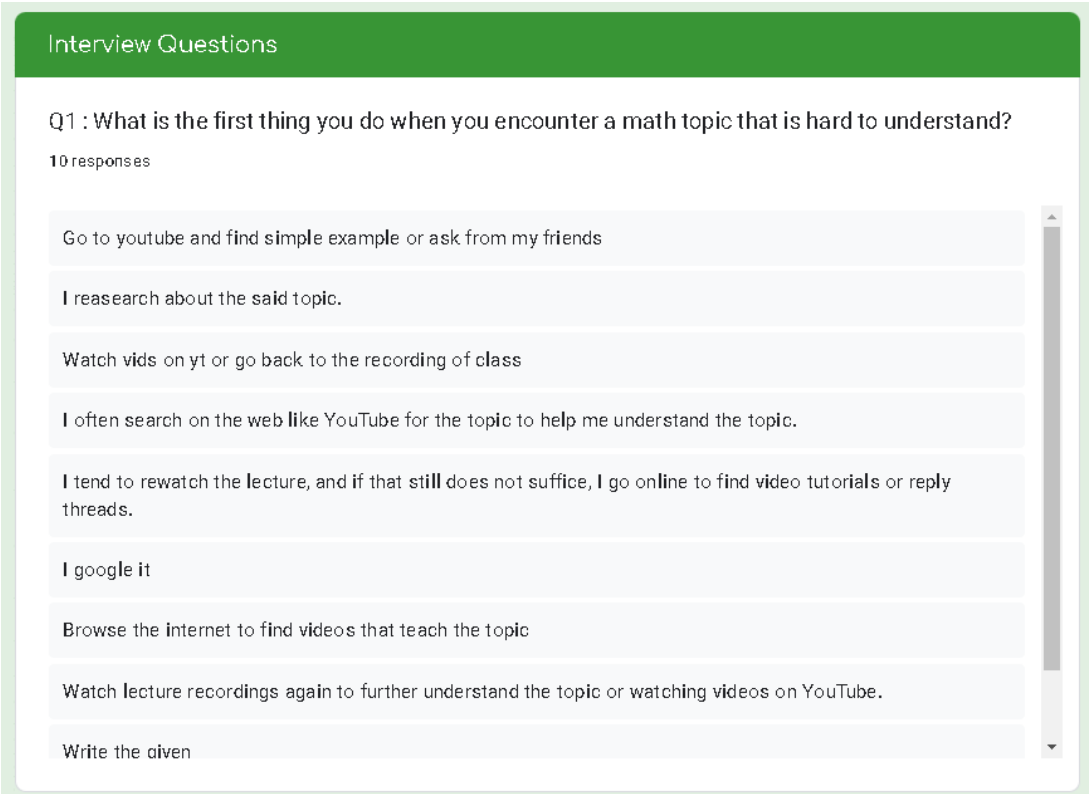


Figure 3.1.1 Interview - Question One Responses (1/2)

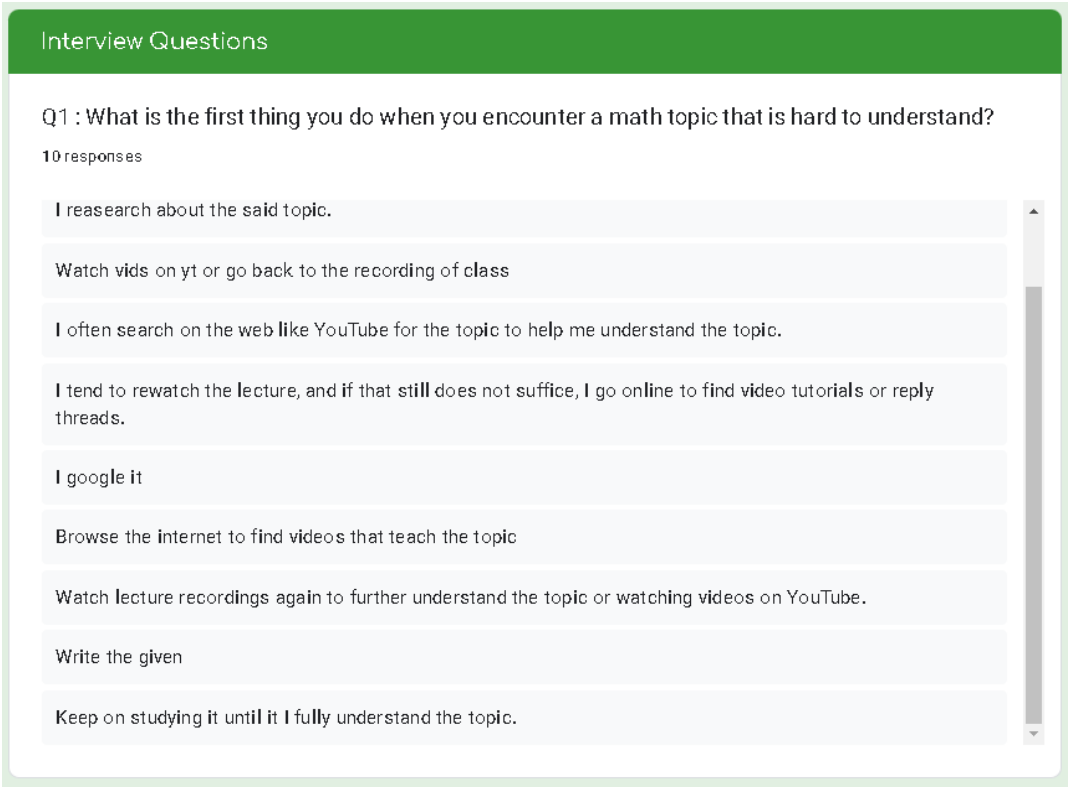


Figure 3.1.2 Interview - Question One Responses (2/2)

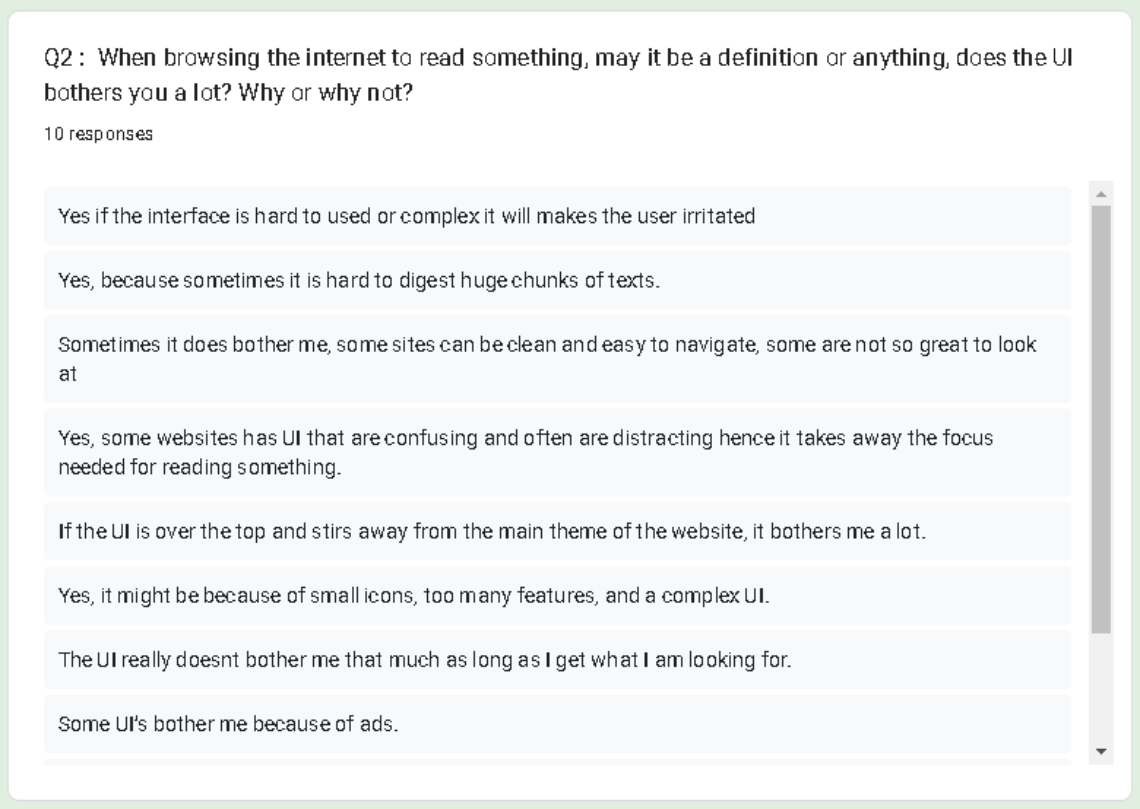


Figure 3.2.1 Interview - Question Two Responses (1/2)

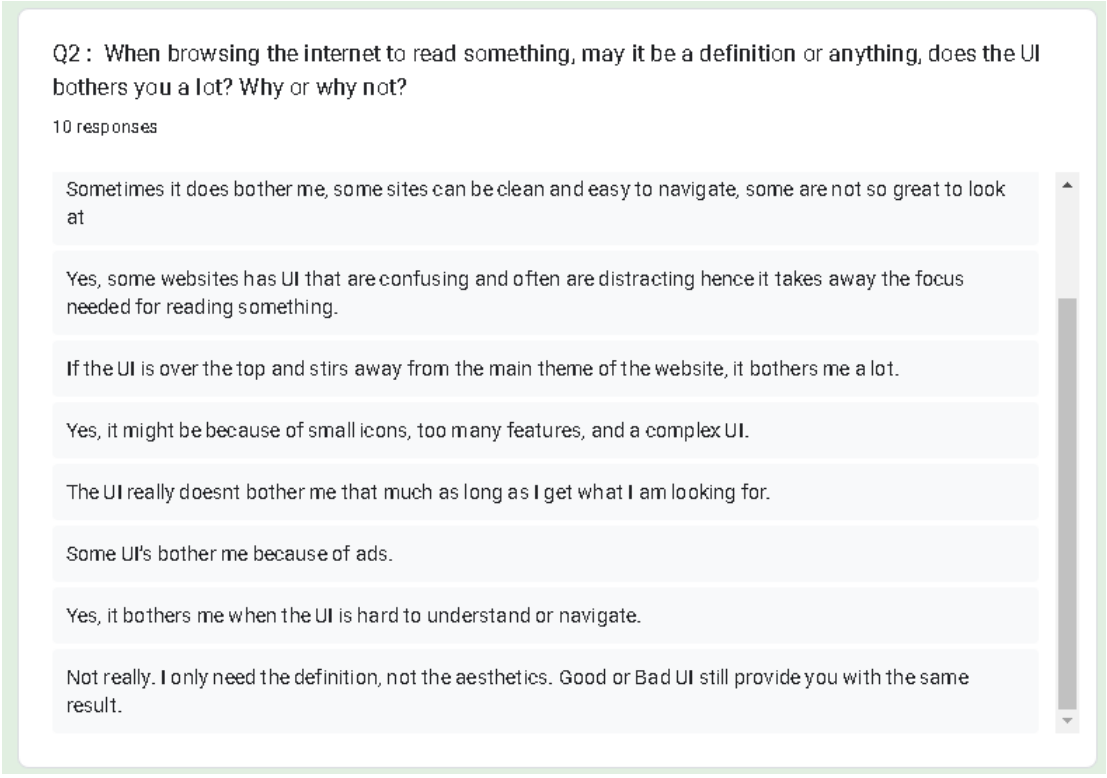


Figure 3.2.2 Interview - Question 2 responses (2/2)

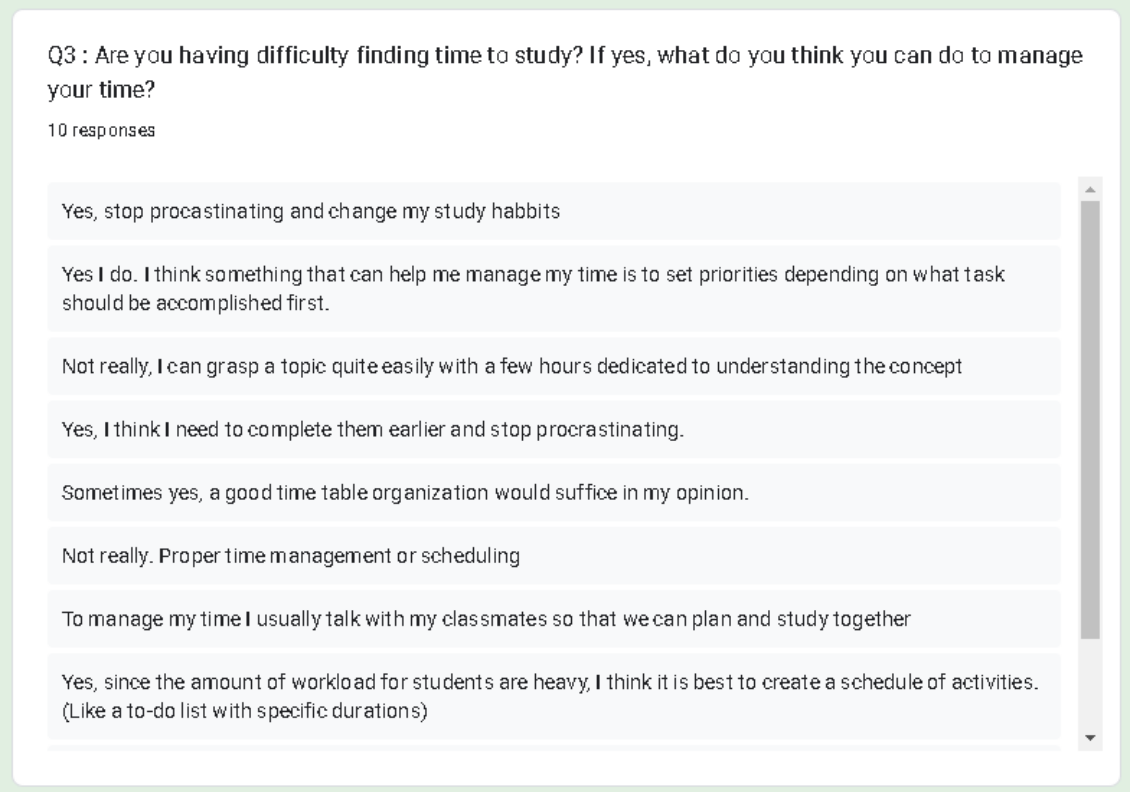


Figure 3.3.1 Interview - Question Three Responses (1/2)

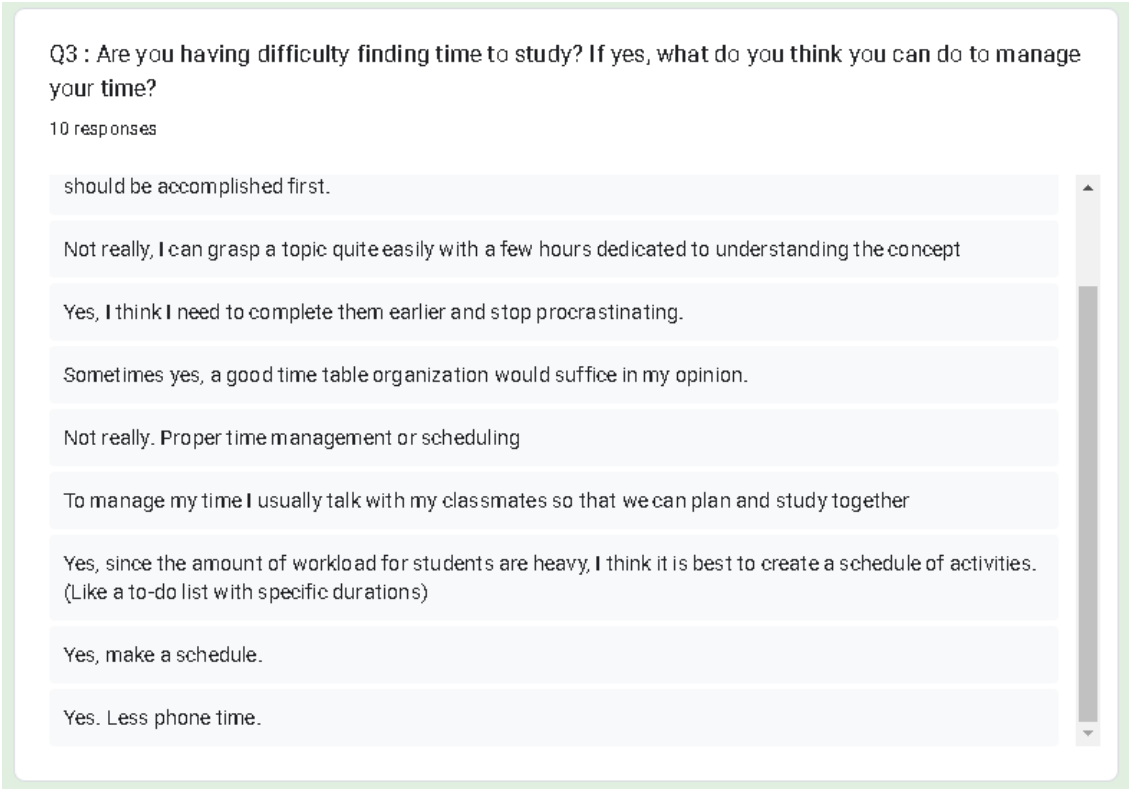


Figure 3.3.2 Interview - Question Three Responses (2/2)

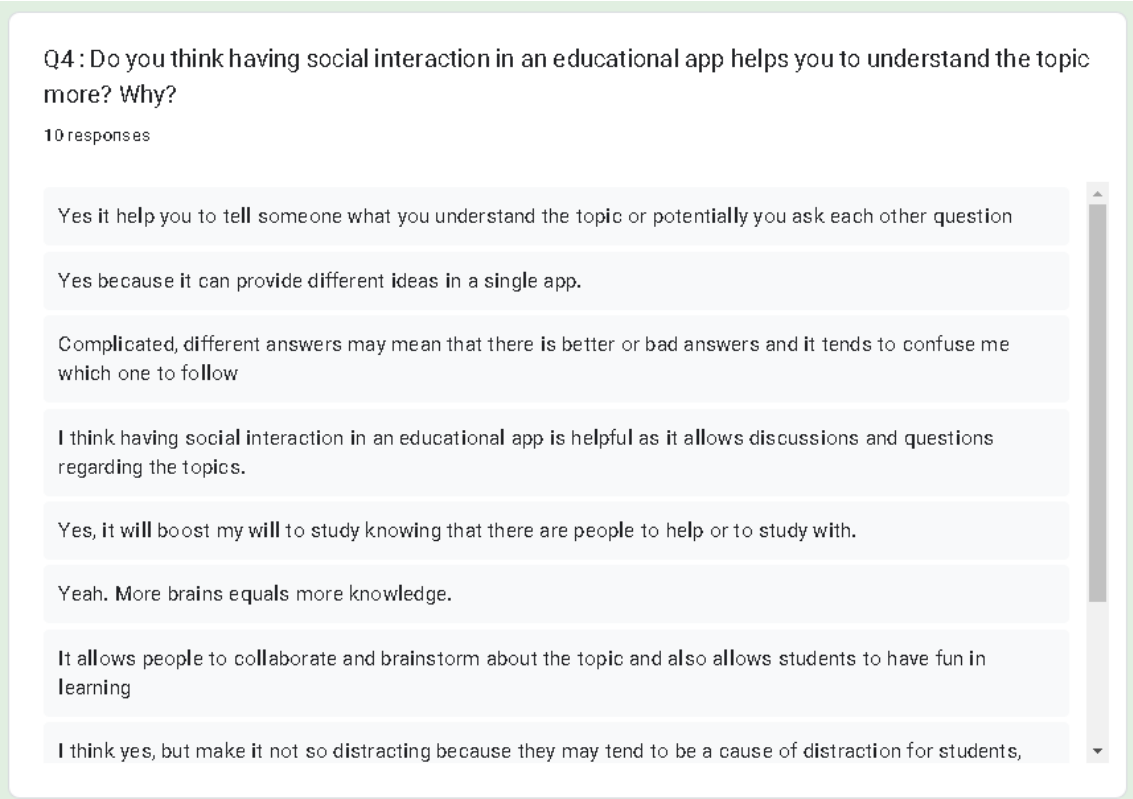


Figure 3.4.1 Interview - Question Four Responses (1/2)

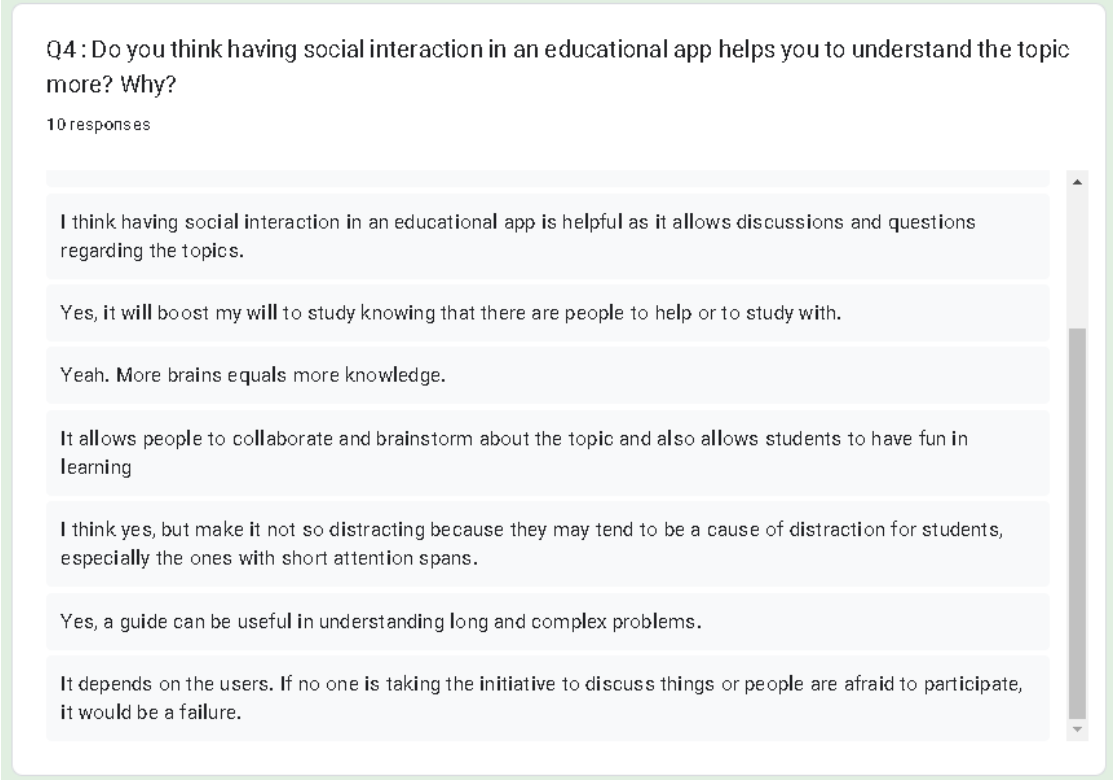


Figure 3.4.2 Interview - Question Four Responses (2/2)

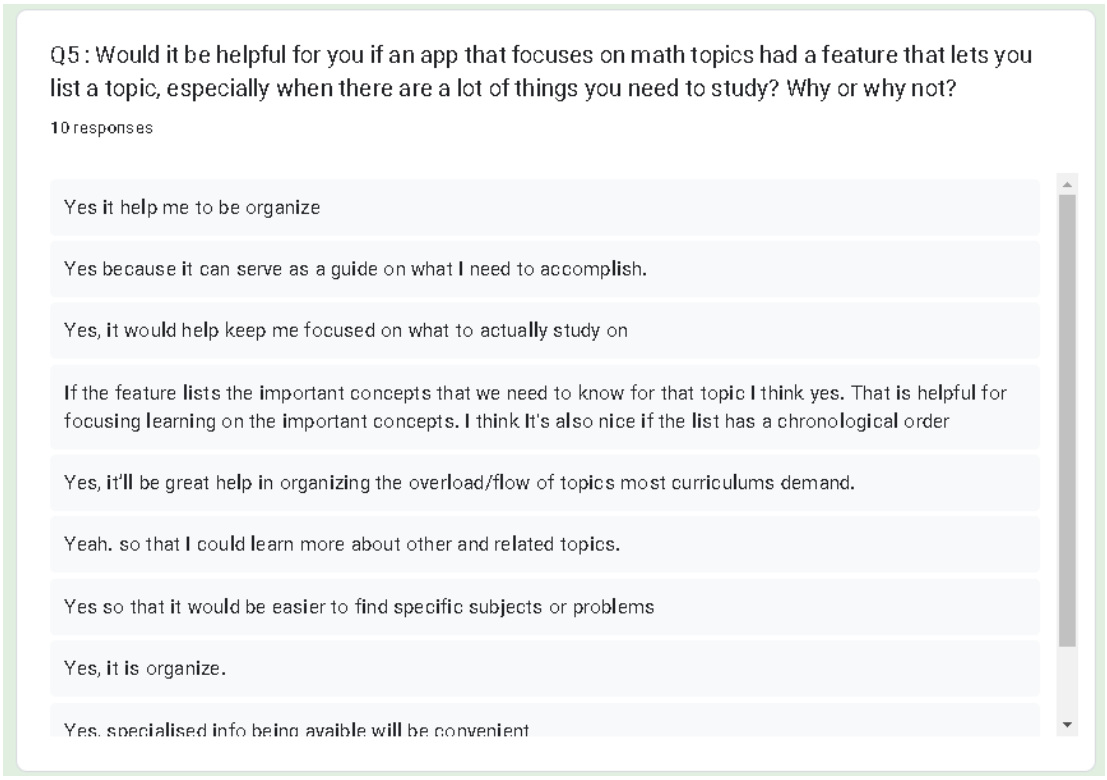


Figure 3.5.1 Interview - Question Five Responses (1/2)

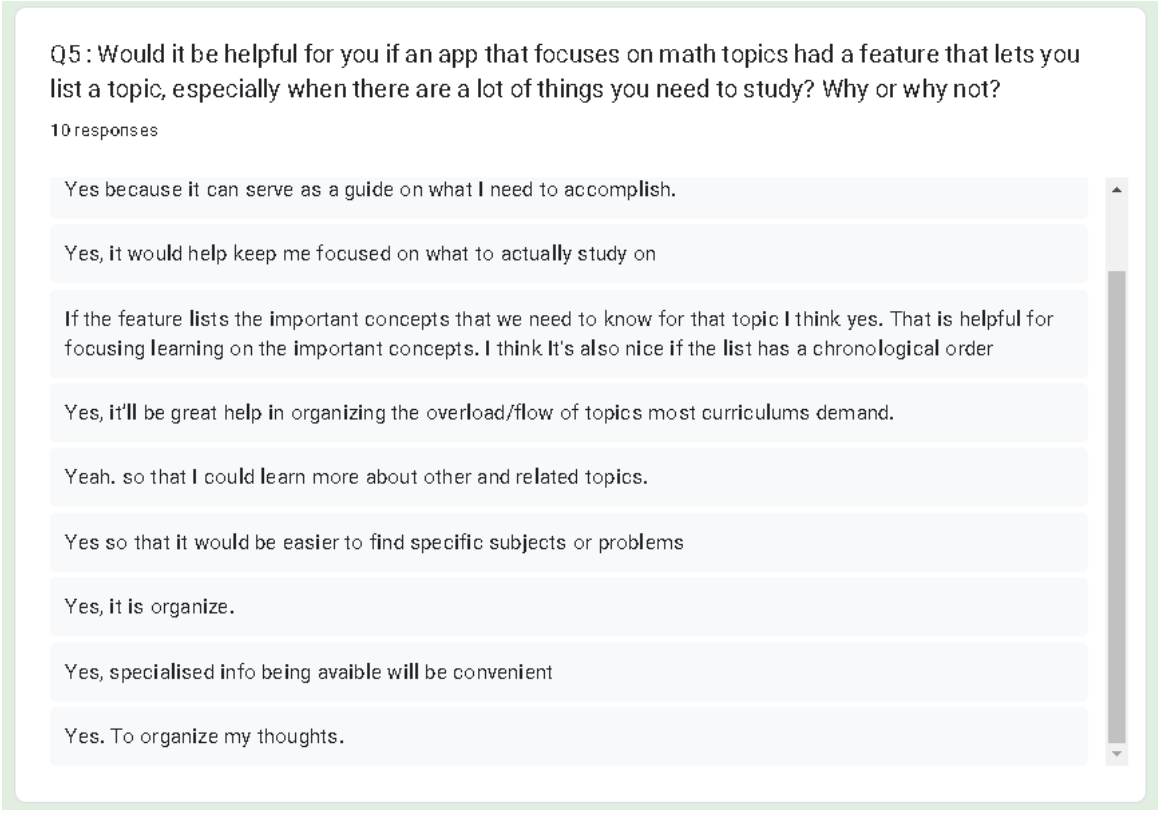


Figure 3.5.2 Interview - Question Five Responses (2/2)

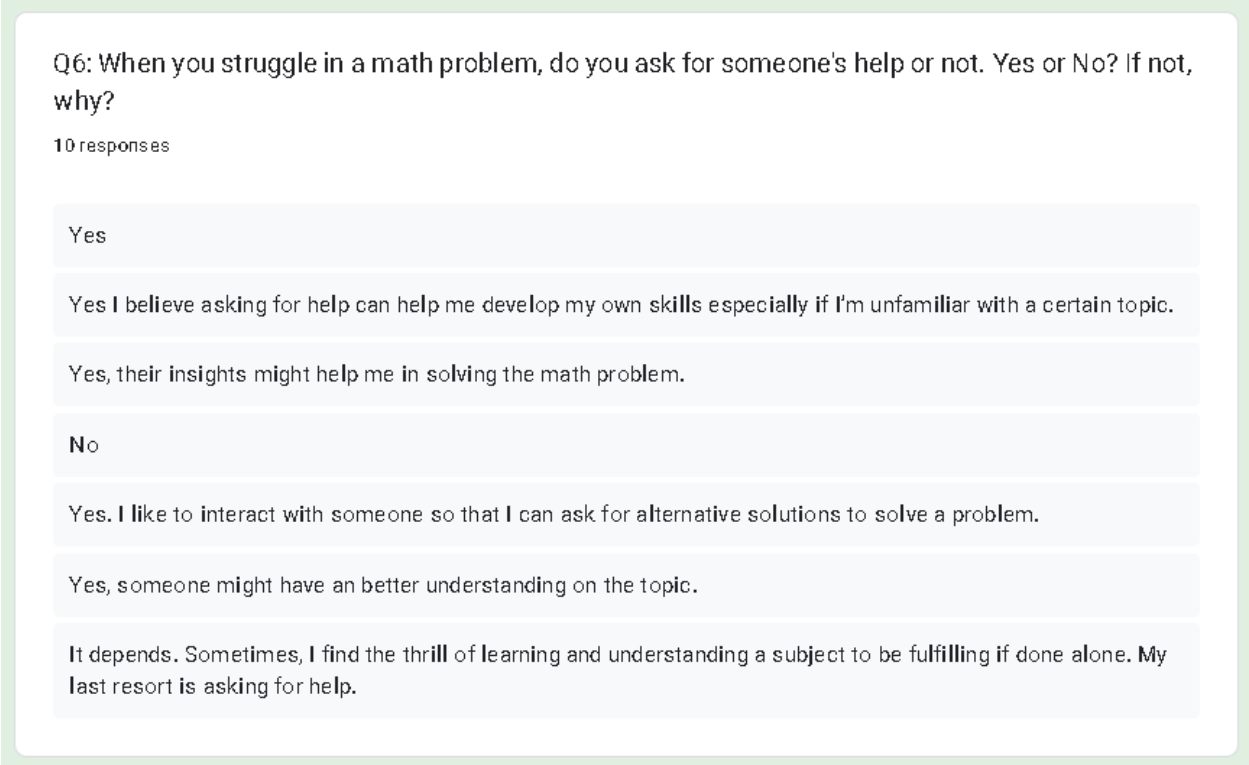


Figure 3.6 Interview - Question Six Responses (1/1)

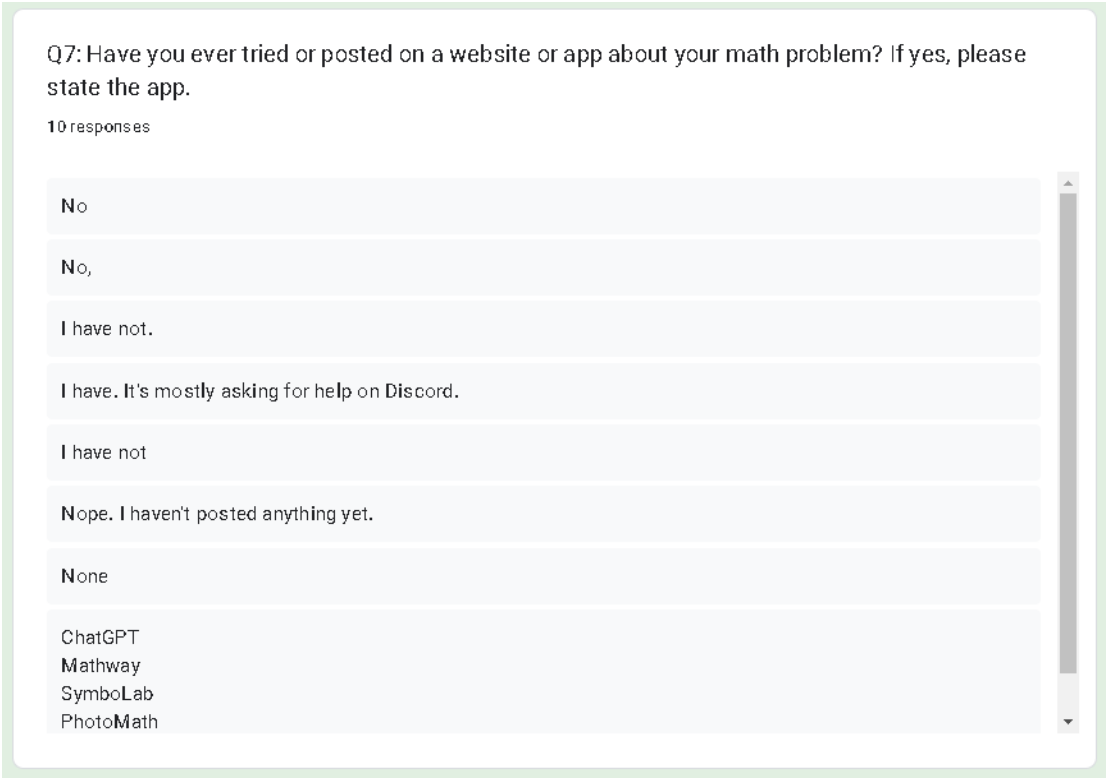


Figure 3.7.1 Interview - Question Seven Responses (1/2)

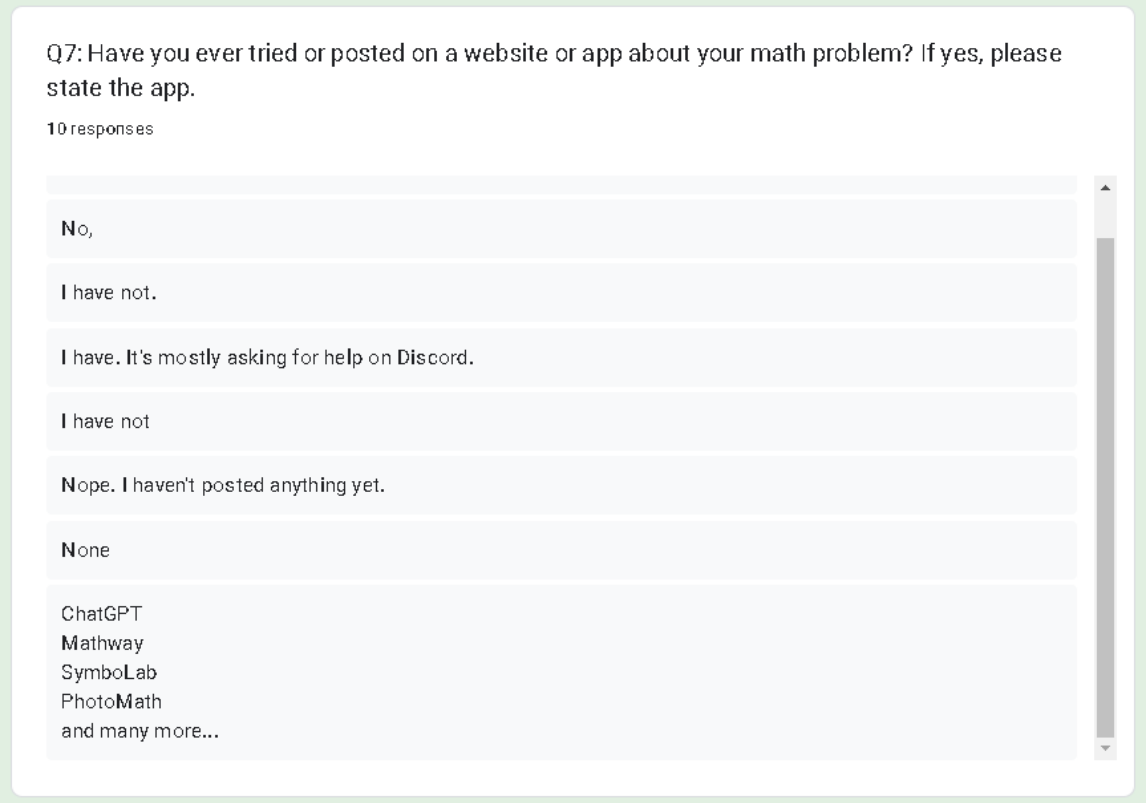


Figure 3.7.2 Interview - Question Seven Responses (2/2)

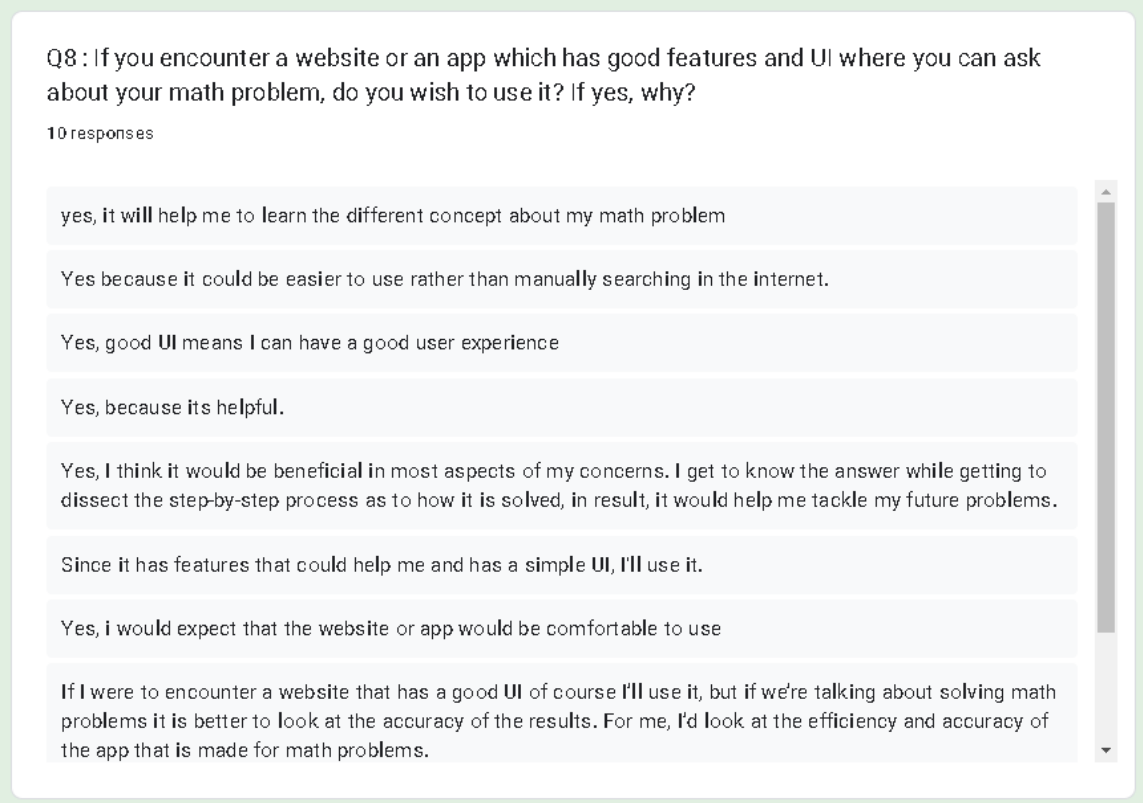


Figure 3.8.1 Interview - Question Eight Responses (1/2)

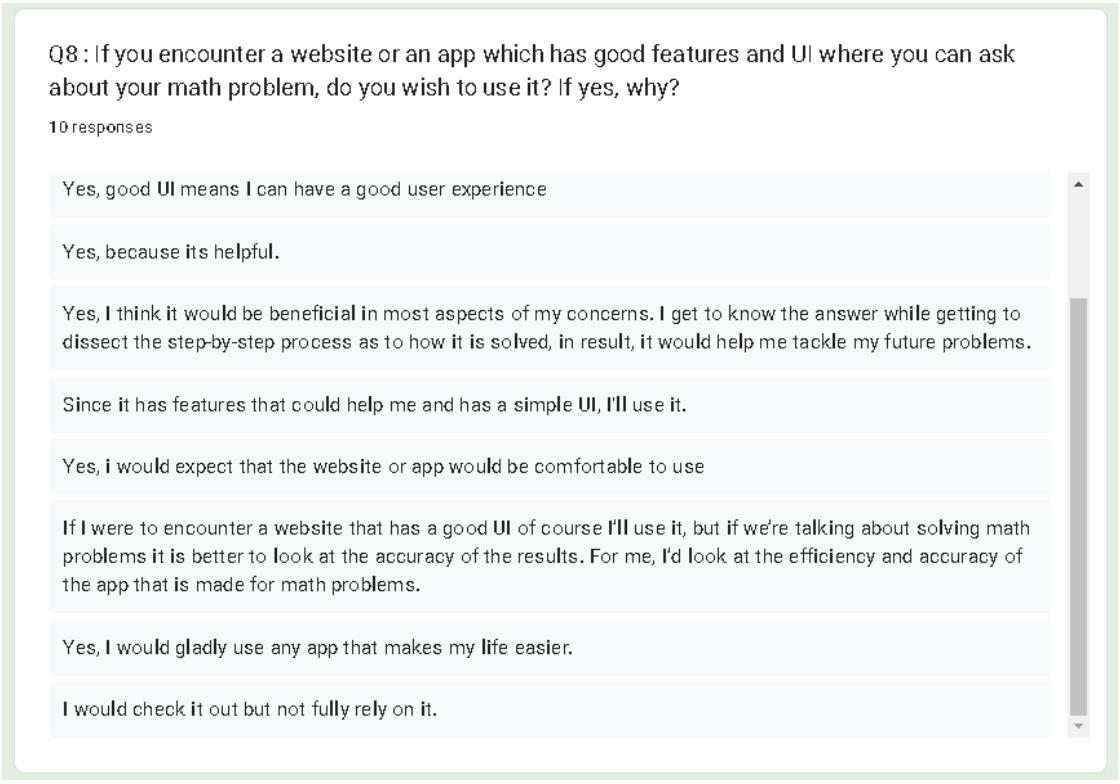


Figure 3.8.2 Interview - Question Eight Responses (2/2)

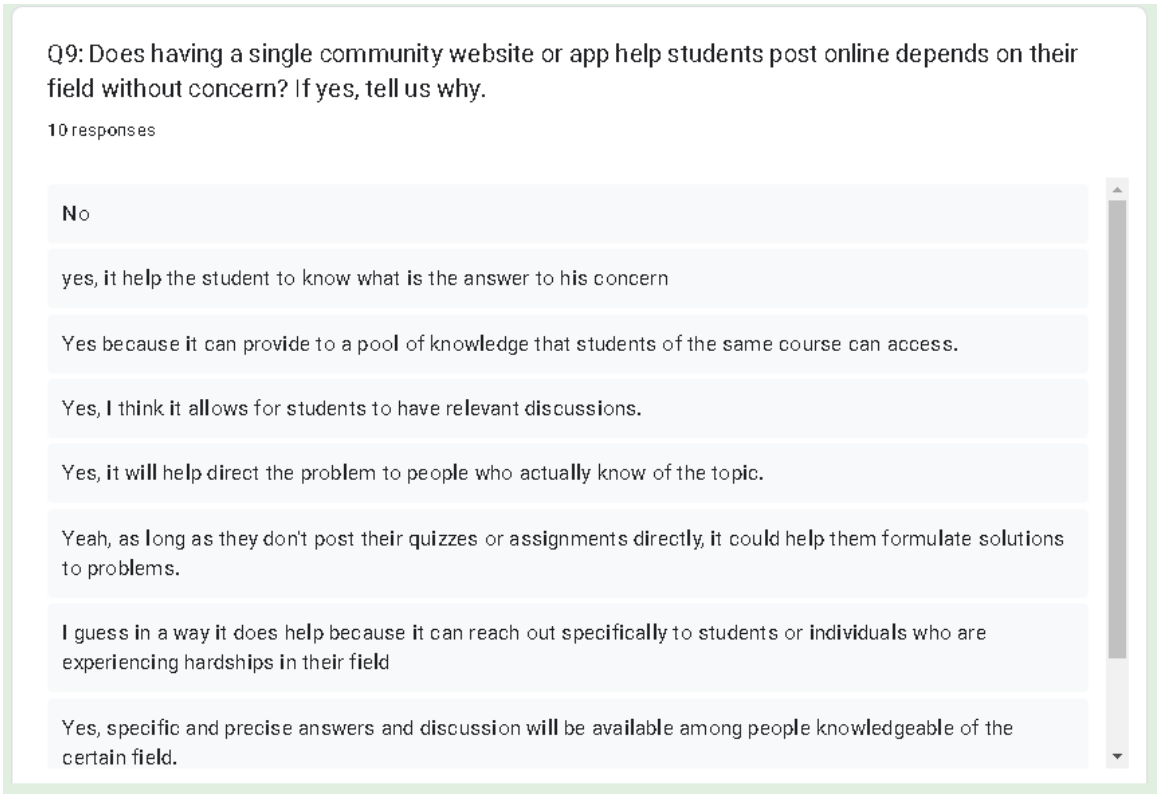


Figure 3.9.1 Interview - Question Nine Responses (1/2)

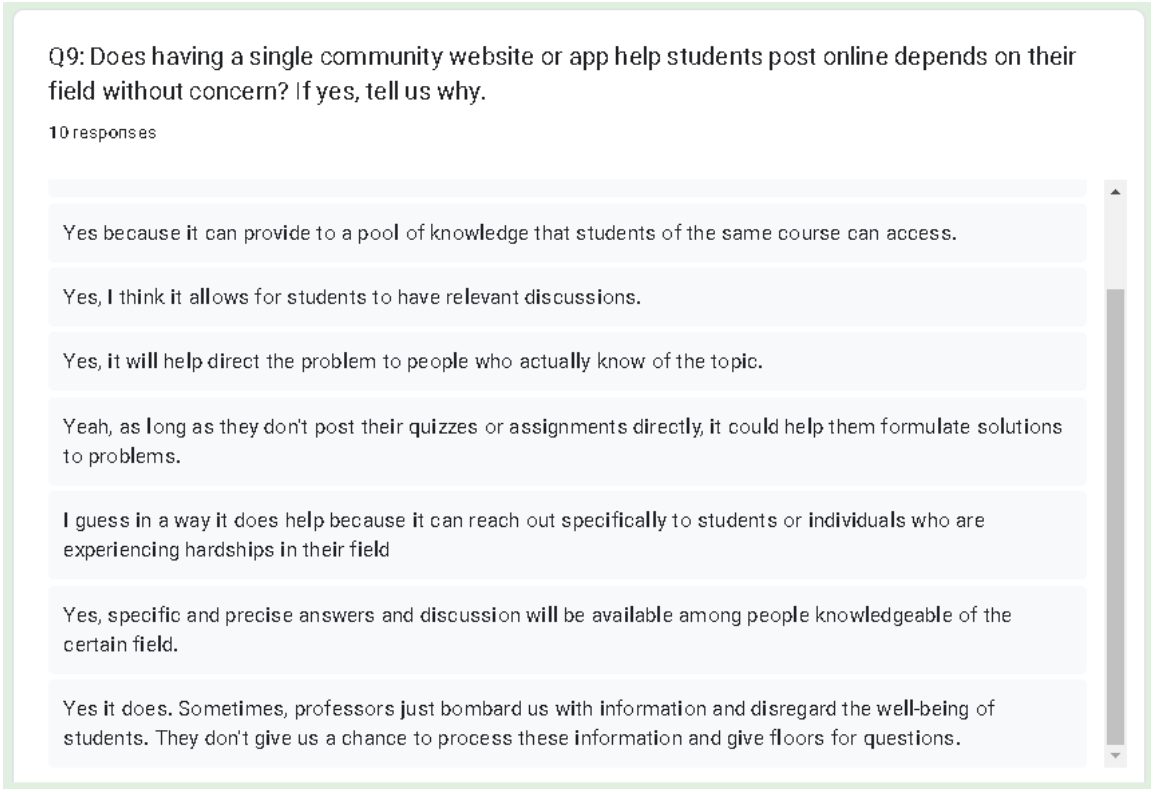


Figure 3.9.2 Interview - Question Nine Responses (2/2)

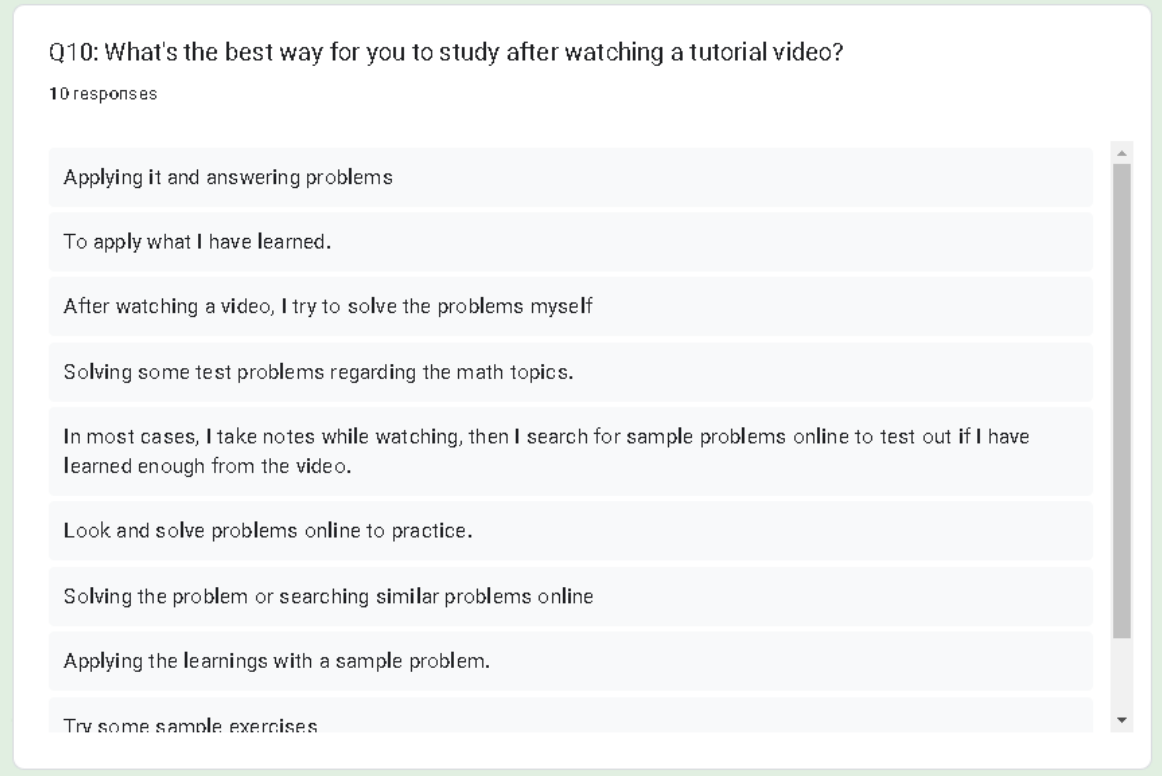


Figure 3.10.1 Interview - Question Ten Responses (2/2)

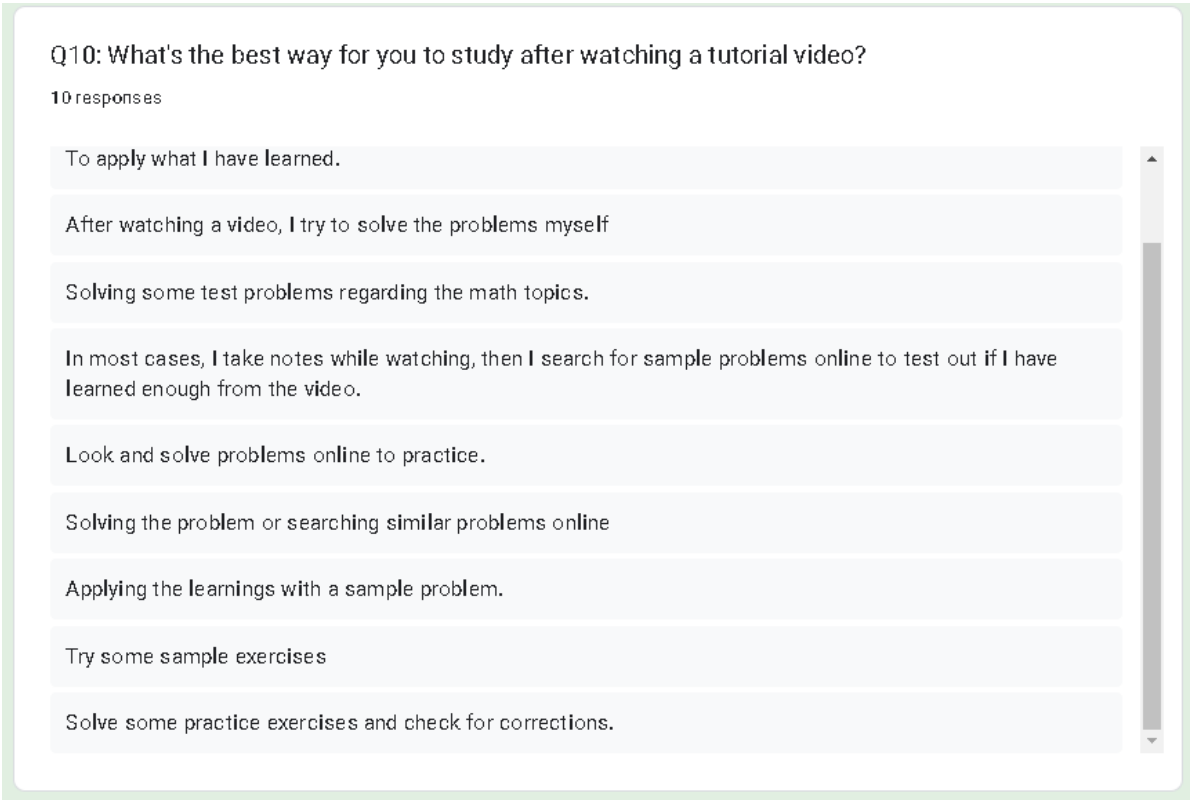


Figure 3.10.2 Interview - Question Ten Responses (2/2)

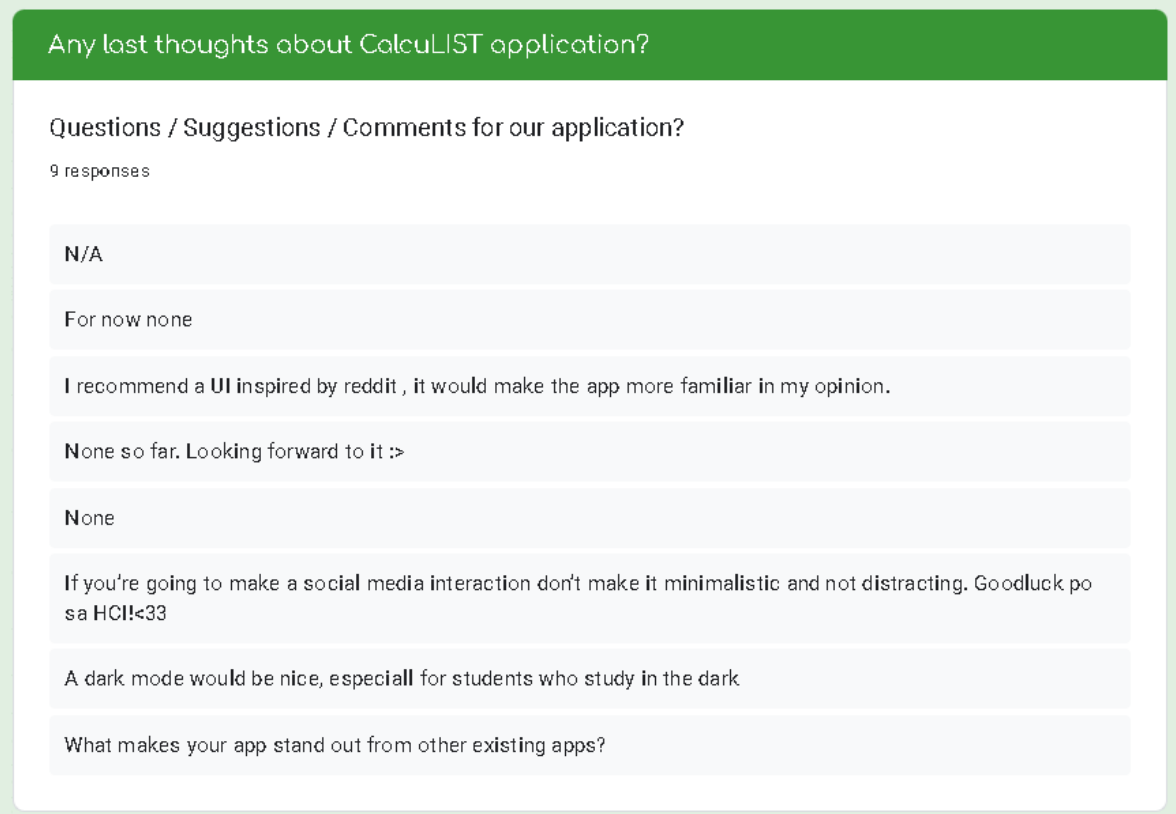


Figure 3.11 Interview - Last Thoughts About the Application Responses

2.7 Summary of Insights

- Basically our insights of what factors we have decided to add through the process of developing the app with the help of respondent initial feedback.

1. What is the first thing you do when you encounter a math topic that is hard to understand?

- Frequent tendency among students to use online applications or resources such as YouTube to help them to understand a Math topic. This is a motivation for the team to continue with the application.

2. When browsing the internet to read something, may it be a definition or anything, does the UI bothers you a lot? Why or why not?

- The team figures User Experience and Interface design hugely impacts the feeling of an individual when browsing on the internet. This factor challenges the developers to make a balanced approach between the complexity and simplicity of understanding the available functions. Thus, this helps us to formulate the layout and design process of the application. Additional guides and tutorials are also thought about here to help further the user in understanding the use and functions of the app.

3. Are you having difficulty finding time to study? If yes, what do you think you can do to manage your time?

- Some people struggle of students upon studying but others may not. But the common characteristic mentioned is 'study habits', on which the team can do this with the implementation of the 'Do-it-Yourself Plan' feature to help them list and prioritize the Math topics they want to tackle.

4. Do you think having social interaction in an educational app helps you to understand the topic more? Why?
- Social interaction in learning seems to greatly help them in understanding educational topics more. Hence, this encourages the team to create a discussion board feature to allow the users to reach each other out and have a better understanding upon solving a certain problem.

5. Would it be helpful for you if an app that focuses on math topics had a feature that lets you list a topic, especially when there are a lot of things you need to study? Why or why not?

- Shows the importance of the function 'Do-it-Yourself Plan' in the application, it is a need as each response agrees, a must-be feature.

6. When you struggle in a math problem, do you ask for someone's help or not. Yes or No? If not, why?

- For most, having a 'buddy' also helps them more in math problems. Thus, this solidifies the significance of ease in interaction of one another into making the discussion board feature.

7. Have you ever tried or posted on a website or app about your math problem? If yes, please state the app.

- This is where brainstorming takes place, the team needs to find a unique way to motivate the users into posting their math problems may it be in the list plan or the forum threads. The team believes once they have successfully done posting a question and someone comes in to help in their issues, it will contain a spontaneous effect for the user to be more confident and list/ask more questions stuck in their minds, using the app for a longer-term purpose.

8. If you encounter a website or an app which has good features and UI where you can ask about your math problem, do you wish to use it? If yes, why?

- To make a 'good' User Interface by working carefully with the 'workspace' that a user will spend most of their initial time using the application. Good first impression means the more loyal users, the better reputation our applications will be spread throughout globally.

9. Does having a single community website or app help students post online depends on their field without concern? If yes, tell us why.

- Building a community is considered a foundation of our application. Everyone smiles and is happy on connections established for both users and developers upon having a good conversation among individuals you can relate the most.

10. What's the best way for you to study after watching a tutorial video?

- Application is the best way to learn from studying. Thus, Math-learning does not revolve solely upon the planning and studying stage. Moreover, the team may consider adding sets or any gimmick to encourage users to learn various problems related to their topic.

These responses are valuable to the decision making process of the team. The formulation of different functionalities will be carefully sorted out to what is the most important and what is the least priority in the function hierarchy. Still, everything matters and each action taken includes an impact on the app's future.

Chapter 3: Prototyping

3.1 Introduction

The idea of the group when designing the prototype centered around *ease of access* and *user-friendly navigation* which will make it easier for users to go to whatever page they want to and edit the lists and plans to their liking. The navigation bar of the application is present on every page of the application which makes navigation quick-access for users.

3.2 Log-In Page

The Log-In page is where users who have already created their accounts would enter their credentials for them to access the application proper. This page will only be accessible if a user has logged out of their accounts and needs to log back in as once logged in, opening the app will automatically lead to the homepage of the application.

Figure 4.1 Log-In Page Prototype

3.3 Sign-In Page

The Sign-In page is the precursor to the Log-In page as this is where new users will create their accounts to access the homepage of the app. This page asks the user to enter the credentials that they want to set such as username and password, and this will then give them access to the various parts of CalcuLIST.

Figure 4.2 Sign-In Page Prototype

3.4 Tutorial Page

The Tutorial page is the page that the Sign-in will redirect a new user to before accessing the main page of the app. This is where new users will get to know the various functions of the app and will give them ideas and tips on how to properly use CalcuLIST.

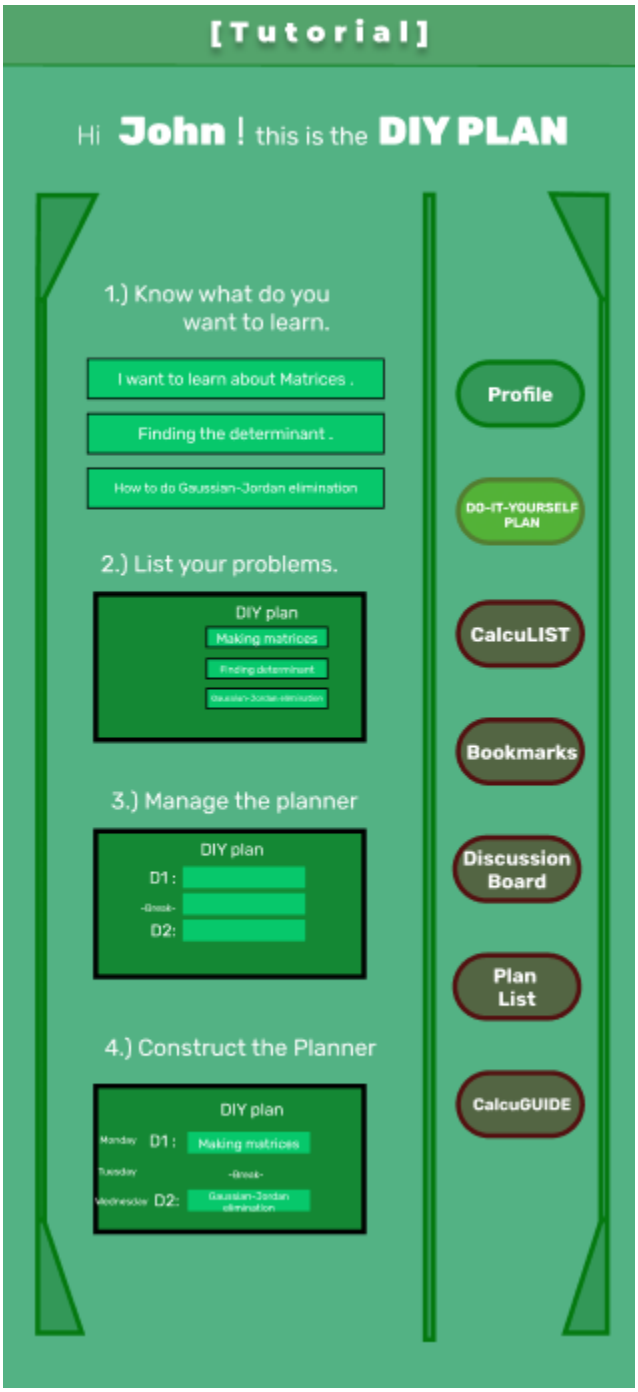


Figure 4.3 Tutorial Page Prototype

3.5 Workspace

3.5.1 Profile Page

This section of the app shows the user its profile; username, favorite topics, even the profile picture of said user. This is also the page which varies on the point-of-view of a visiting user; if the profile is set on public, another user is able to view the information of the user such as the ones previously mentioned however if it is set on private, the only viewable part of the profile is the username and profile picture and a message that says “The user’s profile is private” and will only be accessible if the user sets in to public.

3.5.2 Do-It-Yourself Plan

The Do-It-Yourself Plan portion of the app allows users to create their own learning plan or studying plan. This means that they are able to schedule and prioritize what they want to learn first and update statuses on whether or not a specific topic within their created plan has already been studied. This makes for a more organized way of studying and managing time in terms of learning new topics.

Figure 4.4 Me! (Profile) Page Prototype

3.5.3 CalcuLIST Page

The CalcuLIST is this app's primary feature. The user can initially view suggested or recommended topics on this page based on prior searches made in the search bar. Following another topic search, a list based on the keywords is then displayed. By tapping the plus sign icon, a prompt asking for confirmation will display after clicking the icon.

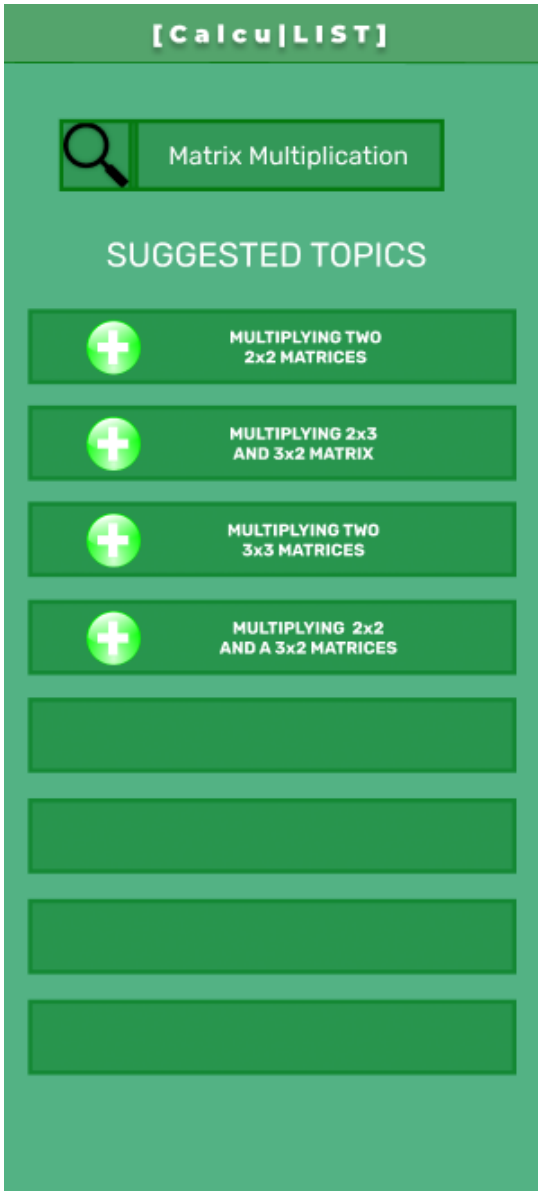


Figure 4.5.1 CalcuLIST Page Prototype (1/3)

The main article will be redirected when the title of a topic is clicked on, allowing for proper topic scanning. In order to make adding topics to the planner, an add sign symbol will also be placed on the right side of each topic's title and the bottom page of the article.

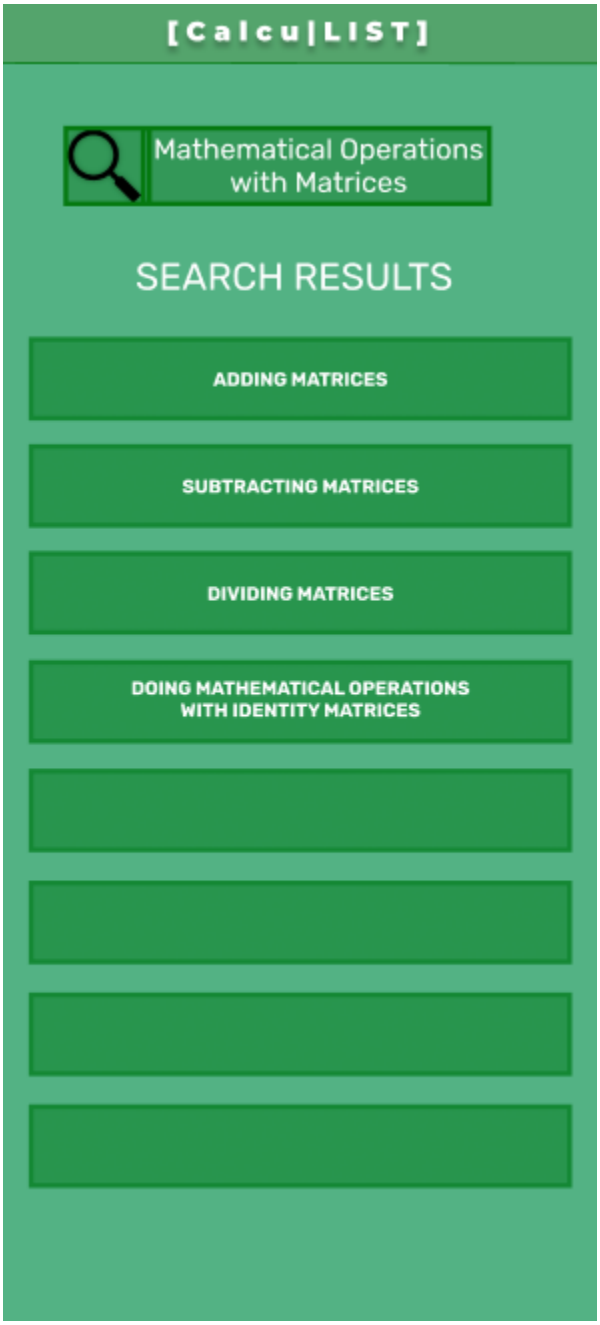


Figure 4.5.2 CalcuLIST Page Prototype (2/3)

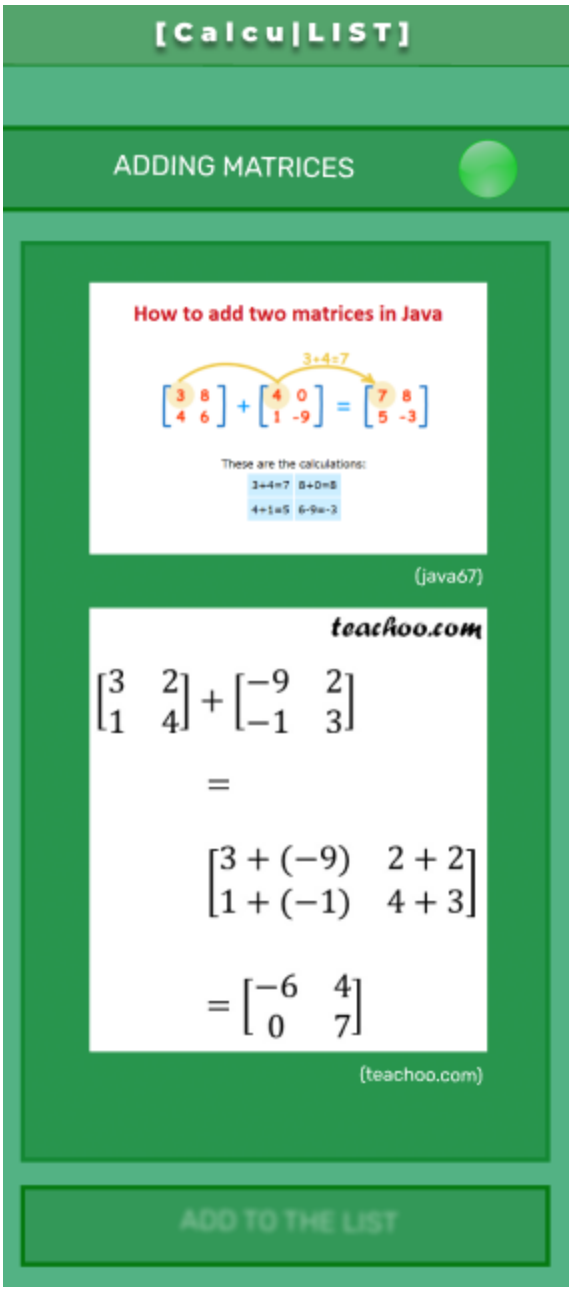


Figure 4.5.3 CalcuLIST Page Prototype (3/3)

3.5.4 Bookmarks

The user's bookmarked topic will be displayed on this page. Some features enable users to search among their bookmarked subjects for a certain topic. By selecting the privacy setting, the user may also choose whether they want it to be publicly displayed or not. The topics can also be sorted by date, type, etc. by the user.

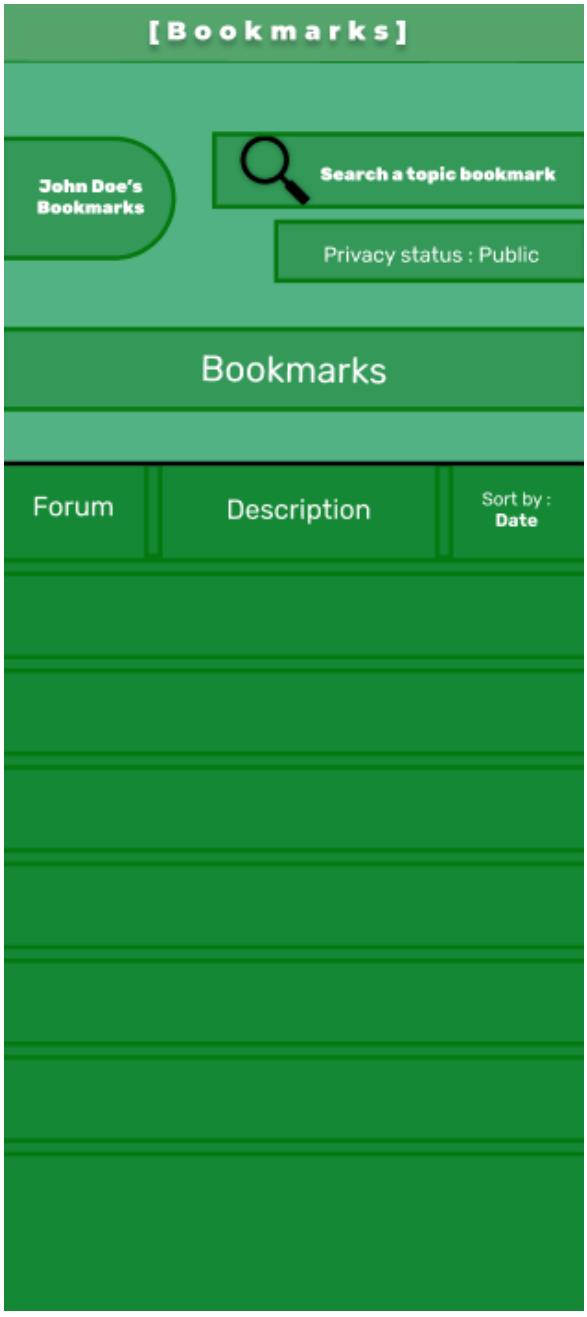


Figure 4.6 Bookmarks Page Prototype

3.5.5 Discussion Board

The Discussion Board is a place where users from around the world are able to ask questions about parts of certain topics that they find difficult or get stuck in and they get answers from other users and even tips and tricks on how to solve their problems. This is done to have a community aspect of the app so it would not feel plain or lonesome when using it. The interactivity helps as users get to learn from their fellow users and helping each other learn is key to learning more and enhancing the knowledge one has.

Figure 4.7.1 Discussion Board Page (Opening Page) Prototype (1/2)

Figure 4.7.2 Discussion Board Page (Chosen Topic) Prototype (2/2)

3.5.6 PlanList

This page is the representation of the plan that a user has made through the Do-It-Yourself Plan page and is visible to other users as well. This is where the user is able to edit the statuses of the topics included in the plan as well as see when a topic was added so users can gauge how long they have studied a topic before finishing and learning them fully.

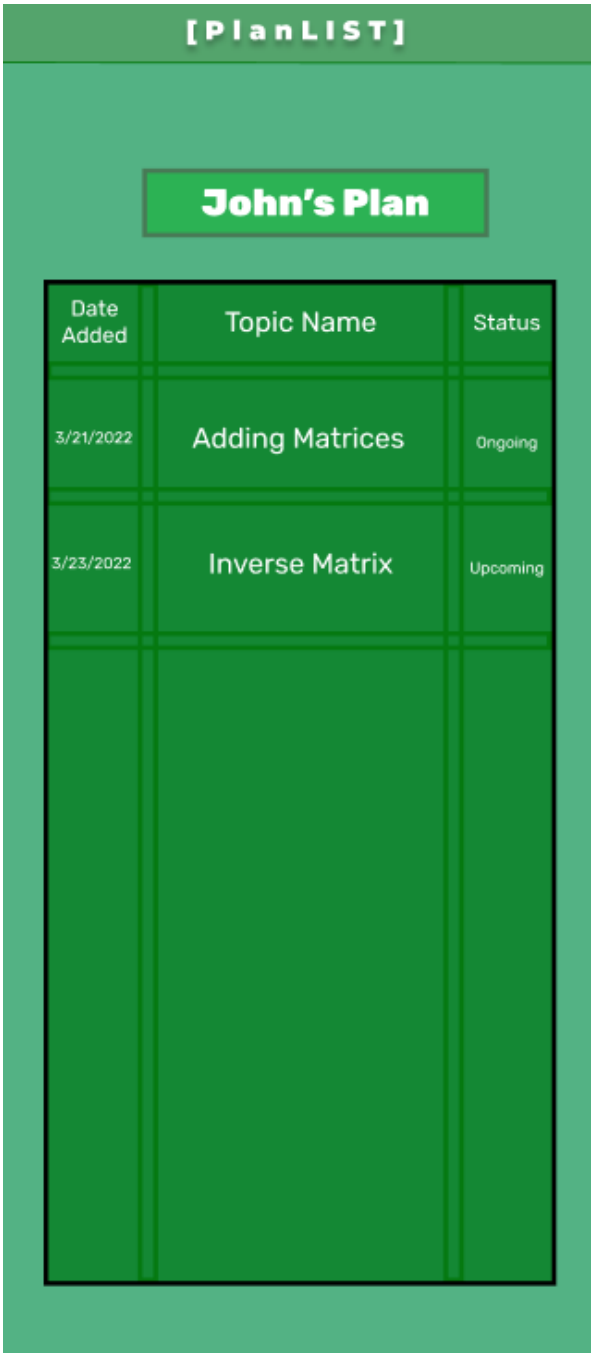


Figure 4.8 PlanLIST Page Prototype

3.5.7 CalcuGUIDE

On this page, frequently asked questions are provided with answers for the users to have an immediate solution to some of the common problems encountered in the app.

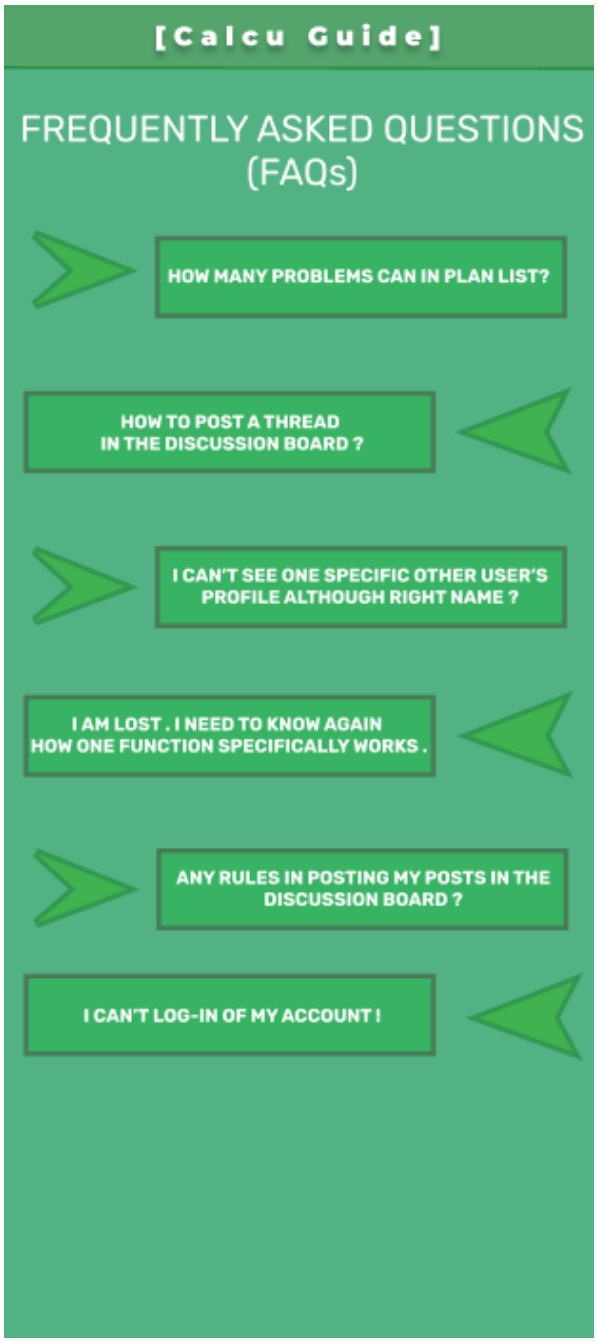


Figure 4.9 CalcuGUIDE Page Prototype

Chapter 4: Storyboarding

In this chapter, will showcase a traditional storyboard and a digital storyboard featuring how the application is intended to be used in real-life scenarios. With the initial drafts and ideas, the team is able to come up to a sketched and digitized version of the story.

4.1 Sketched Storyboard

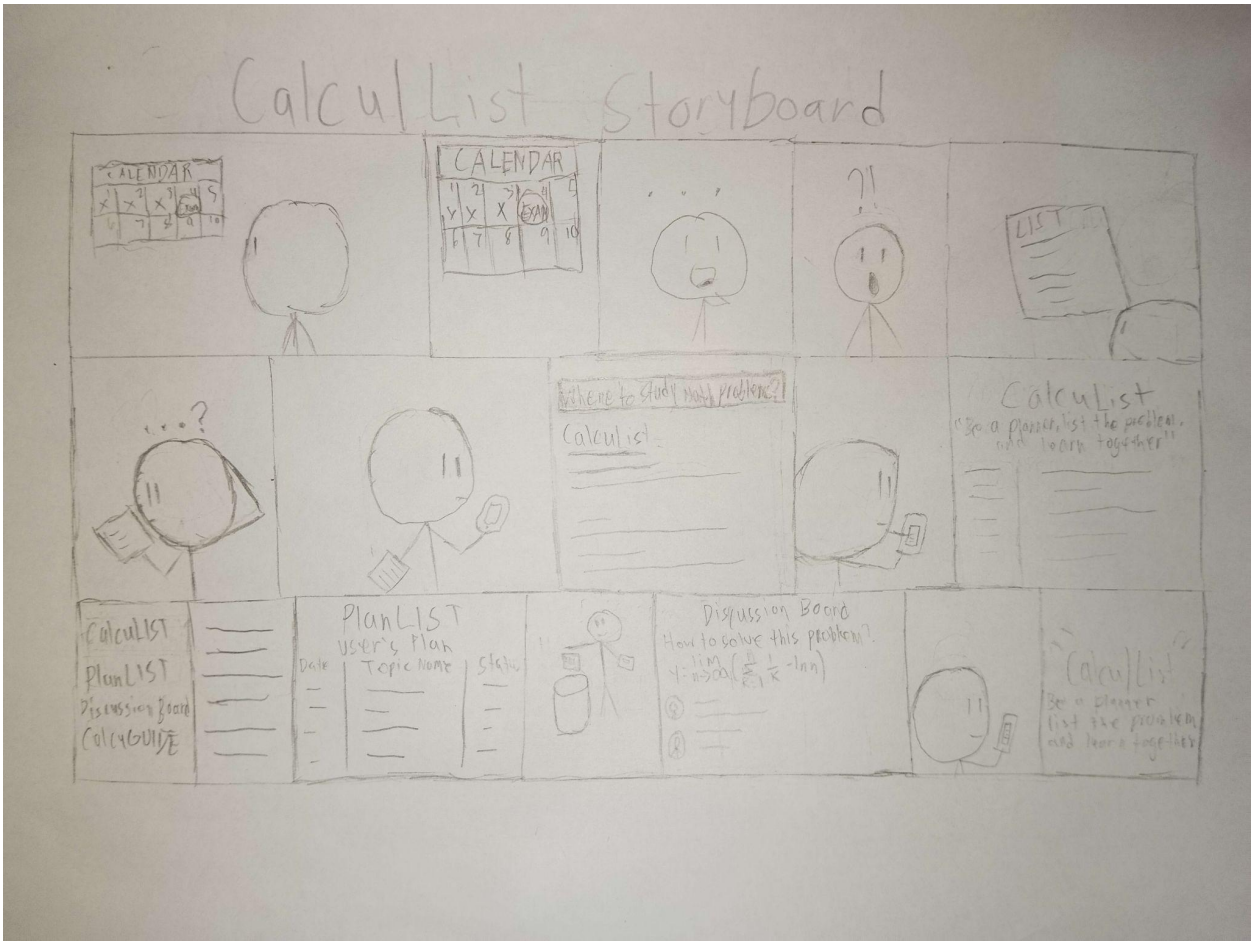


Figure 5.1 Sketched Storyboard

4.2 Digitized Storyboard

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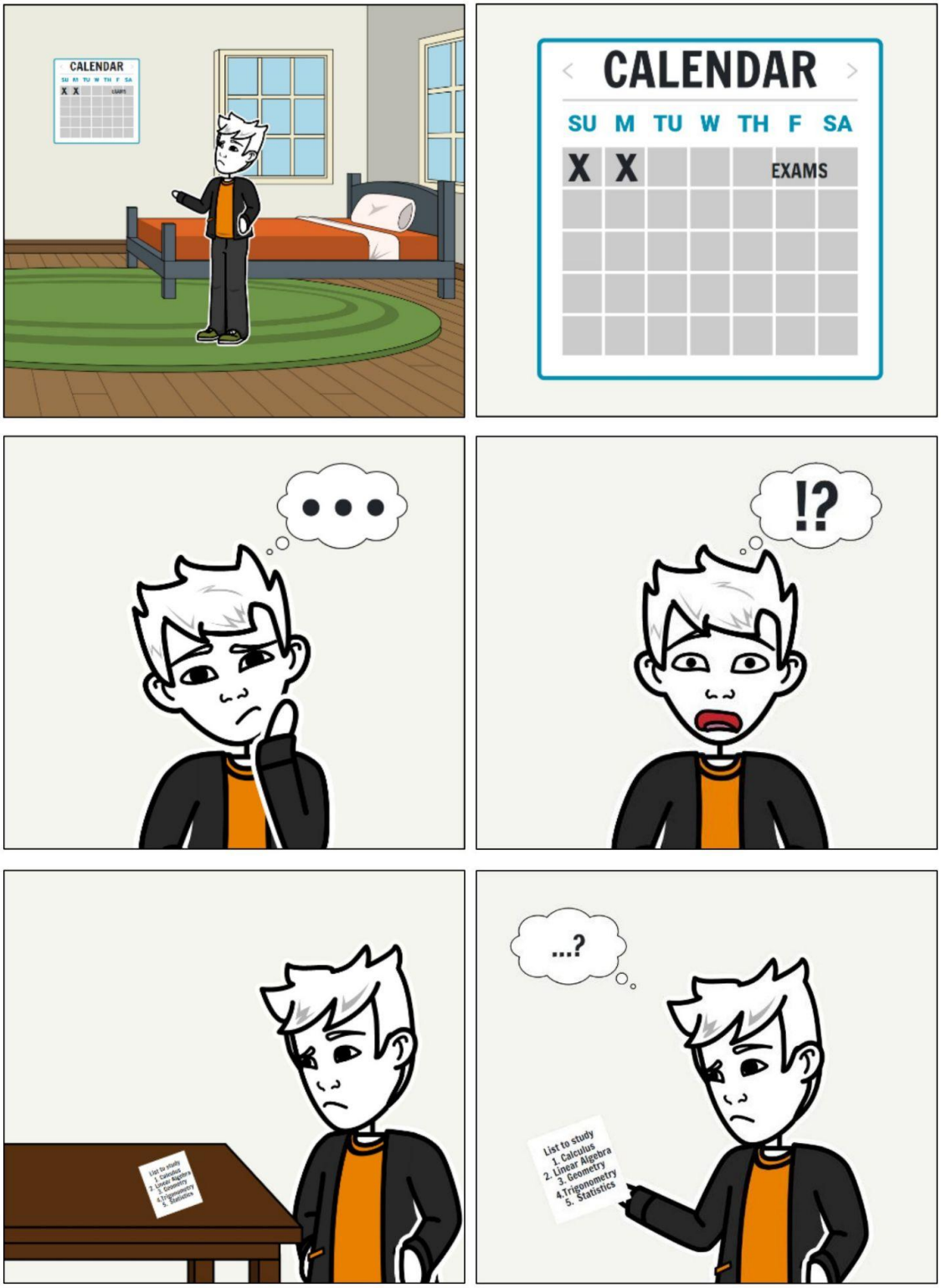

Figure 5.2.1 Digitized Storyboard (1/3)

Figure 5.2.2 Digitized Storyboard (2/3)

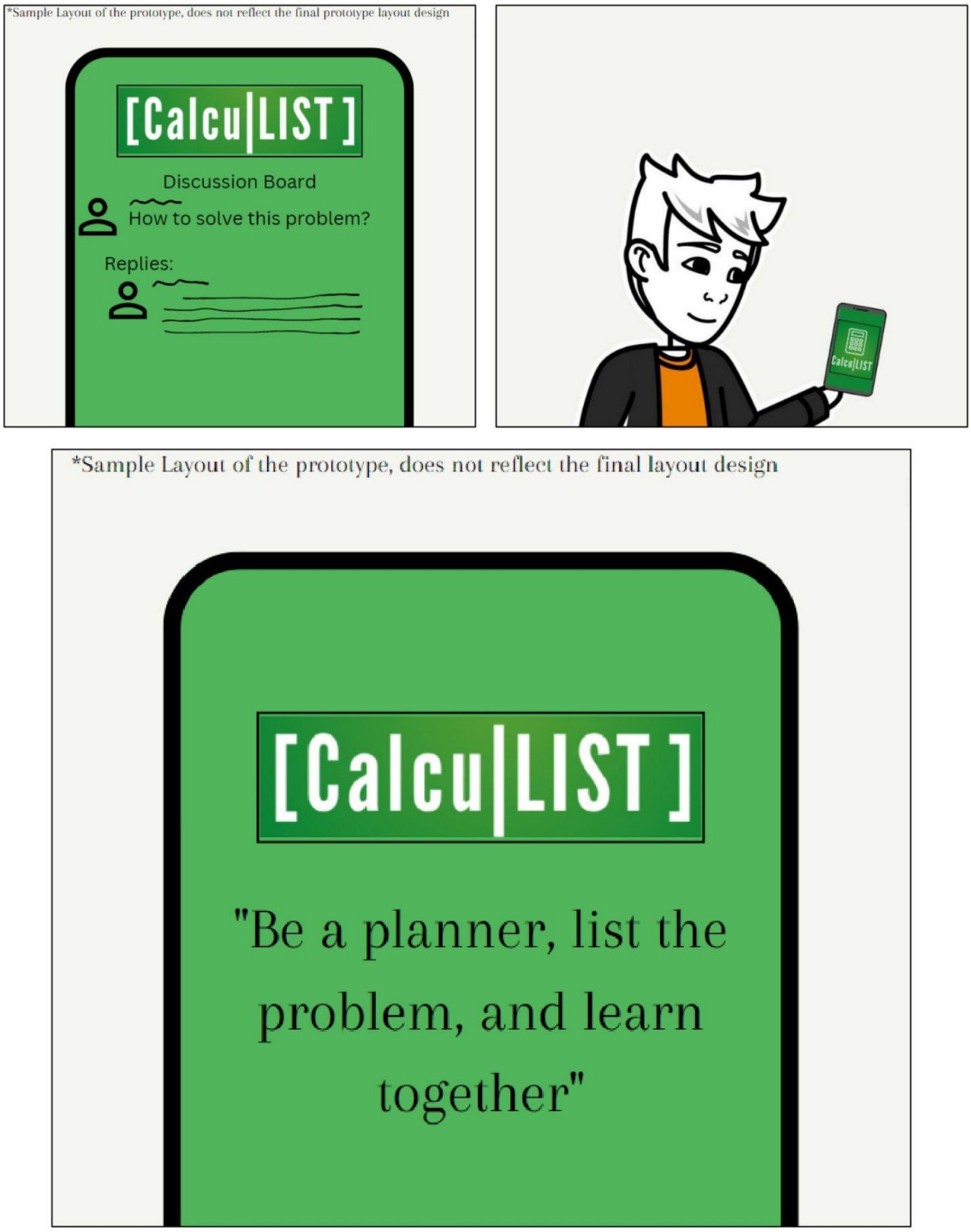

Figure 5.2.3 Digitized Storyboard (3/3)

4.3 Short Story of the Storyboard

The Storyboard of the proposed application starts with the first panel wherein the main character checks the calendar and sees that he has an upcoming exam where he got into thinking and got surprised. After that, he checked his list on what to study for the exam and he got confused because of the topics he was unaware of, that's why he grabbed his phone and searched "Where to study math problems?" and that's when he stumbled with CalcuList, where he checked the application and saw handy features and he used the PlanList right away to make a plan and list about the topics he was unaware of. After that, he used the Discussion Board to ask the problem he was struggling with and saw many users helping him about his problem and he learned from it. At the end of the last panel he became happy and satisfied with the application.

Chapter 5 : The Web Design Prototype

Chapter 5 includes the conversion of mobile prototype design into the website page design. With the aid of the Figma application, a similar app used in mobile previously, the team was able to formulate and create better features for CalcuLIST given the larger space in a web.

Hierarchical view of the functions in the application can also be seen in this part. With the components broken down into smaller parts, it will guide the user on how they will undergo through several features provided by the developers.

5.1 Website Page Design

5.1.1 Log-in Page

The welcome page where it is the first page you get to visit in the website, log-in page is set by default. Inputting the right name and password is needed in order to access a user's account. There is also a forgot your password option as an alternative way to retrieve a user's account. The white non-full opacity text "ka-CalcuLIST [John Doe]! will be in full opacity when the access is granted successfully.

Figure 6.1 Log-in Page

5.1.2 Sign-up Page

Sign-up page is proposed for first-time users who haven't acquired a CalcuLIST account yet. The user needs a unique name and a strong password in order to proceed to the next step which is the tutorial. The blurred text "Ready to be a CalcuLIST!" will be in full opacity when the user is eligible to click the "Proceed the tutorial" button.

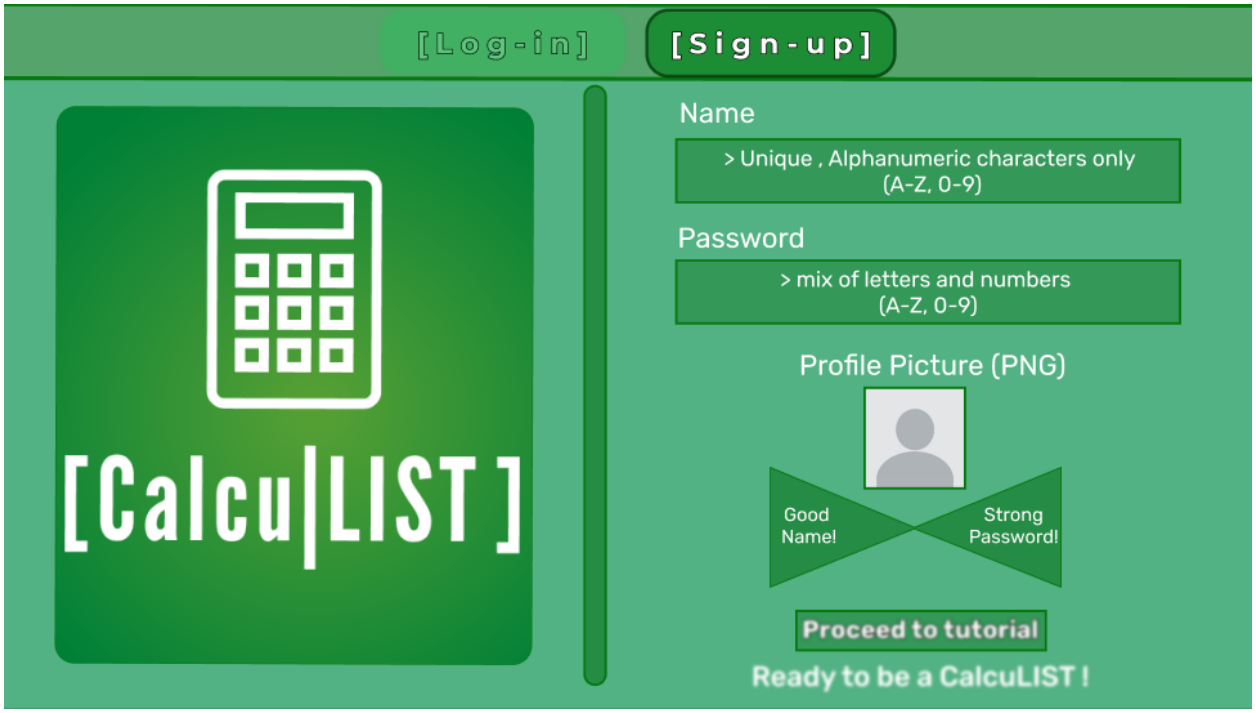

Figure 6.2 Sign-up Page

5.1.3 Tutorial Page

After signing-up , the user will be directed to a tutorial demonstrating the uses of each function possible in the CalcuLIST applications. After accomplishing all, they must proceed through the profile page.

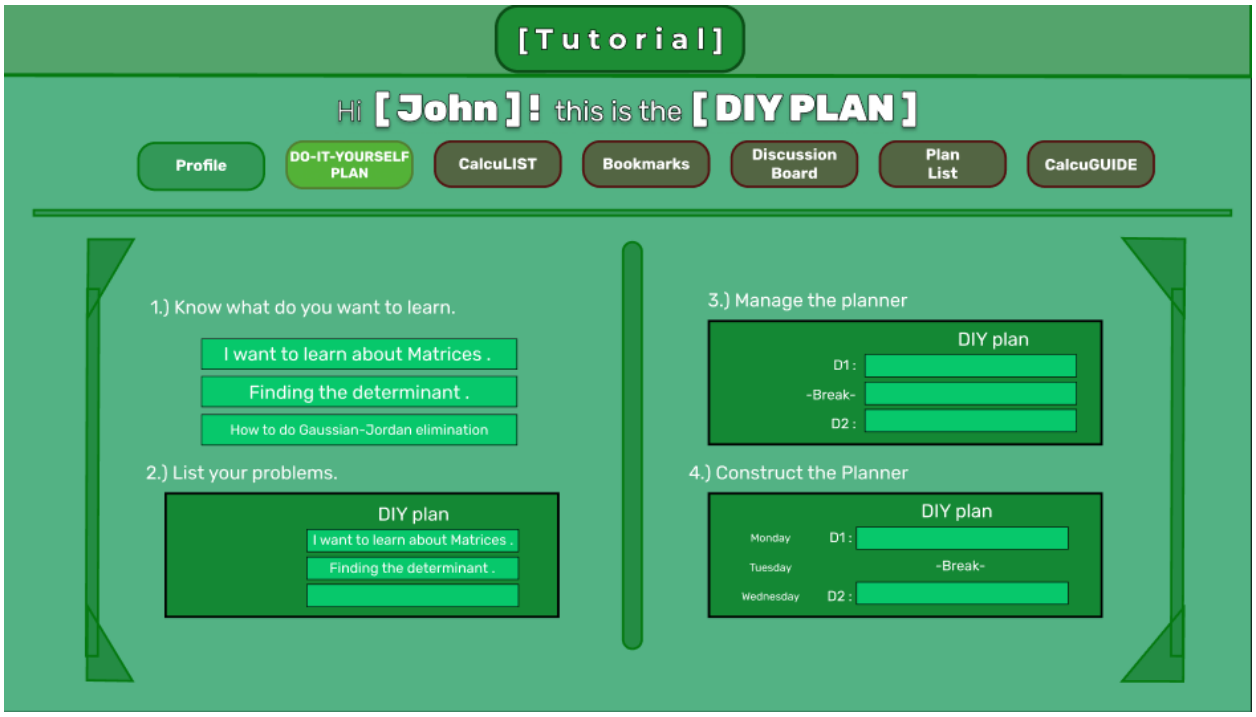

Figure 6.3 Tutorial Page

5.1.4 Profile Page

Profile page includes the information revolving about the user such as name, activity, personal quote, and profile status which can all be observed at the leftmost part of the page. Meanwhile at the right portion is the Do-It-Yourself Plan where users list down their ideas regarding the lessons or topics they want to learn. The user can also see the changes, may it be an addition or removal, to the history tab. The visibility of a DIY plan depends on the profile status of the user whether it will be public or private. Last feature is the completed plans where they can see the previously done plans and track how they have been progressing since the start of CalcuLIST.

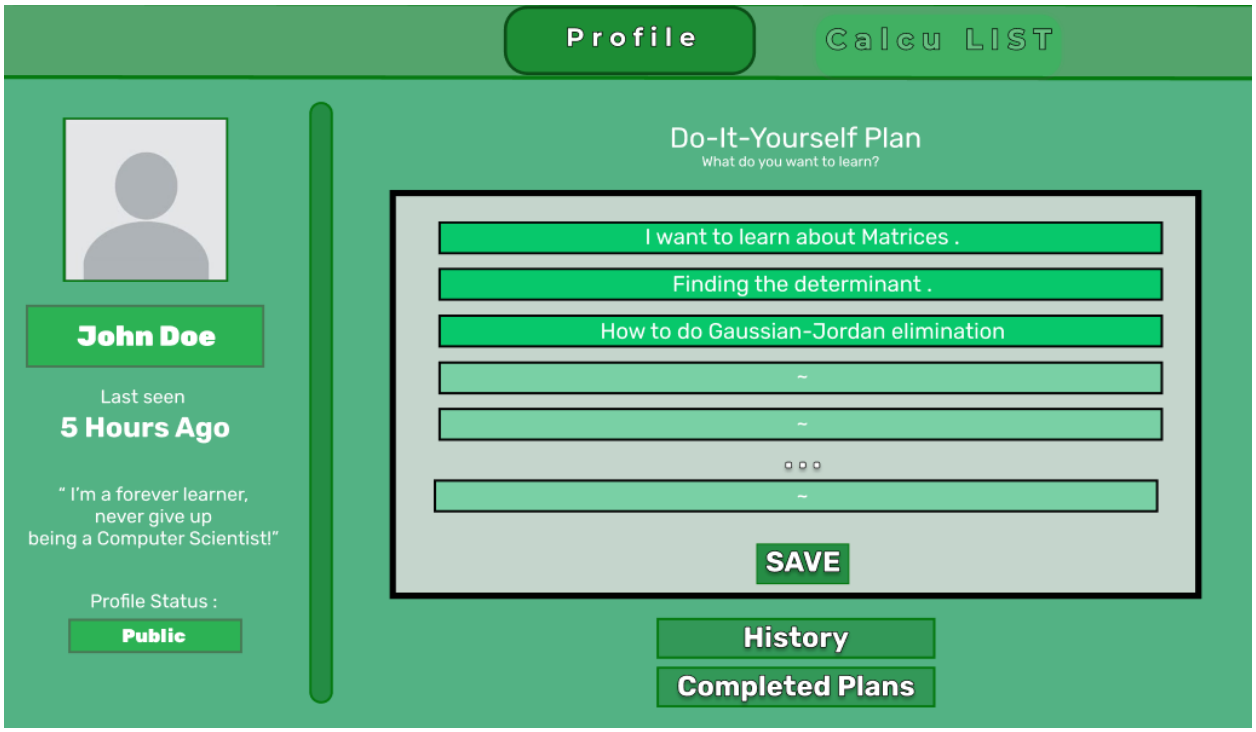

Figure 6.4 Profile Page

5.1.5 CalcuLIST - Suggested Topics

CalcuLIST will show a list of topics related to the keyword you have searched using the search bar at the upper part of the page inside the search box. Then the results include a topic, where bold faces can redirect you to a chosen content topic that will give you the lessons to learn. Besides the topic is the description, the sneak peek of what you may learn from it. Lastly the white cross, functions as the addition button to add it on your DIY plan. There is also a page navigator on which you can click next or previous (><) signs if there are several results or type the number of page you wish to go ahead in the green circle.

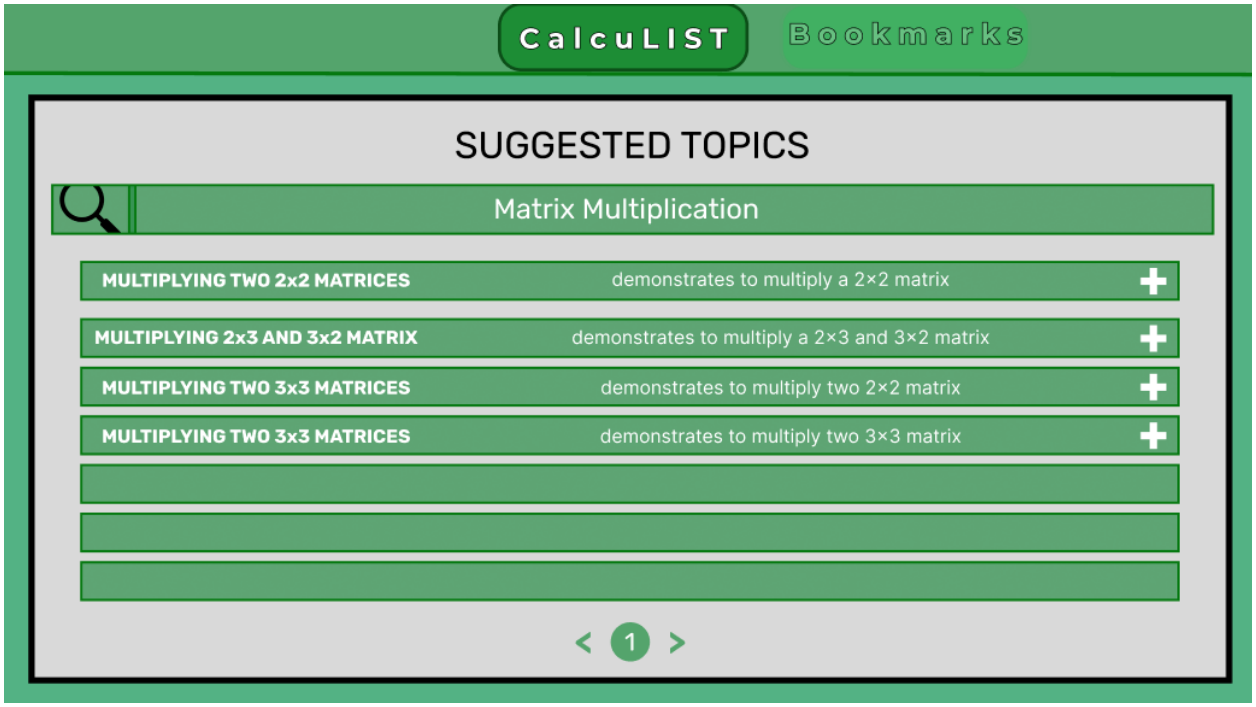

Figure 6.5 CalcuLIST - Suggested Topics

5.1.6 CalcuLIST - Search Results

Similar to suggested results , the only difference is that it shows a more general coverage of topics rather than getting specific.

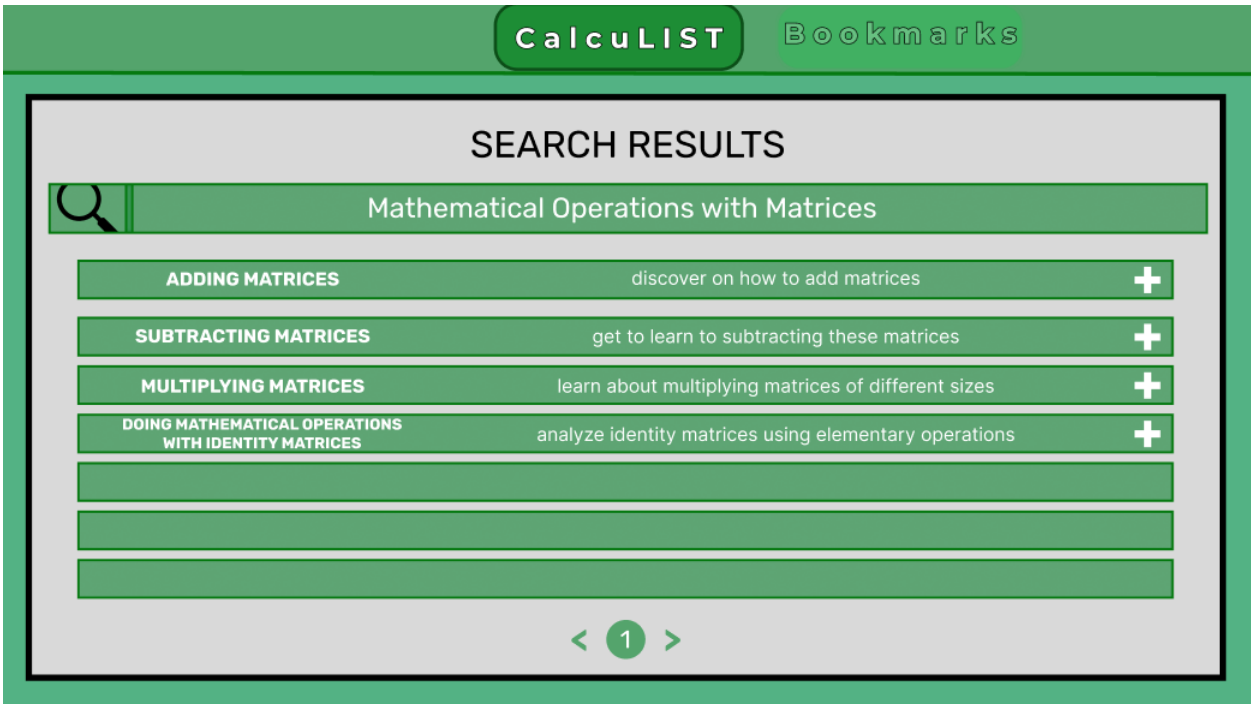

Figure 6.6 CalcuLIST - Search Results

5.1.7 CalcuLIST - Chosen Topic

After clicking the bold white text in either suggested topics or search result, both will go through the chosen topic function which includes the content of what a user wanted to learn.

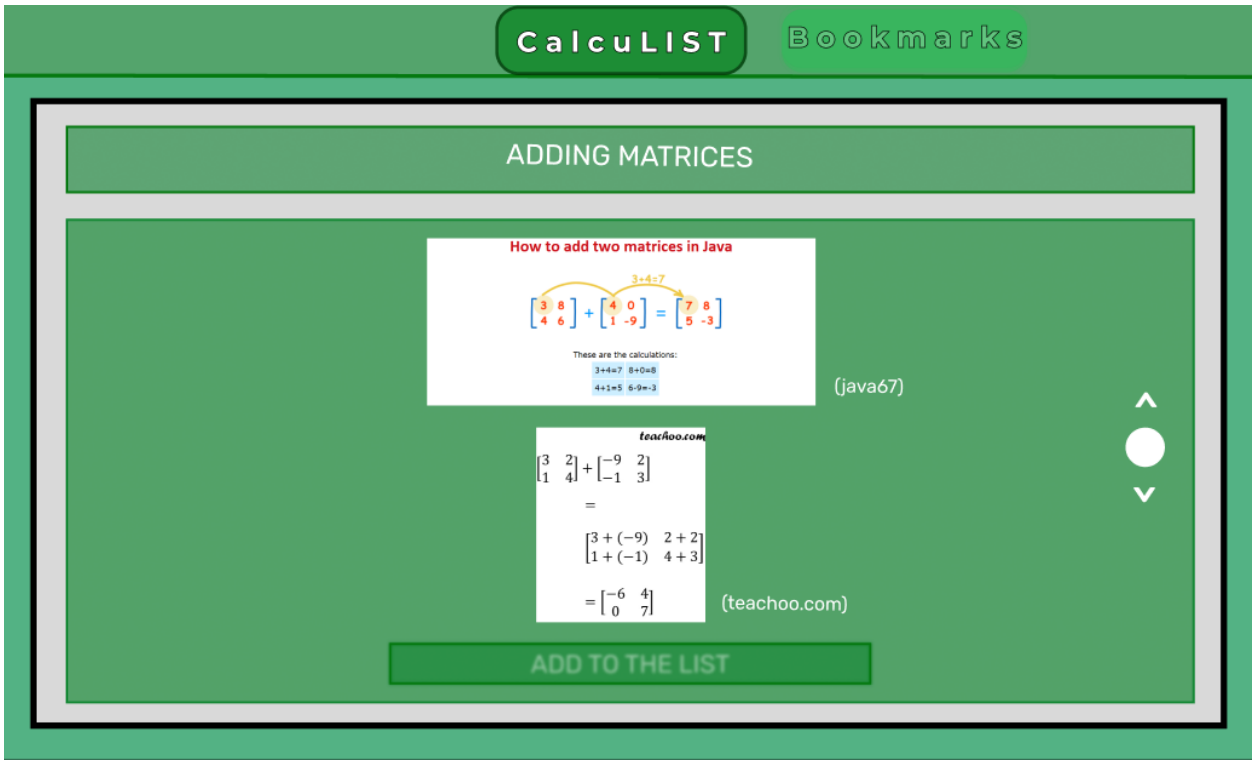

Figure 6.7 CalcuLIST - Chosen Topic

5.1.8 Bookmarks

Bookmarks include the important forums a user may want to frequently check on or other significant reason to remain it saved before going through the main discussion board. There is a search bar to find specific forum posts quickly and its results can be sorted through date and no. of participants. There is also a scroll button to look down deeper or go back to the top of the results.

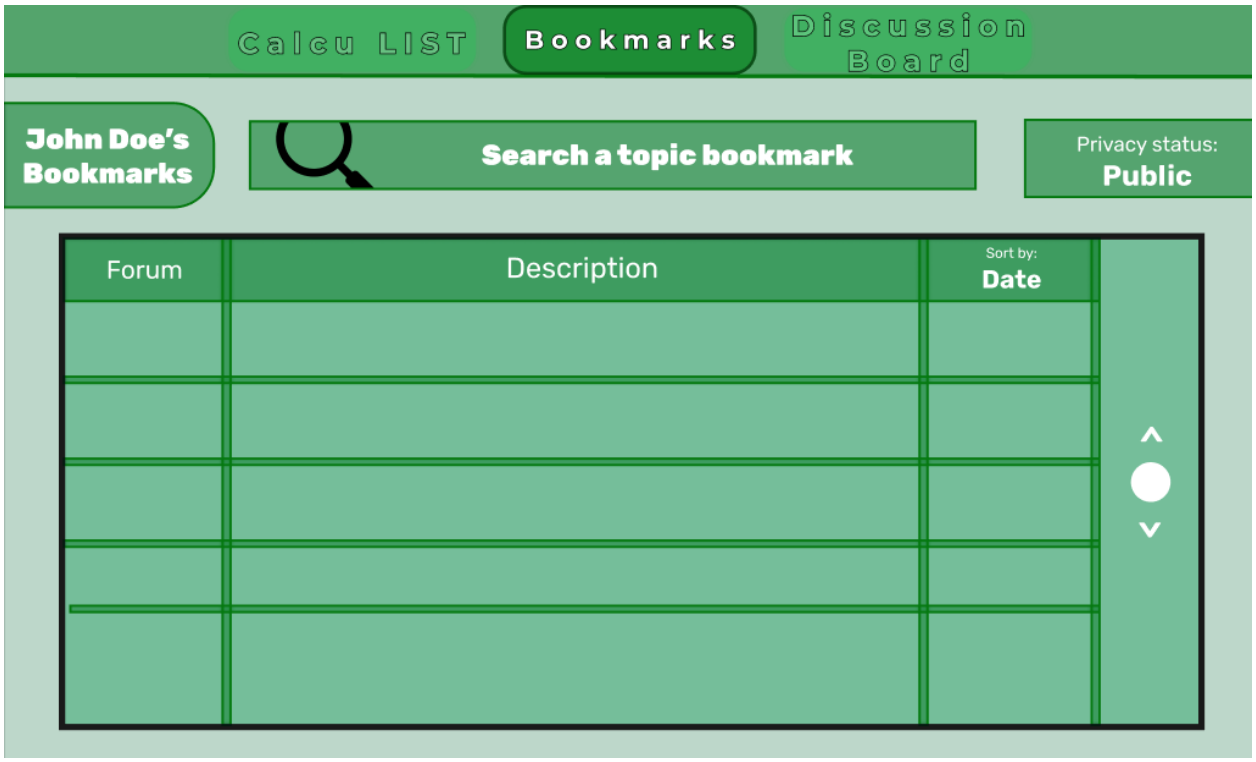

Figure 6.8 Bookmarks

5.1.9 Discussion Board

Discussion board almost has the same features as the bookmark. The search bar shows who the current plan is being produced for suggested forums in the discussion board. There is a check other users plan button in top right portion where you can change specifically to other user have the suggestion algorithm design for.

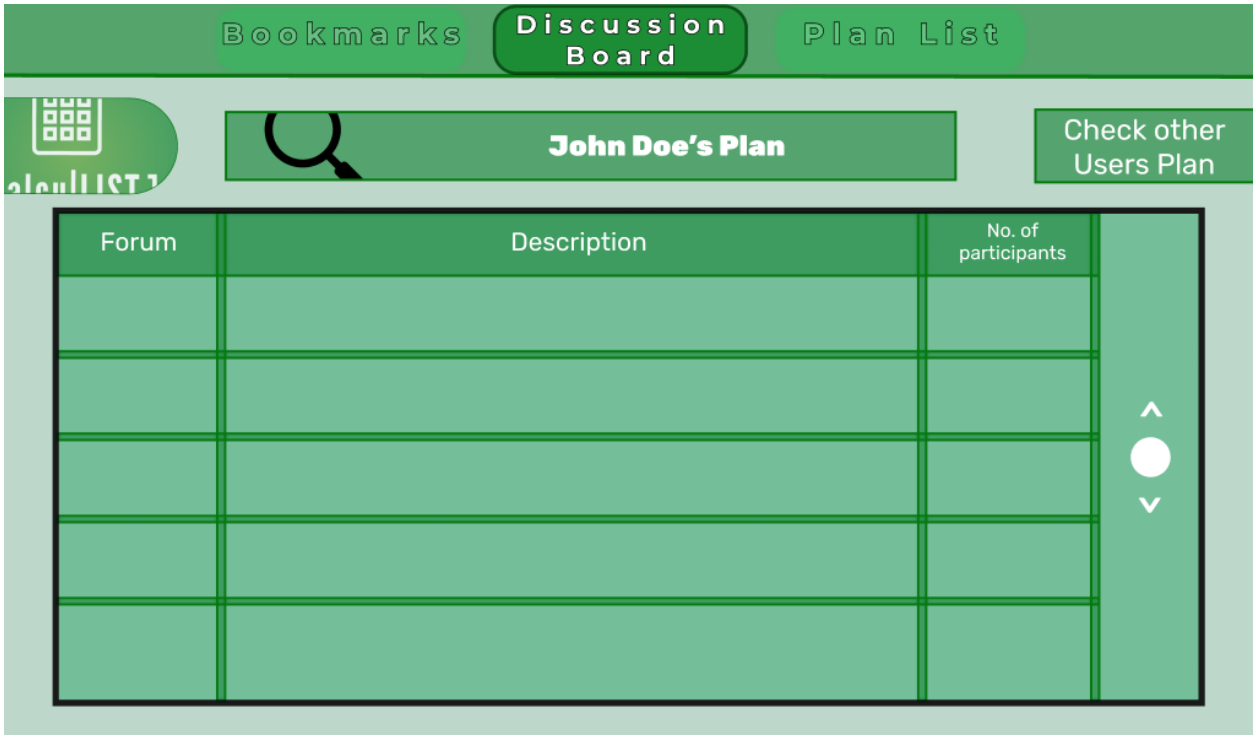

Figure 6.9 Discussion Board

5.1.10 Discussion Board - Chosen Topic

After clicking a certain forum post will lead the user to the conversation in the discussion board. Here users can interact with each other and share their thoughts about the topic. There is also a vertical navigation button to scroll through the chat further. Other details in the upper portion shows the topic, description, and date added respectively from left to right.

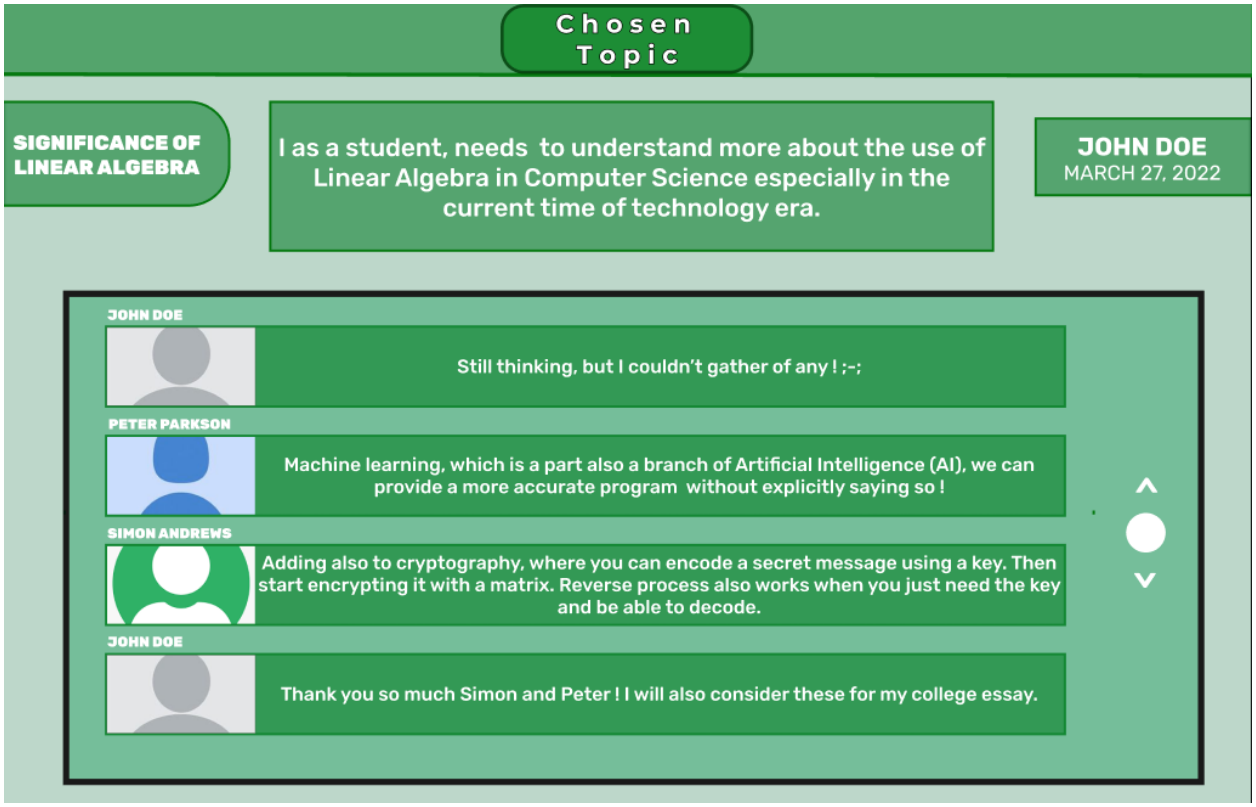

Figure 6.10 Discussion Board - Chosen Topic

5.1.11 PlanLIST

PlanLIST tracks the user's progress on their learning. It is dependent on the user whether they have achieved their goals on learning a certain topic or not by using the words ongoing, upcoming, and done.

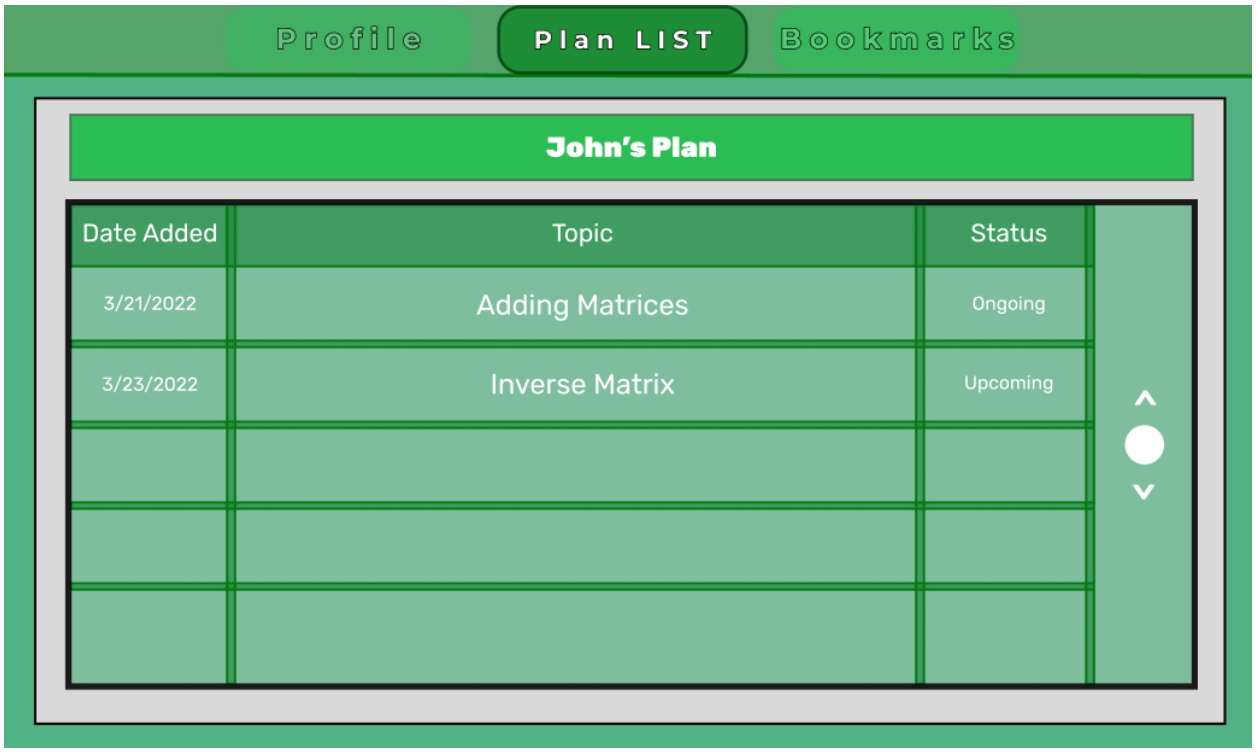

Figure 6.11 Plan LIST

5.1.12 CalcuGUIDE

CalcuGUIDE is simply defined as the frequently asked questions (FAQs) part where it provides a response through a user's common question in using the application.

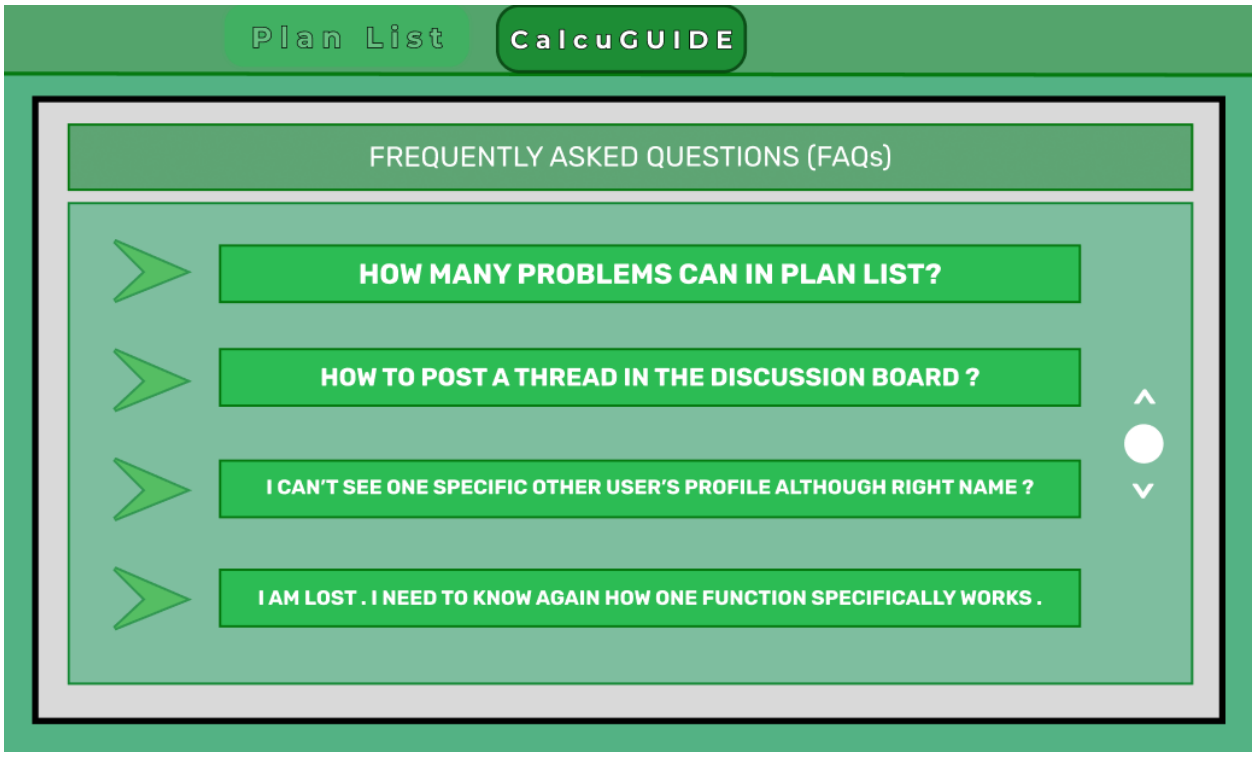

Figure 6.12 CalcuGUIDE

5.2 Hierarchical View of the Functions

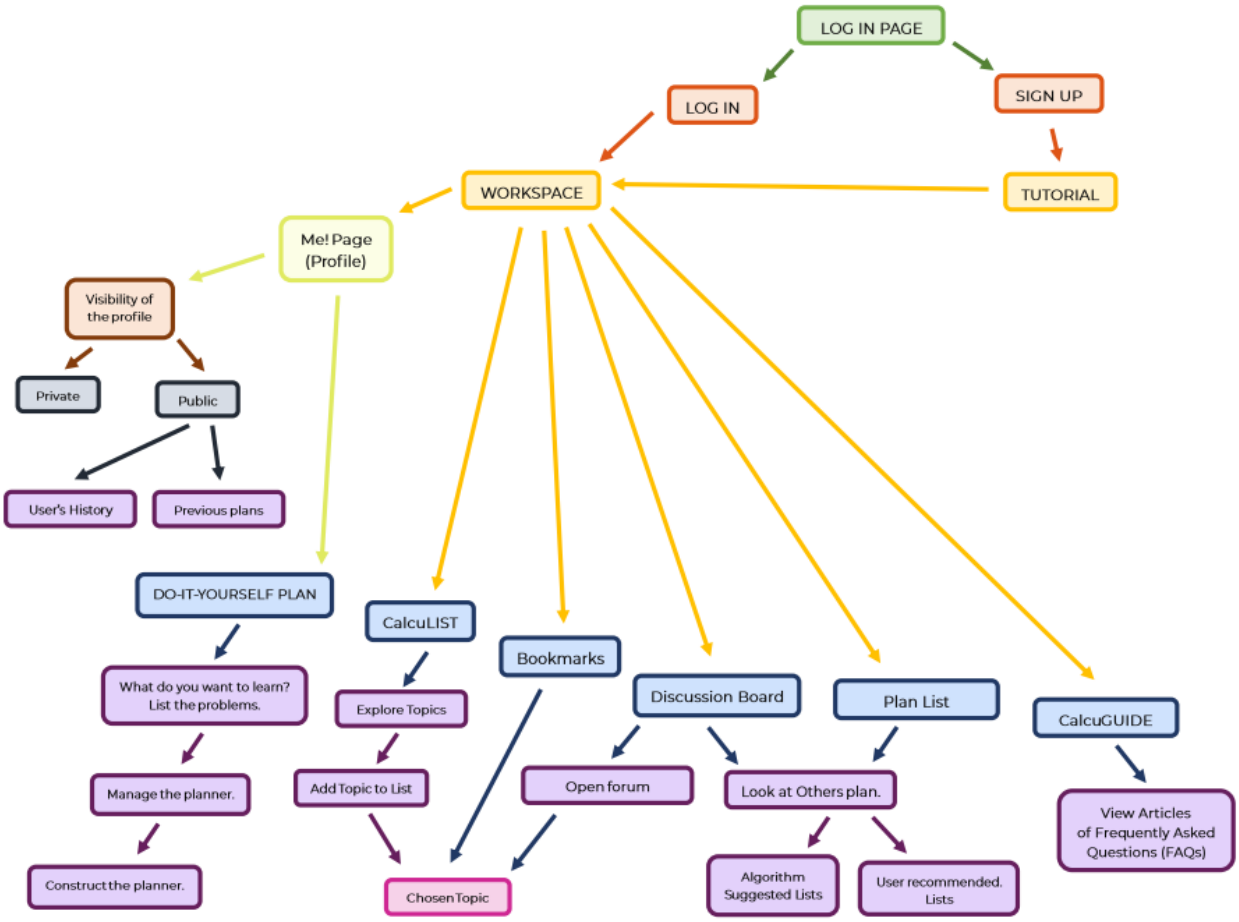

Figure 6.13 Hierarchical View of the Functions in CalcuLIST Application

The following image describes the summary flow of each of the functions available within the CalcuLIST website. From its first click which is the log-in page through the very-end which is the frequently asked questions (FAQs) part.

Chapter 6 : Summary and Conclusions

Chapter 6 summarizes the creation process and reporting of the mobile application and subsequent website equivalent. This chapter includes the thoughts the group had when it came to the overall creation of the app and also some realizations and insights pertaining to the project and the course itself. The chapter also concludes the entirety of the report, with some words from the members that will put a lid on the project symbolizing its completion.

Summary & Conclusion

Most students have trouble or are struggling in solving math problems. Students either don't understand these problems easily, thus resulting in them to self-study after the class. Sometimes, however, students are still struggling to solve these problems even if they browse the internet. As the Calculist developers also experienced these problems, we decided to create an app to ease their struggles in understanding math problems.

CalcuList is an app that helps students learn math more easily and effectively. It covers various topics from algebra to calculus and provides sample problems with different levels of difficulty. It also has a user-friendly interface with a unique color scheme that makes reading comfortable and enjoyable. In addition, it has a discussion forum where students can share their ideas and questions with other users and learn from each other.

Various tools and resources were used to create a good user interface for CalcuList. Figma was chosen as the main tool after exploring different UI websites. Figma is easy to use and collaborative. It helped the developers share their ideas and drafts and create a prototype quickly. It also has a few drawbacks and problems. Google Forms was also used for data gathering and need-finding. Google Forms enabled the collection of responses from a group of students efficiently. Using both tools was effective for developing the app as they offered many benefits.

In our stand, the comfort vibes that design gives is the highlight of the User design. In a sense the elements are arranged tabs and functions are easily recognized and

understood. We took a minimalistic approach that doesn't degrade the original purpose of certain CalcuLIST parts. Additionally, the presence of a taskbar at the top of the page makes it easier for users to navigate through the pages while not affecting the page they are currently in.

In comparing the many pages that make up CalcuLIST, the “x-factors” that would catch the eye of possible users would be the focus on the “do-it-yourself”-centric approach the application took when it came to organizing and learning new topics present in the app. Being able to create a list of topics to study while also being able to organize them in a planner-like manner makes using the app for learning more interesting and appealing to the user. Another would be the tutorial given to a new user when they first sign-in to the app. Being able to learn the ins and outs of the application without having to blindly navigate it is very beneficial to the user as it allows them to proficiently use and navigate through the app from the start.

The motivation for design initially started with the CalcuLIST quote, questioning ourselves "is this the way we implement and execute our plans?" From thinking, to listing, to taking feedback on how well their actions have come on. As Computer Scientists, the target users, each stage mentioned are essential to their improvement.

The use of different typefaces that varied according to the current process to show “familiarity” when that specific part is present. Another one is the use of weight that determines how significant the information must be seen by the users. Last point is the prevention of ‘decluttering’ elements, all the vital information is only provided to the users. This gives a huge impact to prevent users from feeling “information overload” as well the information being easier to absorb.

The approach the group took when solving the problem of helping students learn advanced mathematics topics may be seen by some as a hassle or useless because of the presence of search engines; however, it can also be said that the group took a good approach since the application does not only serve as a means for students to search and learn topics, but also manage the time they put into studying through the creation of planners and schedules which are built-in features in the app. The app can be used as a

quicker way to search for topics as when searching for a specific topic, the app directs the user to the information they need without having to browse through multiple links just to find the right solution or description. It may not be perfect, but the convenience of having everything a student needs when wanting to efficiently study (i.e. planners, schedule-management, etc.) makes for an effective application.

In terms of being able to achieve the objectives the group set when first creating the application, the first two were met; the first objective was met through the survey in which the group asked students on their thoughts on learning advanced mathematics and how they manage to learn them. These thoughts and answers were taken into consideration when creating the various pages of the application which ultimately fulfilled the first objective. As for the second objective, the creation of the PlanLIST feature in the application served to fulfill that objective. Having the ability to create and manage a personalized planner and schedule the topics they want to study helps in establishing a productive environment for the students. The third objective has yet to be fulfilled as the community aspect can only be gauged once the application goes live and people use the discussion board feature. The application has a space where users can interact with each other and teach one another which helps with the interactivity of the application as a whole, but that is only possible once the application becomes available. Overall, the objectives that can be achieved before the app becomes a real application are fulfilled and will further be fulfilled in the future.

In the process of making the project it teaches us how to make something from scratch into a web app which gives us a bunch of knowledge and skills that we may use in the future which is really important and beneficial for us.

- Using something that we are unaware about, gives a set of skills and knowledge which can be used to improve one's creativity after learning it.
- Making something needs a good roadmap which is the core and guide to create something from scratch into a finished project that provides a good outcome.

Overall, despite the fact the app is still not finished, the project already provides us with the knowledge and skills in order to finish the app in the future.

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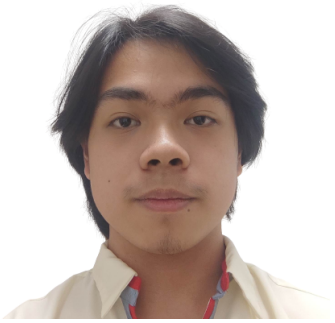
Curriculum Vitae of Gabotero



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  - ❖ CICS - BS Computer Science (2022 - present)

Secondary education :

- University of the East Manila - Senior High School
  Recto Ave, Sampaloc, Manila
  - ❖ Senior High School (2020 - 2022)

- Regina Apostolorum Academy
  Valenzuela, Santa Mesa, Manila
  - ❖ Junior High School (2016 - 2020)

Primary Education :

- Regina Apostolorum Academy
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  Kanlaon cor. Don Manuel, Quezon City
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  - ❖ Junior High School (2016 - 2020)

Primary Education :

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Secondary education :

- Immaculate Conception School of Malolos - Senior High School
  Poblacion, City of Malolos, Bulacan
  - ❖ Senior High School (2020 - 2022)

- Immaculate Conception School for Boys
  Poblacion, City of Malolos, Bulacan
  - ❖ Junior High School (2016 - 2020)

Primary Education :

- Immaculate Conception School of Malolos
  Poblacion, City of Malolos, Bulacan
  - Elementary Education (2010 - 2016)

- Colegio De Calumpit
  Calumpit, Bulacan
  - ❖ Kindergarten Education (2008 - 2010)