



AN-NAJAH NATIONAL UNIVERSITY

FACULTY OF ENGINEERING INFORMATION
TECHNOLOGY

DEPARTMENT OF COMPUTER ENGINEERING

METANOIA

DONE BY

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MAY, 2023

Acknowledgements

”First and foremost, we express our heartfelt gratitude to our supervisors, Dr. Amjad Abu Hassan and Dr. Abdallah Rashed, for being with us during this journey, especially Dr. Amjad Abu Hassan for his unwavering dedication throughout the semester. His benevolence and meticulous guidance have been instrumental in shaping our project, paying meticulous attention to even the tiniest details. Additionally, we deeply appreciate his readiness to provide us with scientific support whenever needed. Furthermore, we appreciate Dr. Abdallah Rashed’s profound knowledge and his commitment to fostering a collaborative and conducive learning environment.

We would also like to extend our sincere appreciation to all the esteemed academics in the Computer Engineering Department who generously assisted us whenever we sought their guidance. Lastly, but certainly, not least, our profound thanks go to our family, who wholeheartedly supported us, believed in our capabilities, and showered us with their unwavering kindness and unwavering mental support.”

Disclaimer

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Abstract

To assemble your thoughts. Metanoia is an application that gives students a place to keep their plans and goals organized. And keep them reminded of what they need to do. It's like a smart to-do list.

It's a place where users can put their thoughts, homework, quizzes, and schedules. Where the application will reorder them according to priority to highlight the important ones (generate an efficient plan). And remind them with notifications about the due time for their tasks.

In addition to that, students can put their college schedule. And the application will remind them of the time of their lectures.

There also is going to be a community where students can interact and share their thoughts and work with each other, they can ask questions about subjects or use it to find team members by suggesting students who are enrolled in the same class or share mutual classes. Moreover, organize the team's work to keep track of how much of the work is done.

Chapter 1

1 Introduction

Time is a precious resource. How we manage our time can significantly impact our success. But its not that easy to manage tasks when there are too many of them everywhere, especially for students or anyone burdened with a heavy workload,

1.1 Problem Statement

Nothing feels more exhausting than an overwhelming schedule. And writing an organized, easy to follow to do list takes too much time and might not be as efficient as expected especially when there are too many tasks and deadlines to meet. which makes it hard to order tasks. Also, people write their to do list and forget about it. for student it can lead to bigger problems as when they forget to submit a project on time. or even miss their classes. Furthermore, since humans are social beings, finding a community where students help each other, ask and answer questions about subjects. seek help from experts. and find people to work with in projects where teams are needed. would be very helpful

1.2 Objectives

Our objective in this project is to provide an application for users and students to organize their life, save them time and effort by reordering tasks, remind user of the deadlines, and more. application allows users to share their thoughts, ask and answer questions. communicate thought chat with other users and seek for experts help if needed. application also allows users to create projects and add people to project to work in teams.

1.3 Importance

Time is crucial matter especially for students. managing it efficiently can help people success in life. our application provide a space to organize tasks efficiently. along with a place where people can share their experiences and help each other.

1.4 Scope of the Work

1. Create accounts: Metanoia's users can make their own accounts and fill up their personal information
2. Student Schedule: users will have a schedule in which they can add subjects and classes they want to attend to. if user sign as student from

Al-Najah National University then they will have their schedule ready with subjects they are enrolled in for the semester.

3. List of Tasks Feature: there is two types of tasks which will be listed for user to see. type1: tasks added by user, these type of tasks can be edited by user. type2: tasks added by expert according to the subjects you are enrolled in(from schedule), can't be edited by the user.
4. Tasks-reordering Feature: What distinguishes us from others' apps is that after adding your daily tasks they will be reordered automatically according to priority and deadline.
5. Notification Feature: user will be reminded of deadlines and time for classes.
6. Community Feature: This feature allows users to interact with each other on the app share their thoughts, ask and answer questions about subjects and more. find partners to work with in projects.
7. Chatting Feature: contact other users or contact the expert to ask for help in a specific subject.
8. Search Feature: user can search for tasks, and projects, or in community user can search for posts and other users, in schedule user can search for subjects to add to the schedule
9. Projects Feature: user can create project add people to work in teams. and then the team can create tasks inside the project.
10. A website and mobile application that allows Metanoia to operate as it is desired.

Chapter 2

2 Literature Review

As stated our application aims to organize people life by providing a place for them to manage tasks and projects along with a community for them to exchange experience. and help each other with work.

Tasks organizing is an idea a lot of applications worked on. such as Evernote, TickTick, Any.do Teams, Notion and much more. but since there is no limit line to what a task management application would have we have created our own version.

2.1 What enhancements does Metanoia bring?

Metanoia has a special feature for Al-Najah National University, it provides them with their schedule and adds the classes, homework, and quizzes to tasks. Also, it has a full community for people to share thoughts, ask and answer questions, ask for help from experts, and communicate using chat. in addition to that Metanoia reorders tasks according to priority

Chapter 3

3 Methodology

3.1 Used Technologies

3.1.1 React and React native

React is an open-source, front-end JavaScript library. allows developers to create reusable User Interface components and efficiently manage the state of these components, making it easier to build complex and interactive web applications. React has gained significant popularity among developers due to its simplicity, reusability, and performance optimizations.

React native is an extension of React. allows developers to build mobile applications using JavaScript and the React library. The framework provides a set of pre-built components and APIs that map to the native components of each platform. These components offer a native look and feel, allowing developers to create responsive mobile apps.

Why React and react native?

Why React?

1- React follows a component-based approach, which means user interface elements are divided into reusable and modular components. This makes it easier to build and maintain complex user interfaces by managing each component independently.

2- React uses a virtual representation of the actual DOM (Document Object Model). This allows React to efficiently update and render only the necessary components when there are changes, resulting in better performance.

3- React has a large and active community, which means there are numerous third-party libraries, tools, and resources available to enhance development productivity and solve common challenges.

Why React Native?

1- React Native enables developers to write code once and deploy it on multiple platforms, significantly reducing development time and effort. It uses native components and APIs, ensuring the performance and look-and-feel of a native app.

2- Native capabilities: React Native provides access to native device capabilities through JavaScript interfaces, enabling developers to leverage device features like camera, GPS, push notifications, and more.

3.1.2 Expo

Expo is a free, open-source platform that builds upon React Native and provides additional tools and services to streamline the development of React Native applications. It simplifies the setup and development process by abstracting away some of the complexities associated with configuring and building native mobile apps. Expo offers a range of services that you can easily integrate into your app, such as push notifications.

Why Expo?

- 1- Easy setup: Expo abstracts away the complex native build configurations, making it easier for beginners to get started with React Native development.
- 2- Cross-platform development: Expo supports building apps for both iOS and Android platforms using a single codebase.
- 3- Expo offers instant reloading, allowing developer to see code changes in the app immediately. This speeds up the development process as you can quickly iterate and test your app without the need to manually rebuild and deploy the entire app.
- 4- Access to native features: Expo provides a wide range of ready-to-use JavaScript APIs that allow you to access native device features like camera, push notifications, and more. These APIs abstract away the complexities of interacting with native modules, making it easier to integrate these functionalities into your app.
- 5- Expo SDK and services: Expo provides a rich SDK (Software Development Kit) that includes libraries, tools, and services to enhance the development experience. It offers features like push notifications, in-app purchases, authentication, and more, which can be easily integrated into your app.
- 6- Expo has a comprehensive documentation and tutorials, making it easier for developers to find support and resources when needed.

3.1.3 ExpressJs

ExpressJs is a NodeJs back-end web application framework. its a free and open-source software framework. It is intended for the development of web applications and APIs.

Why ExpressJs?

ExpressJs offers a number of features, including the ability to make NodeJS web application development simple, fast connection with databases like MySQL, and the ability for developers to simply build a scalable server using the REST API.

3.1.4 MySQL

MySQL is a relational database management system. provides scalability and availability .

MySQL Workbench:

We used MySQL Workbench which offers SQL creation and data modelling. and it is compatible with Mac, Linux, and Windows. MySQL database provides high performance since it is fast and more efficient.

3.1.5 Nodemon

Nodemon is a development tool for Node.js applications that automatically monitors changes in your code and restarts the application whenever a change is detected. Nodemon watches the files in your Node.js application's directory and automatically restarts the server whenever it detects any changes. This eliminates the need to manually stop and restart the application after making code modifications, saving time and improving productivity.

3.1.6 Firebase

Firebase is a comprehensive platform provided by Google for building and managing web and mobile applications. It offers a wide range of cloud-based services and tools help building, and maintaining applications. Firebase's services that were used in this application are Authentication and Cloud Firestore for the chat.

3.1.7 IDEs

We used VS Code for both the back-end and the front-end because it's a great tool for working with JavaScript and NodeJS.

Chapter 4

4 Features Implementation

4.1 Authentication and Validation

4.1.1 Register

In order to use Metanoia, user should create an account. Provide the information needed for the registration, such as name, email, phone number, and username (see Figure below)

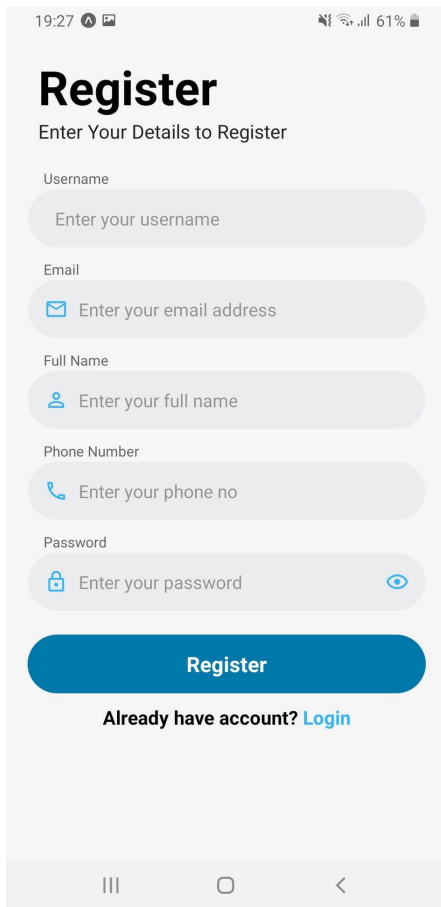


Figure 1: Register Form

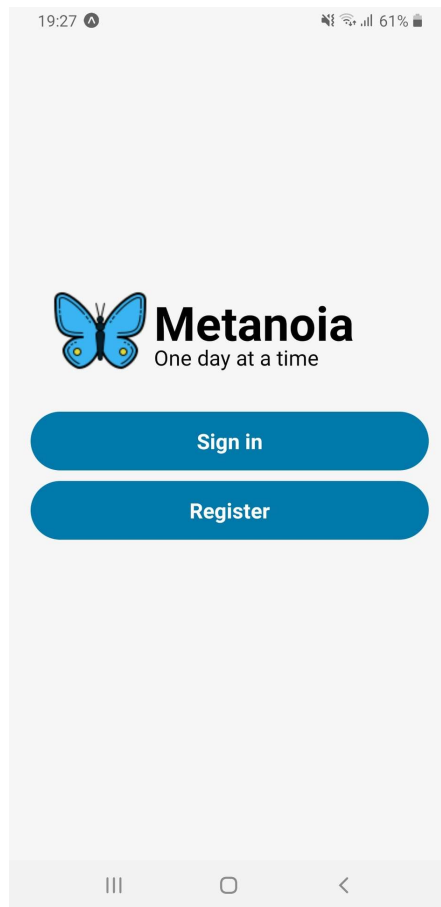


Figure 2: Starting page

4.1.2 Sign in

In order to sign in user must to enter a valid username and password. (as seen in figure 3 below)

19:33 59%

Sign in

Welcom Back

Username

Enter your username

Password

Enter your password

Sign in

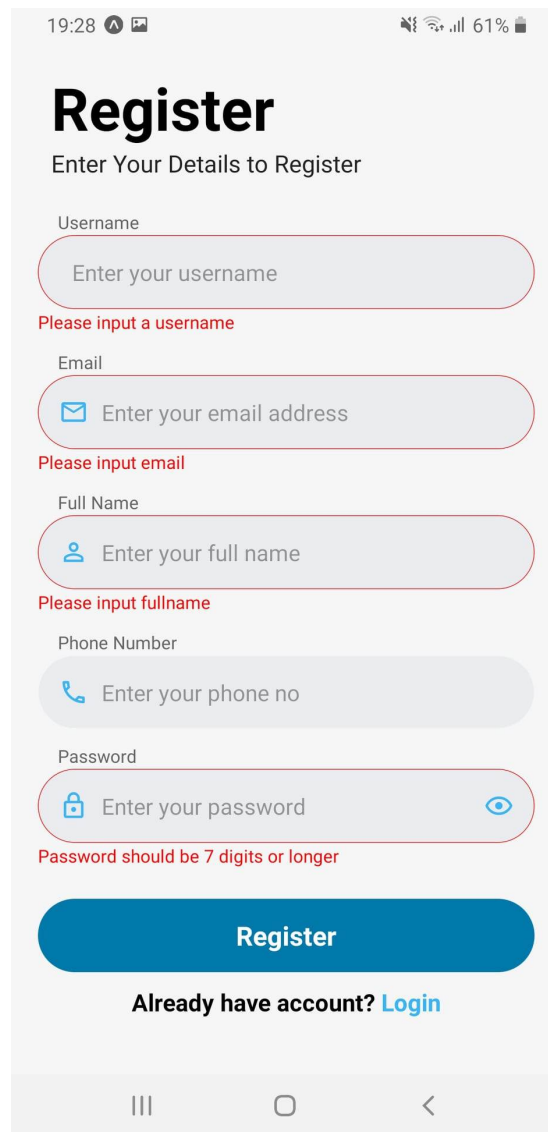
[Forget password?](#)

Don't have account? [Create one](#)

Figure 3: SignIn Form

4.1.3 Validation

If the user attempts to register missing one of the needed fields, Registration fails. Similarly, when logging in, if the email or password entered is incorrect, signing in fails as well.



The image shows a mobile application interface for a registration page. At the top, the status bar displays the time 19:28, signal strength, Wi-Fi, and 61% battery. The page title is "Register" in a large, bold, black font, followed by the subtitle "Enter Your Details to Register". Below this, there are five input fields, each with a red border indicating a validation error:

- Username:** The input field contains the placeholder text "Enter your username". Below it, the error message "Please input a username" is displayed in red.
- Email:** The input field contains the placeholder text "Enter your email address" and a blue envelope icon on the left. Below it, the error message "Please input email" is displayed in red.
- Full Name:** The input field contains the placeholder text "Enter your full name" and a blue person icon on the left. Below it, the error message "Please input fullname" is displayed in red.
- Phone Number:** The input field contains the placeholder text "Enter your phone no" and a blue telephone icon on the left.
- Password:** The input field contains the placeholder text "Enter your password" and a blue padlock icon on the left and a blue eye icon on the right. Below it, the error message "Password should be 7 digits or longer" is displayed in red.

At the bottom of the form, there is a large blue button labeled "Register". Below the button, the text "Already have account? [Login](#)" is displayed, where "Login" is a blue link. The bottom of the screen shows the standard Android navigation bar with three icons: a square, a circle, and a triangle.

Figure 4: Validation

4.2 Home page

Home page is the first page the user will be presented with, it has a weekly calendar that starts with the current date, selecting a day will show the list of tasks assigned to that specific day. there are two Lists of tasks one for the undone tasks and one for the tasks marked as done. Tasks are of four different types, a general task, homework/project, exam/quiz, lecture. users can add general tasks, homeworks/projects and exams/quizes. meanwhile lectures is only be set from schedule page mentioned later in this report. "expert" can add tasks of type homeworks/projects and exams/quizes. Further more to that list of tasks will be ordered according to its due date and priority. that will highlight the most impotent tasks by bringing them to the top of the list.

Also, the drawer in the top right is easy to access some pages of the application As shown in Figures 5 , 6

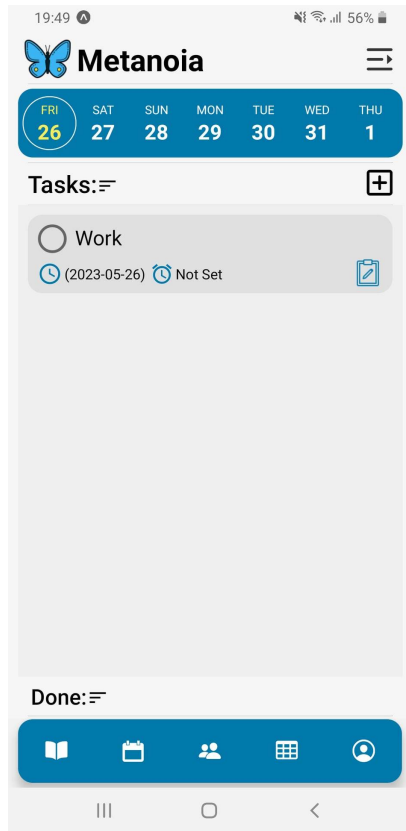


Figure 5: Home Page

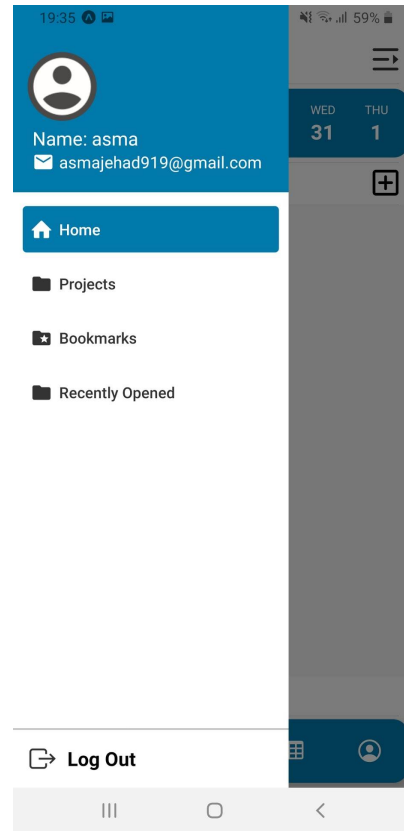


Figure 6: side bar/Drawer

4.3 Adding a New Task

User can add a new task. To add task user can set title, subject and description to the task. also they can set a priority, due date , category, and a reminder. To set priority user will be provided with a scale of 5 different colors to represent the priority. where red represent "Very Important", orange is "Important", gray is "Average", light blue is "Slightly Important" and blue is "Not Important". To set deadline or reminder user will be shown a calendar. and the day and time user choose by the calendar will be the day and time for the deadline or reminder. To set category for the task the user can chose between three types. the task can be a general task, homework/project or an exam/quiz. the type of the task affect the fixed reminders. the application will remind therefor send notification to the user. when task type is homework/project the reminder is set to be an hour before the deadline. user can view and edit the task. see Figures 6, 7, 8, 9, 10, 11.

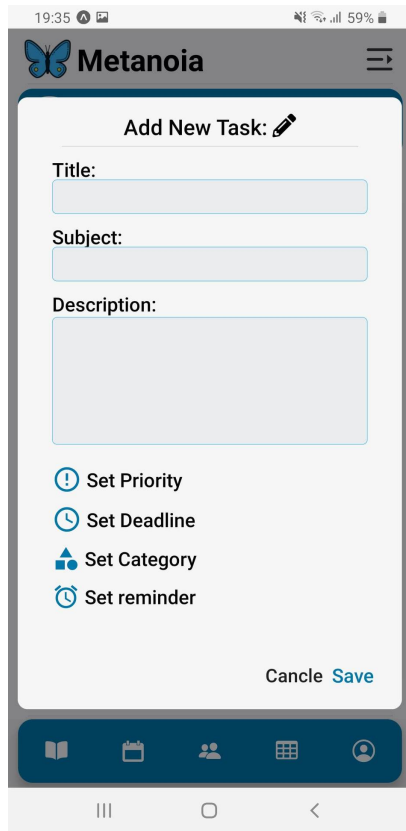


Figure 7: Add New Task

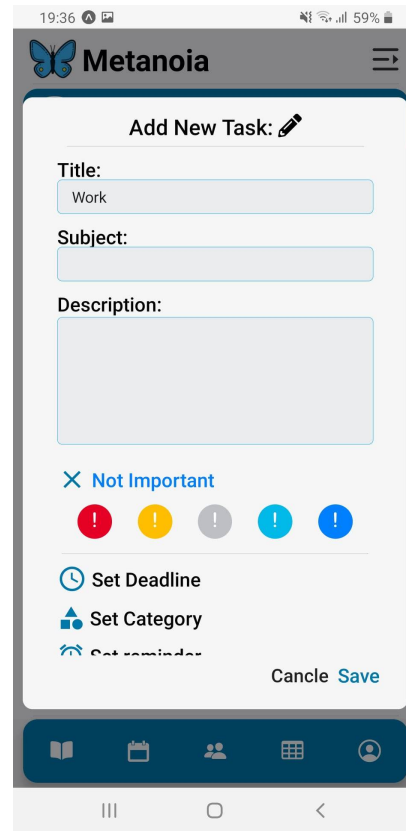


Figure 8: Priority scale

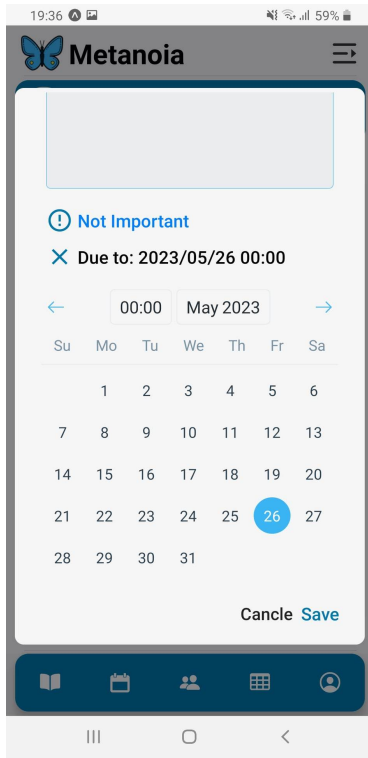


Figure 9: Set Deadline

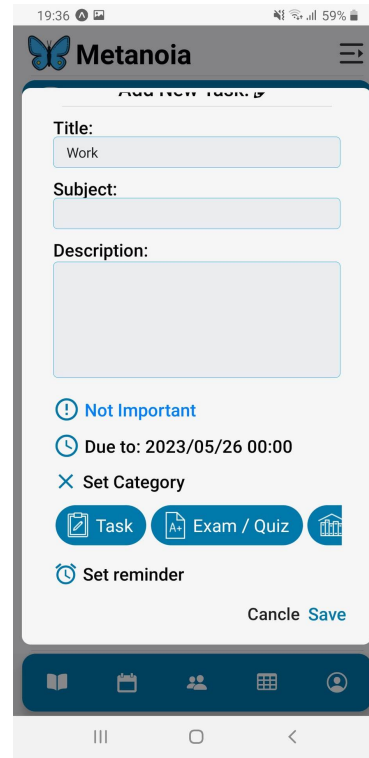


Figure 10: Set Category

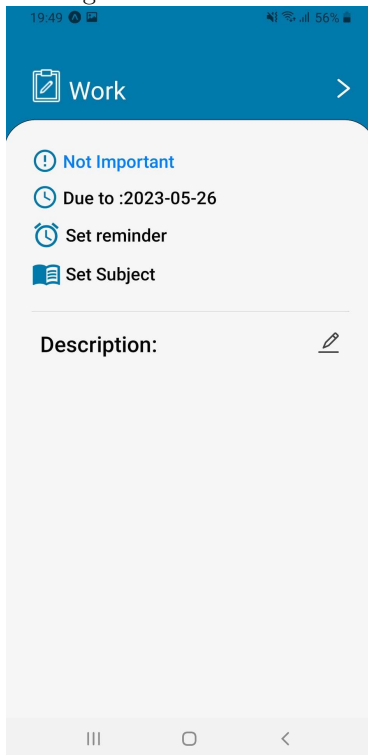


Figure 11: View Task

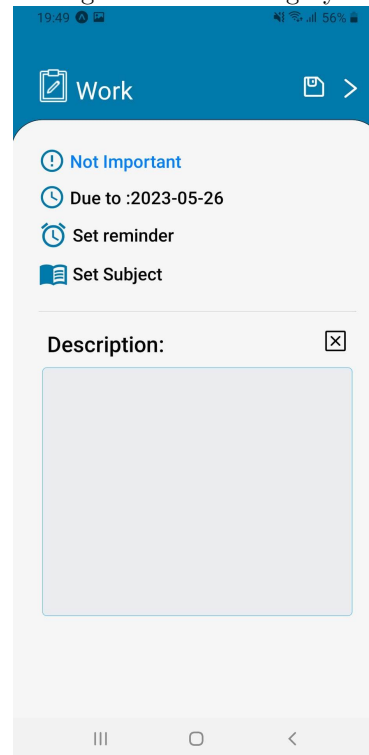


Figure 12: Edit Task

4.3.1 Calendar

The calendar page allows the users to see their previous tasks, and set tasks to any day they chose. see13

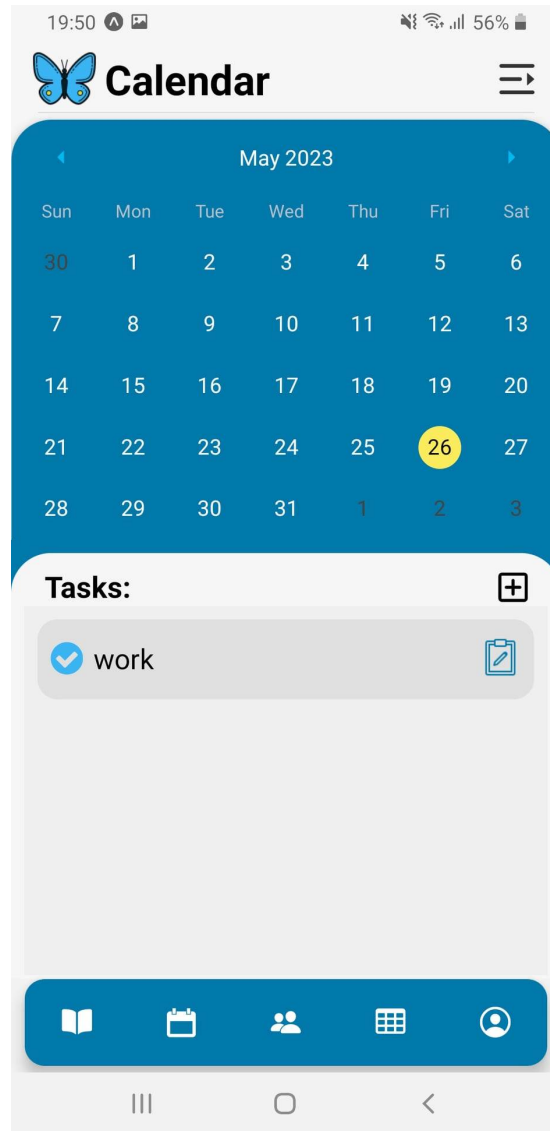


Figure 13: Calendar

4.3.2 Schedule

This page enables users to create a personalized schedule by including their college classes or classes they intend to take for self-improvement. It has a special feature for Al-Najah National University after signing in with the student number and password, it provides them with their schedule, and they can edit it. Classes added to the schedule will become a task categorized as lecture and users will be reminded 15 minutes before the time of the class. Users can add classes by choosing the subject. To choose the subject, the user can click on subjects to see the list of subjects and can search for a specific subject. The user can specify the specialty and department the subjects are related to. The subjects are added by the administrator and are categorized into three types: Subjects, Specialties, and Departments. Users can explore these categories by clicking on each one, and subsequently choose the desired subject to add to their schedule.

Additionally, the user experience is simplified by providing a search feature. When a subject is added, the user can instantly search for it.

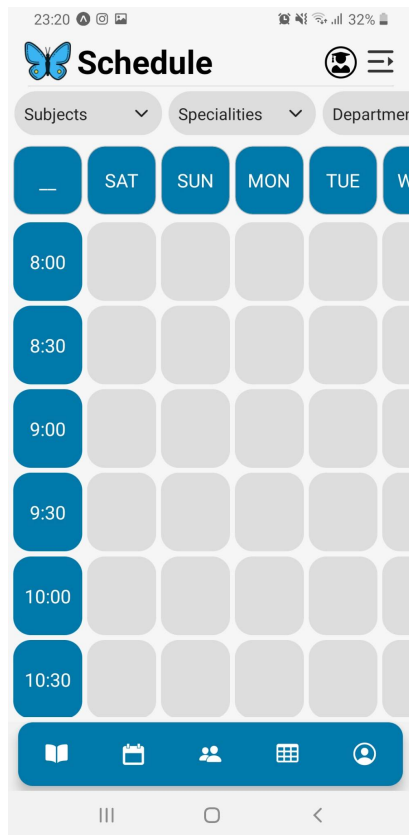


Figure 14: Schedule

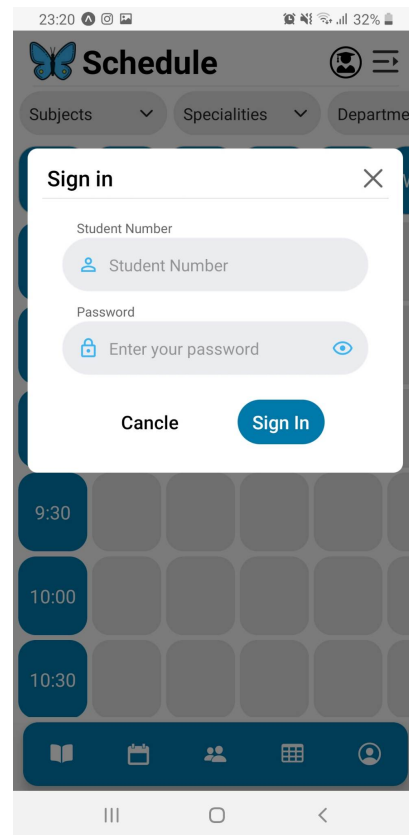


Figure 15: An-Najah Students Sign in



Figure 16: Student Schedule

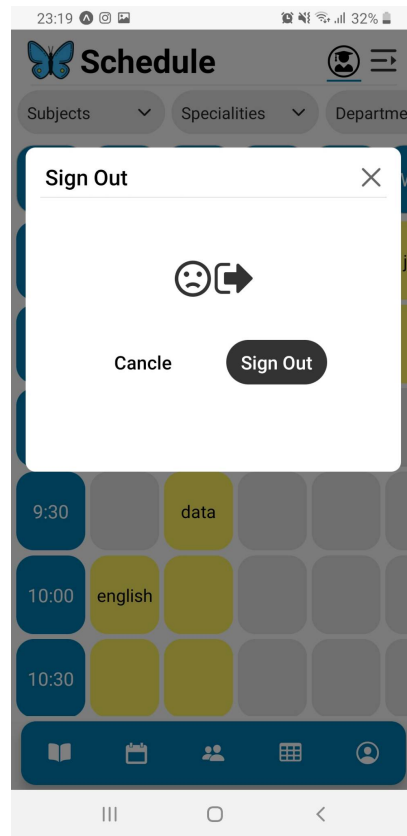


Figure 17: An-Najah Students Sign out

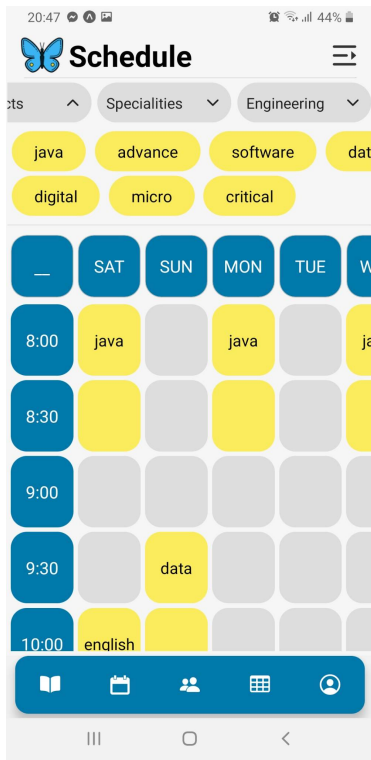


Figure 18: View Subjects

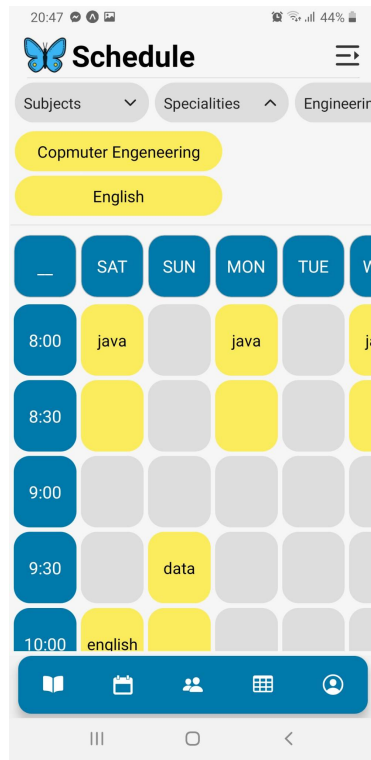


Figure 19: View Specialities



Figure 20: View Departments

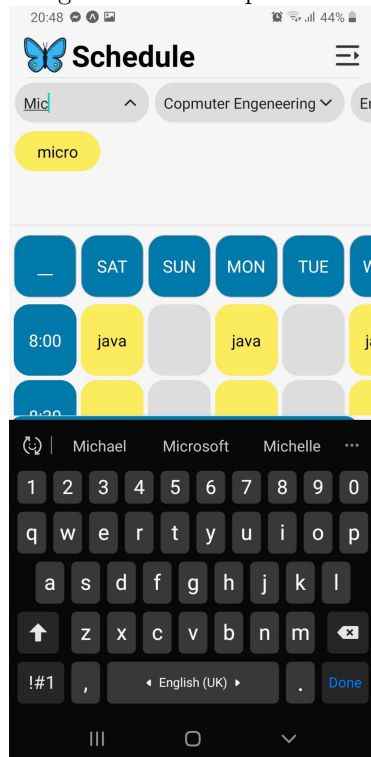


Figure 21: Search for a Subject

4.4 Community

This section allows the user to interact with other users on Metanoia

4.4.1 Feed

This page allows users to view all posts and interact with them by liking, commenting, and saving, also they can report the posts or comments they find offensive or inappropriate. also edit or delete their posts.

Users also have the ability to create their own posts and search for specific users or posts on the platform. see Figures 21, 22, 23, 24, 25, 26.

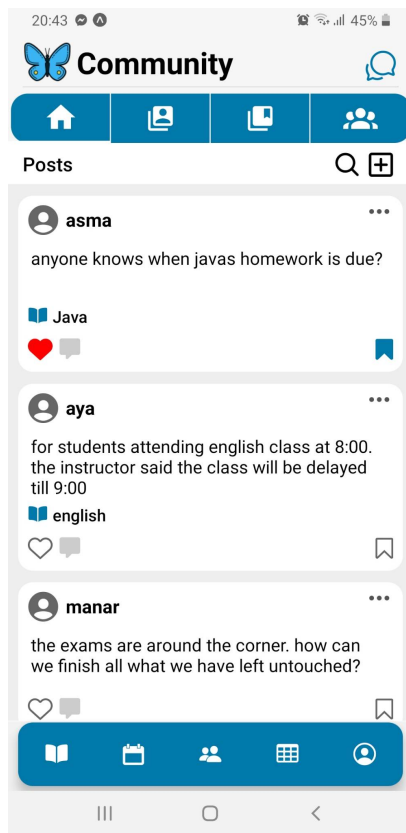


Figure 22: Posts

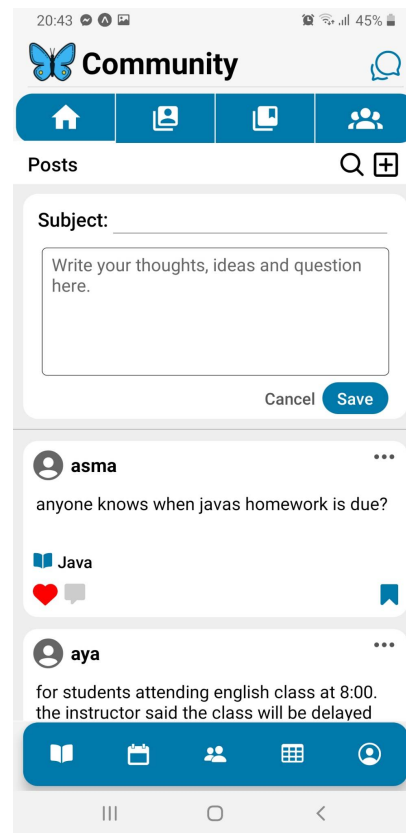


Figure 23: Create Post

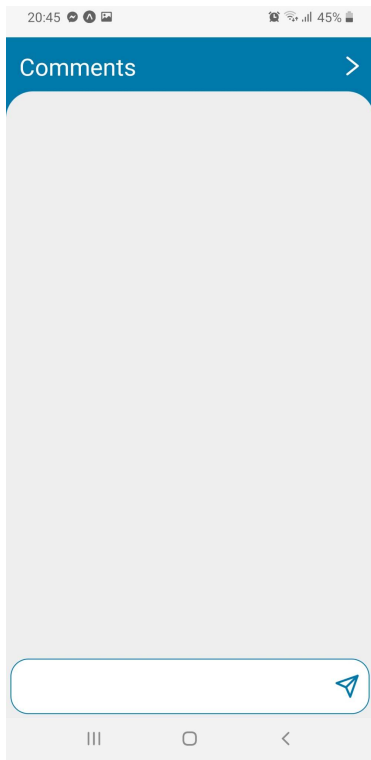


Figure 24: Create Comment

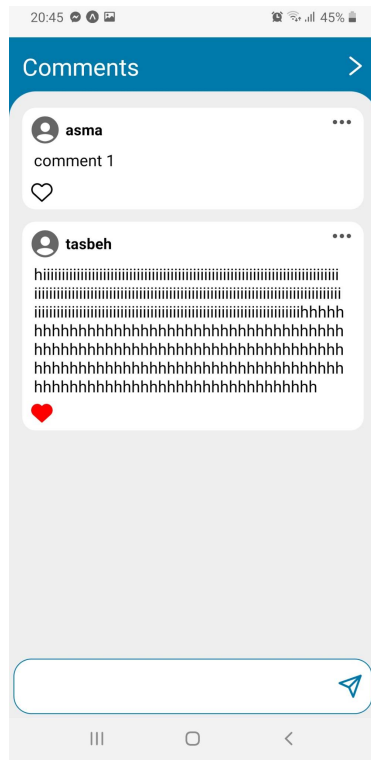


Figure 25: Comments

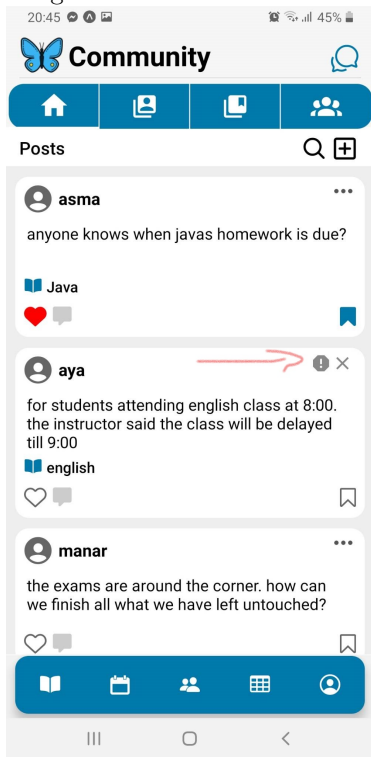


Figure 26: Report Post

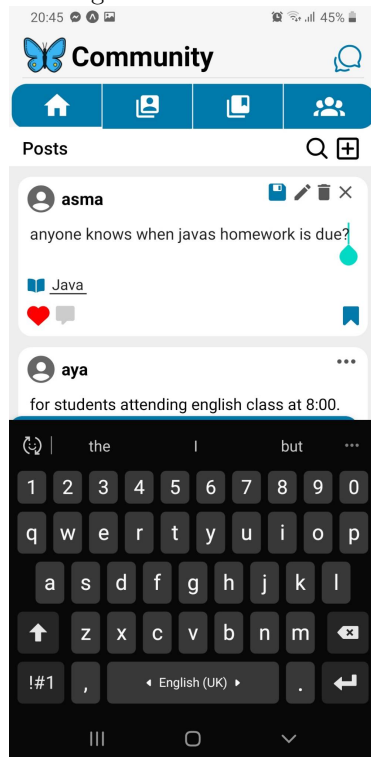


Figure 27: My Posts

4.4.2 My Posts

In this section, ensure that each user has access to view and manage only their own posts. Implement a user-specific post display where users can see all their posts exclusively. Additionally, grant users the ability to edit or delete their own posts. see Figure 27, 28.

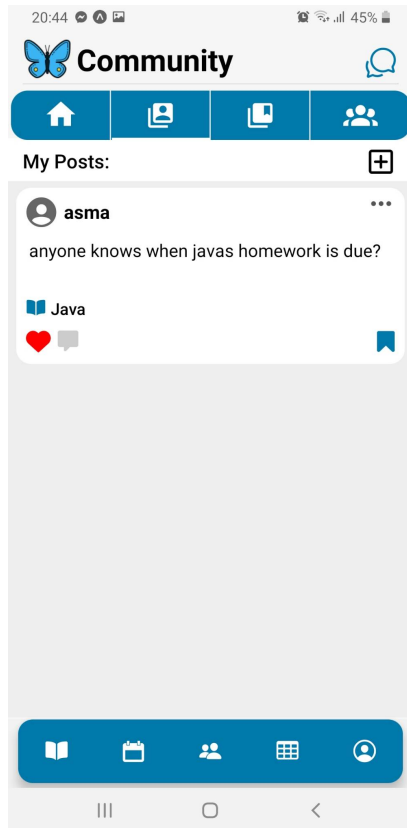


Figure 28: My Posts

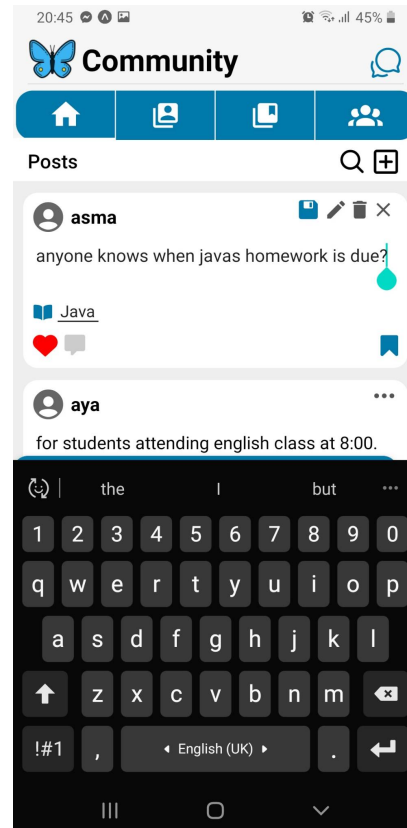


Figure 29: My Posts

4.4.3 Saved Posts

In this section, every user can see all the posts they have saved. see figure 30

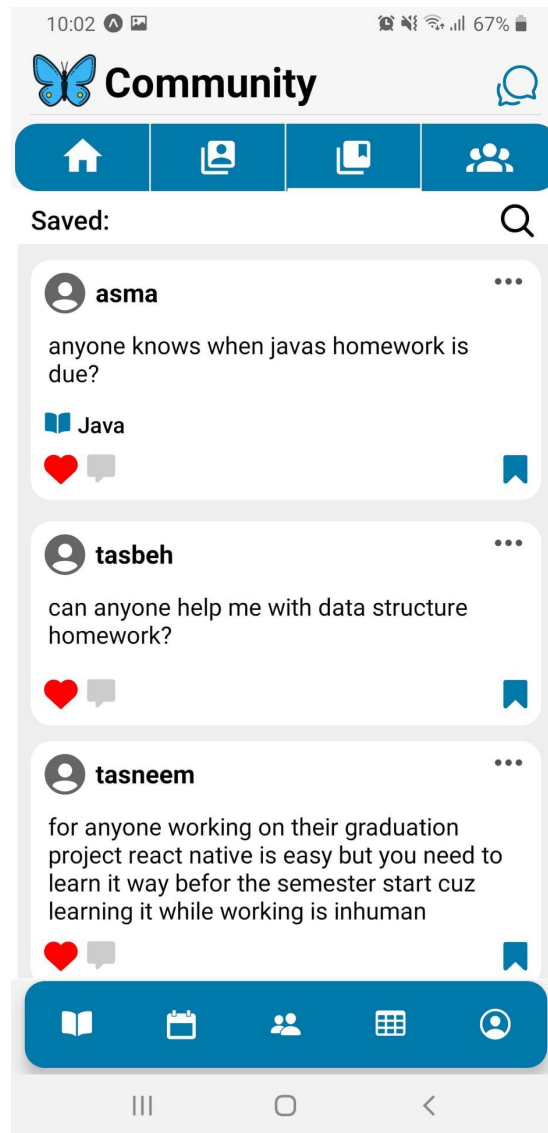


Figure 30: Saved Posts

4.4.4 People Suggestion

In this section, users are presented with people's suggestions to assist them in finding partners for their projects. Additionally, they receive partnership requests from other users who express interest in becoming their project partners. Users also have the ability to view the profiles of other users to gather more information about them.

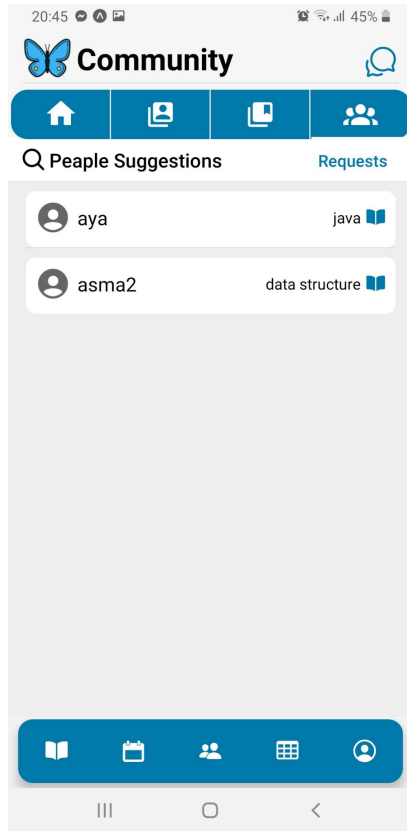


Figure 31: Suggestion People

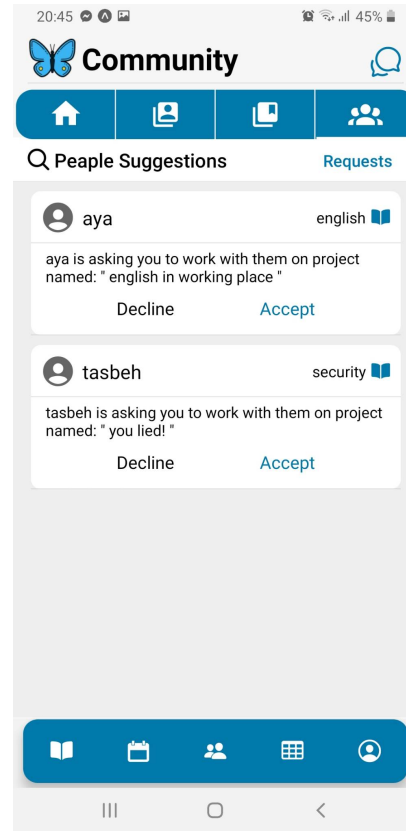


Figure 32: Requests

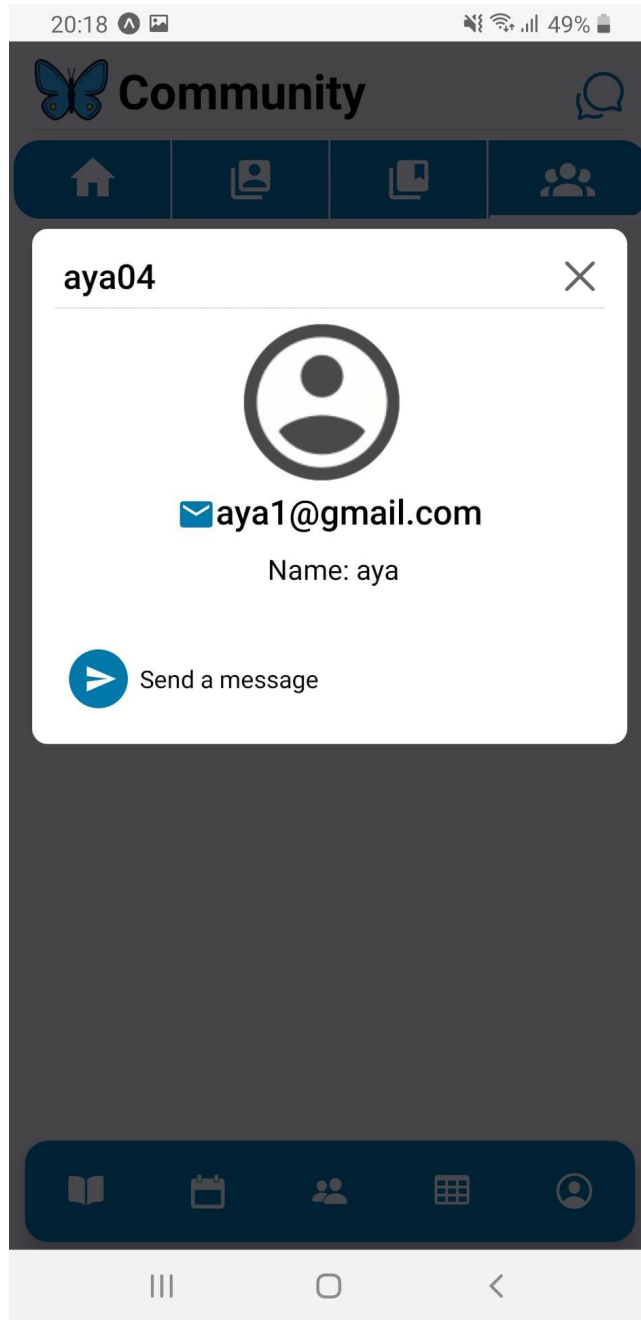


Figure 33: View User's Profile

4.4.5 Chatting

Metanoia enables users to engage in conversations and communicate with each other. Additionally, it offers a unique feature that allows users to seek assistance from expert regarding any weaknesses they may have in specific courses.

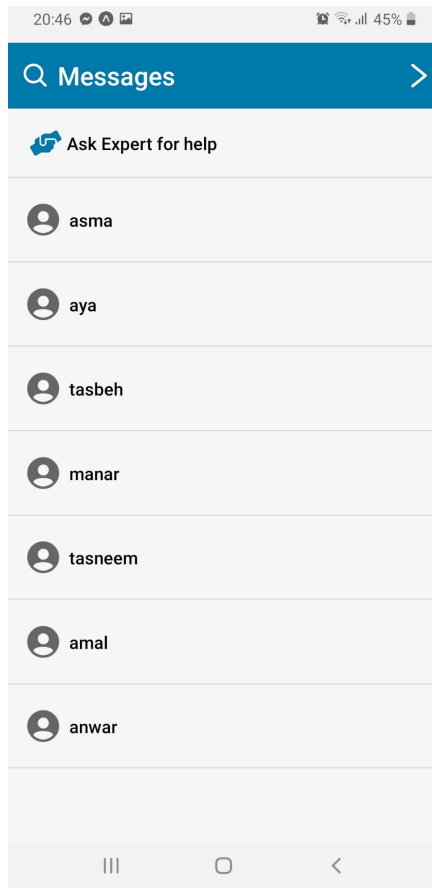


Figure 34: Inbox Page



Figure 35: Chat Page

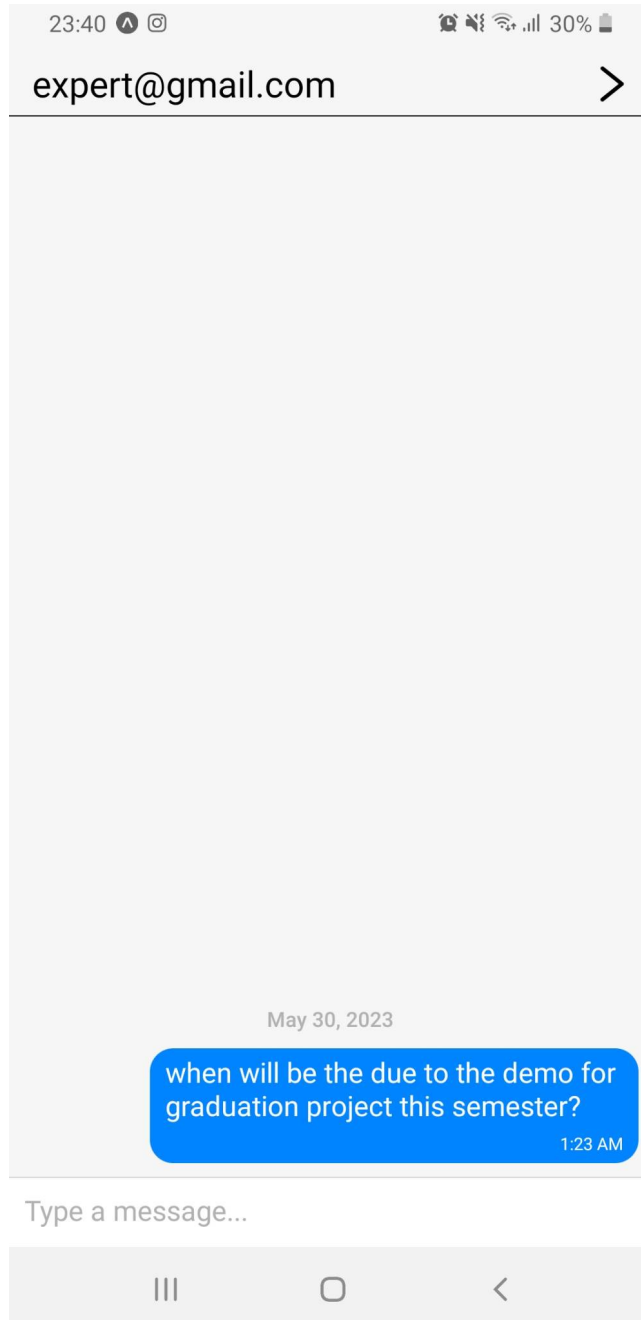


Figure 36: Chatting with expert

4.4.6 Searching

The search feature on this platform is undoubtedly one of its most powerful capabilities. as it provides users with the freedom to enter any letter or keyword, and in turn, displays a comprehensive list of related results across various types. This functionality greatly aids users in saving both time and effort, enabling them to find the information they need quickly and efficiently.

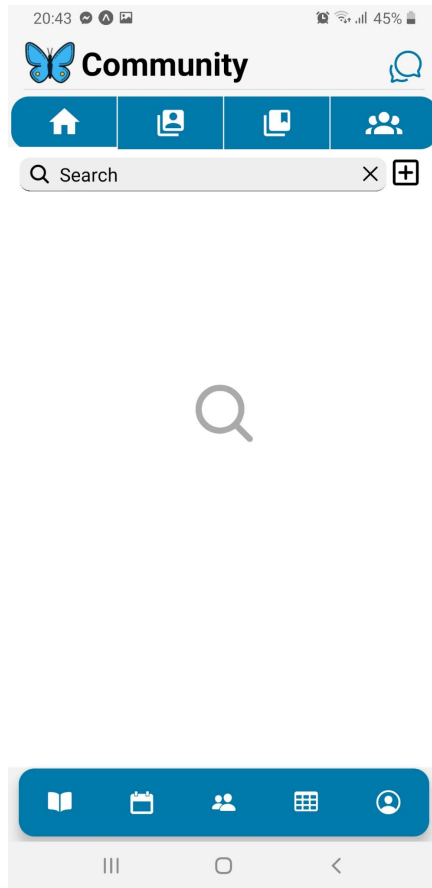


Figure 37: Search Page

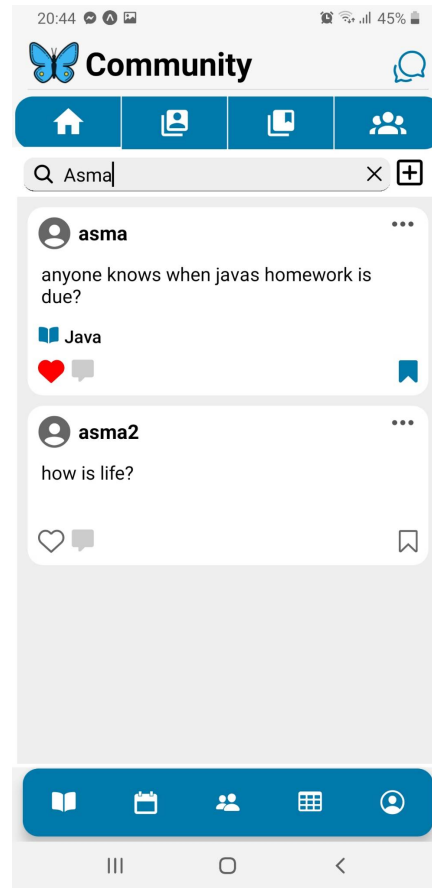


Figure 38: Search for posts by user name

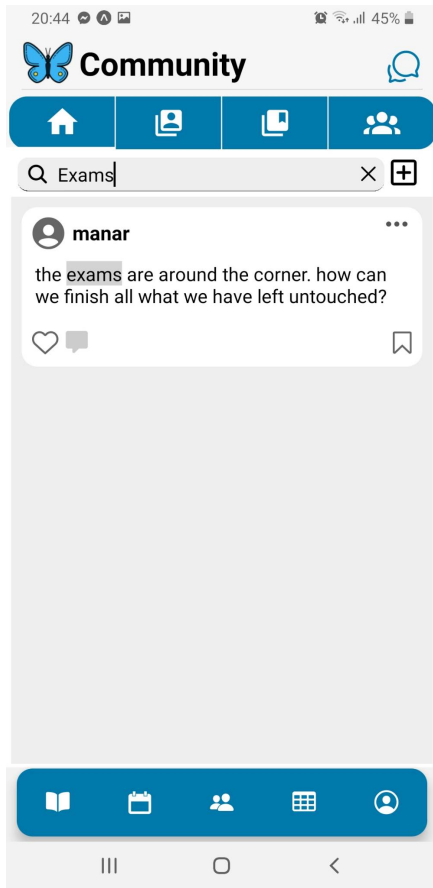


Figure 39: Search for posts by a word in the content on the post

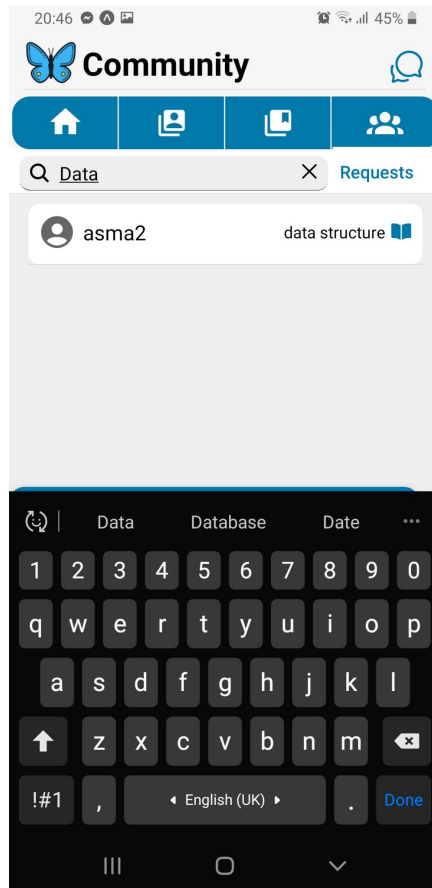


Figure 40: Search for students by the class name

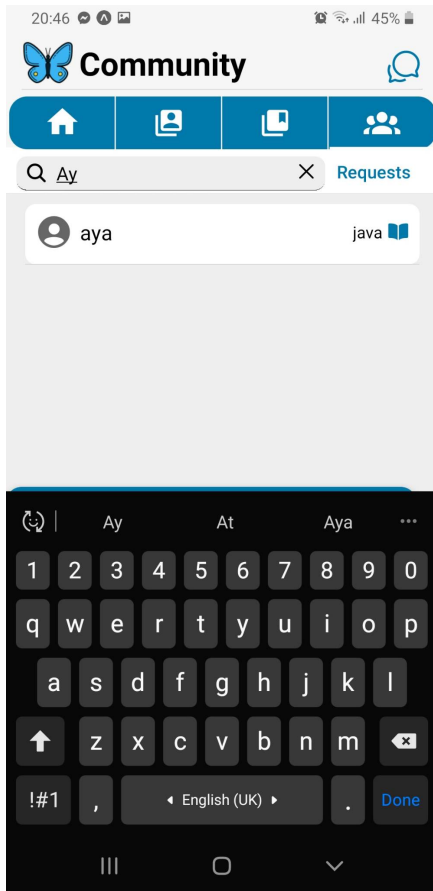


Figure 41: Search for students by name

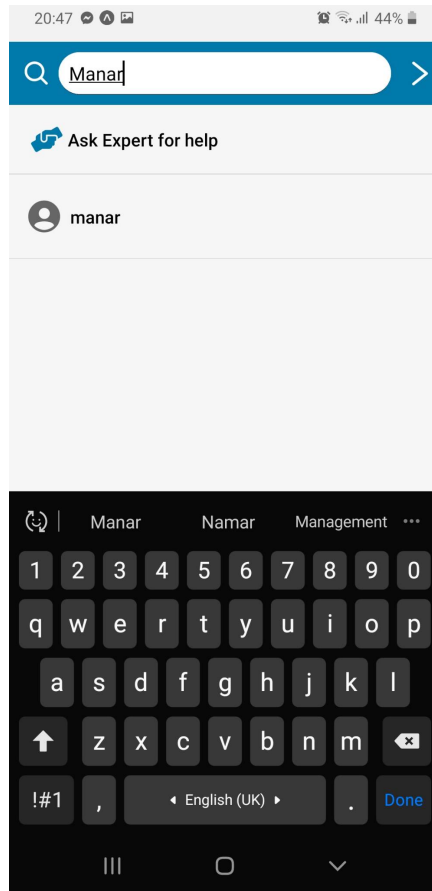


Figure 42: Search for users in Messages

4.5 Profile Page

This page showcases the information provided by the user during registration. Additionally, it presents a comprehensive list of all the projects the user is currently involved in. The page also includes bookmarks for important saved projects and a section highlighting recently viewed projects.

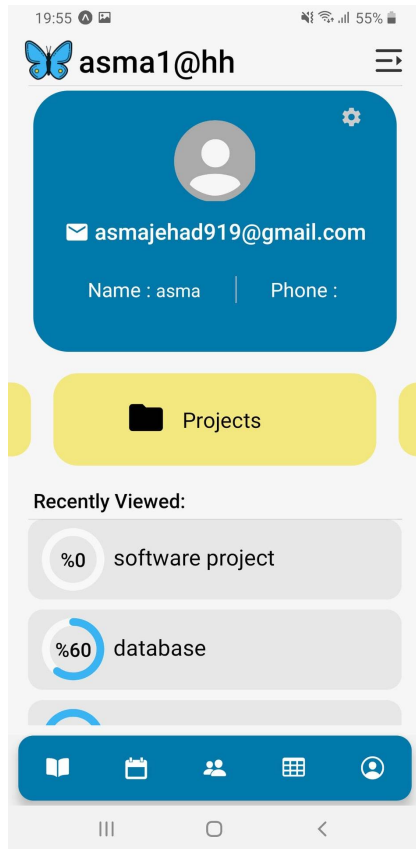


Figure 43: Profile Page 1

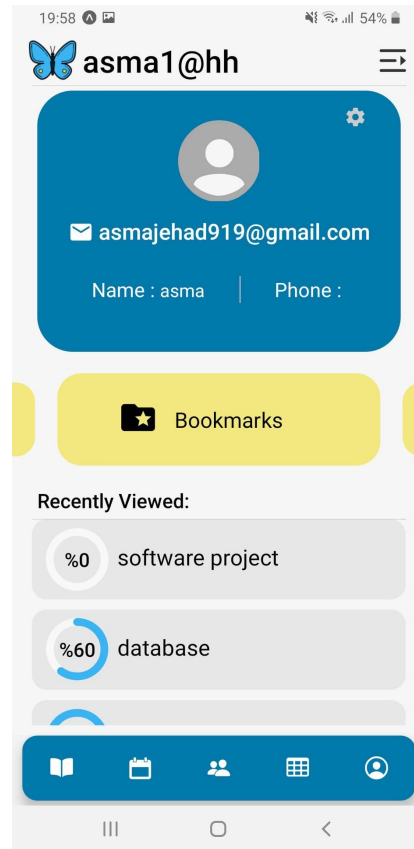


Figure 44: Profile Page 2

4.5.1 Projects

The Projects page enables users to view the projects they are currently working on. They can not only view the projects but also edit them as needed. The page shows the progress made on each project, indicating how much has been completed of each projects tasks. Additionally, it displays the projects that have already been marked as done. Users also have the option to create new projects and add tasks to them, making it easier for them to manage and work

on each task efficiently. users also can add other users to the project to work on the project as a team.



Figure 45: All Projects

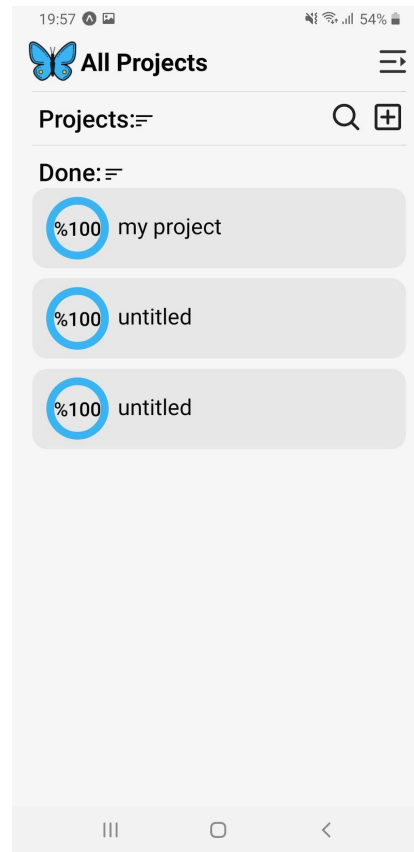


Figure 46: Done Projects

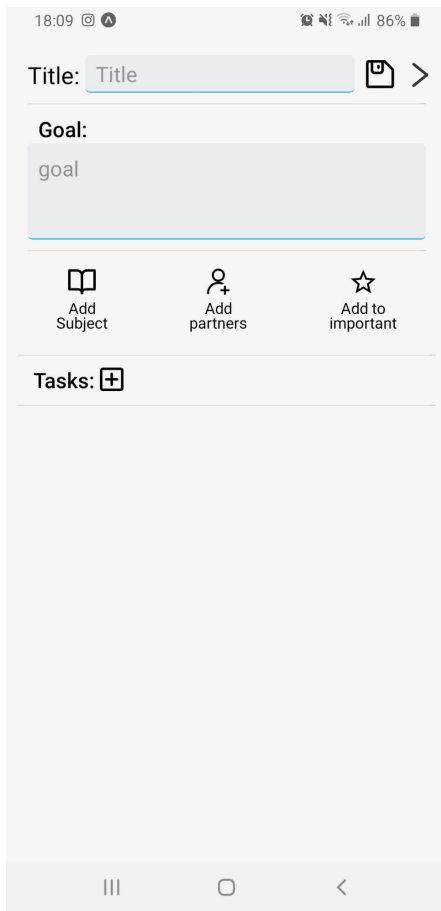


Figure 47: Create Project

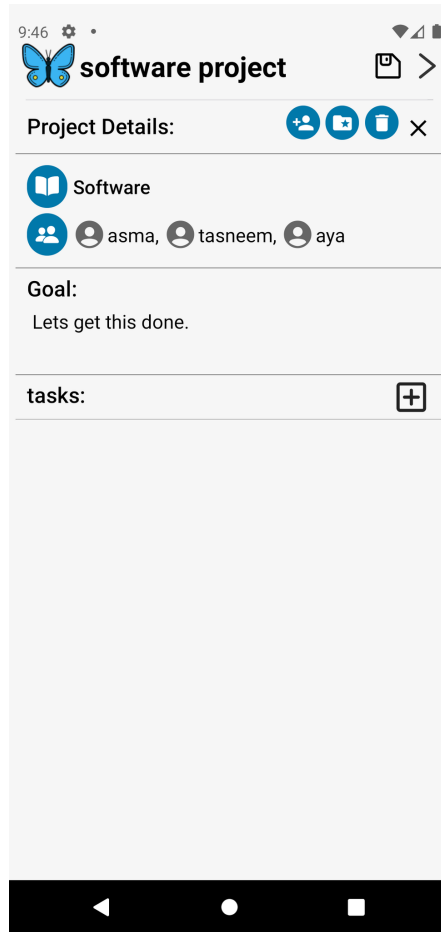


Figure 48: Project View

4.6 Notifications

Metanoia has the capability to notify users about various events and updates. This includes reminders for upcoming task due dates, regardless of the nature of the task. Additionally, users receive notifications if any of their posts or comments are reported by others, allowing them to stay informed about the status of their content on the platform.

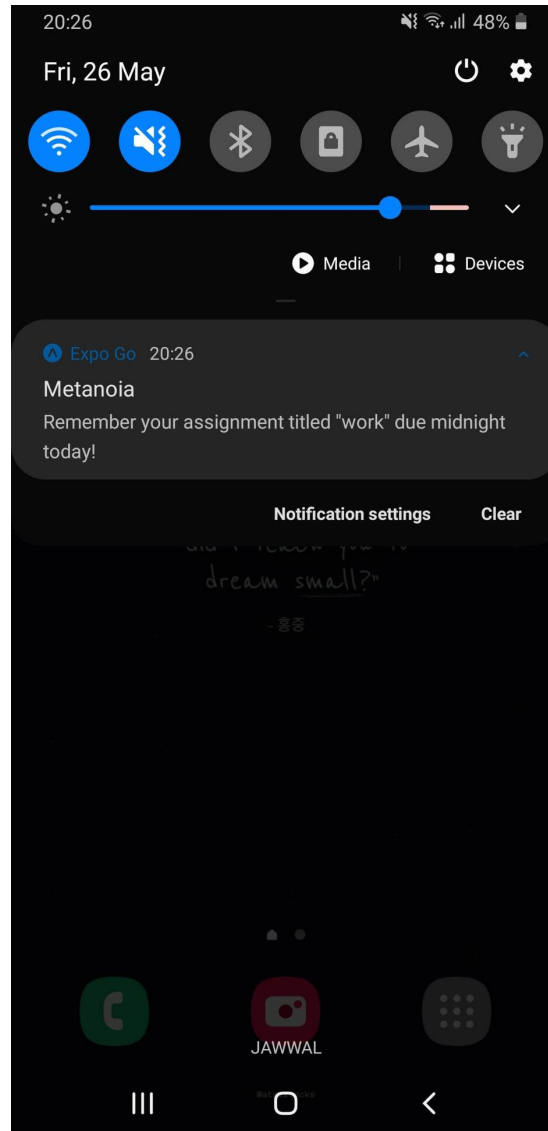


Figure 49: Notification

4.7 Metanoia Website

Metanoia website is divided into two distinct sides: one for the Admin and the other for the Expert.

4.7.1 Sign in

Both admin and expert can log in through the same sign in page on Metanoia website. Once logged in, the system identifies the user based on their email and redirects them to their respective side of the platform. The admin user is directed to the admin side, which provides them with the necessary functionalities for managing the platform. Similarly, the expert user is directed to the expert side, where they can access features specific to their role and interact with users accordingly.



Figure 50: Starting Page

4.7.2 Admin Side

The Admin side provides functionalities and features specifically designed for the administrators of Metanoia platform. Admins have access to tools for managing users' reported posts and comments and giving them feedback about it, also have the capability to add subjects for users and determine the duration for each subject.

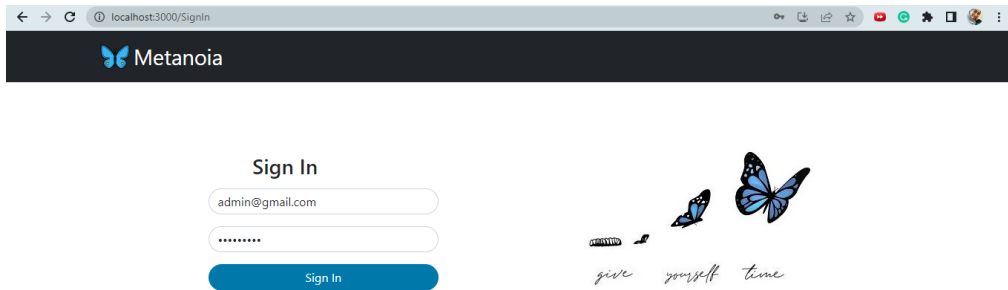


Figure 51: Sign in For Admin

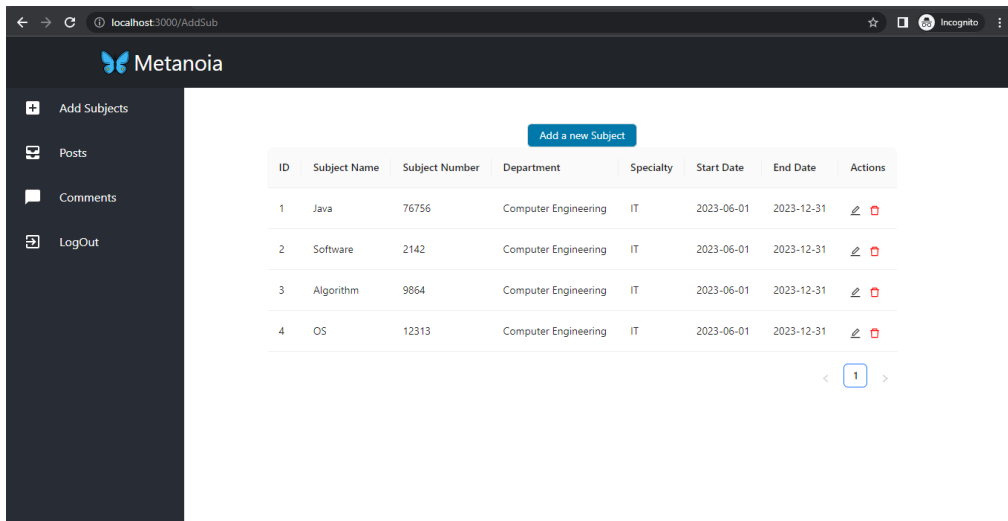


Figure 52: Add Edit and Delete Subject

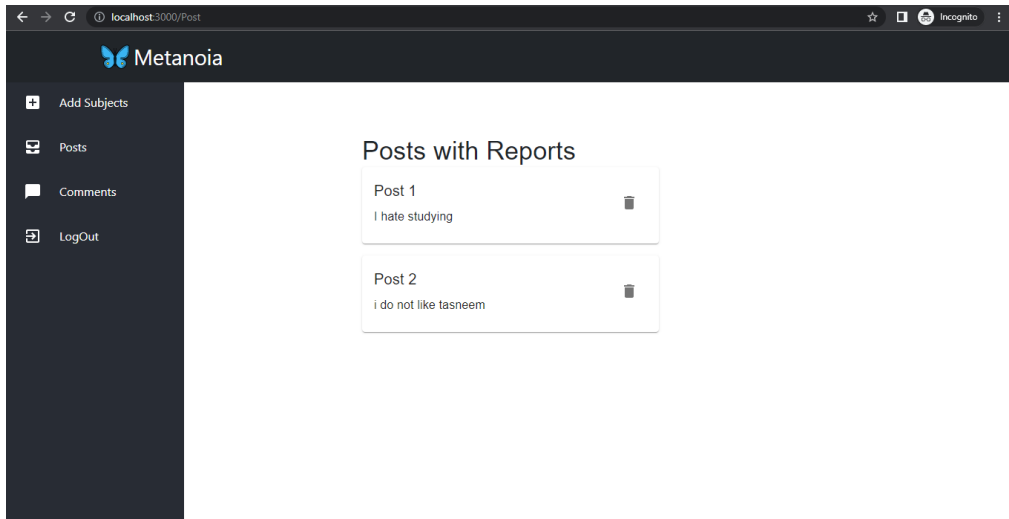


Figure 53: Manage Posts

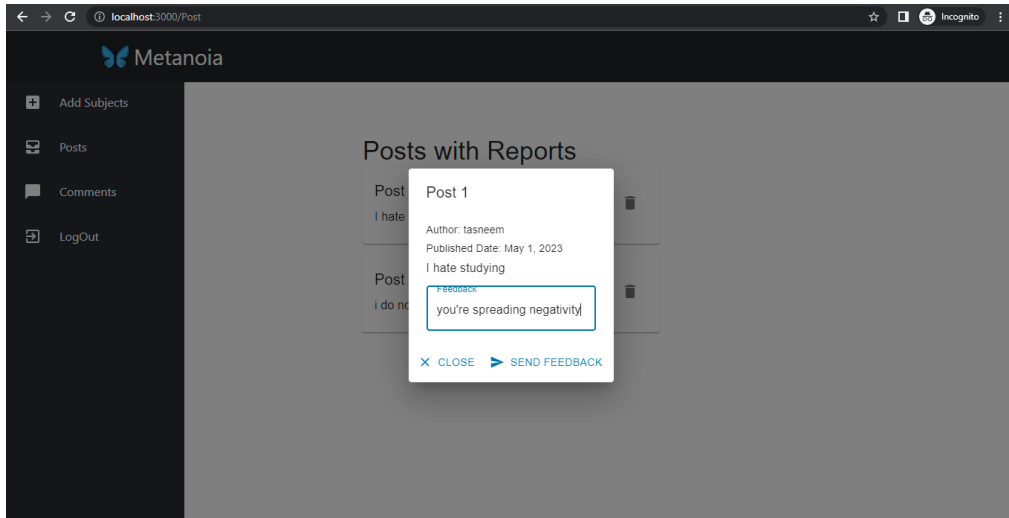


Figure 54: Give Feedback

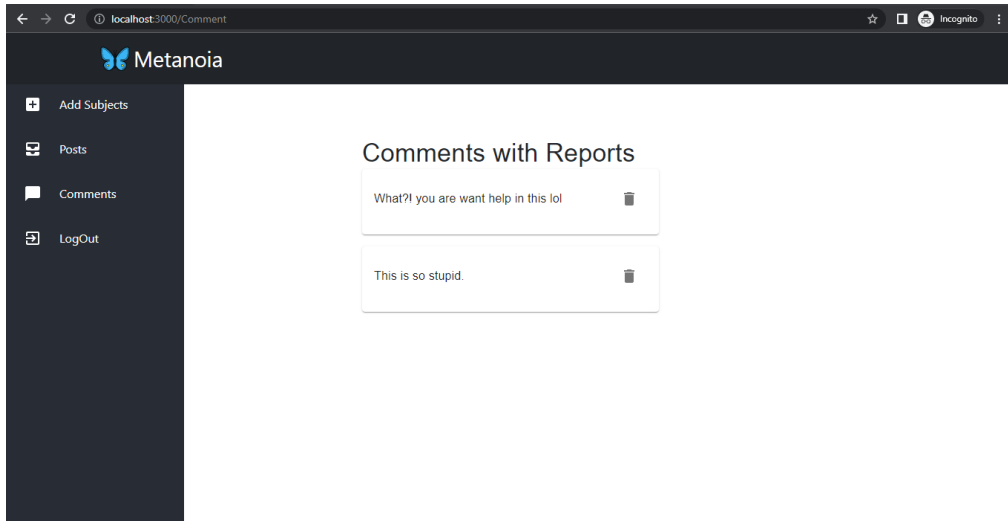


Figure 55: Manage Comments

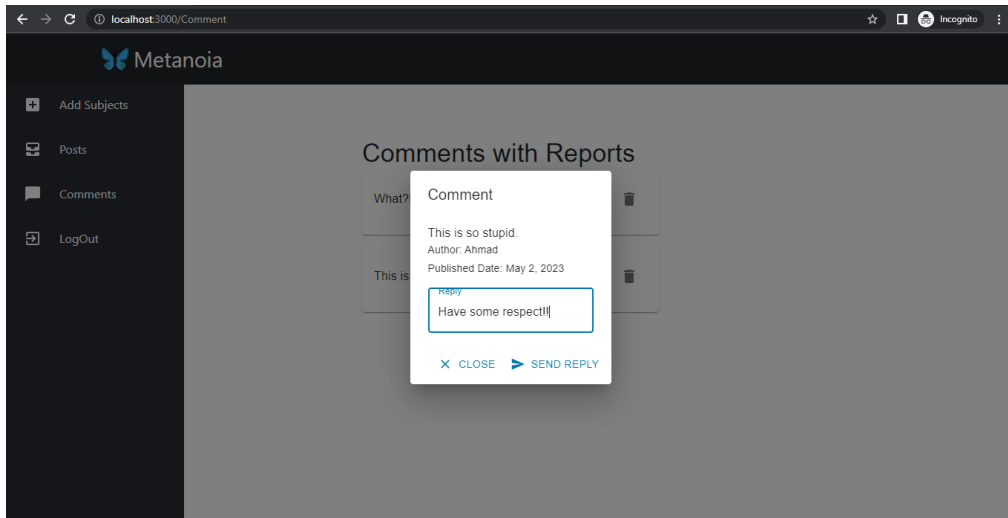


Figure 56: Give Feedback

4.7.3 Expert Side

The Expert side is tailored to cater to the needs of subject matter users who have weaknesses or issues in a specific subject on Metanoia platform by chatting with them, also the expert has the capability to add various tasks to the user's daily page such as Homework, quiz, or project.

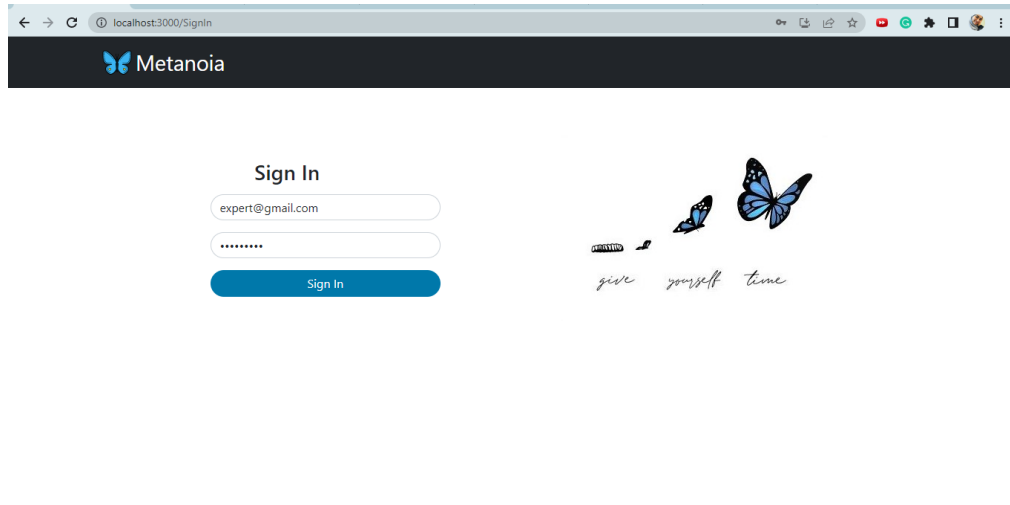


Figure 57: Sign in For Expert

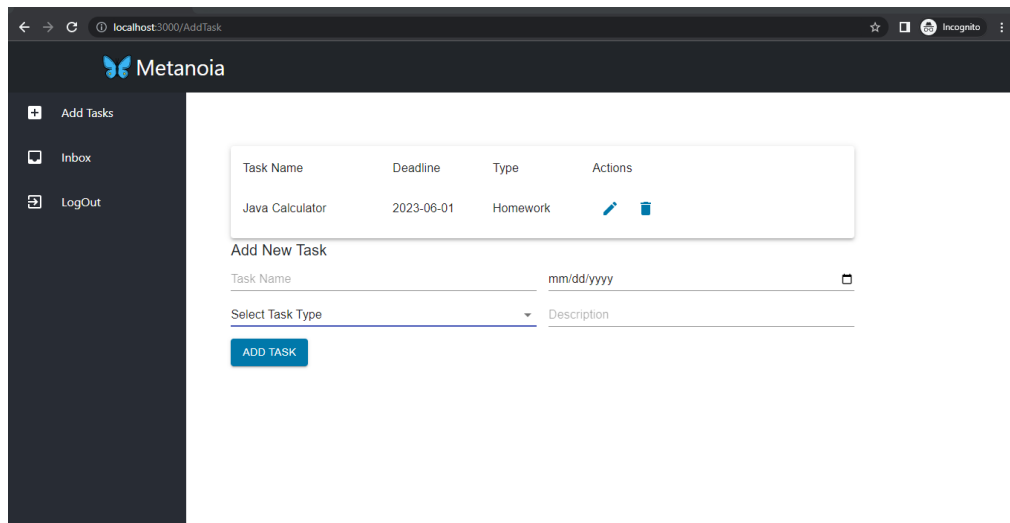


Figure 58: Add Task

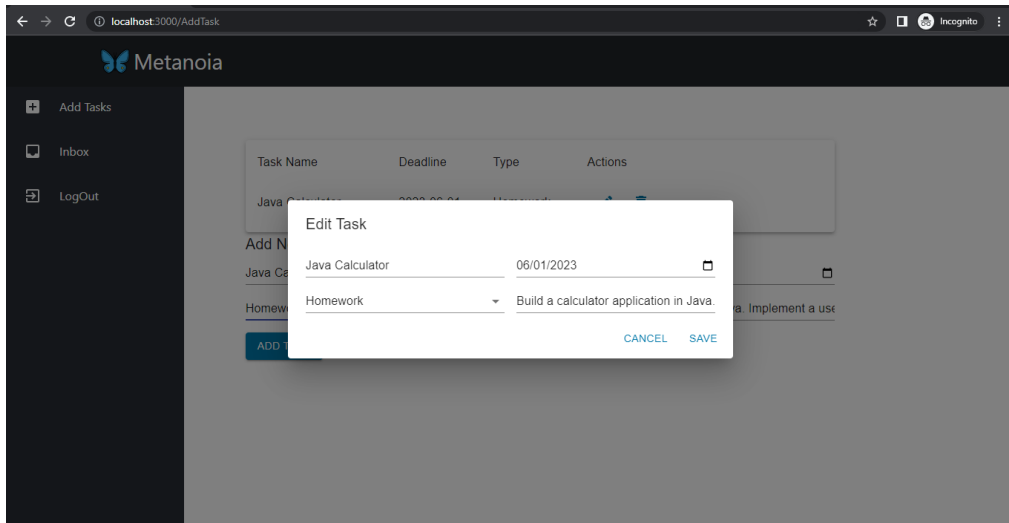


Figure 59: Edit Task

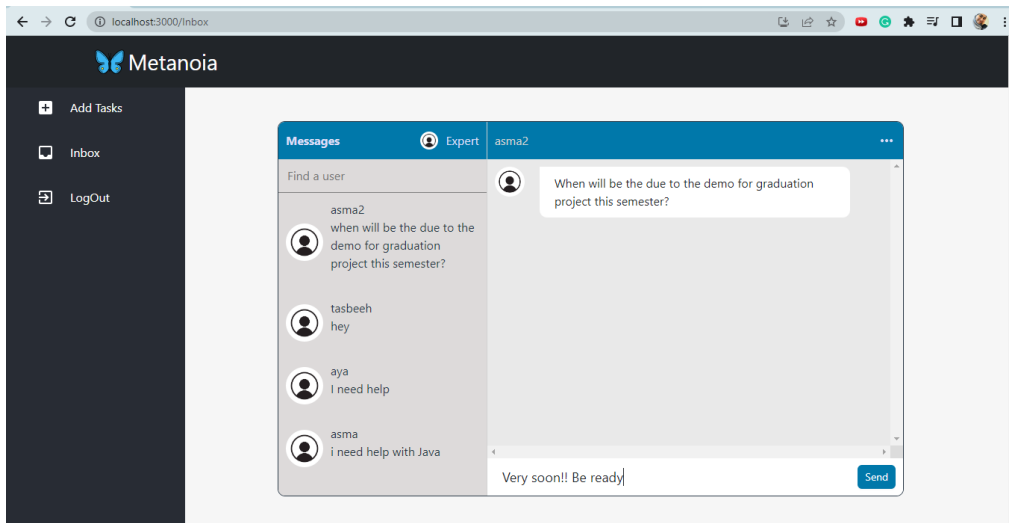


Figure 60: Expert's Chat Page

Chapter 5

5 Results Discussion

5.1 Results

Metanoia is a comprehensive platform that includes both a website and a mobile application, providing users with a range of functionalities and features. Users can perform the following actions:

1. Register and create an account: Users can sign up for a Metanoia account, providing the necessary information to create their profile and access the platform.
2. Add Task: users can add daily tasks edit or delete them, they can set a deadline, reminder, describe them, and set a priority
3. Add Schedule: users on the Metanoia platform can also utilize the "Schedule" feature. This feature allows users to create and manage their own schedules according to their preferences.
4. Create and manage projects: Users can create their own projects, set goals, and track progress. They can divide projects into tasks, assign deadlines, and collaborate with other users.
5. Interact with posts: Users can view, like, comment, and save posts shared by other users, fostering engagement and collaboration within the community.
6. Communication and messaging: Metanoia likely offers a messaging system or chat functionality that enables users to communicate with each other, allowing for direct conversations, asking questions, or seeking assistance.
7. Search for users or posts: Users can search for specific users or posts based on keywords, usernames, or topic tags to find relevant content or connect with others.
8. Receive notifications: Users receive timely notifications about task deadlines, project updates, comments on their posts, and other important platform activities.

5.2 Discussion

Metanoia most likely provides the following:

1. An unique platform helps users especially students manage their time and saves them effort. and give them space to communicate with each other.
2. User-Friendly Interface: The application offers an intuitive and user-friendly interface that enhances usability and ensures a seamless user experience.
3. An integrated and interactive application that helps users be more organized

Chapter 6

6 Conclusions and Recommendation

6.1 Conclusions

Metanoia is a comprehensive platform that combines time management and community features. It offers users a streamlined experience for task management, project collaboration, personal development, Chat and communication, reminders and notifications, and a user-friendly interface. With Metanoia, users can effectively organize their tasks, collaborate on projects, share their thoughts and get help from others, and achieve their goals efficiently.

Metanoia has successfully fulfilled its intended purpose, serving as an efficient platform. While some minor features were not included due to time constraints, there is optimism for their potential addition in the future.

6.2 Discussion

There are various areas that Metanoia might improve, including:

1. Enhance the application by incorporating additional functionalities, including the ability to create groups on the community page.
2. Add more features on the projects to maximize its efficiency and usefulness for users. such as add a percentage to show the progress of each member working in the team.
3. Introduce an array of new features to the administration section, fostering greater engagement with the application.
4. Increases the number of experts available, ensuring that each subject has its dedicated expert. By doing so, users would benefit from a more specialized and comprehensive knowledge base.