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CalmMind

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Acknowledgment

In the name of Allah, the Most Gracious, the Most Merciful,

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With heartfelt gratitude,

Kenana&Dina

Disclaimer

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Abstract

CalmMind is a unique mental health support app that uses Flutter, MongoDB, Firebase, and Node.js. It's designed to provide personalized care by allowing users to choose qualified specialists based on detailed profiles. The app helps users create content, book appointments online, and ensures a secure process for specialists to sign up. It promotes interaction through group chat rooms, creating a supportive space for people facing similar challenges.

Administrators are crucial in maintaining the platform's integrity. They carefully review and approve doctor registrations, sending a confirmation email upon acceptance. CalmMind aims to redefine mental health support by focusing on user interaction, choice, and secure practitioner verification. This versatile app not only sets a new standard for personalized mental health care but also strives to build a community that values user engagement while prioritizing the confidentiality and security of user data.

Introduction

1. Problem

Traditional approaches to mental health support often encounter obstacles in delivering personalized care and establishing meaningful connections between patients and specialists. Privacy concerns, limited user agency in choosing specialists, and the need for secure communication channels are pressing issues that CalmMind aims to resolve.

2. Objectives

CalmMind is designed with the following objectives in mind:

1. Empower patients to actively select qualified mental health specialists based on detailed profiles.
2. Provide a secure environment for user-generated content, online appointment booking, and specialist sign-ups.
3. Encourage user interaction through innovative group chat rooms, fostering a supportive community.
4. Ensure the confidentiality and security of patient information through robust privacy controls.
5. Redefine the landscape of mental health support by emphasizing user interaction, choice, and secure practitioner verification.

3. Scope

CalmMind's scope encompasses a comprehensive mental health support system that includes personalized doctor selection, secure communication channels, and community-building features. Both patients and specialists will benefit from a user-centric and privacy-conscious platform.

4. Importance

In an era where mental health awareness is on the rise, CalmMind holds significant importance. By providing a platform that respects user privacy, empowers individuals in their mental health journey, and fosters a sense of community, CalmMind aims to set new standards for accessible and effective mental health support.

6. Report Organization

This report unfolds in a structured manner to comprehensively illuminate the development, implementation, and impact of CalmMind. In the introductory chapter, we present the context and motivation behind CalmMind, addressing the problem statement, objectives, scope, importance, and detailing the organization of this report. The subsequent chapter explores the constraints faced during development, shedding light on challenges and limitations that influenced design decisions. The Literature Review section delves into existing research relevant to mental health support applications, drawing insights that informed the development of CalmMind. Following that, the Methodology chapter provides a detailed account of the approach taken, covering technologies used, design considerations, and the overall development methodology. Results and Discussion showcase the outcomes of CalmMind, incorporating user feedback, system performance, and discussions on observed implications. Finally, the Conclusion chapter summarizes key findings, draws conclusions based on results, and explores potential future enhancements for CalmMind. This structured approach offers readers a cohesive journey through the inception, implementation, and outcomes of this innovative mental health support application.

1 Limitations and Earlier work

1.1 Limitations

While CalmMind represents a pioneering effort in the realm of mental health support applications, it is essential to acknowledge certain limitations and build upon prior work. One limitation lies in the challenge of ensuring consistent and widespread adoption, as the success of the platform hinges on both users and specialists actively engaging with the system. Additionally, the reliance on internet connectivity for optimal functionality may pose barriers in regions with limited access. The platform's effectiveness also depends on the accuracy and completeness of the information provided by specialists in their profiles, which may vary. In terms of earlier work, existing mental health support applications have paved the way for user-centric approaches, yet CalmMind distinguishes itself by prioritizing user choice and interaction. Drawing inspiration from prior applications, the development team meticulously addressed

privacy concerns, user agency, and secure communication channels to enhance the overall user experience. As CalmMind builds upon earlier innovations, ongoing research and user feedback will be crucial in refining the platform and overcoming these identified limitations. In the course of developing CalmMind, we encountered noteworthy limitations that provided valuable insights into the complexities of crafting a robust mental health support application. One significant challenge we faced was our initial ambition to incorporate an expert system, utilizing advanced algorithms and artificial intelligence to enhance the platform’s ability to offer personalized mental health insights and recommendations. Unfortunately, this vision encountered a substantial roadblock—the unavailability of an expert in psychology health. Despite concerted efforts to secure the necessary expertise, finding a qualified professional proved to be a formidable task. The intricate nature of psychology health demands nuanced understanding, which only a seasoned expert can provide. Consequently, the integration of the expert system component had to be deferred. While this limitation underscored the challenges inherent in realizing our initial vision, it also highlighted the importance of expert involvement in the development of advanced mental health applications.

1.2 Earlier work

CalmMind stands as a culmination of learned lessons from earlier works that have significantly shaped the landscape of mental health support applications. In drawing inspiration from projects like ‘MindWellness Pro’ and ‘TherapyTech Innovations,’ our commitment to user-centric approaches and continuous improvement has been reinforced. The ‘MindWellness Pro’ project, for instance, emphasized the importance of secure communication channels, influencing our approach to privacy controls. ‘TherapyTech Innovations’ contributed valuable insights, guiding the development of features and functionalities that prioritize user engagement and well-being. These pioneering projects have paved the way for innovative solutions and best practices, influencing our approach to crafting a platform that not only addresses the limitations of traditional mental health support but also strives to set new standards in the field. By building upon the successes and lessons learned from earlier works, CalmMind aspires to be at the forefront of technology-driven mental health applications.

2 Literature Review

In examining existing literature on mental health applications with features similar to CalmMind, several noteworthy platforms have contributed to the landscape of psychological well-being support. These applications serve as valuable references in understanding user expectations and refining the design and functionality of CalmMind.

- **BetterHelp:** A recognized online therapy platform that provides remote counseling services, emphasizing accessible mental health support through secure video, voice, and text-based communication. [4]
- **Talkspace:** Talkspace is another prominent online therapy platform that facilitates communication between users and licensed therapists. Its asynchronous messaging feature allows users to engage with therapists at their convenience. CalmMind incorporates a similar flexibility in communication methods, ensuring that users can choose the mode that best suits their preferences, promoting a user-centric approach.
- **7 Cups:** Stands out for its emphasis on community support, providing users with access to trained listeners and therapists. CalmMind echoes this focus on community building through virtual "rooms," fostering a sense of connection among users navigating similar challenges.[1]
- **Amwell:** A telehealth platform extending its services to mental health support, integrating video visits with mental health professionals. Aligns with CalmMind's commitment to offering flexible appointment options.[2]
- **Happify:** Happify takes a unique approach by incorporating gamification and positive psychology principles to promote emotional well-being. CalmMind, while distinct in its features, recognizes the importance of user engagement and interaction. The innovative group chat rooms in CalmMind are designed to encourage user participation and foster a supportive community, echoing elements of Happify's approach[3].

synthesizing insights from these existing applications, CalmMind aims to build upon successful models while introducing innovative features that address specific limitations and challenges in the realm of mental health support. The lessons learned from these platforms contribute

to the ongoing evolution of CalmMind, ensuring that it stands at the forefront of user-centered, technology-driven mental health applications.

3 Methodology

3.1 Technical choices

- **Flutter:** In the development of CalmMind, the decision to employ Flutter as the cross-platform framework was driven by its versatility and efficiency. Flutter’s single-codebase approach allowed for simultaneous development on both iOS and Android platforms, ensuring a consistent user experience. The rich set of pre-designed widgets and the hot reload feature facilitated rapid prototyping and iteration, streamlining the development process. Flutter’s expressive UI capabilities contributed to the creation of an engaging and visually appealing user interface, aligning with our goal of providing a seamless and intuitive user experience
- **Node.js:** Node.js emerged as the backend runtime environment for CalmMind, offering a non-blocking, event-driven architecture that proved instrumental in handling concurrent connections efficiently. Its scalability and ease of integration with other technologies made it well-suited for building a robust backend infrastructure. Leveraging the Node.js ecosystem, we implemented RESTful APIs to facilitate seamless communication between the frontend and backend components. The asynchronous nature of Node.js ensured optimal performance, enhancing the responsiveness of the application and contributing to a smooth user experience.
- **MongoDB:** The choice of MongoDB as the database management system for CalmMind was guided by its flexibility, scalability, and compatibility with JSON-like documents. MongoDB’s NoSQL nature accommodated the dynamic and evolving data structures inherent in a mental health support application. Its ability to handle large volumes of data and support geographically distributed deployments aligned with the scalability requirements of our platform. The document-oriented approach facilitated efficient data retrieval and storage, ensuring a responsive and efficient user experience.
- **GitHub:** GitHub served as the cornerstone of our version control and collaborative development efforts throughout the CalmMind project.

Its distributed version control system allowed for seamless collaboration among team members, enabling parallel development on different features. The branching and merging capabilities of Git, coupled with GitHub's user-friendly interface, facilitated efficient code management and streamlined collaboration. Continuous integration workflows, code reviews, and issue tracking were seamlessly integrated into our development pipeline through GitHub, ensuring code quality and project transparency.

- **SendGrid for Emails:** Incorporating SendGrid into the CalmMind infrastructure was a strategic choice to ensure reliable and customizable email communication. SendGrid's robust email delivery service provided a secure and scalable solution for sending transactional and notification emails. Its straightforward integration with Node.js allowed for seamless implementation within our backend, enhancing our ability to send real-time updates, appointment reminders, and user notifications. The templating and personalization features of SendGrid empowered us to tailor our email content to individual user needs, fostering a personalized and engaging communication channel within the application.

3.2 Methods and techniques

3.2.1 Mobile pages

- Welcome page: There are two buttons, one for sign in page and the other for sign up page

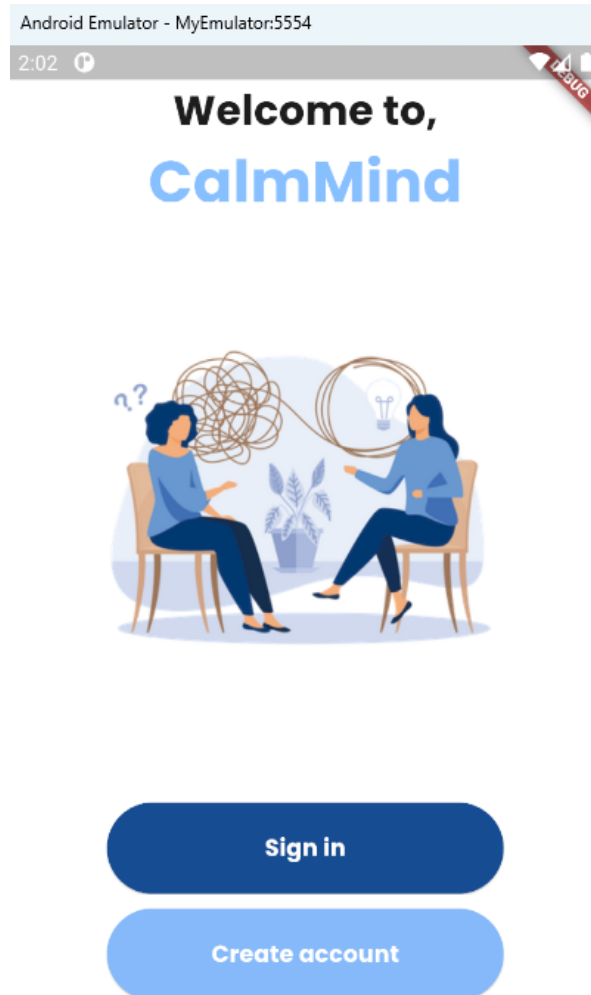


Figure 1: Mobile App Welcome Page

- Authentication: These three images are for sign in and sign up. For patients, they should only go through the first sign-up page because in the second sign-up page, there are informations that the specialists should enter, like the doctor verification code and the specialization.

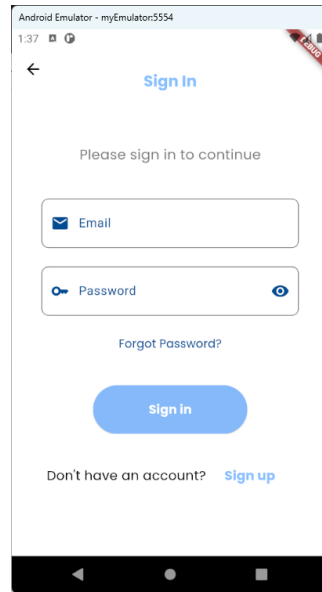


Figure 2: Sign in

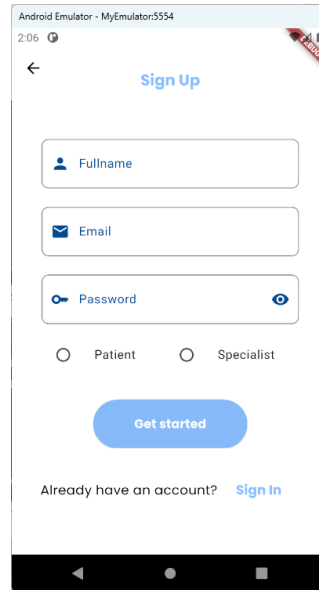


Figure 3: Sign up for patient and specialist

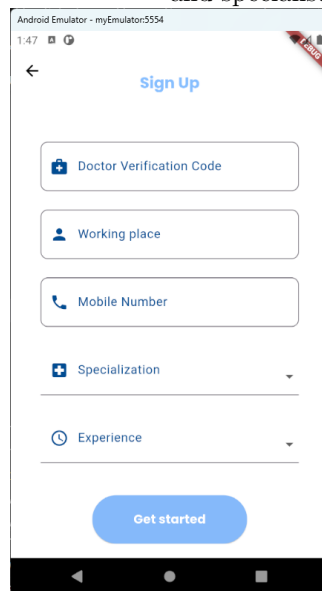


Figure 4: Continue sign up for specialist

- Validation: We added some validations for the sign-in page and sign-up pages, for example, when signing in if the user is not found or the password is not valid. For the sign-up pages, the user can't sign up if there are empty fields or the email is not following the pattern, and the password should be at least 8 characters long.

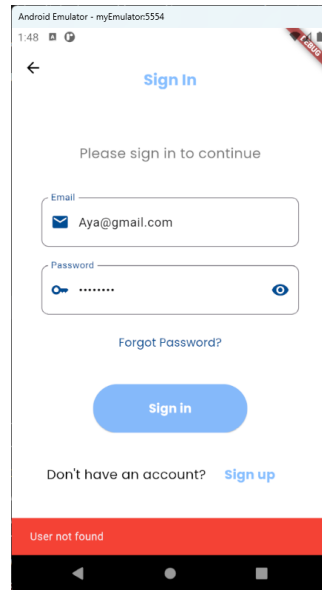


Figure 5: User not found

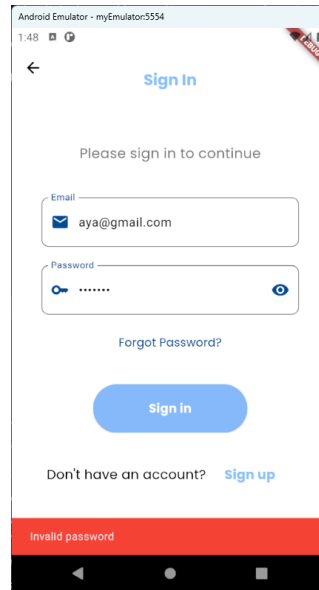


Figure 6: Invalid password

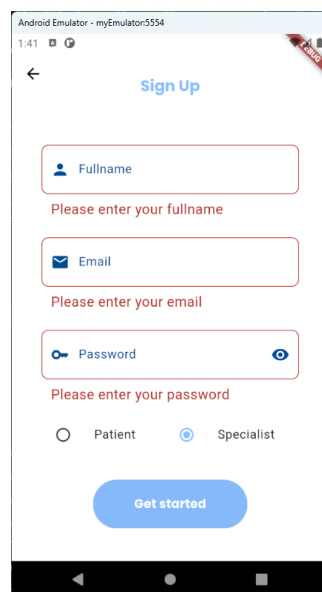


Figure 7: Empty fields

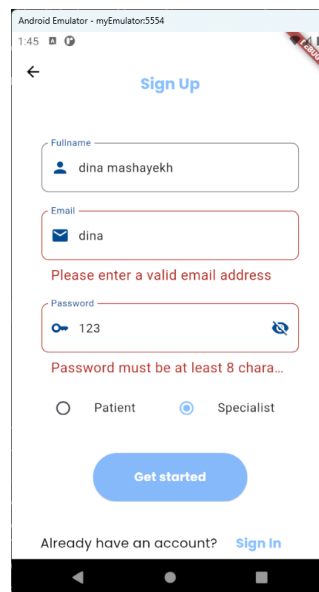


Figure 8: Email and password not valid

- Onboarding screens: The first three onboarding screens are for the patients user type when done the registration, but the last one is for the specialist user type and it informs the specialist that their account needs to be verified before by the admin.

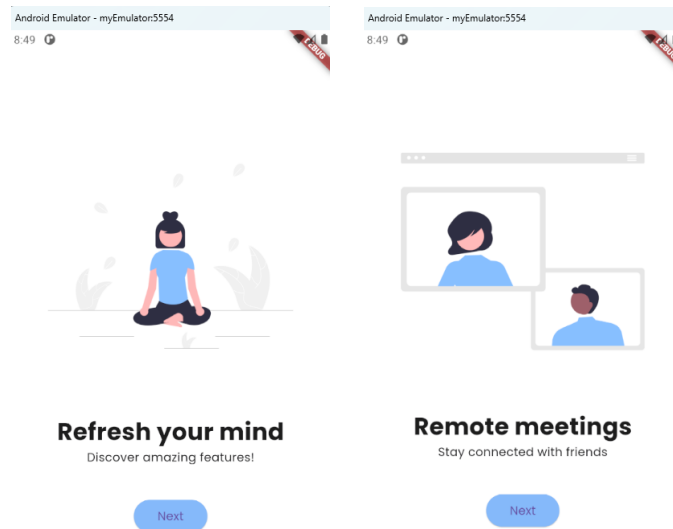


Figure 9: Onboarding screen1 Figure 10: Onboarding screen2

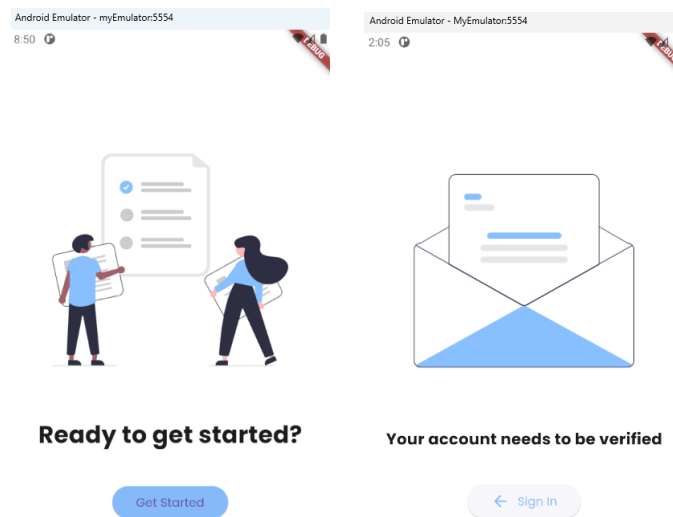


Figure 11: Onboarding screen3 Figure 12: Onboarding screen4

- Home Page: The first screen that is shown when signing in is the home page, it contains posts that users has posted and interacted with. Every user can like and comment on any post as you can see in the figures below. There is also a comment page that is shown when clicking on view comments under every post where you can see all the people who has commented on the post. There is also a notification icon on the app bar and when click on the icon it shows all the notification for this user. For example here it shows the patients that has booked for an appointment for this specialist.

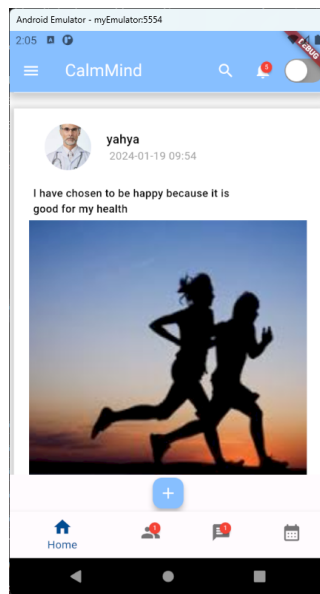


Figure 13: Home page

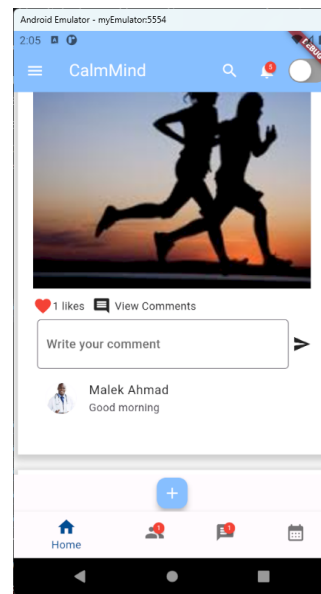


Figure 14: Home page

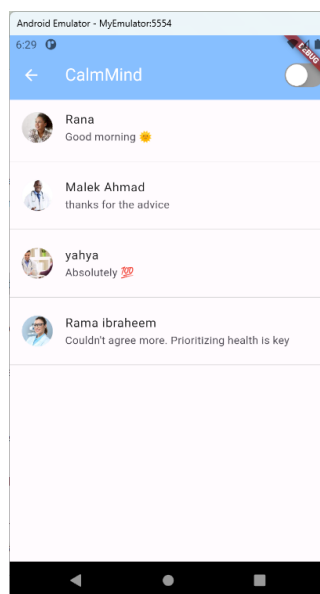


Figure 15: Comments

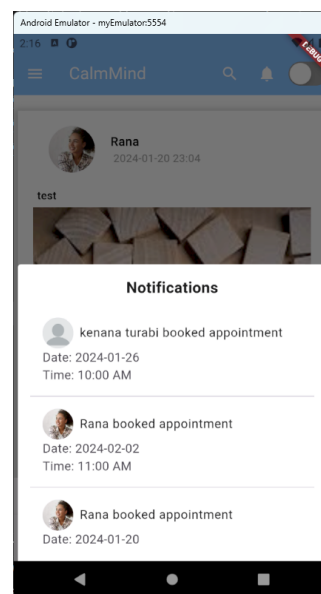


Figure 16: Notifications

- Post creation: In this page the users can create a post, they first enter the content and then they can choose an image to add with the post.

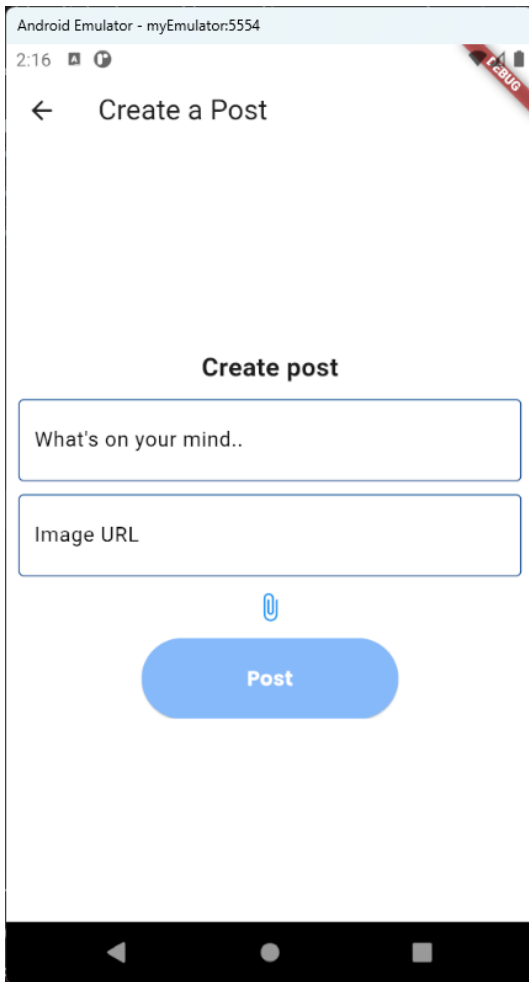


Figure 17: Post creation page

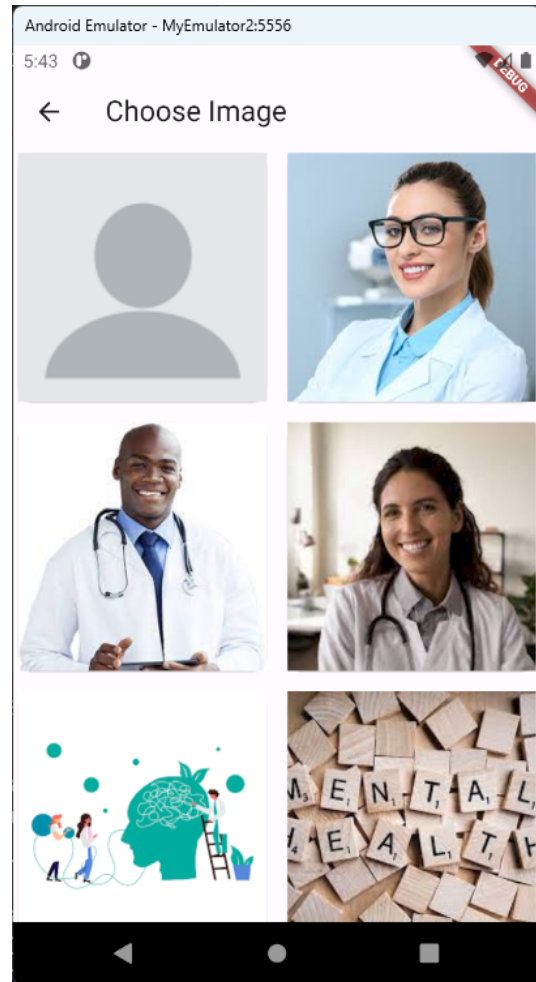


Figure 18: Choose image

- Profile: From the side menu the users can go to their profile page and see all the information and also they can click on edit button and edit their profile information.

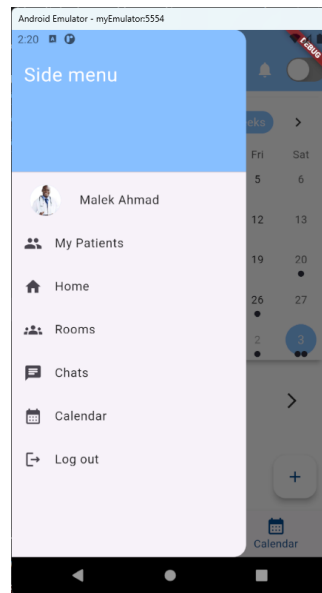


Figure 19: Specialist side menu

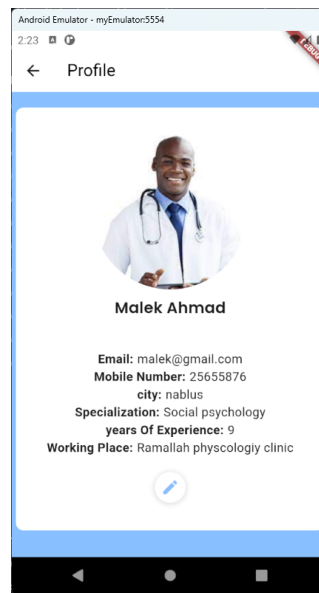


Figure 20: Profile page

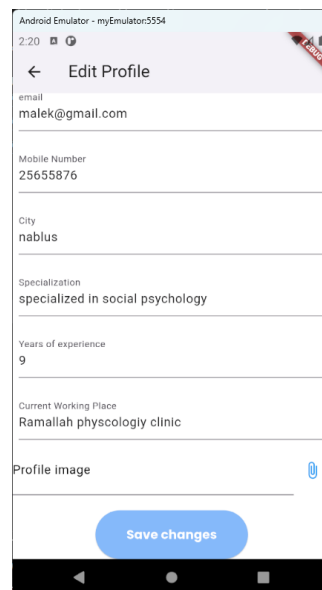


Figure 21: Edit profile

- All doctors page: When the user is signed in as patient they can see all doctors that are in the application by clicking on the side menu and on specialists.

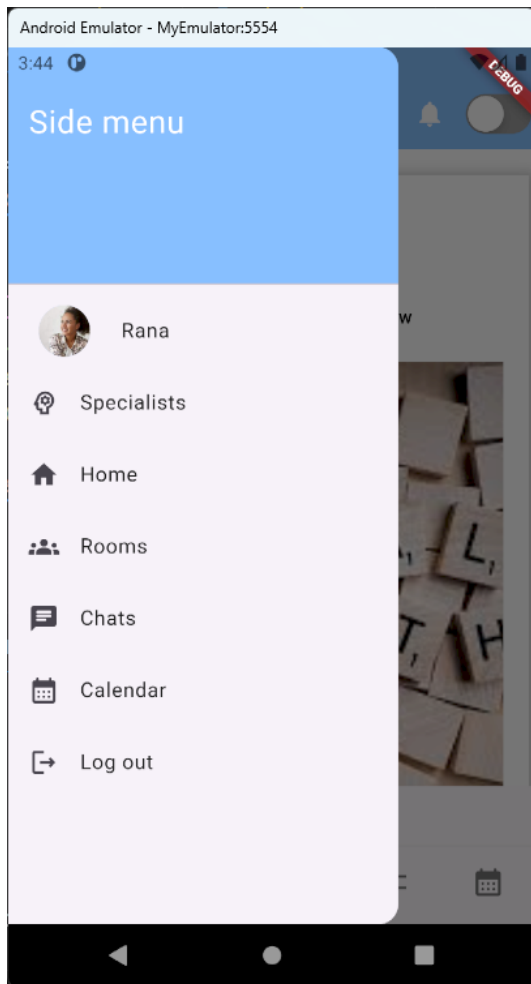


Figure 22: Patient side menu

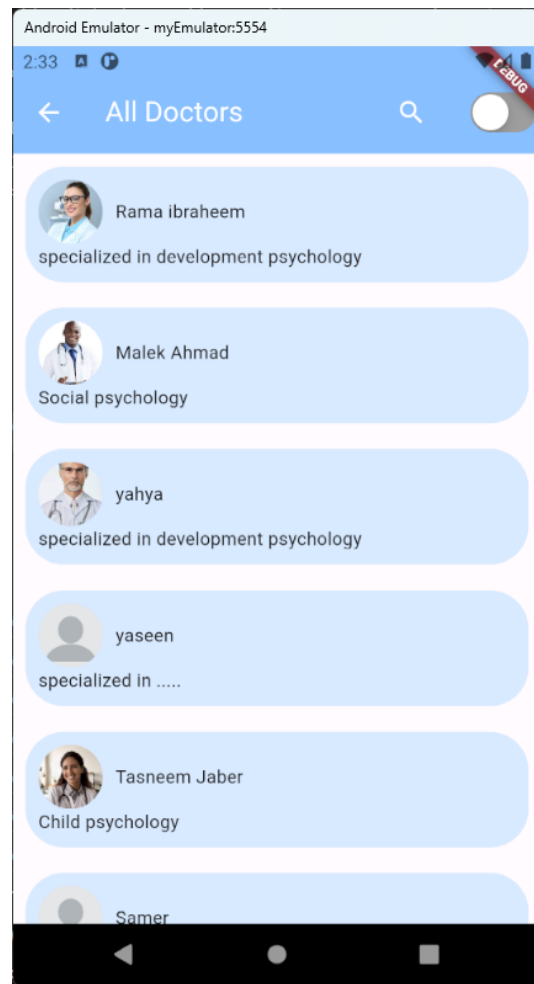


Figure 23: All doctors

- My patients page: Specialists can see their patients by clicking on side menu and then on my patients, these are the patients that booked appointment with the specialist, The specialist can also see the patients information, add the diagnosis and treatment plan as you can see in figures 26 and 27.

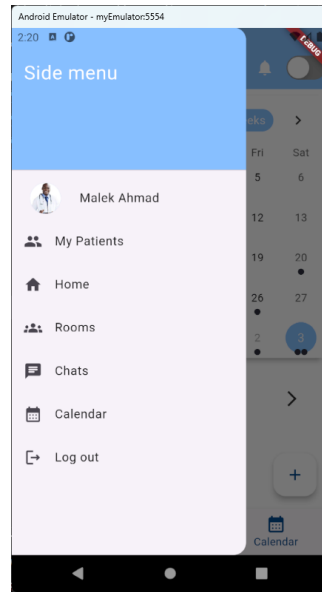


Figure 24: Specialist side menu

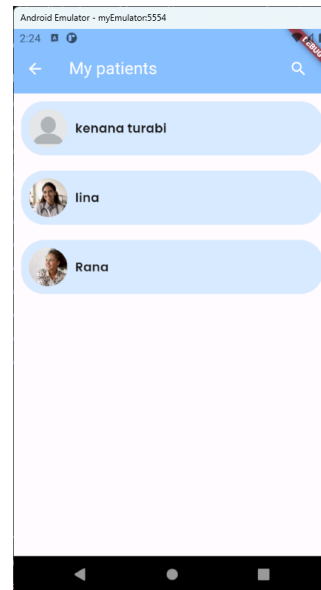


Figure 25: My patients page

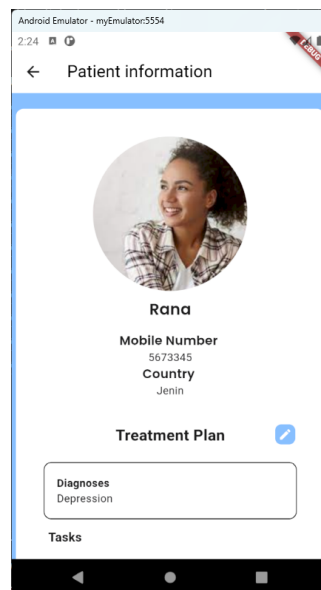


Figure 26: patient information

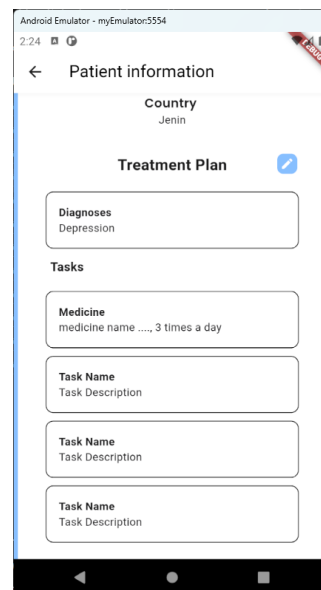


Figure 27: Patient information

- Edit treatment plan: This page can only be accessed by the specialist because here the specialist can add the diagnosis and the treatment plan for their patient as shown in figure 28.

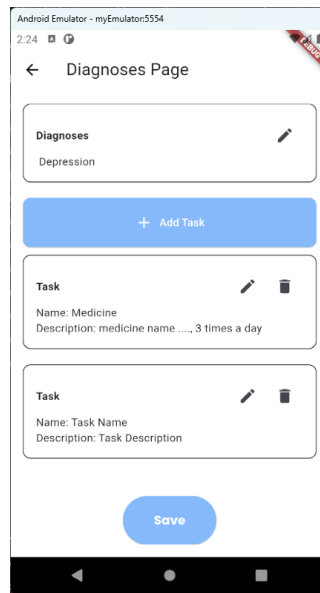


Figure 28: Edit treatment plan

- Treatment plan: This page is for patients where they can see their diagnosis and treatment plan that their doctors have added.

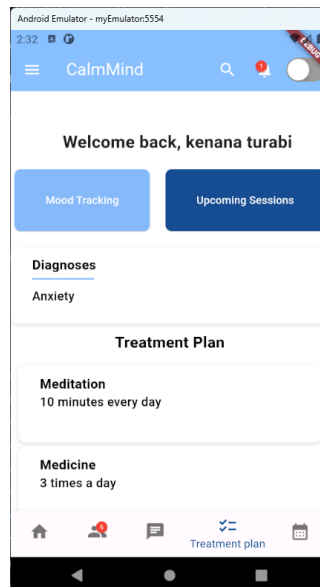


Figure 29: Treatment plan

- Mood tracking: patients can also track their mood for this month, they have to enter their mood every day and then can see how their mood was in this month from a chart that shows the mood on x axis and the percentage of every mood this month on the y axis.

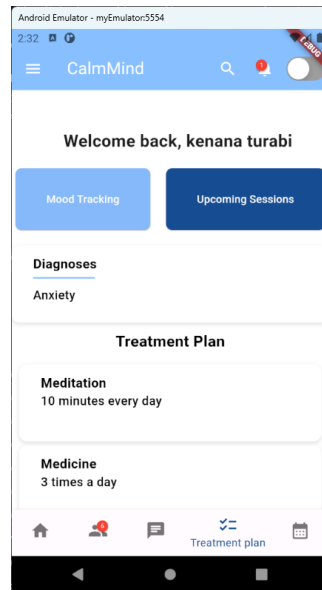


Figure 30: Treatment plan

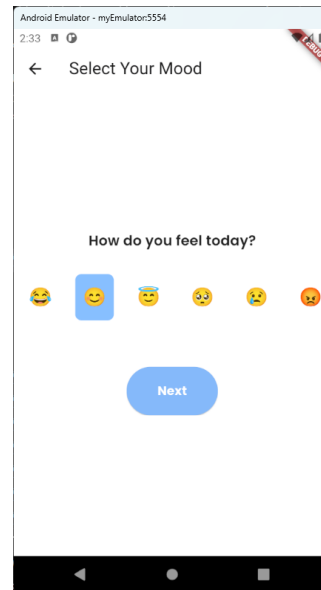


Figure 31: Select mood

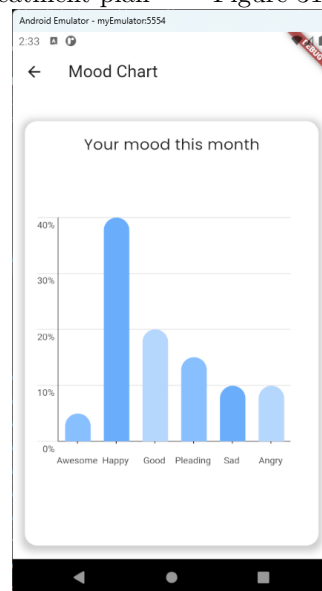


Figure 32: Mood chart

- **Upcoming Sessions:** This page shows when the user clicks on upcoming sessions button in treatment plan page, where the user can see the upcoming sessions, the topic of the session, the doctor, date and time of the session. When the session time comes the user clicks on join to enter the session.

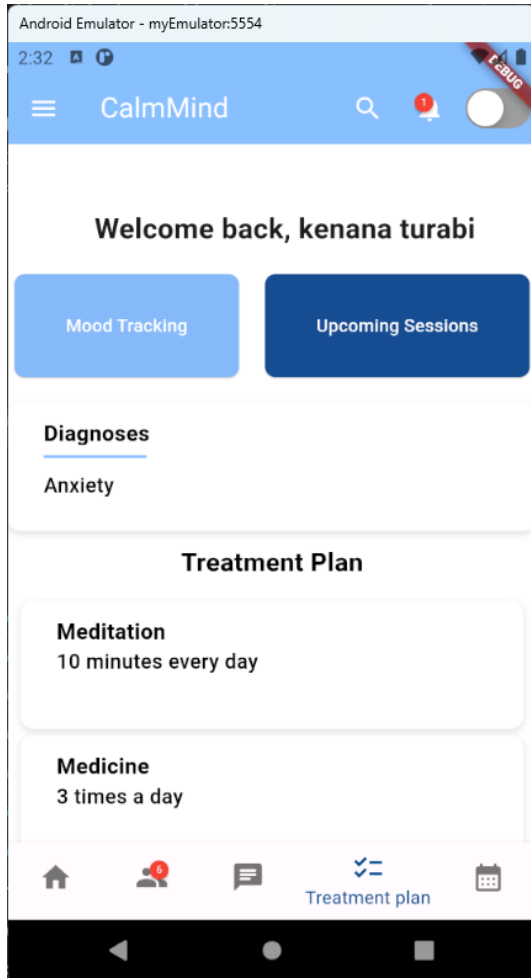


Figure 33: Treatment plan

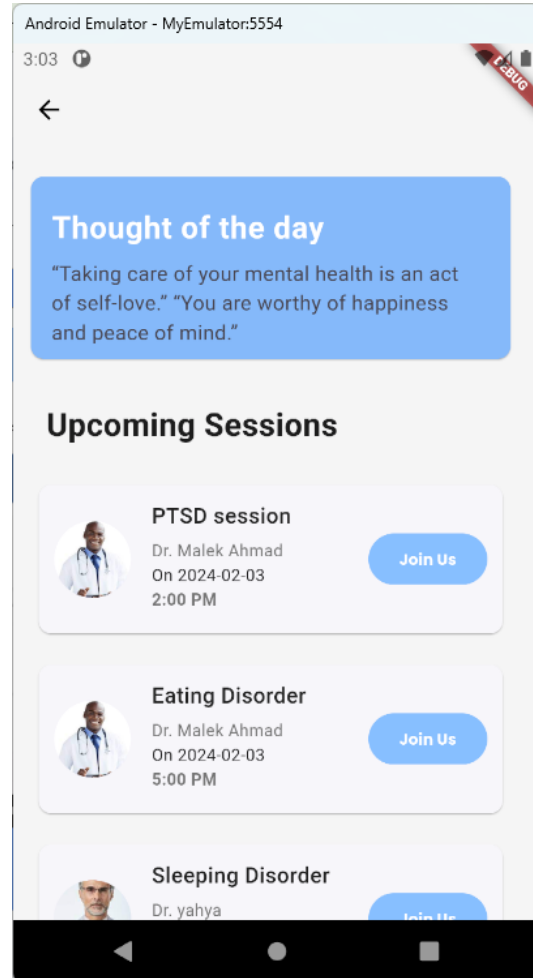


Figure 34: Upcoming sessions

- Calendar page: Here is the calendar page, it's for both patient and specialist where they can see their appointments or the specialist can see their sessions, The dots on the calendar indicates that there is an appointment or a session on that day. When the patient wants to book an appointment or the specialist want to create a session the click on the day and then on the plus button.

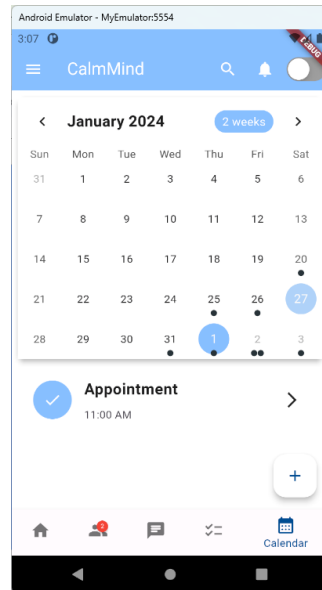


Figure 35: Calendar page

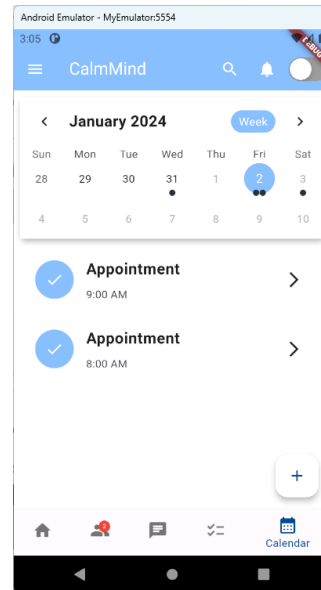


Figure 36: Calendar page

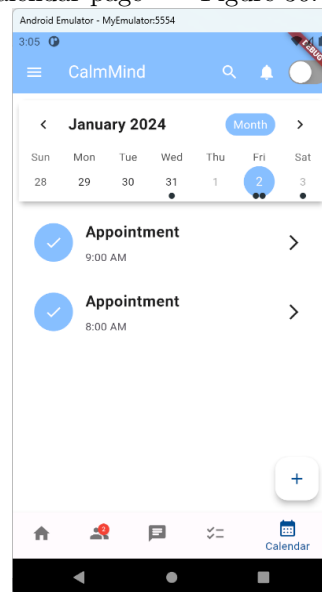


Figure 37: Calendar page

- Create session: As said before if you are specialist and want to create session the you should click on plus button to open new session page and enter the topic of the session and the session time.

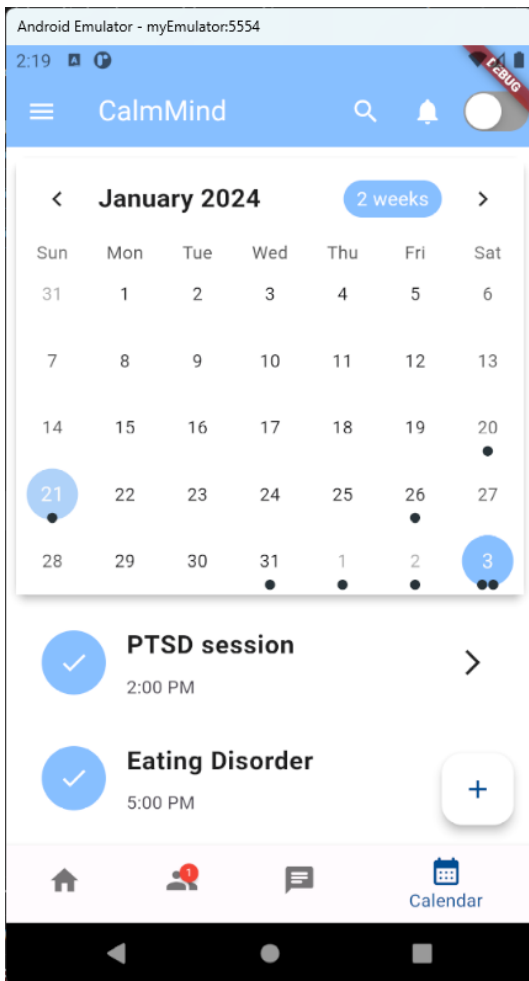


Figure 38: Calendar specialist

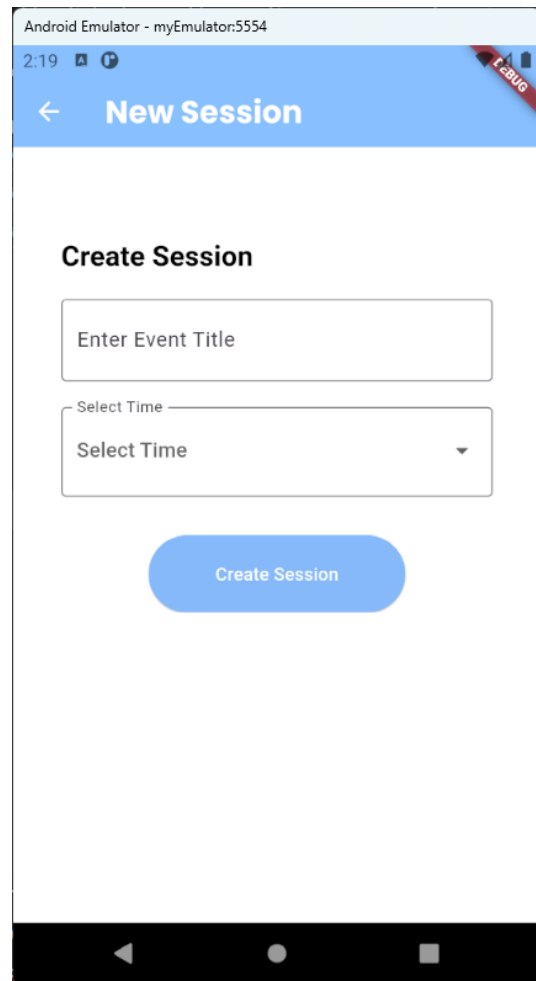


Figure 39: Create session

- Book appointment: The patient can book an appointment by clicking on plus button after choosing the day and then choose the meeting type, doctor and the time for the appointment.

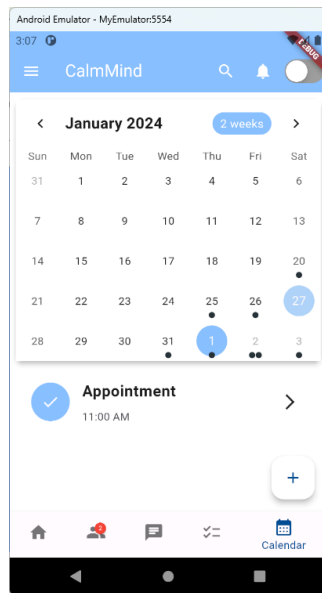


Figure 40: Calendar page

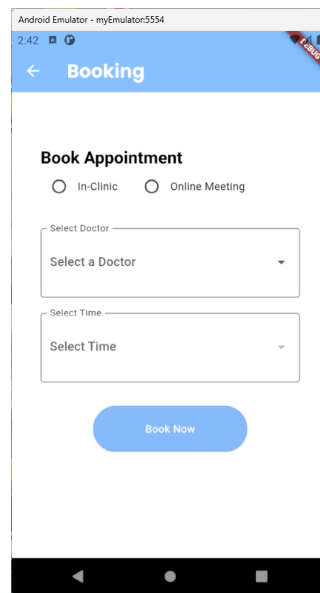


Figure 41: Book appointment

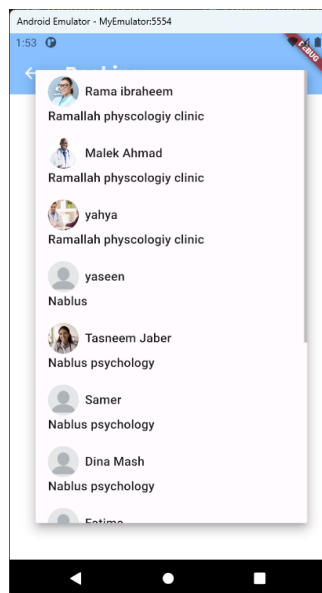


Figure 42: Select doctor

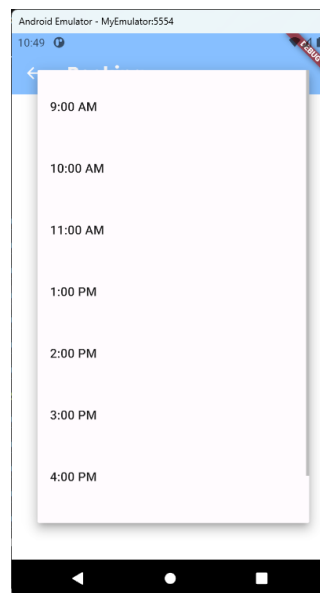


Figure 43: Select time

- Appointment details: When click on the appointment under the calendar a page shows containing all the details of the appointment, like the date, time, meeting type if it is in-clinic or online therapy and the doctor name.

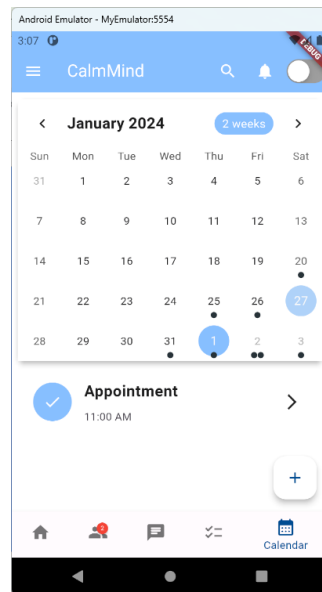


Figure 44: Calendar page

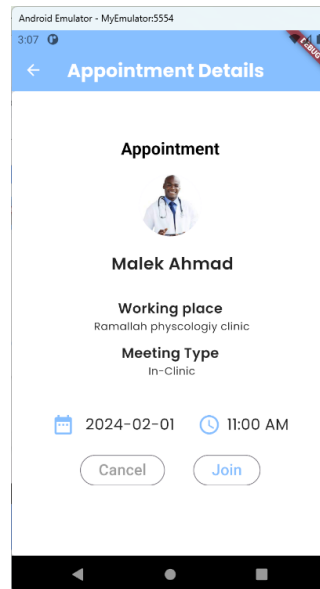


Figure 45: Appointment details

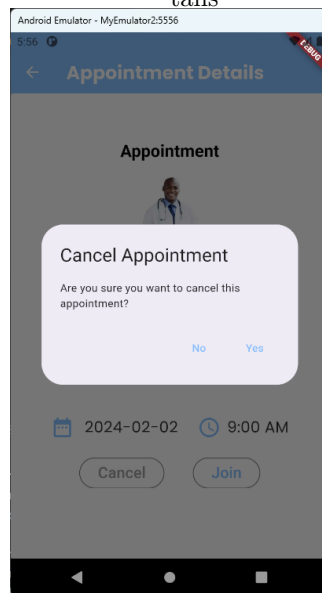


Figure 46: Cancel appointment

- Online therapy session: When click on join in appointment details page you will enter the online therapy with the doctor, where you can talk or chat.



Figure 47: Video conference

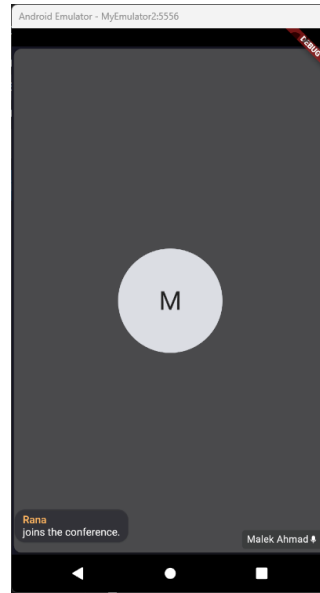


Figure 48: patient joined conference



Figure 49: Video conference

- Online therapy details: Here you can see the members of the online therapy session and you can also chat in th session.

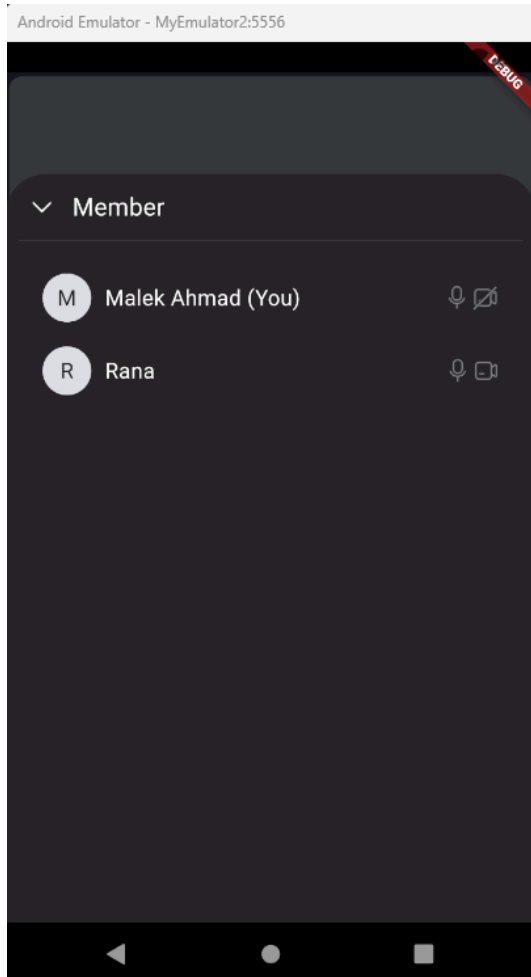


Figure 50: session members

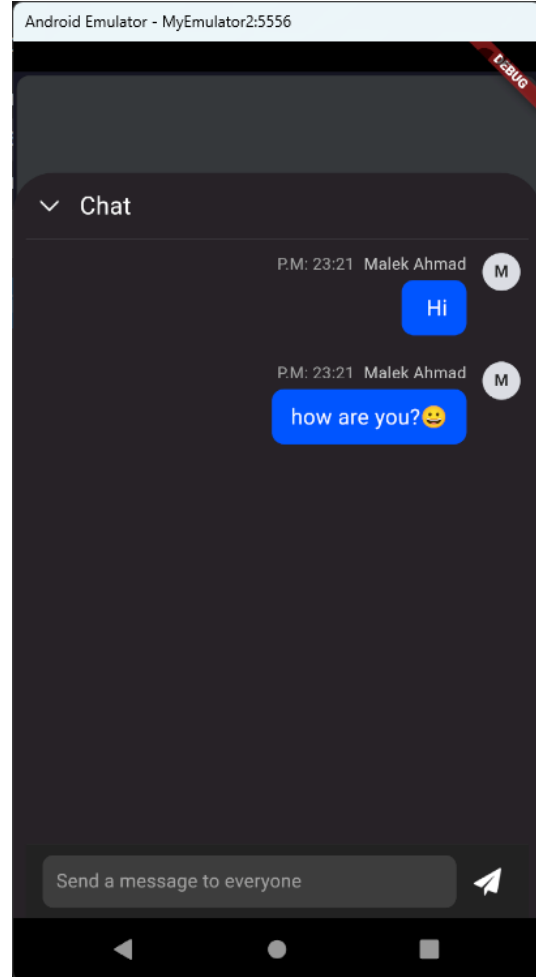


Figure 51: chat

- Chats: The chats page shows all the conversation for the patient or the specialist and when click on the conversation the message page opens with all the messages, it's also possible to delete a message as shown in figure 54.

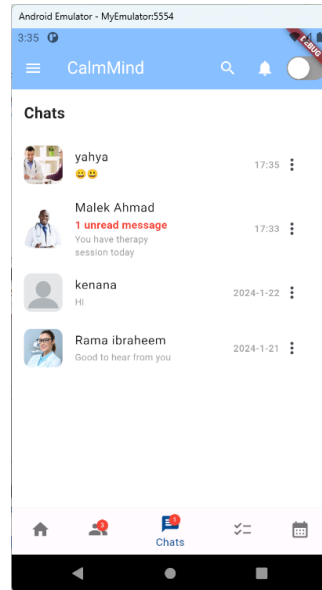


Figure 52: Chats

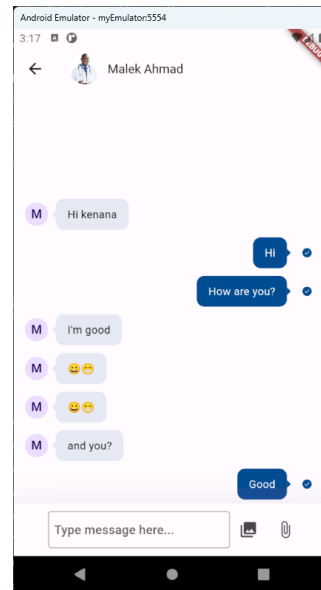


Figure 53: patient joined conference

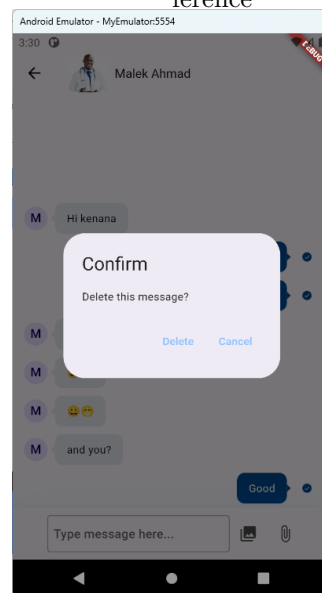


Figure 54: Video conference

- Search: As shown below in the figures the user can search for doctors but not for patients because of the security, the user can see the doctor's profile and also start a new conversation with this doctor.

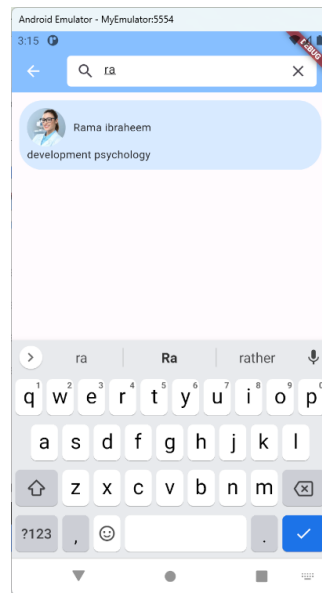


Figure 55: Search

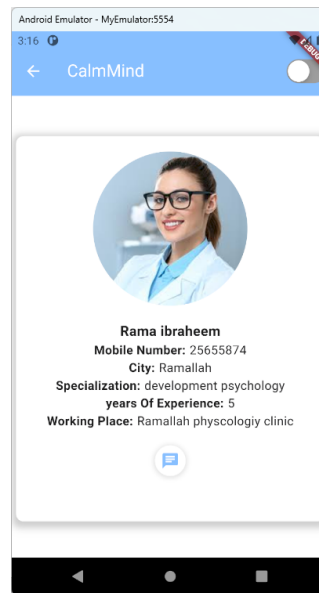


Figure 56: Doctor profile

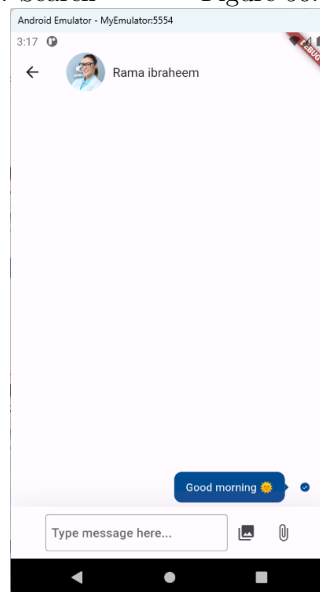


Figure 57: New conversation

- Patient Rooms: Here is the rooms page for the a patient where the patient can see all the rooms it is in. The patient can also leave a room as shown below in the figures.

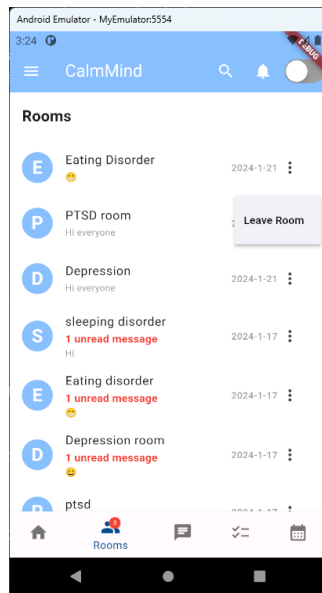


Figure 58: Patient rooms

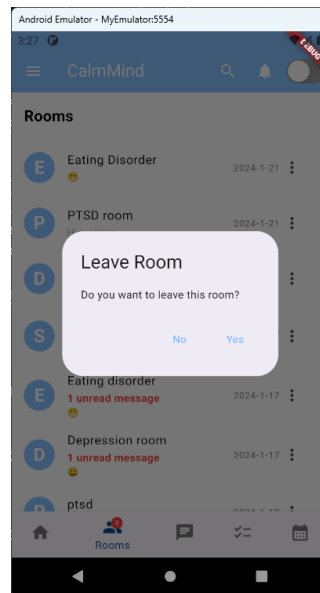


Figure 59: Leave room

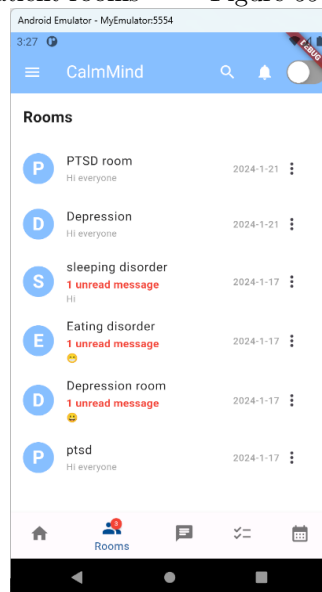


Figure 60: Leave room

- Specialist Rooms: Here is the rooms page for the a specialist where the specialist can see all the rooms it is in. The patient can also leave a room as shown below in the figures. The specialist can also create a new rooms and add the patients to it as shown below.

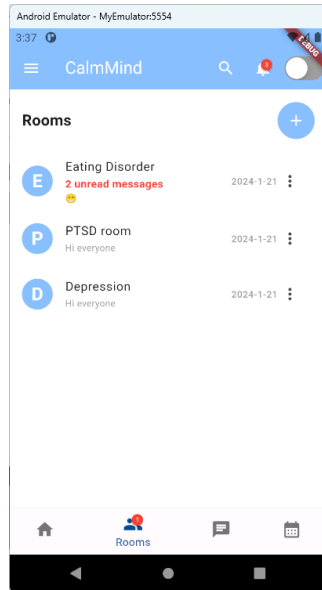


Figure 61: Specialist rooms

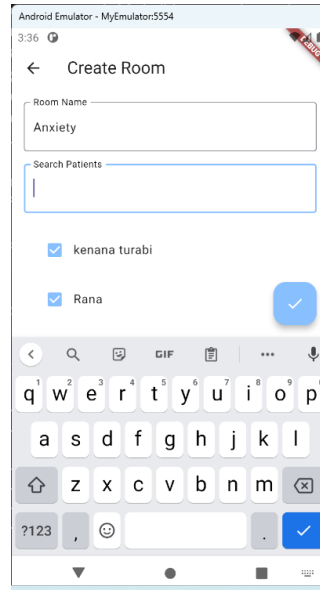


Figure 62: Create room

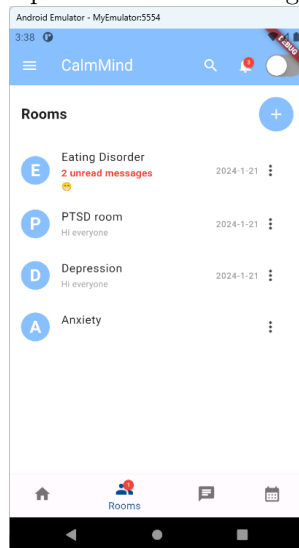


Figure 63: Rooms

- Dark mode: Here are some pages when selecting the darkmode from the app bar.

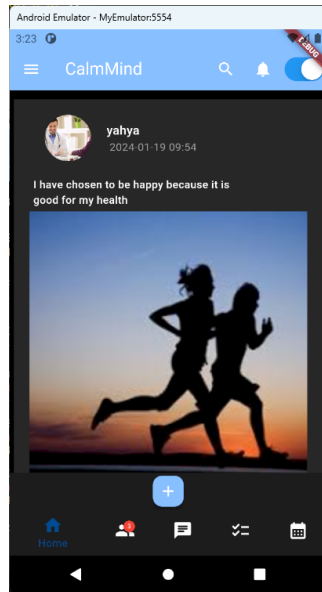


Figure 64: Home page

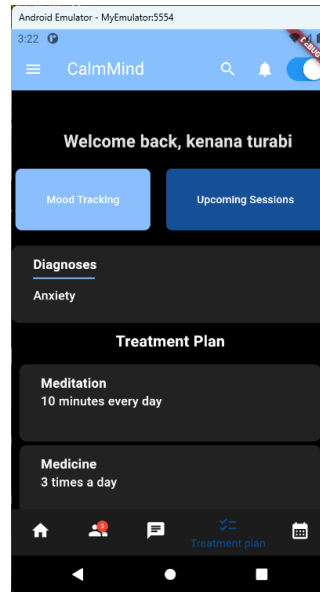


Figure 65: Treatment plan

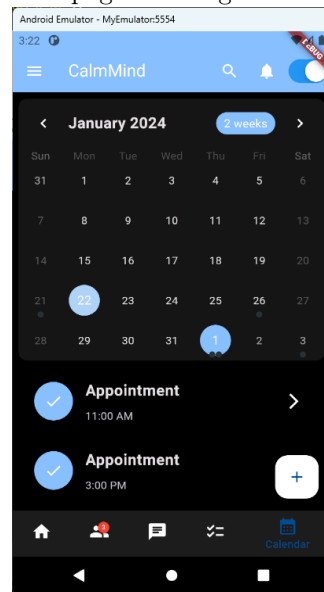


Figure 66: Calendar page

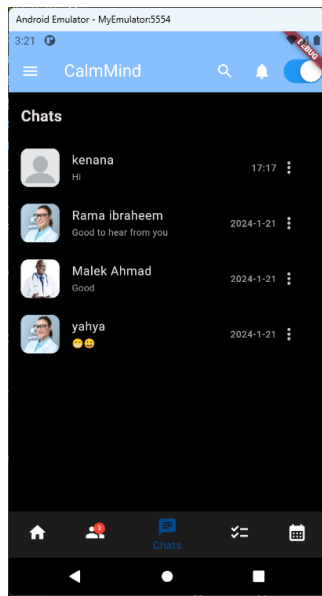


Figure 67: Chats

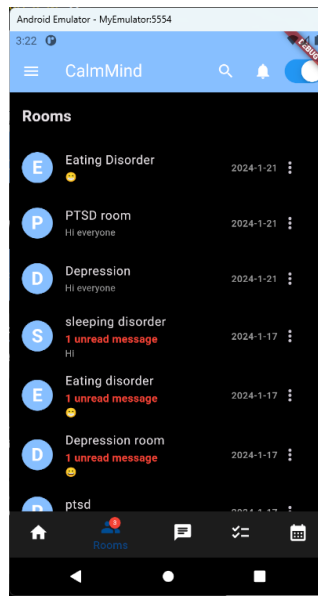


Figure 68: Rooms

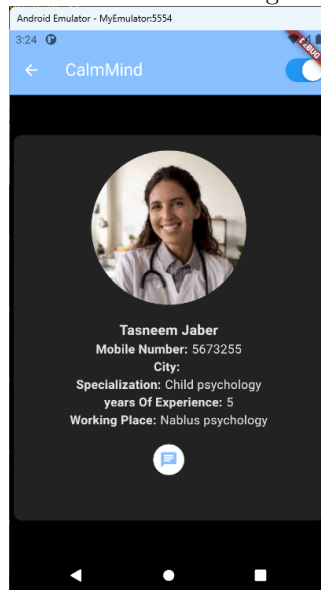


Figure 69: Doctor profile

3.2.2 Web pages

- Welcome Page: with sign In and Sign Up options.

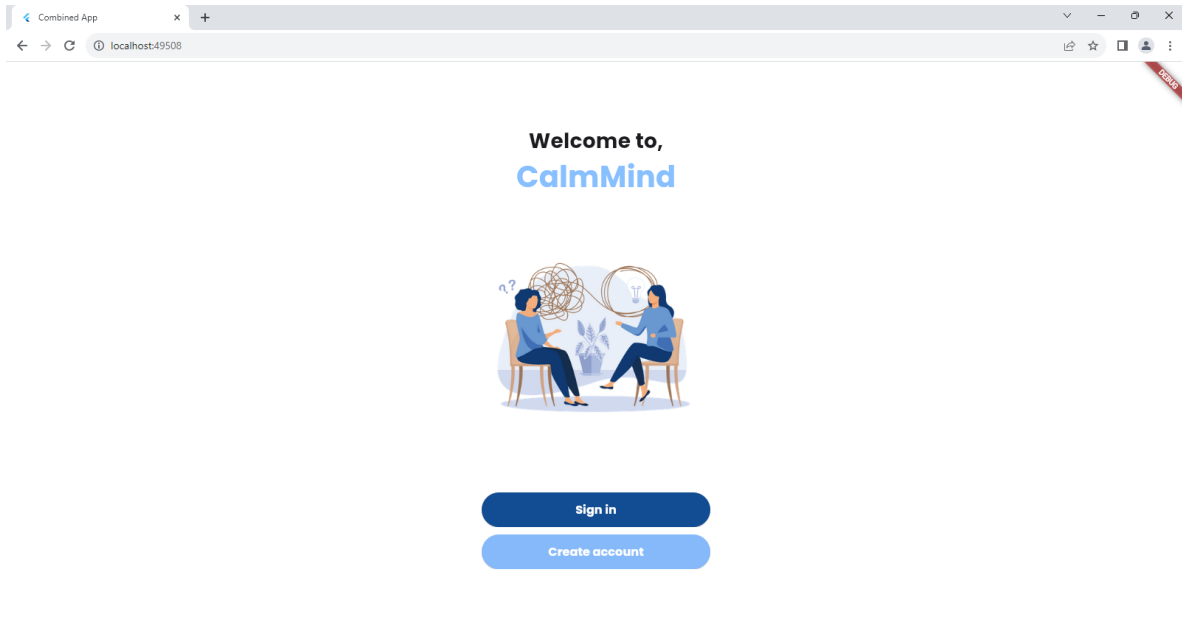


Figure 70: welcome screen

- login page: with Authentication and Validation. User must enter his/her email and password. If the password not correct the user will get invalid password, and if the user did not register in the application before and try to login he/she will get user not found message.

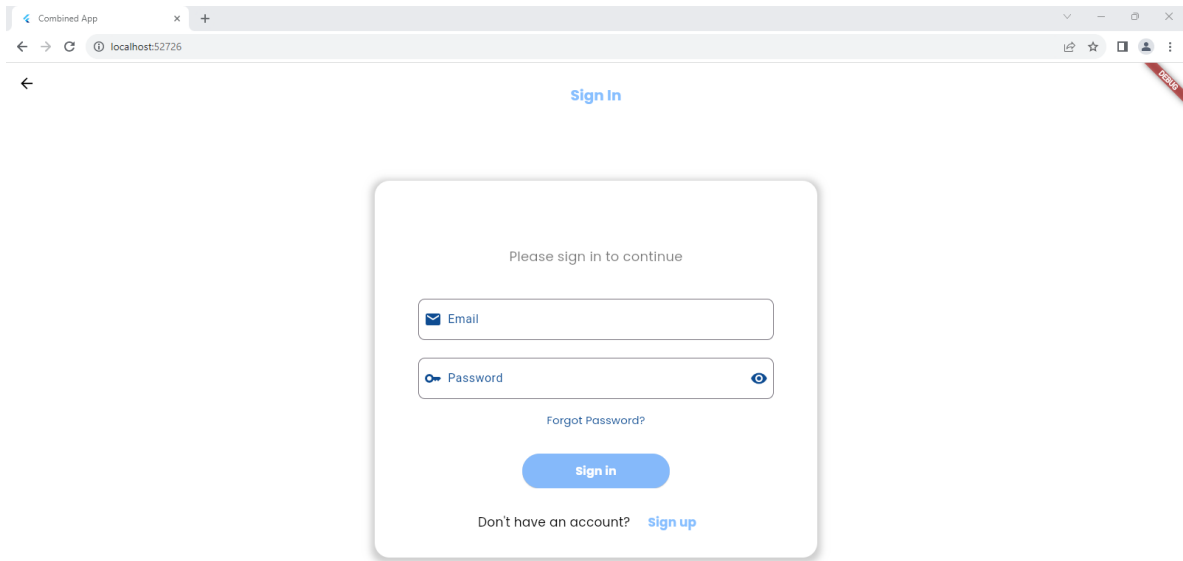


Figure 71: signIn screen

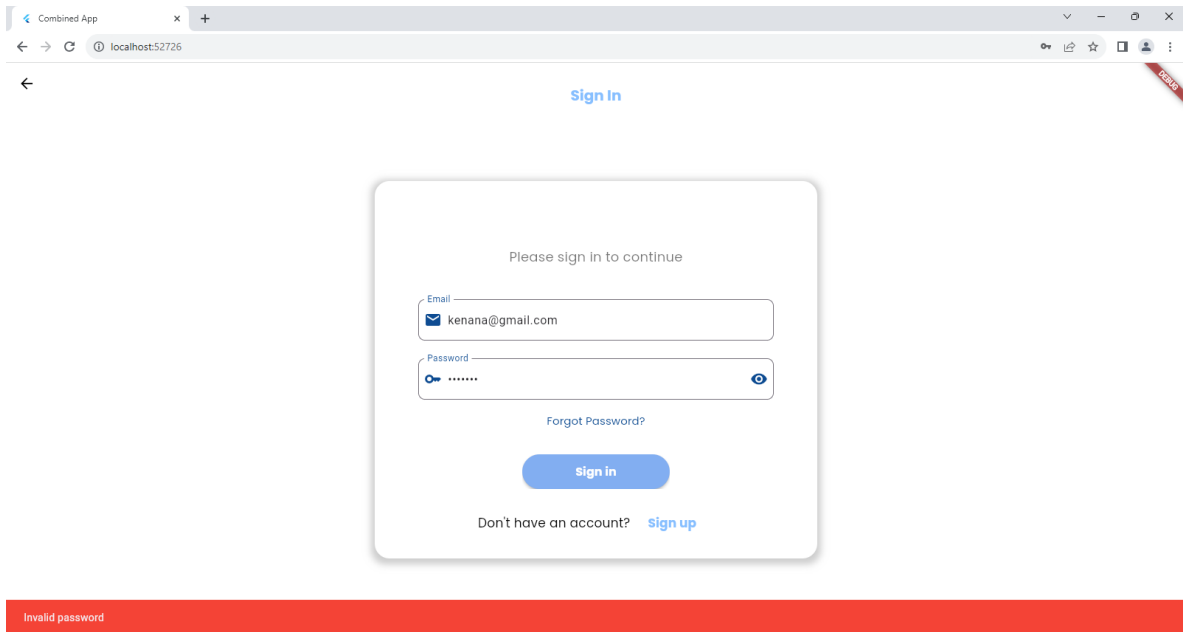


Figure 72: signIn screen - Invalid pass

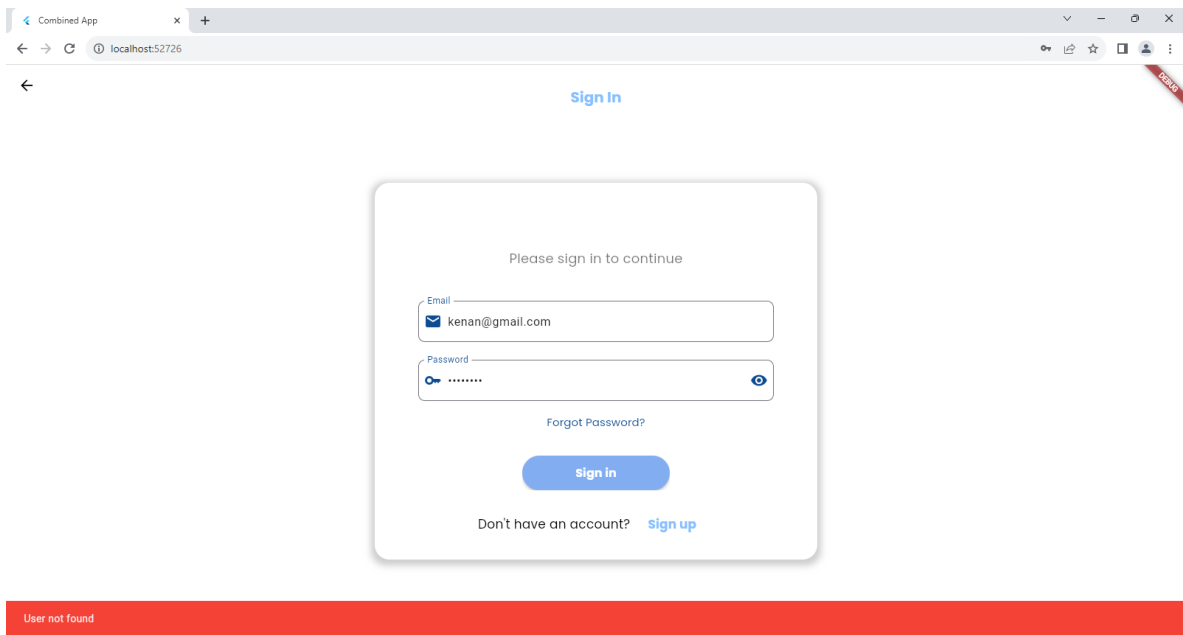


Figure 73: signIn screen - user not found

- forgot pass: if user forgot pass he/she can rechange it to new one.

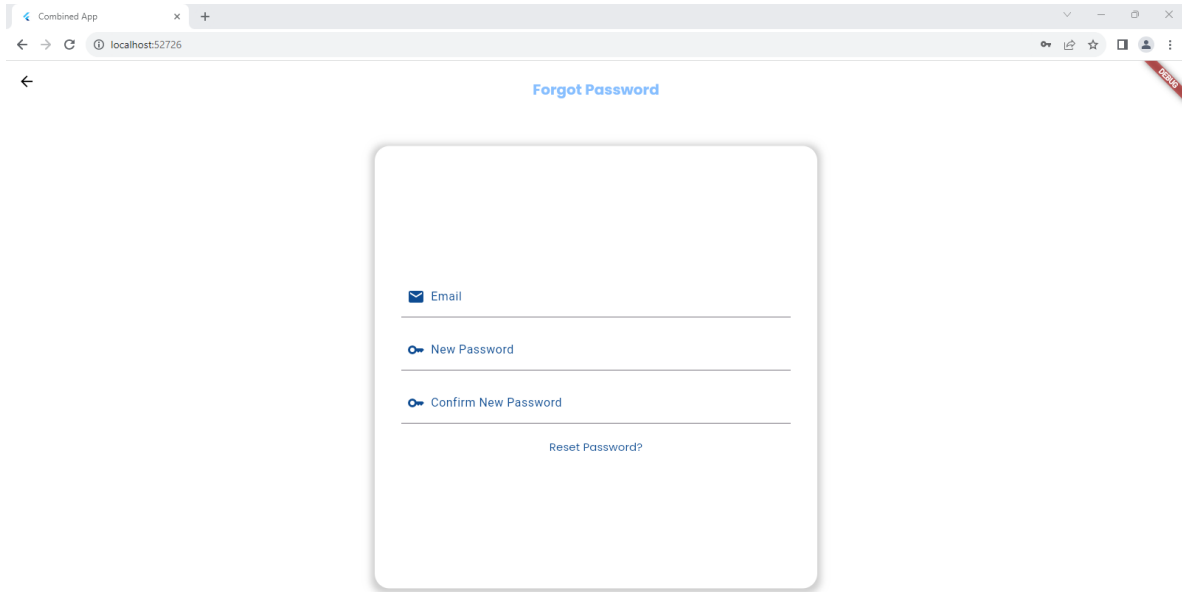


Figure 74: Forgot Pass Screen

- Sign Up: Users have to enter full name, email, password and select whither he/she in specialist or patient. If the user is specialist he/she has to enter extra details like: experience, specialization, current working place, verification code and mobile number. With validation on email and pass.

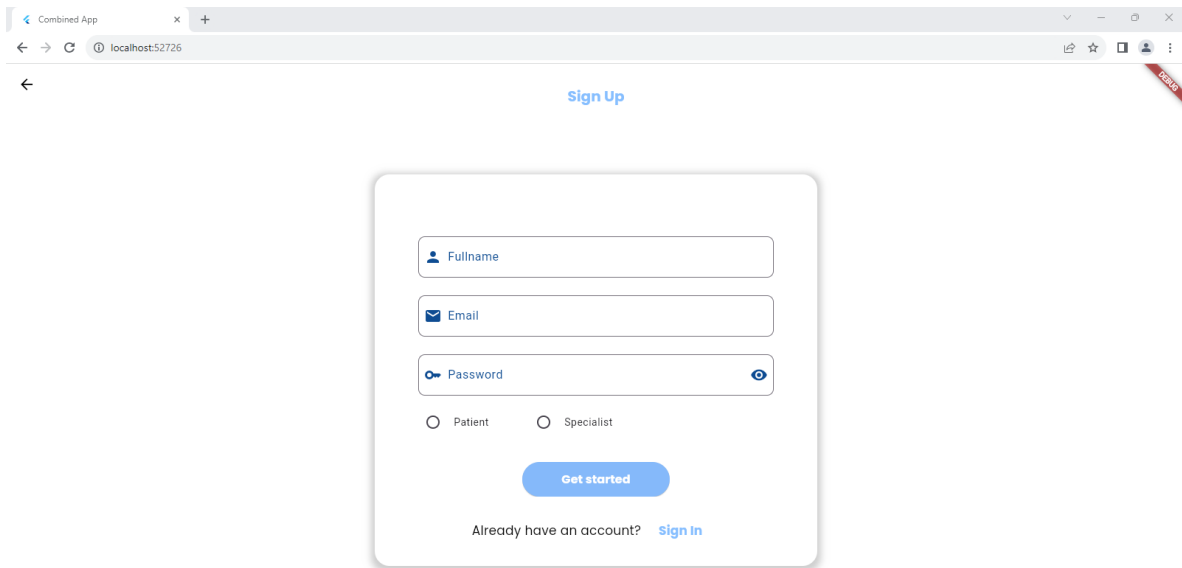


Figure 75: sign Up screen for patients

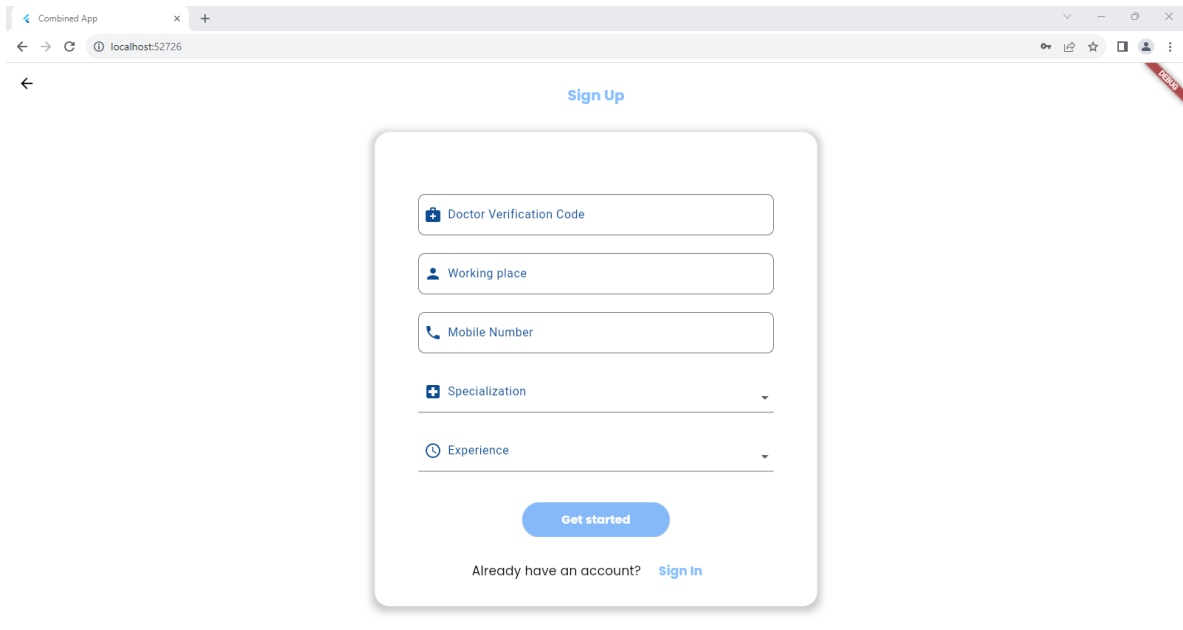


Figure 76: sign Up screen for doctors

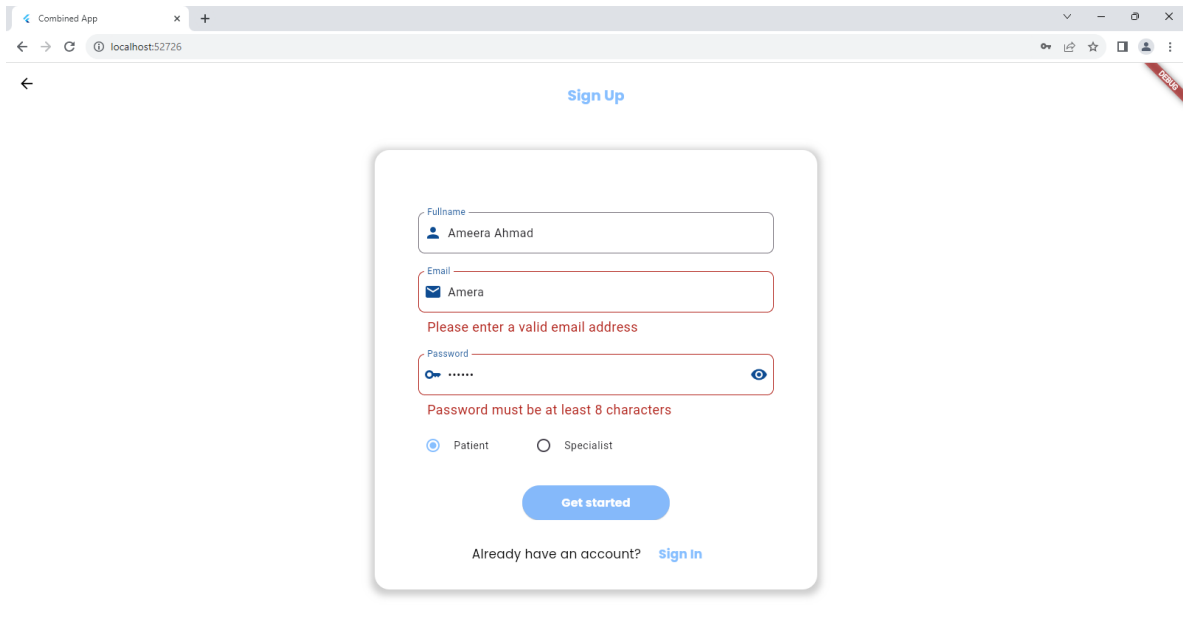


Figure 77: sign Up screen - Validation

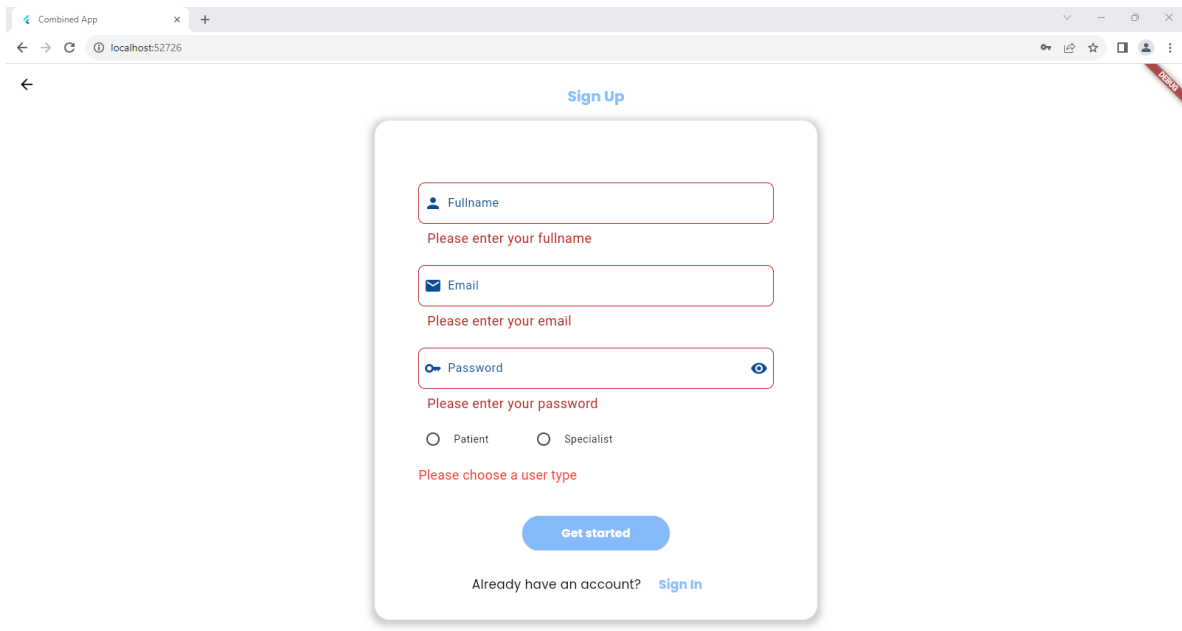


Figure 78: sign Up screen - all fields must be filled

- Home Page: After logging in we have home page which views all posts published by patients and doctors. Each post has image and content and viewed with its publishing time and date. Users can interact with posts by likes and comments. Under the post the first comment will be viewed and if we click on all comments all other comments will be viewed also.

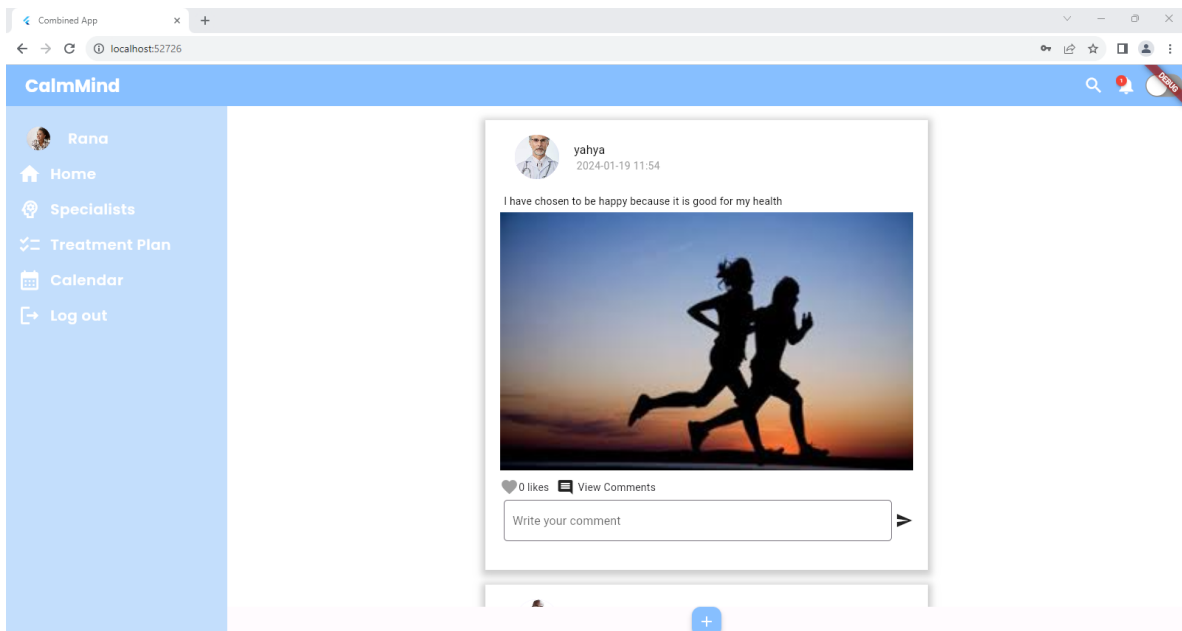


Figure 79: Home Page screen - all posts

And this is home page in dark mode

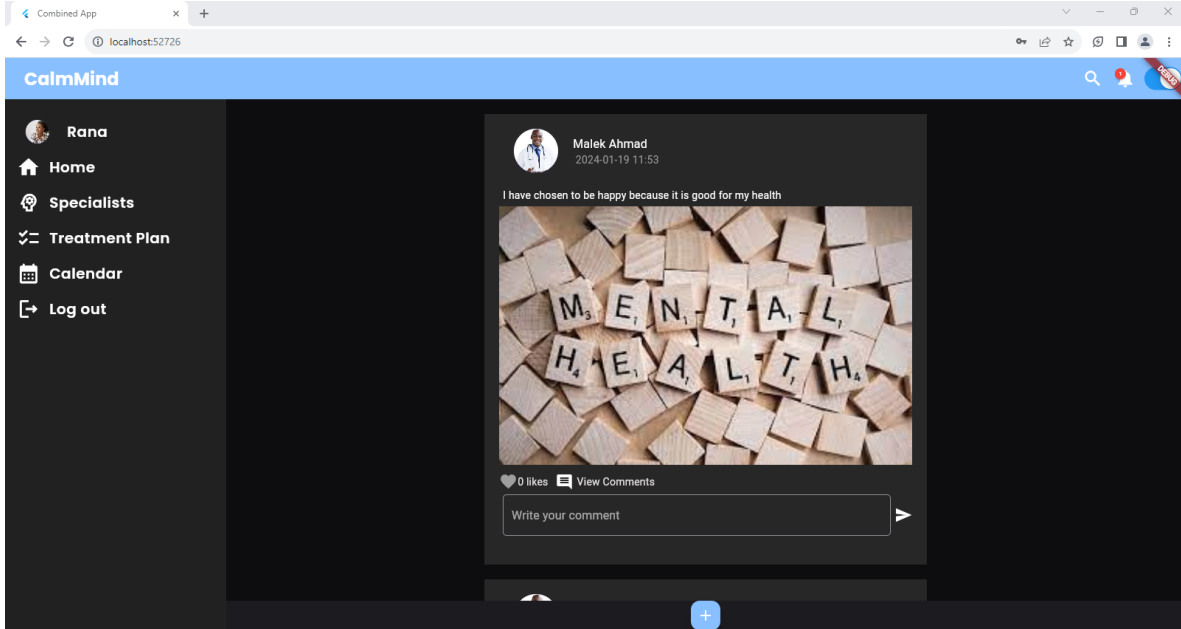


Figure 80: Home Page screen - all posts in Dark mode

- Add Post: If we click on the add icon from the home page we will be able to add post: content and image.

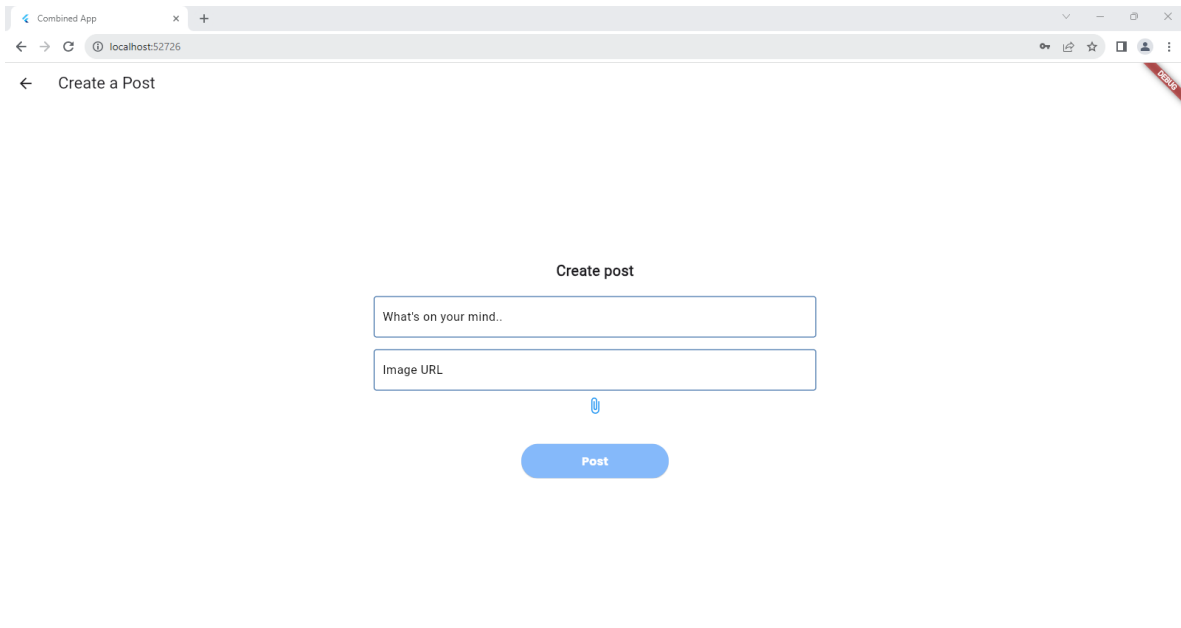


Figure 81: Create post screen

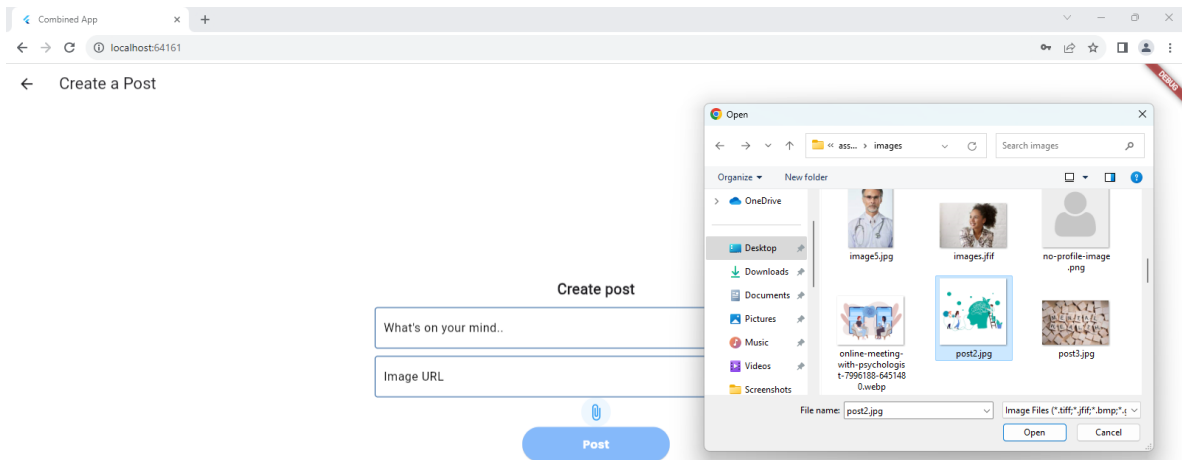


Figure 82: Create post screen - appload image

- Search Par: Search is available only for doctors, so we can't search about any patient this is to apply privacy for patients.

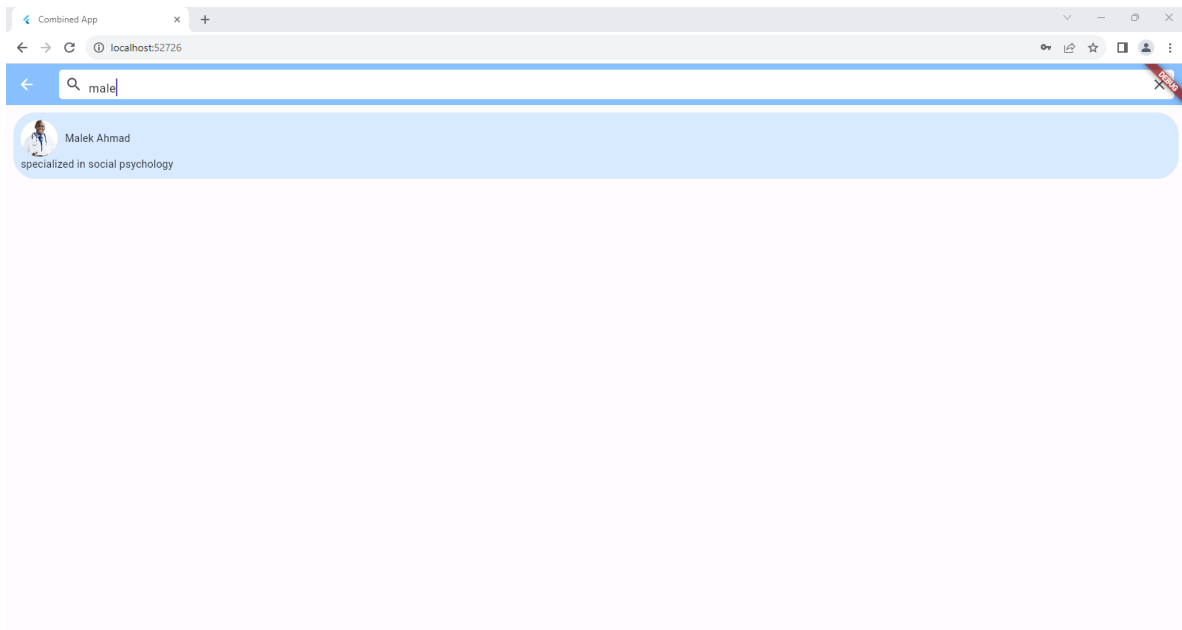


Figure 83: search screen

Then we can view doctors information by clicking on his/her card

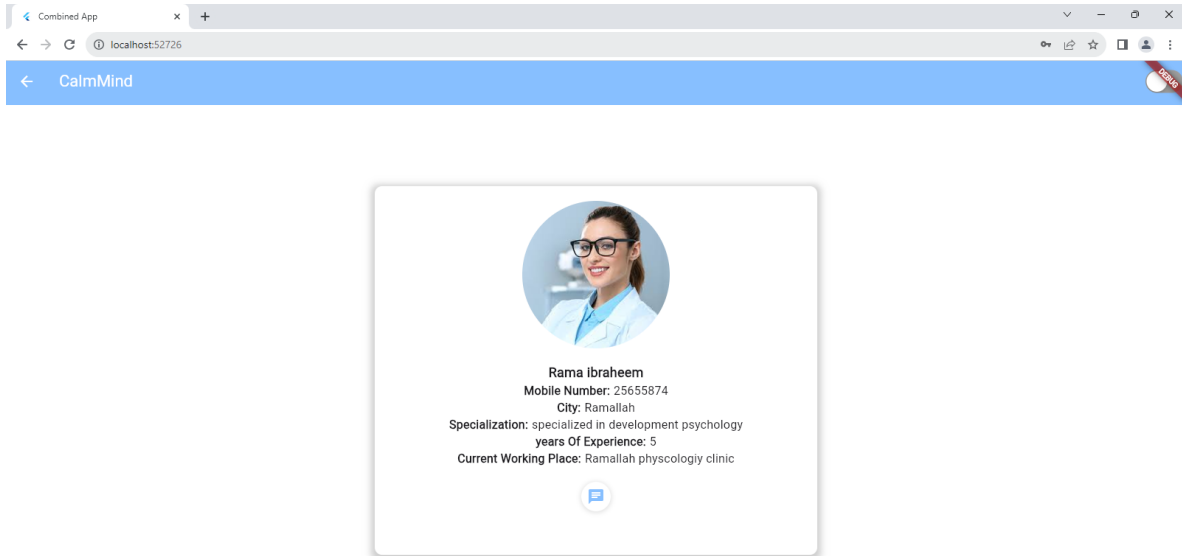


Figure 84: Doctor Information

- My profile: from the side menu users can view their profiles

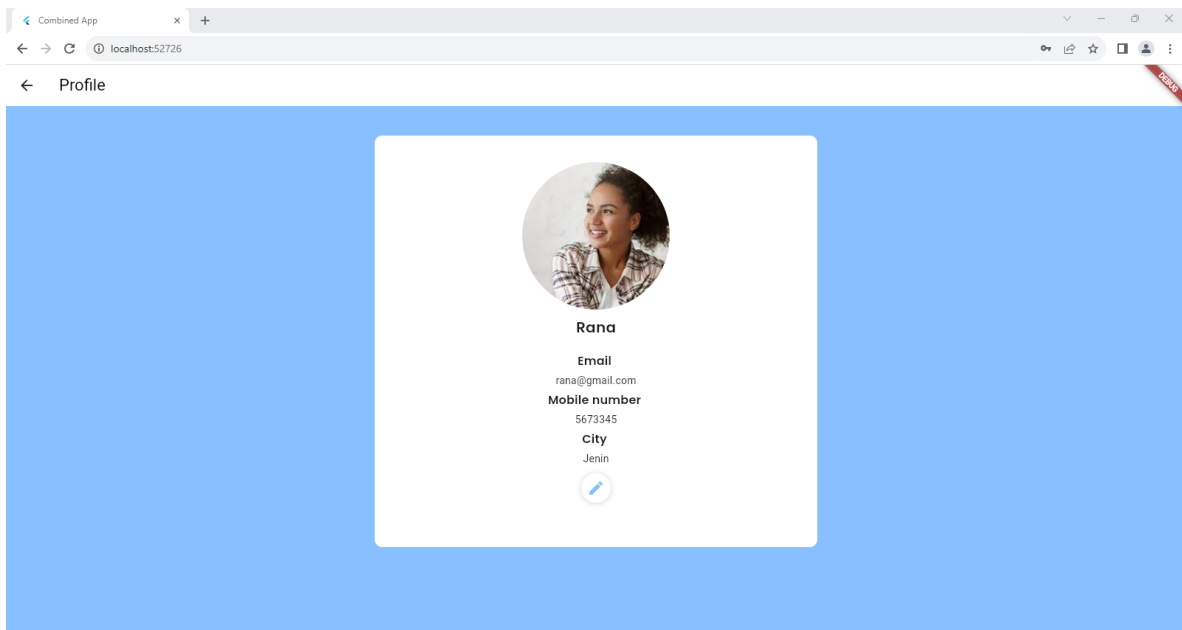


Figure 85: patient profile

- Edit profile: If we click on edit icon we can edit our data

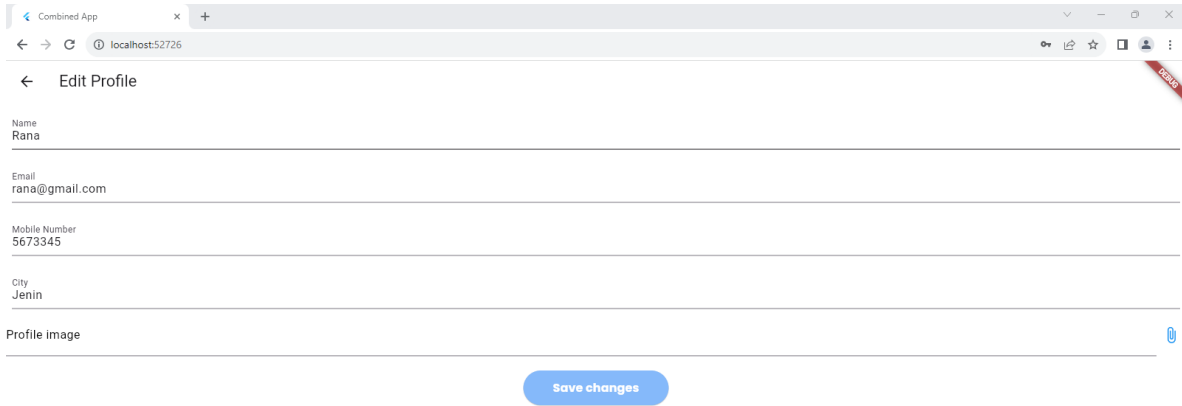


Figure 86: edit profile screen

- All Doctors: from the side menu patients can view doctors list

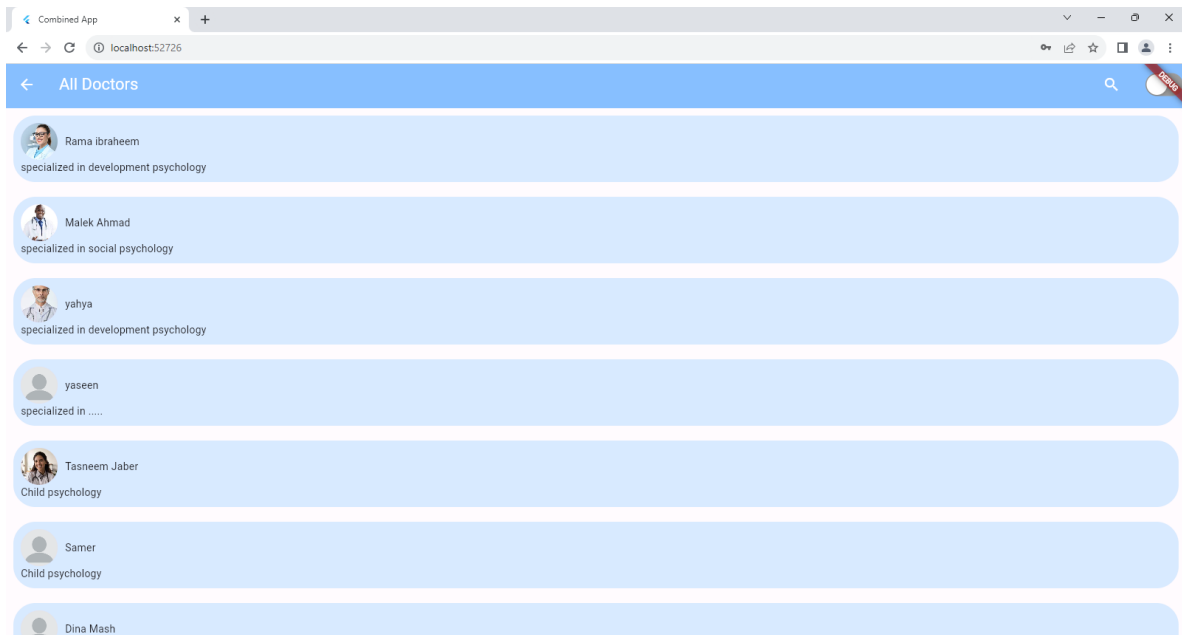


Figure 87: all doctors list

And when they click on any doctor they will get his/her full information

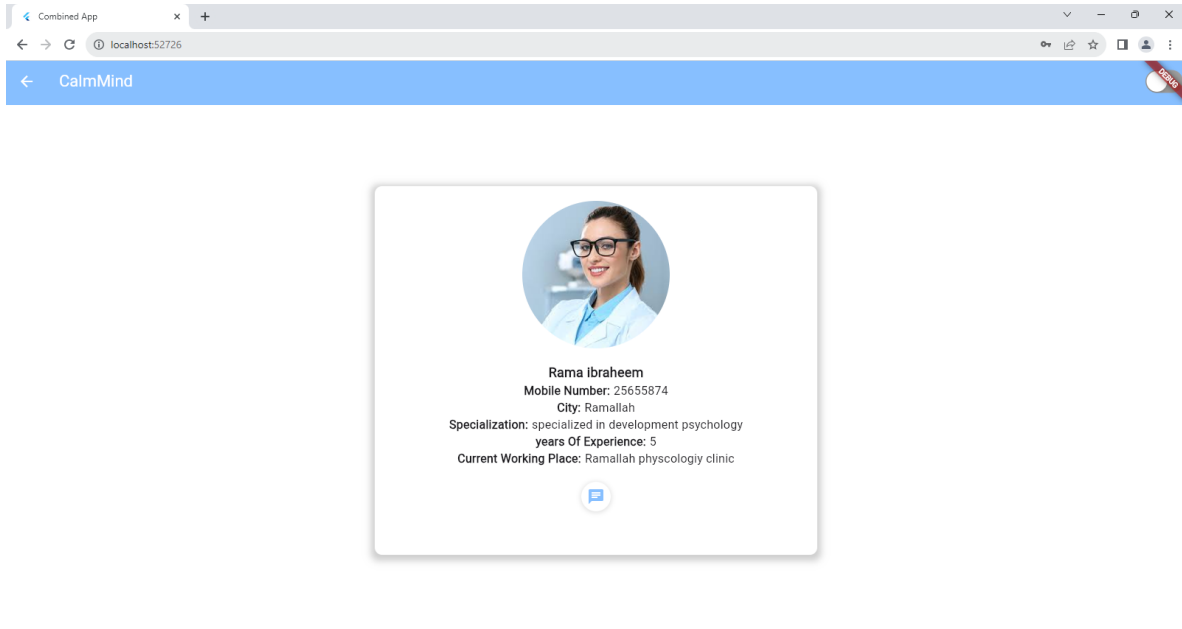


Figure 88: doctor profile

And this is all doctors list in Dark Mode

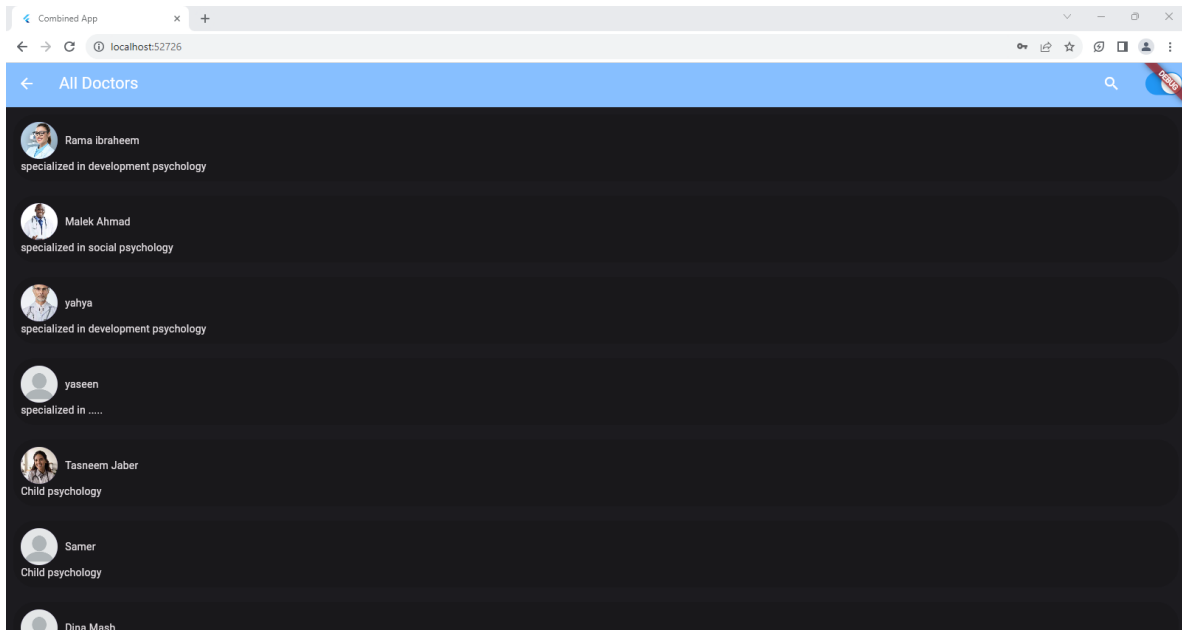


Figure 89: All doctors list - Dark mode

- My patients: From side menu doctor can click on my patients to view list of his/her patients



Figure 90: patients list

- Patient Info: When doctor click on one of his patients card, New screen will be opened to view the diagnose and the treatment plan of this patient. And the doctor can modify them.

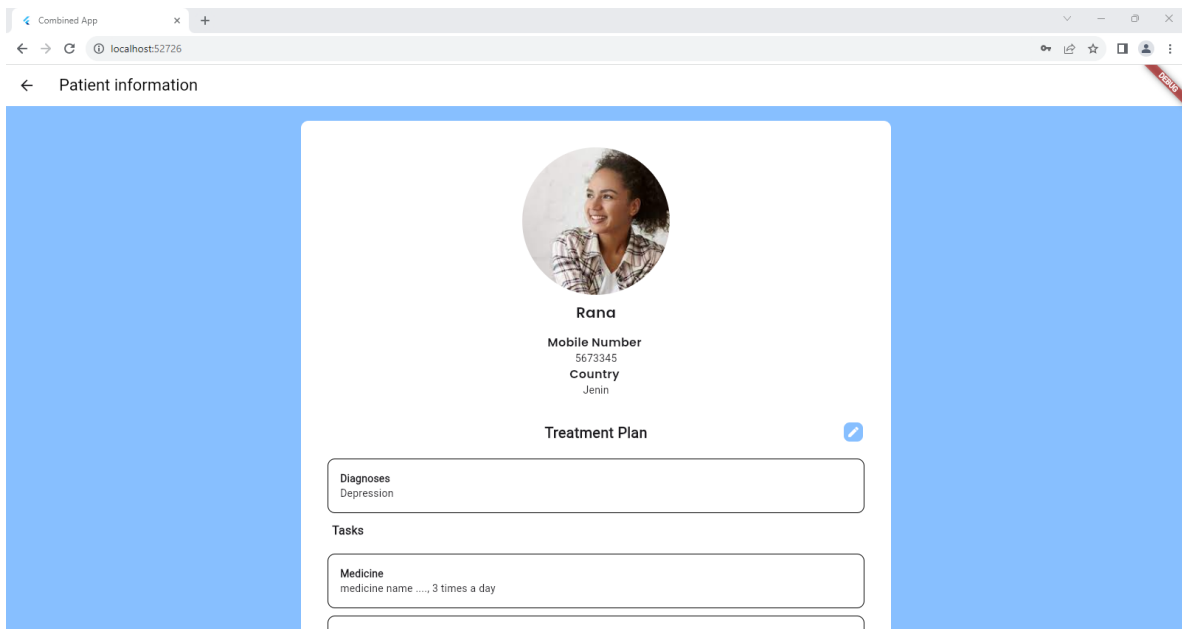


Figure 91: patient info

- Add Task: Doctor can add tasks to the patient In the treatment plan.

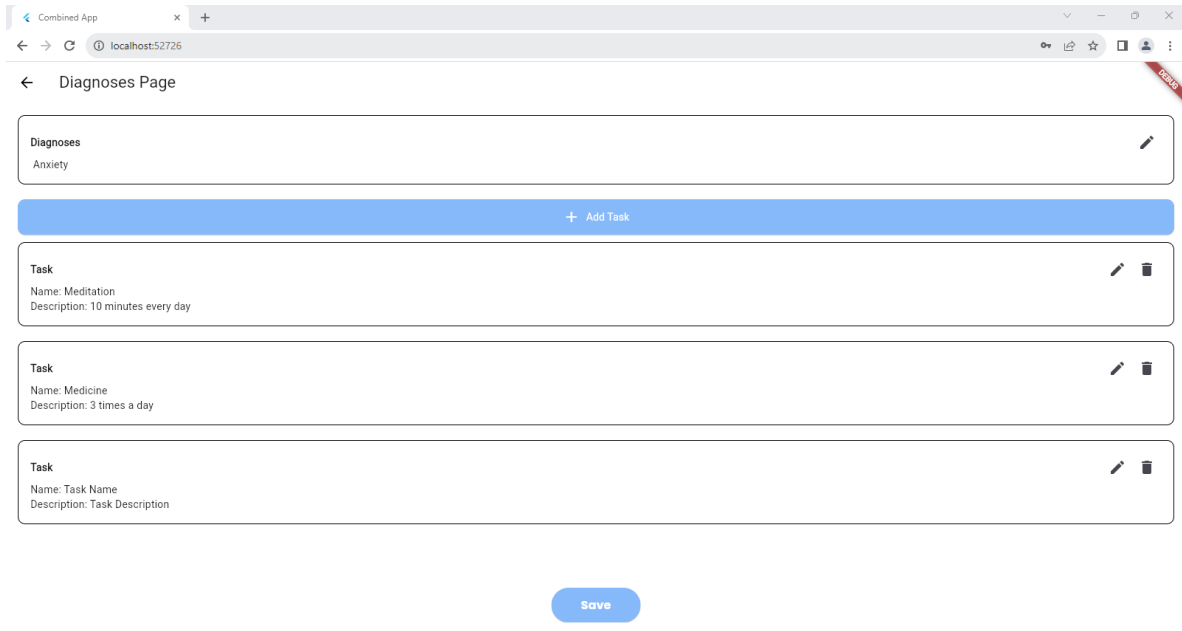


Figure 92: Add tasks and diagnose in the treatment plan

- Treatment plan: Users can open treatment plan from the side menu which contains: the Diagnose, Tasks, Mood Tracking and the Upcoming sessions.

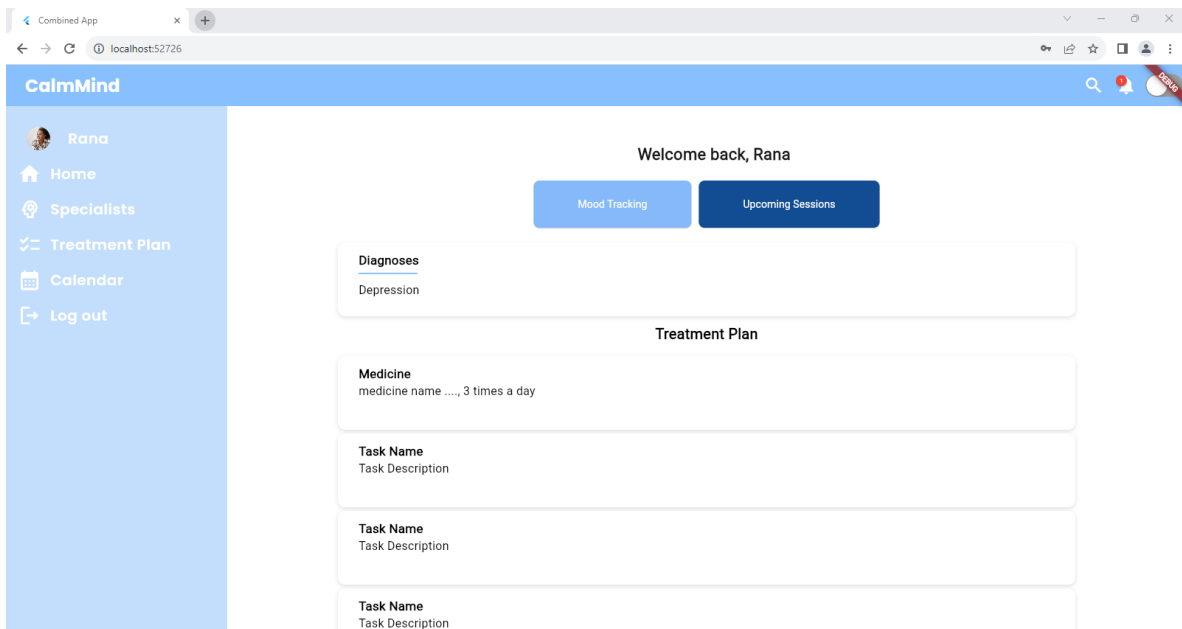


Figure 93: treatment plan screen

And this the Treatment plan in dark mode

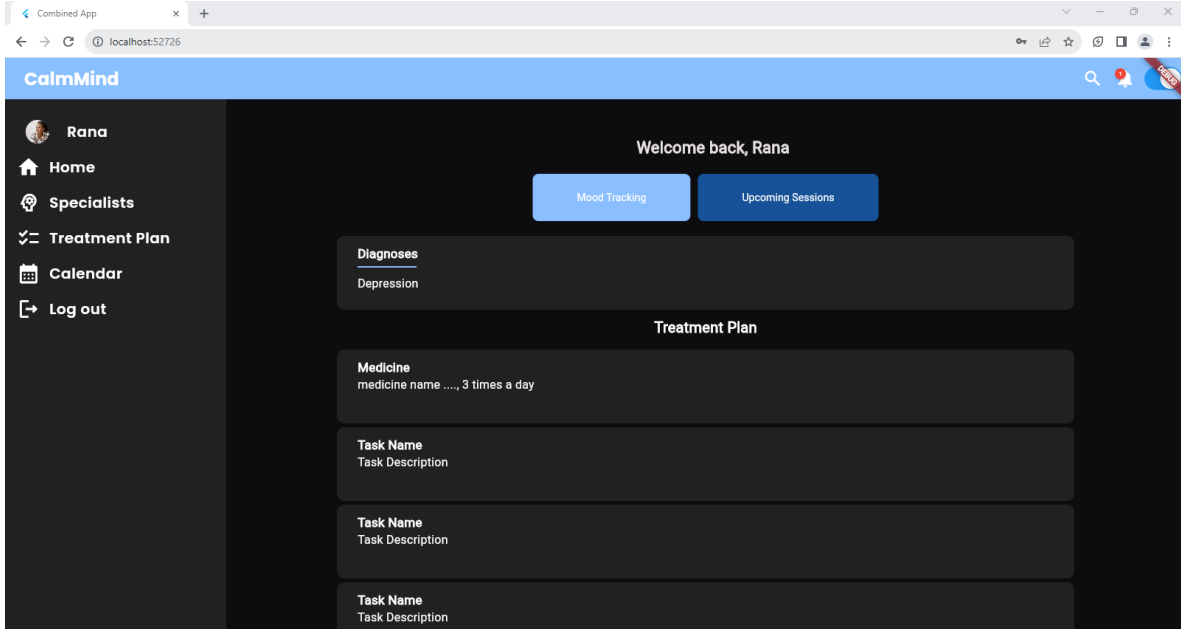


Figure 94: treatment plan screen - Dark Mode

- Mode Tracking: When the patient click on Mode tracking button new screen will be opened and the patient can select his/her feeling in that day.

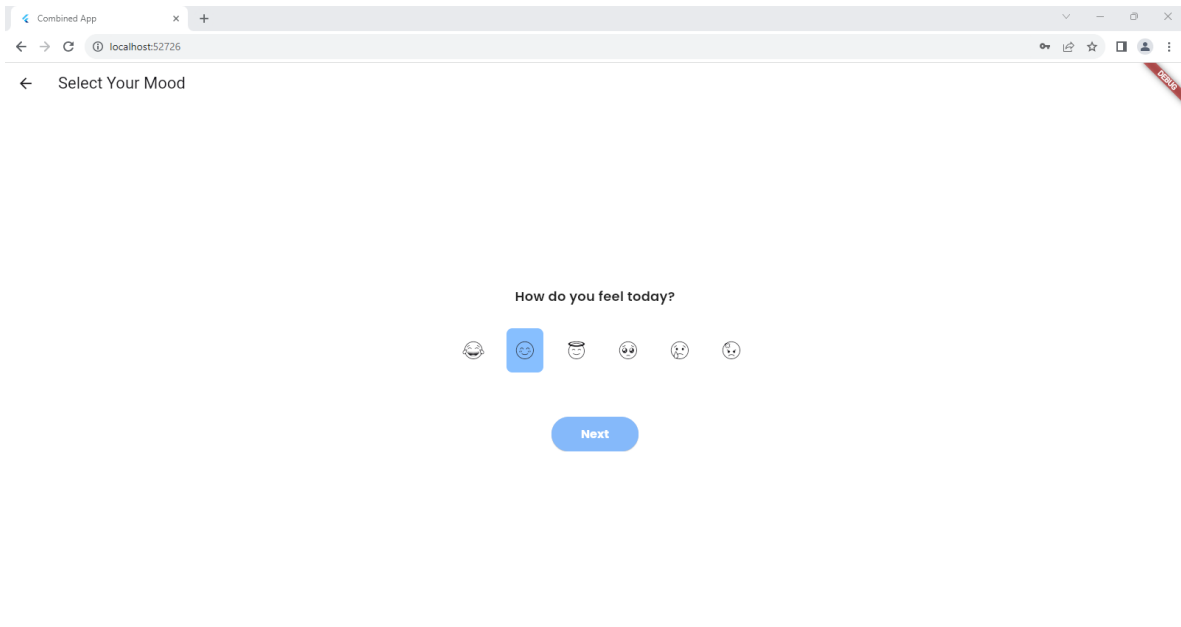


Figure 95: Mood Tracking - In Treatment plan

After that new chart will be viewed to show the patient mood during the whole month

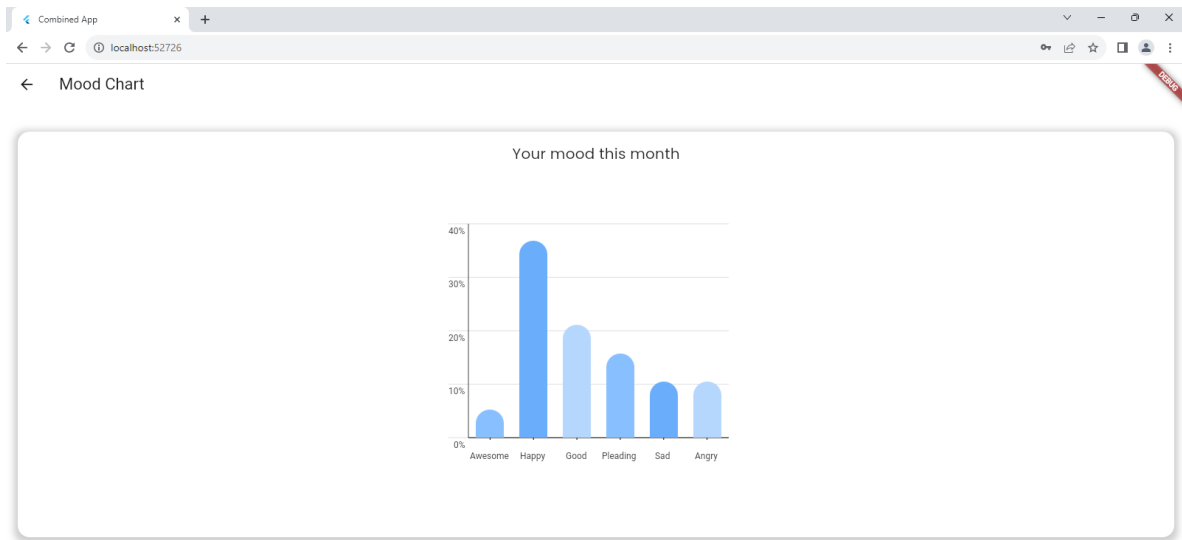


Figure 96: Mood Tracking - Patient Mood during the month

- Upcoming Sessions: When user click on upcoming sessions from the treatment plan a new screen will be opened which views the upcoming sessions with their owners names "doctors", session title, data and time. Patient can join any session he/she find it suitable to him/her.

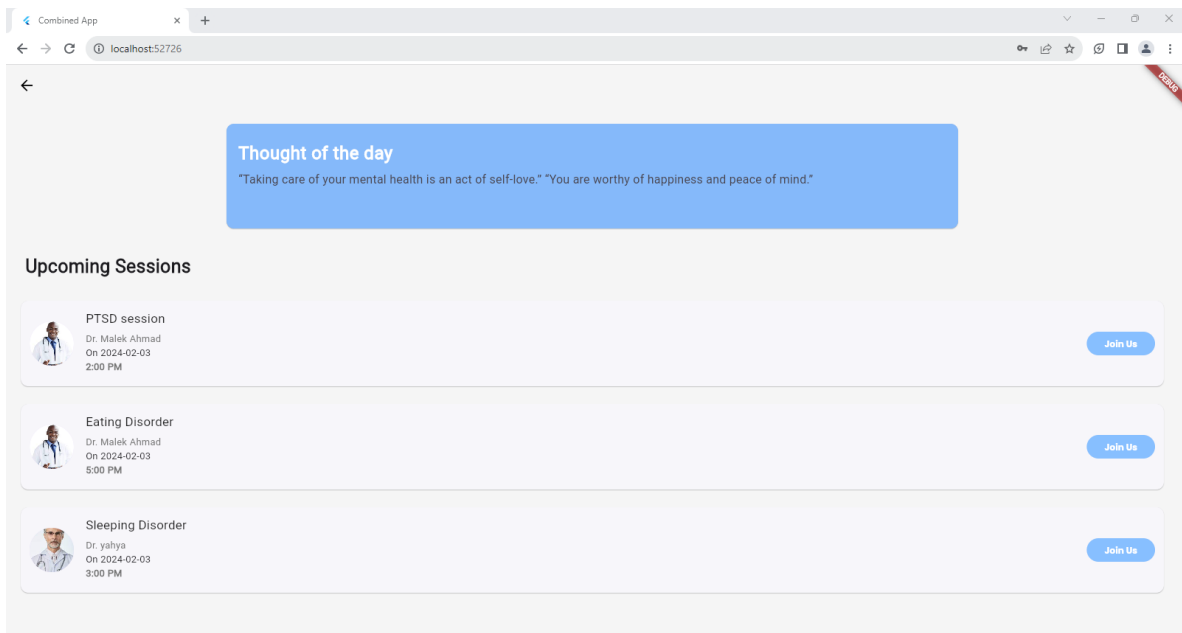


Figure 97: upcoming Sessions - Treatment plan

- Calendar In the doctor side: When the doctor opens the calendar he/she will see the his/her sessions and the appointments.

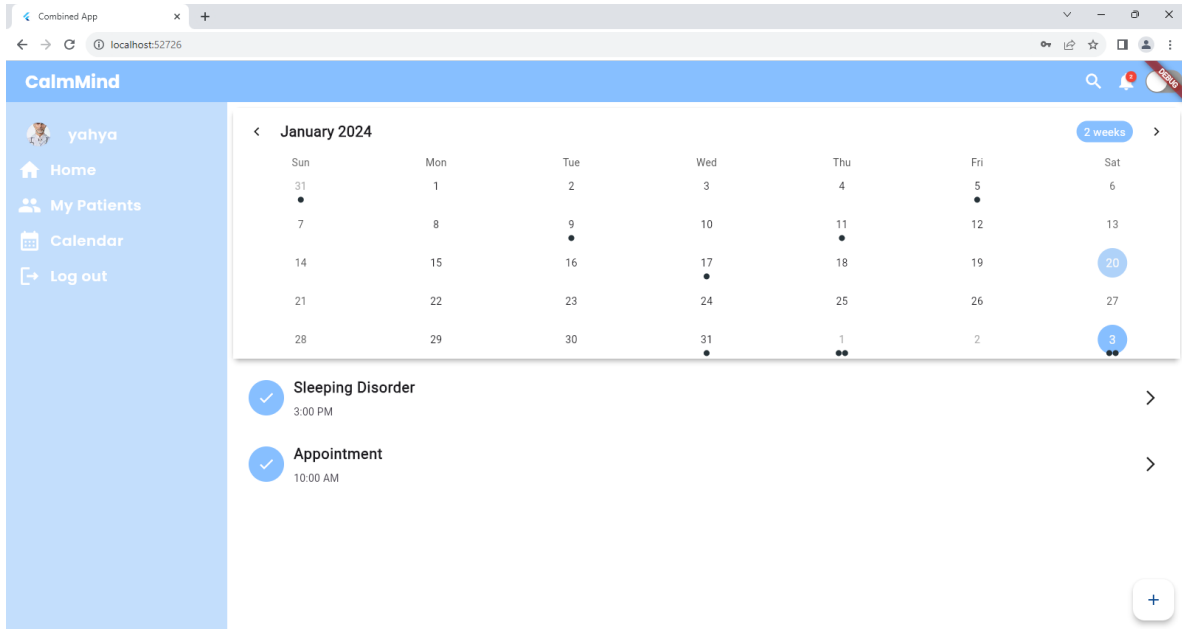


Figure 98: Calendar sessions

- Add session: When the doctor click on the add icon button from the calendar he/she will be able to create a new sessions. By adding the session title, date and time.

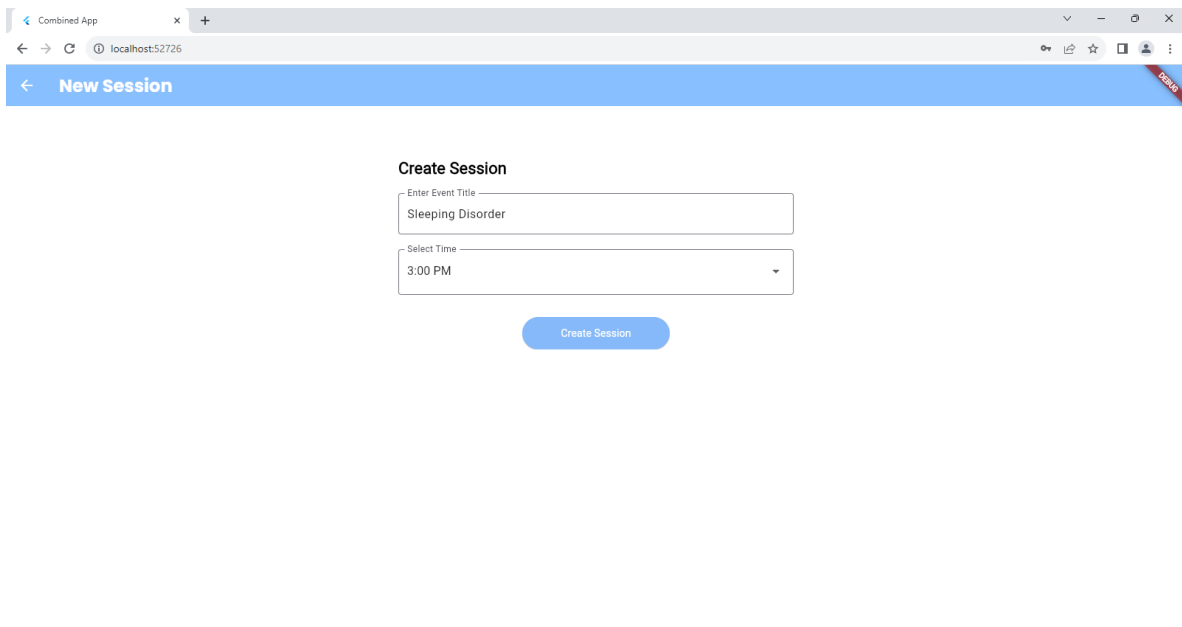


Figure 99: create new session

- Calendar In patient side: When the patient opens his/her calendar he/she will see the his/her appointments.

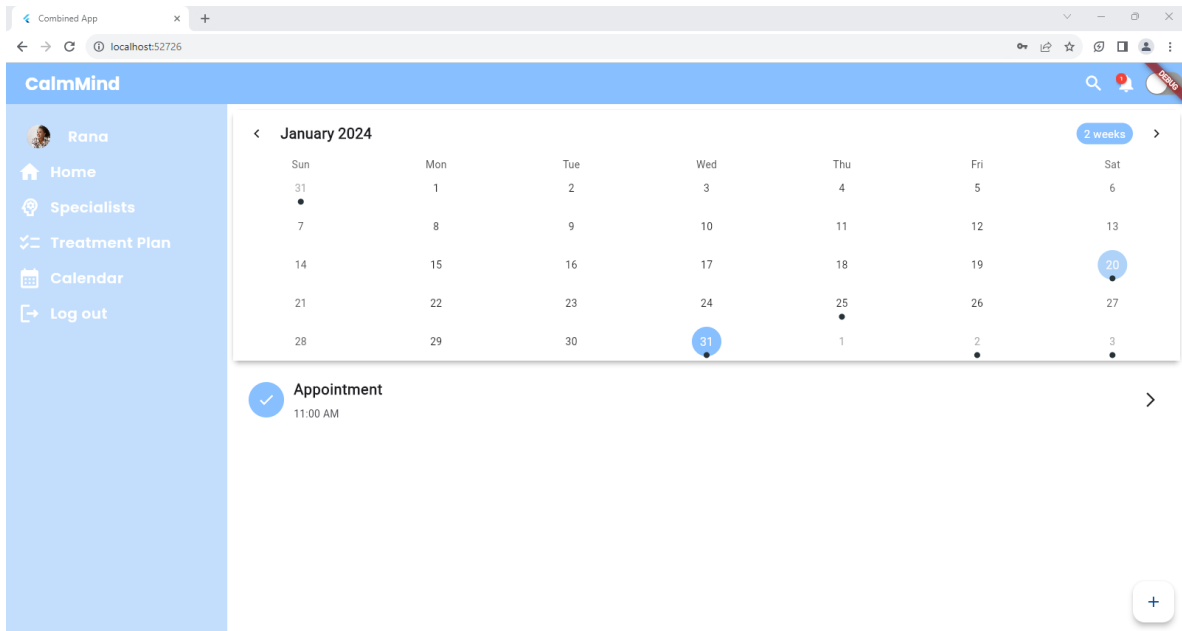


Figure 100: patient's calendar

And this is the calendar in dark mode

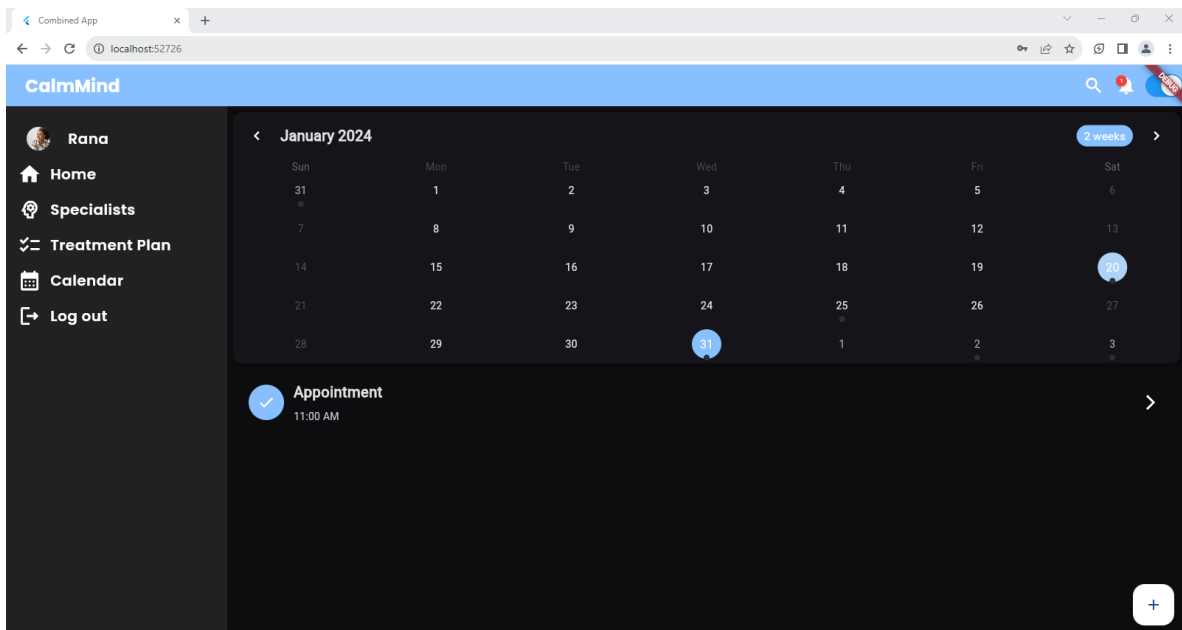


Figure 101: patient's calendar - Dark mode

- View appointment details: when the patient click on specific appointment from the appointment list under the calendar the appointment card will be opened as shown below.

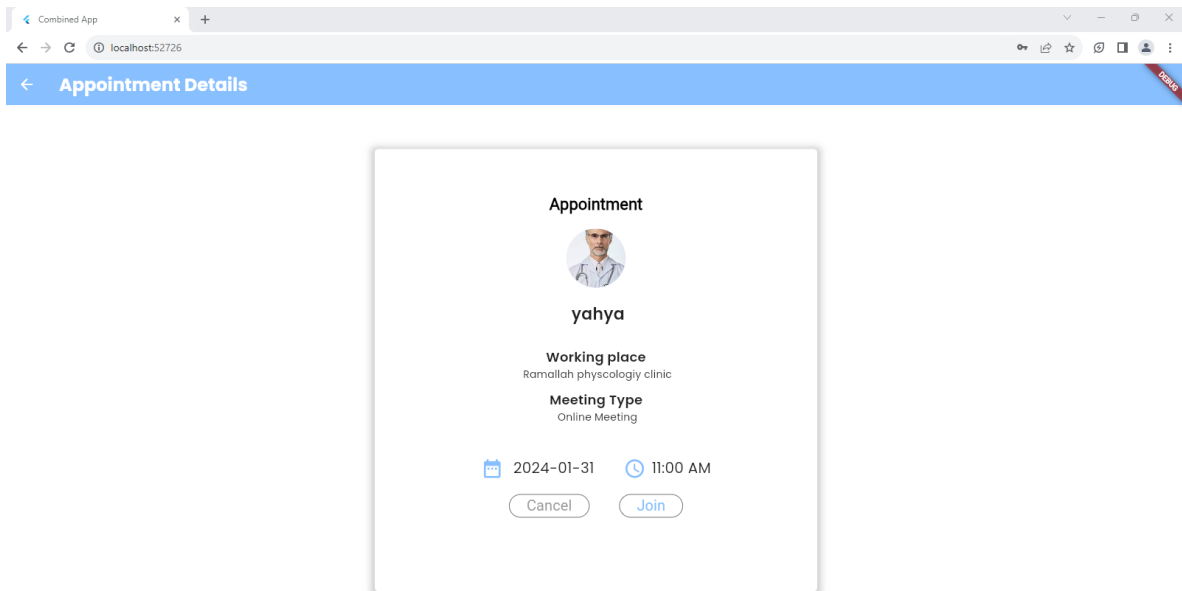


Figure 102: patient's calendar - Appointment Info

- Create an appointment: when patient click on the add icon button from the calendar screen he/she will be able to create an appointment by selecting doctor from doctors list, date and time.

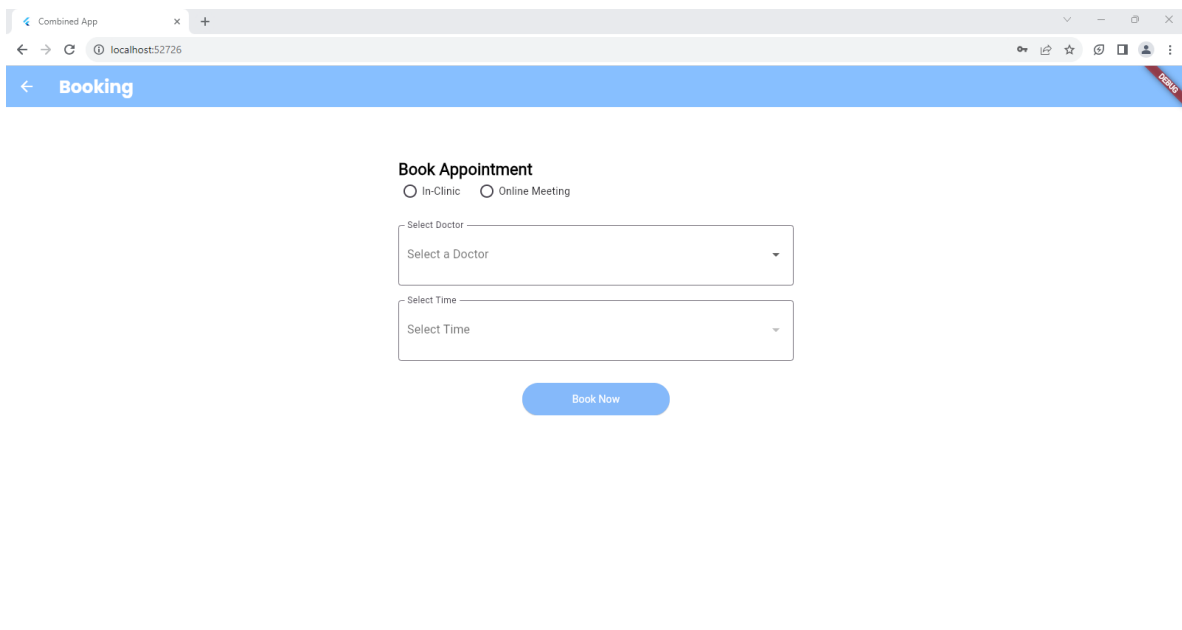


Figure 103: patient's calendar - Booking Appointment

- Admin - All Patients screen: This screens contains table of all patients main information and the admin can delete any of them by clicking on delete icon button.

Delete	Patient ID	Image	Name	email	Mobile Number	City
	12		dina amshayekh	dina@gmail.com	56765432	Ramallah
	13		kenana turabi	kenana@gmail.com	569897555	Nablus
	14		lina	lina@gmail.com	990909090	Ramallah
	18		Rana	rana@gmail.com	5673345	Jenin
	19		Saja Tobasi	saja@gmail.com	757575753	Nablus
	51		Nada	nada@gmail.com	345343434	
	52		dana	dana@gmail.com	636365323	Hebron

Figure 104: Admin - all Patients

- Admin - pending doctors screen: This screens contains table of the pending doctors with some information like doctor code which the admin will base on it to delete any request or accept it by clicking on delete or accept icon buttons.

Delete	Accept	ID	Image	Name	Email	Mobile	City	Specialization	working place	Experience	Code
		42		Dina Mash	dinabelieber1@gmail.com	5672342		Child psychology	Nablus psychology	7	18273645
		47		Fatima	fatima@gmail.com	56473322		Child psychology	Nablus psychology	9	RGT542
		48		Iamis	lamis@gmail.com	0				0	
		53		dina mashayekh	dinamashayekh84@gmail.com	34234234		Social psychology	Nablus psychology	10	6465gf
		54		Ahmad AL Jabi	ahmad@gmail.com	0				0	
		55		Aya	aya@gmail.com	74655321		Behavioral psychology	Nablus psychology	12	GFR653

Figure 105: Admin - all Patients

- Admin - Accepted doctors screen: when admin accept any request from the pending screen the doctor will get an acceptance email a be added to accepted doctor table in admin page and admin can delete any doctor from the table as shown below.

Delete	Doctor ID	Image	Name	Mobile Number	City	Specialization	working place	experience	Verification code
	8		Rama ibraheem	25655874	Ramallah	development psychology	Ramallah phycology clinic	5	
	6		Malek Ahmad	25655876	nablius	Social psychology	Ramallah phycology clinic	9	
	9		yahya	569965454	Nablius	development psychology	Ramallah phycology clinic	10	
	45		yaseen	25655874	Jenin	specialized in	Nablius	5	
	35		Tasneem Jaber	5673255		Child psychology	Nablius psychology	5	RGD465
	36		Samer	5673324		Child psychology	Nablius psychology	9	FYT231
	50		kenana	74747343	Nablius	Development psychology	nablius	10	gfgd4433

Figure 106: Admin - Accepted Doctors

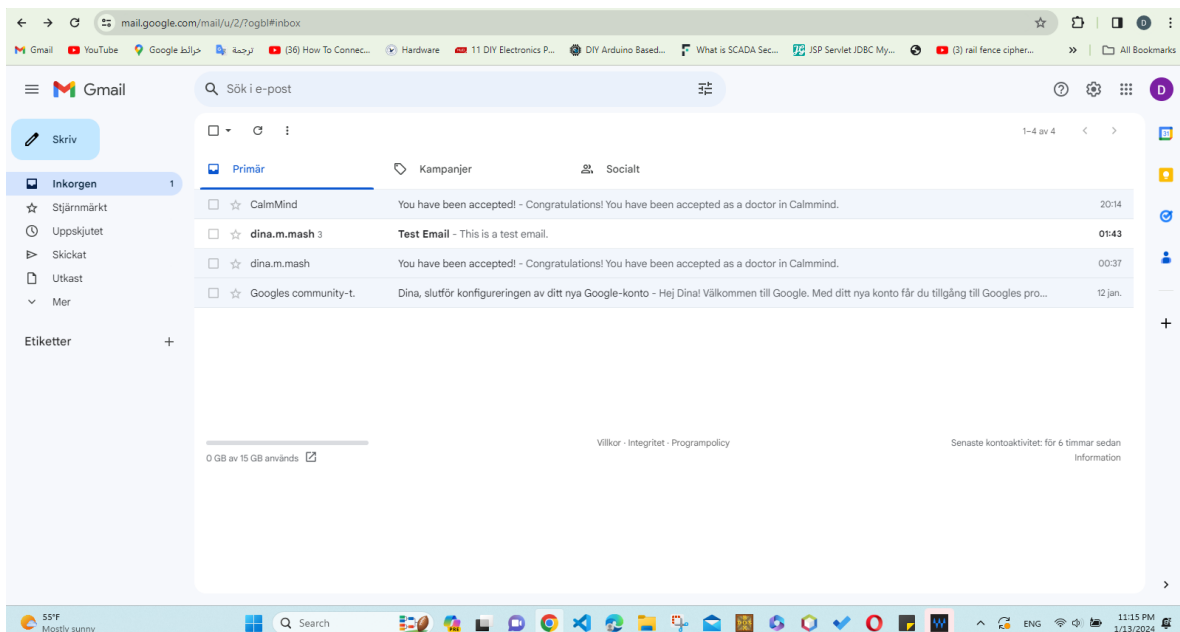


Figure 107: Acceptance email

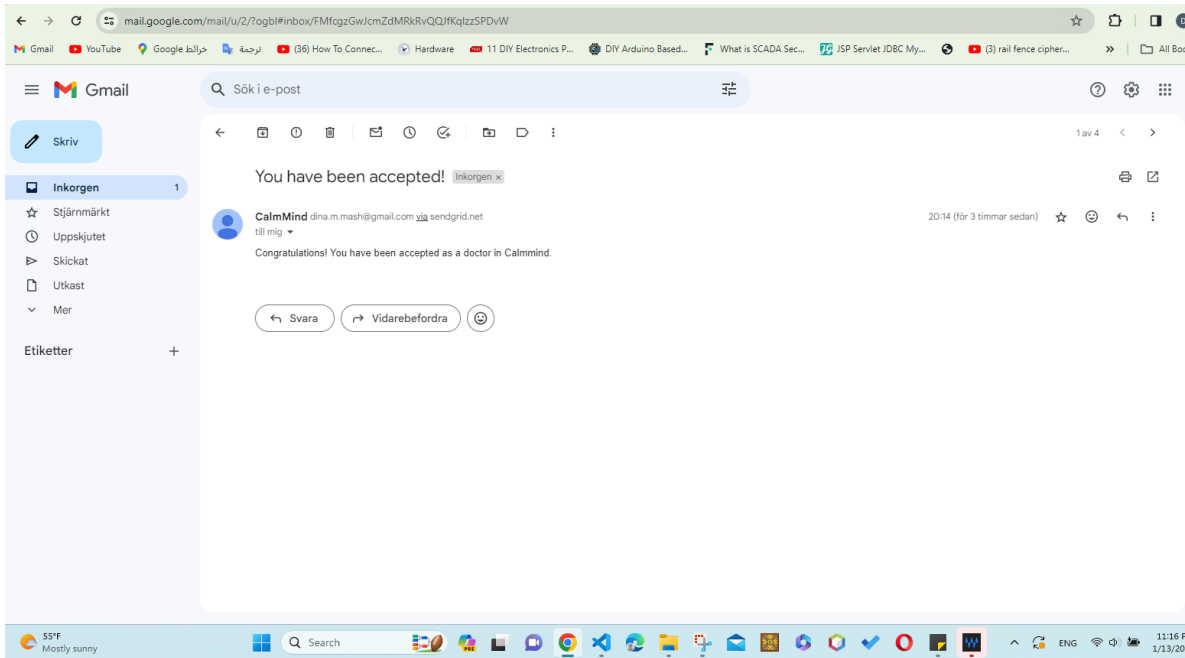


Figure 108: Acceptance email

4 Conclusion and Results

In conclusion, the development and implementation of CalmMind mark a significant milestone in the realm of mental health support applications. Through a meticulous and user-centric approach, CalmMind has successfully addressed key challenges in traditional mental health support, offering a holistic platform that empowers users on their psychological well-being journey. The integration of personalized treatment plans, flexible appointment options, and a supportive community has culminated in an accessible and innovative mental healthcare solution. User feedback and system performance evaluations underscore the positive impact of CalmMind, with users reporting increased engagement, satisfaction, and a sense of community. While the initial vision of incorporating an expert system faced limitations due to the unavailability of a psychology health expert, the decision to defer this component did not diminish the overall success of the platform. CalmMind's adaptability, informed by earlier works and technological choices such as Flutter, Node.js, MongoDB, GitHub, and SendGrid, positions it as a cutting-edge application that sets new standards for personalized mental health support. Looking forward, CalmMind serves as a foundation for future enhancements,

exemplifying the intersection of technology and mental health to foster positive outcomes and improved well-being.

5 Future work

For future work, there are exciting avenues to explore in further enhancing CalmMind to provide even more comprehensive mental health support. One key direction involves the integration of an expert system capable of conducting user assessments and generating personalized diagnosis and treatment plans. This system could leverage advanced algorithms to ask users targeted questions, analyze their responses, and provide informed recommendations based on established psychological principles. The inclusion of an expert system holds the potential to enhance the platform’s effectiveness in tailoring mental health care to individual needs, fostering a more personalized and precise approach to treatment.

Additionally, considering the importance of in-person care, a valuable future enhancement for CalmMind involves the implementation of location services. This feature aims to assist users in easily locating nearby clinics and mental health professionals, streamlining the process of seeking in-person care when needed. By incorporating location-based information, users can seamlessly discover and connect with healthcare providers in their vicinity, promoting accessibility and facilitating a smooth transition between online and in-clinic appointments. This enhancement aligns with CalmMind’s commitment to offering a comprehensive mental health support system that addresses both virtual and in-person care needs. These future developments hold the potential to further elevate CalmMind’s impact and make it an even more indispensable tool for individuals on their journey to psychological well-being

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