

# TITLE

Optimizing Doctor  
Availability and  
Appointment  
Allocation in Hospitals  
through Digital  
Technology and AI  
Integration



# DESCRIPTION

- **Checking hospitals nearby:** In this stage, the hospitals nearer to our locality are shown based on the requirements we enter in search
- **Checking doctors availability:** After getting a list of hospitals in the suggestion box, it is up to the patients to select the doctors based on the availability. Here we select the doctors to consult who is available.
- **To check the waiting list of patients:** After checking the doctors availability we can also use this option to check the waiting list of Patients to the concerned doctor whom we proceed
- **Booking appointment:** After checking all these we will book an appointment with the concerned doctor through this app
- **Basic medications through chatbot:** Apart from the above 4 stages, this is the unique stage where patients can get suggestions or information through chatbots.

# DESCRIPTION

- We built our prototype in **proto.io**.
- We created our User Interface as a working model.

## **PARAMETERS:**

\* Validated that the proposed solution aligns with the legal requirements and standards of the healthcare industry.

\*Validated that the solution addresses real user pain points and provides tangible benefits to both healthcare providers and patients.

\*Conducted usability testing and gathered feedback from potential users to assess the user interface's intuitiveness and ease of use.

\*Validated that the design facilitates seamless navigation and efficient appointment scheduling for both doctors and patients.

\*Validated that the solution avoids biases and discriminatory practices, promoting fairness and equity in appointment allocations.

\*Ensured seamless integration to facilitate the exchange of data and information between the appointment scheduling system and other hospital applications.

\*Gathered feedback from pilot implementations and early users to identify areas for improvement.

\*Implemented iterative updates and refinements based on user feedback and performance evaluations, ensuring continuous enhancement of the solution.

# PROTOTYPE

- App name : DOCTO

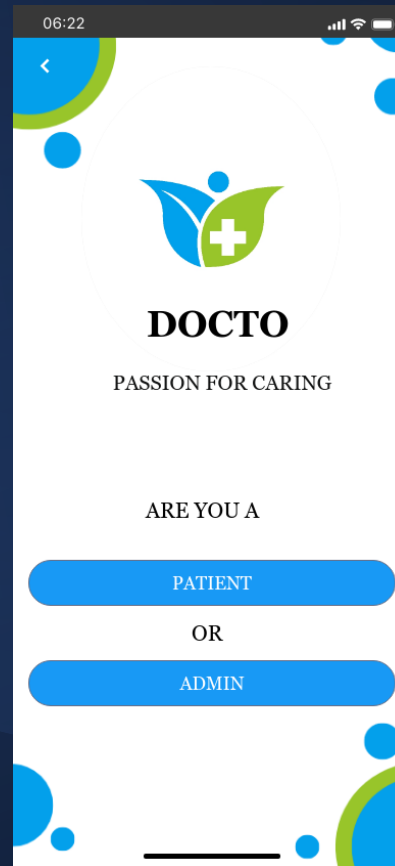
- Logo design :



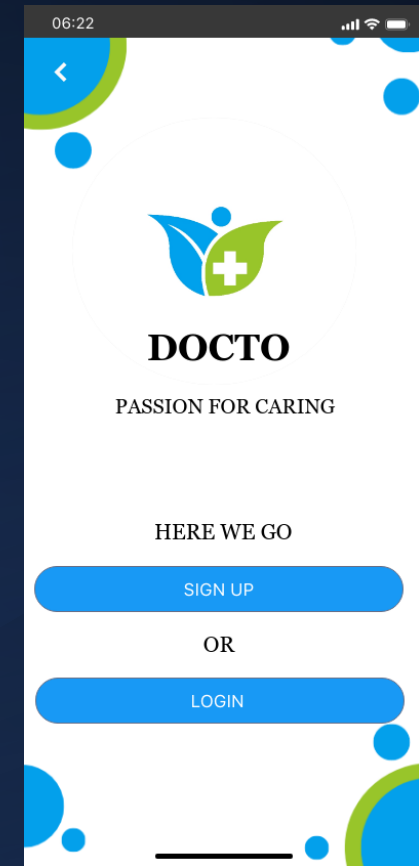
# DESCRIPTION (Patients)



**Onboarding**



**Authentication**




**Create account or login**

# SIGN UP AND LOGIN FOR PATIENTS:

06:22

Sign up




DOCTO

Already have an account? Sign in

Done

06:22

Verify phone



We sent you a OTP  
to verify your number.  
Sent to (292) 734-1819

Time:01:59 sec

Didn't get it? Resend OTP


Next

1234567890

ABCDEF GHIJKL MNOPQRSTUVWXYZ

06:22

Sign up




Sign up was successful.  
You can start using the  
application now.

Go to Login

06:22

Sign up



DOCTO

Warm Welcome

Welcome to a world of  
wellness and care.Your  
journey to a healthier  
you begins here.

Login

OR


Continue with Google

By proceeding you also agree to the Terms of Service  
and Privacy Policy

06:22

Sign up

Sign in with Google



Choose an account  
to continue to Docto

Joris Visschers  
Abc@gmail.com

Use another account

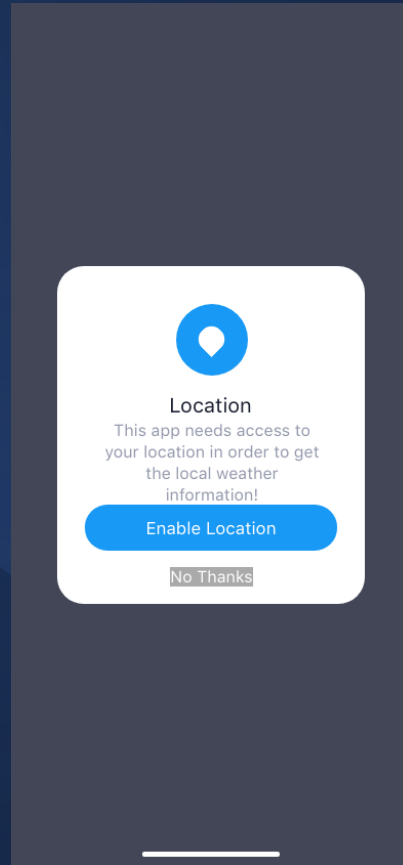
To continue, Google will share your name, email address,  
language preference and profile picture with Melon. Before  
using this app, you can review Melon's [privacy policy](#) and  
[Terms of Service](#).

By proceeding you also agree to the Terms of Service  
and Privacy Policy

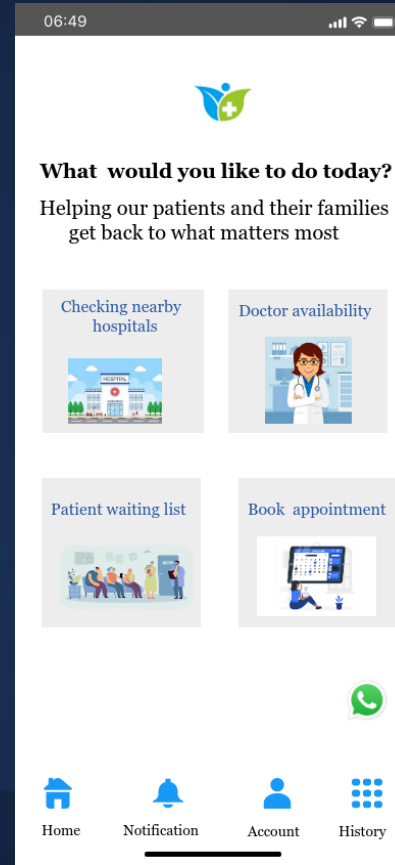
## WELCOME AND HOME PAGE:



**Welcome page**



**Enable location notification**



**Home page**

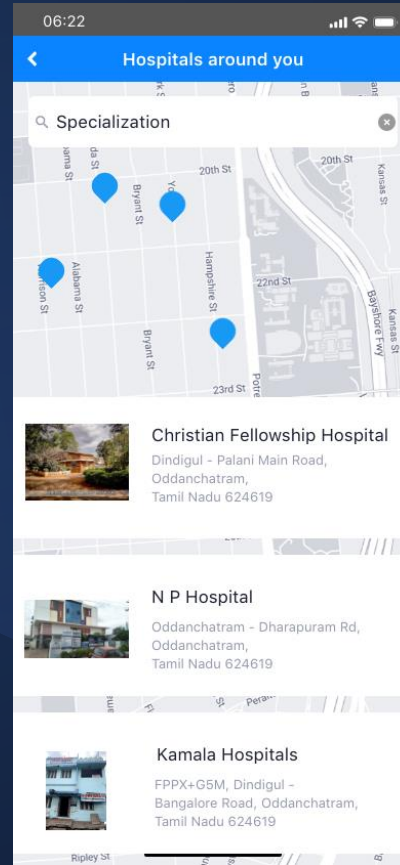
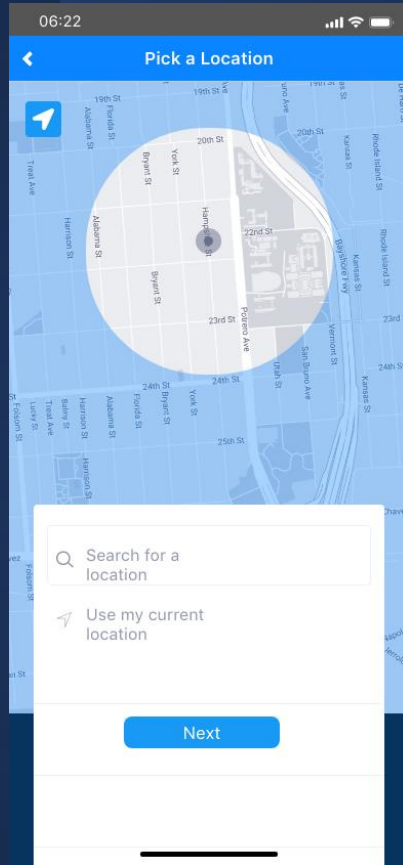
After authentication process user will be able to see a welcome page and then user needs to enable their location to find nearby hospitals in the locality. Finally a home page will be displayed to the user.

### **Five major features in a home page:**

1. Checking nearby hospitals
2. Doctor availability
3. Patient waiting list
4. Book appointments
5. What's app bot (chatbot)



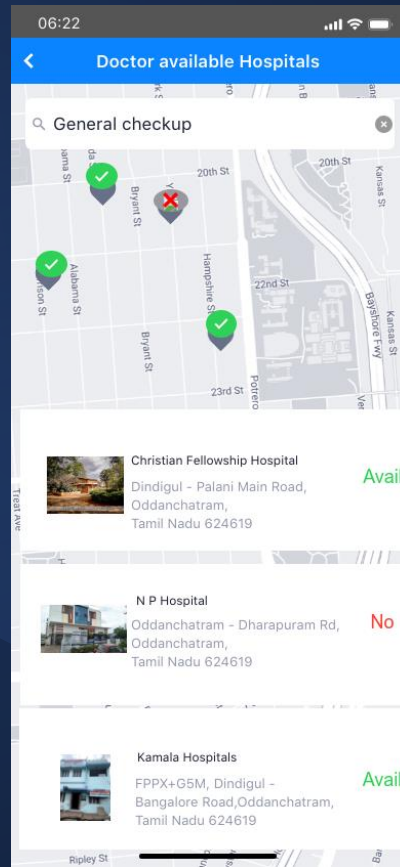
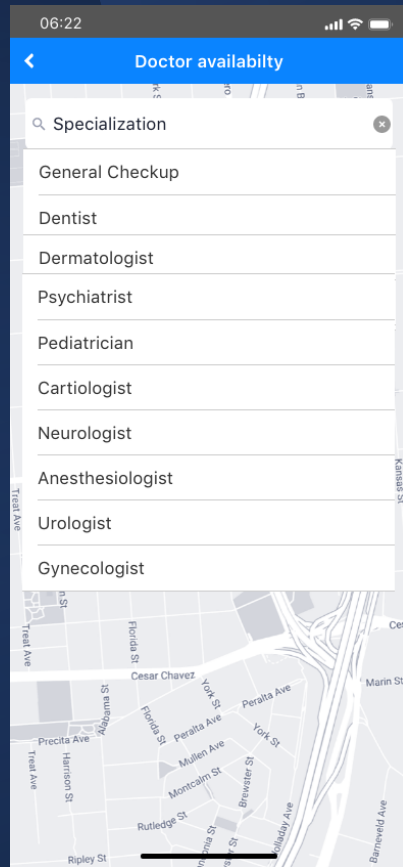
# CHECKING NEARBY HOSPITALS



- In this stage, the hospitals nearer to our locality are shown based on the user search.
- We can use either our current location or we can enter a new location.
- Next the selected area will be highlighted in the Map region and enlist all the hospitals nearby with their address locations.

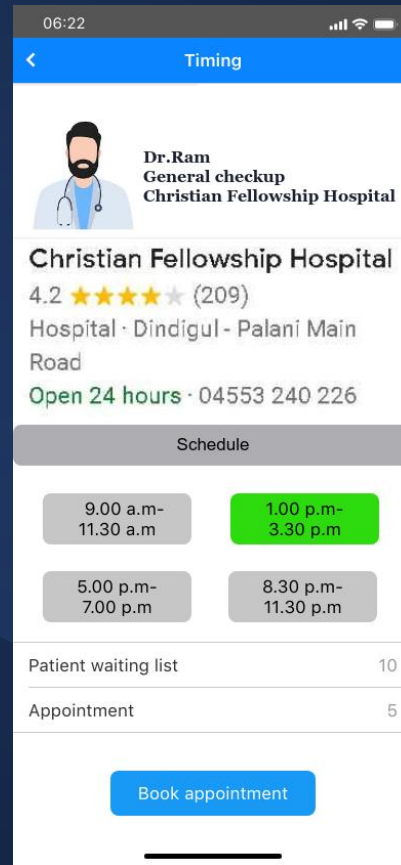
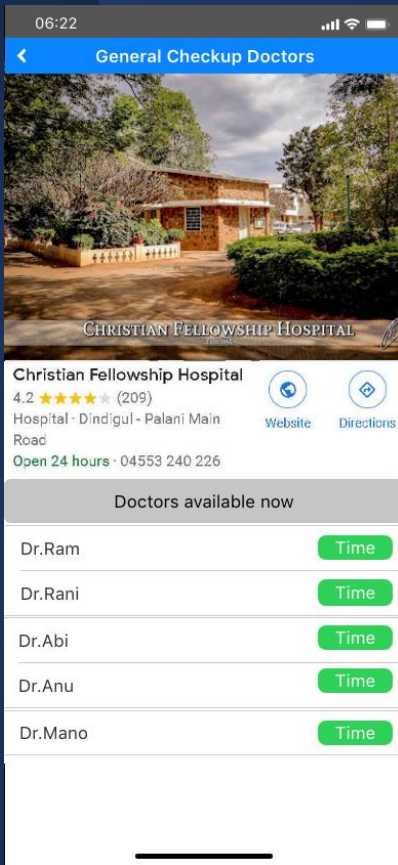


# DOCTOR AVAILABILITY



- After getting a list of hospitals showed up in the suggestion box, it is up to the patients to select the doctors based on the availability. Here we select the doctors to consult who is available.
- After choosing the hospital and a specialization of a doctor will be shown in green color. We need to click avail button for further proceedings

# PATIENT WAITING LIST




- After checking the doctors availability we can also use this option to check the waiting list of Patients to the concerned doctor in detail
- After clicking the avail option, Doctors availability will be shown with timing schedule as free slots without coloring and booked slots with green color.
- Next options like Number of Patient waiting list and the number of slot with appointment booked can also viewed.

# BOOK APPOINTMENT

06:22

< Book Appointment

 **Dr. Ram**  
General checkup  
Christian Fellowship Hospital

Patient Name

Age

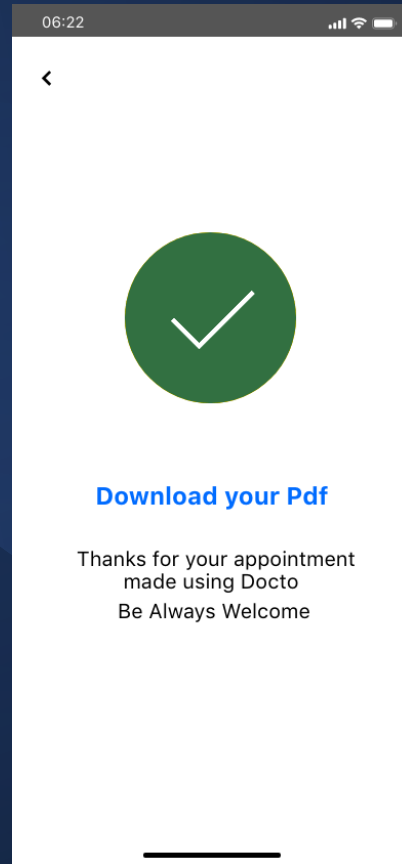
Gender

Contact Number

Address

Reason

[CONFIRM](#)



06:21

<

 **Dr. Ram**  
General checkup  
Christian Fellowship Hospital

Patient Name

Age

Gender

Contact Number

Address

Reason

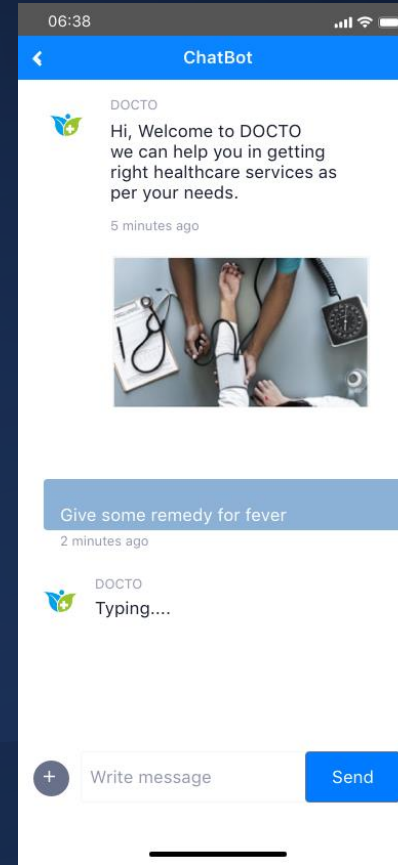
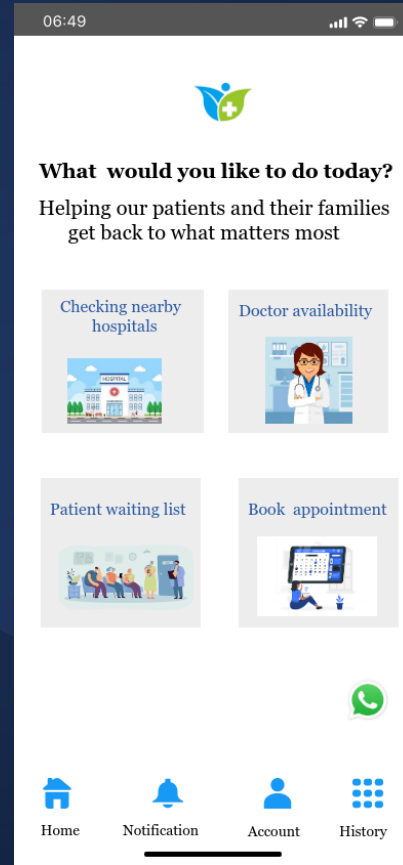
[APPOINTMENT BOOKED](#)

- After checking all these we will book an appointment with the concerned doctor through this app
- Patients have to enter the details and then click confirm to download our appointment schedule as a pdf file. Then the downloaded pdf must be shown to the corresponding hospitals while they are visiting physically.

# WHATSAPP BOT (chatbot)



Apart from the above 4 stages, this is the unique stage where patients can get suggestions or information through chatbots.



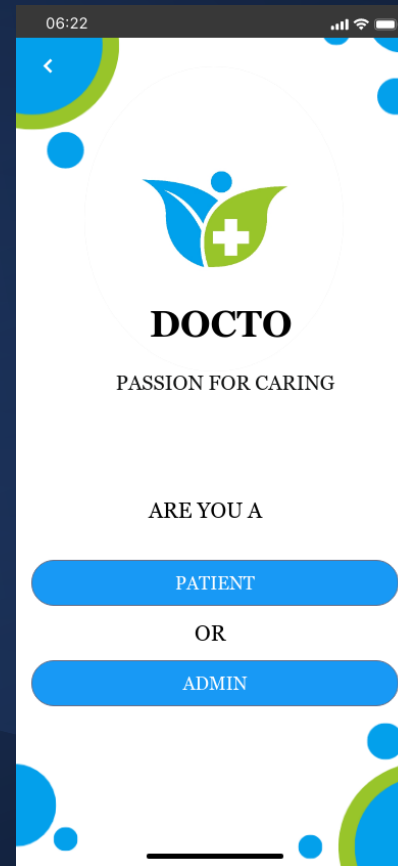
In a homepage, we have to click the what's app bot icon to start a chat with chatbot. In this we can clarify our doubts and also provide a user interaction lively with the doctors. They can also get a suggestions from the doctor



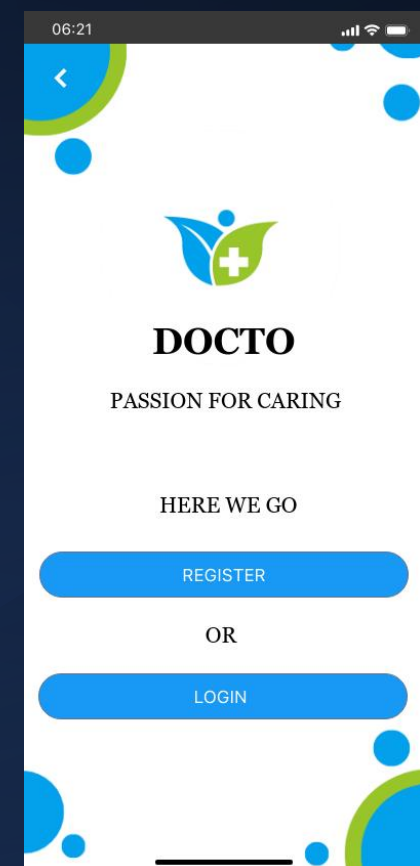
# DESCRIPTION (Admin)



**Onboarding**



**Authentication**




**Register or login**

# SIGN UP AND LOGIN FOR ADMIN:

06:21

Registration



First name

Last name

Gender

Hospital Email address

Enter password

Re-enter password

Hospital Name

Hospital Address


Phone number

Register

Already have an account? [Login](#)

06:21

Verify Email



We sent you a OTP  
to verify your Email.  
Sent to abc@gmail.com

Enter OTP

Time:01:59 sec


Didn't get it? [Resend OTP](#)

Next

1234567890

ABCDEF GHIJKL MNOPQRSTUVWXYZ

06:21




Registered successfully

You can start using the  
application now.

Admin ID:934578934

Go Next

06:21



DOCTO

Warm Welcome

Welcome to a world of  
wellness and care.

Email\*

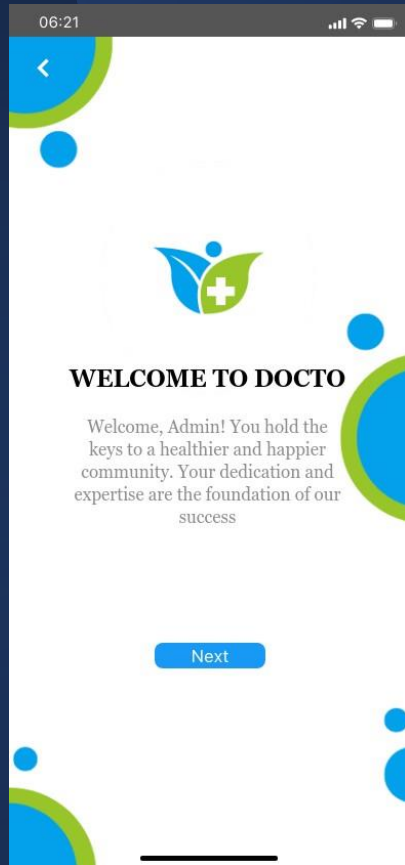
Password\*

Admin Id

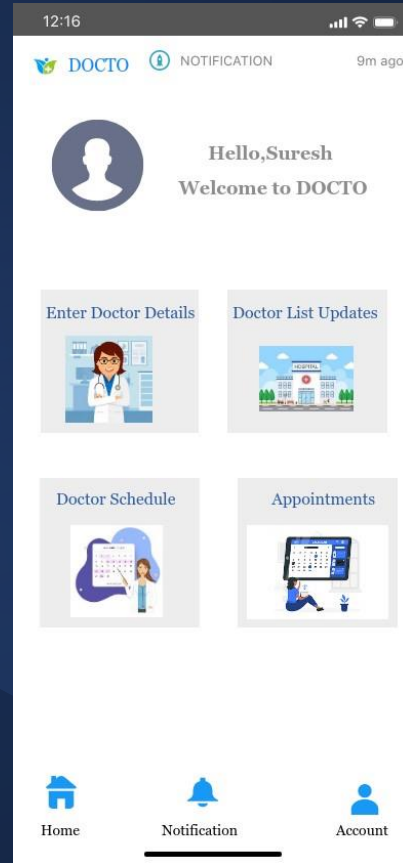
Login

By proceeding you also agree to the [Terms of Service](#)  
and [Privacy Policy](#).





**Welcome page**



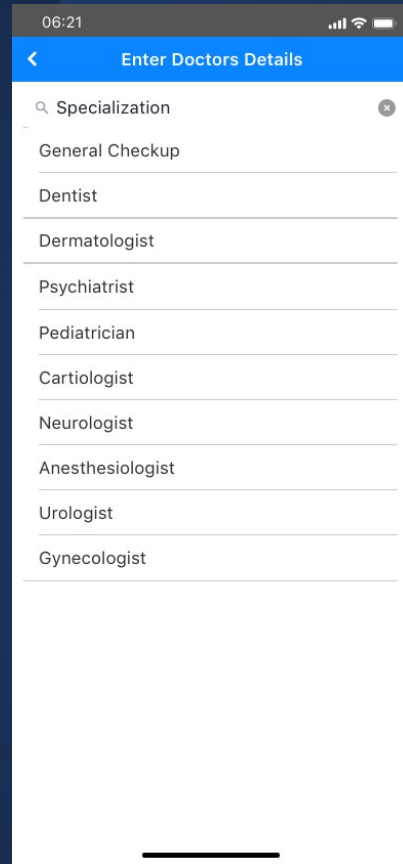
**Home page**

After authentication process admin will be able to see a welcome page. Finally a home page will be displayed to the admin.

**Four major features in a home page:**

1. Enter Doctor details
2. Doctor List Updates
3. Doctor Schedule
4. Appointments

# ENTER DOCTOR DETAILS

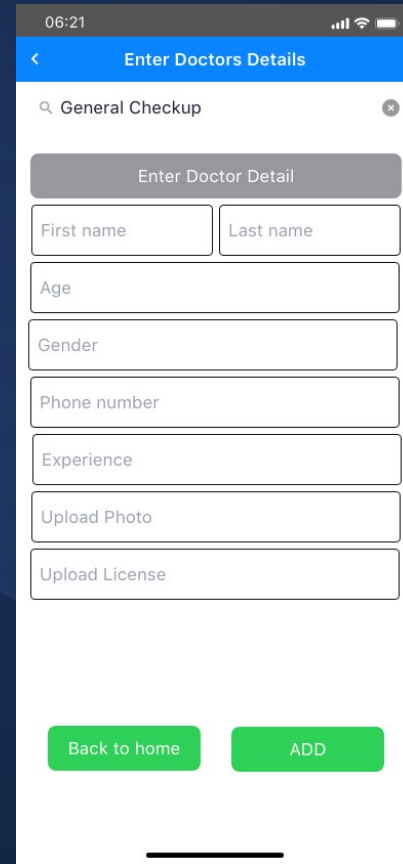


06:21

< Enter Doctors Details

🔍 Specialization ✕

- General Checkup
- Dentist
- Dermatologist
- Psychiatrist
- Pediatrician
- Cardiologist
- Neurologist
- Anesthesiologist
- Urologist
- Gynecologist



06:21

< Enter Doctors Details

🔍 General Checkup ✕

Enter Doctor Detail

First name Last name

Age

Gender

Phone number

Experience

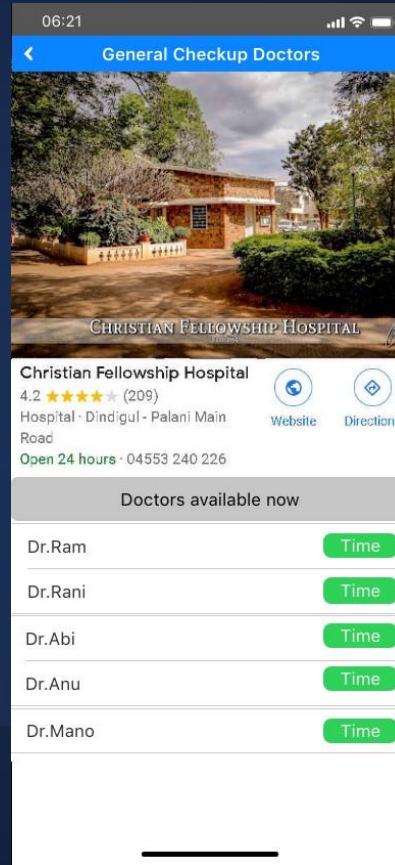
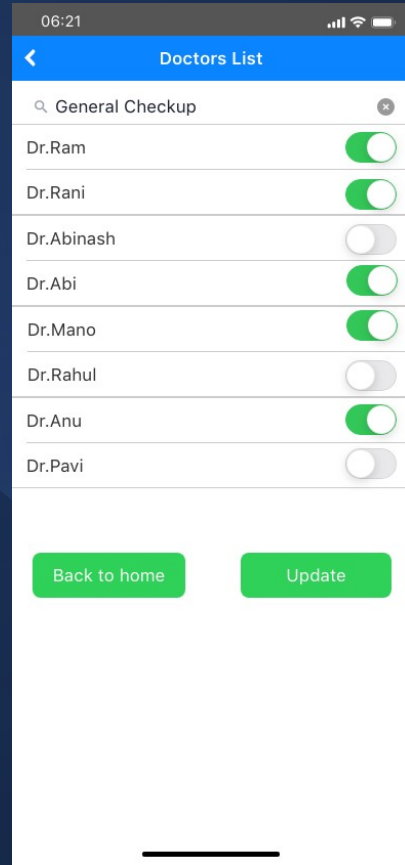
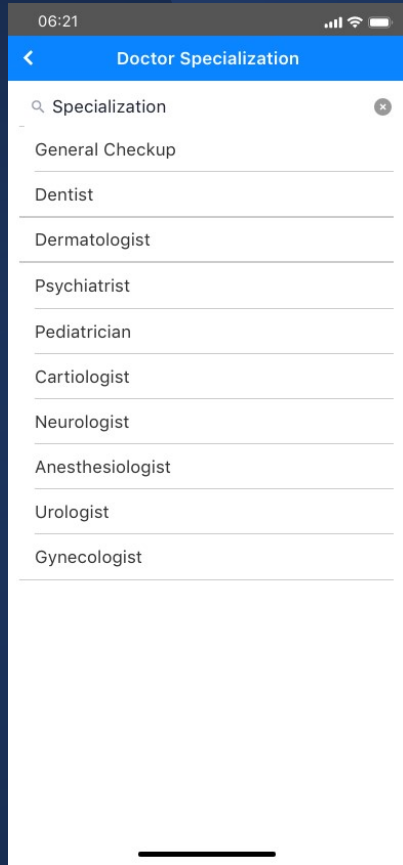
Upload Photo

Upload License

Back to home ADD

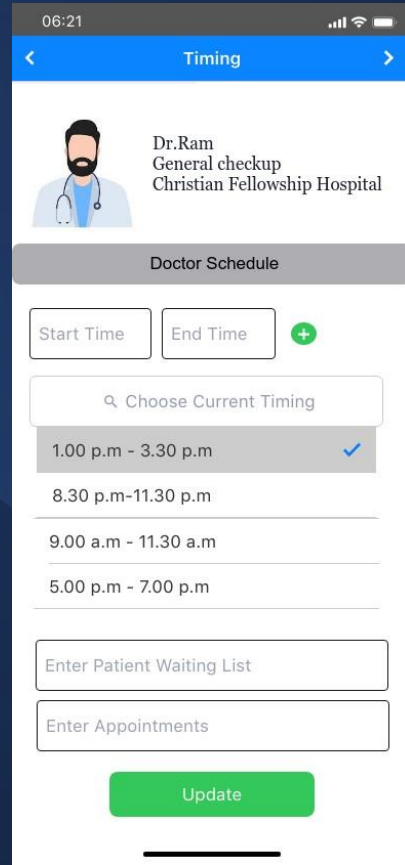
- After clicking Enter doctor details in home page, the specialization have to be selected. And then the doctor details must be added by the admin.
- By clicking the add option the admin can add more doctors.

# DOCTOR LIST UPDATES



- By clicking Doctor list Updates, admin have to choose the specialization to update the doctors availability. Then it will be updated in the patient view.
- For example, in Doctor Specialization if the admin selects the general checkup then the doctors list will be shown. The admin will adjust the on/off button based on the doctors availability. Then the available doctors will be shown.

# DOCTOR SCHEDULE



By clicking the doctor schedule option, list of doctors available in hospital will be listed. The admin have to select the time option to enter the schedules of each doctor. The patient waiting list and appointments will be updated by the admin. Then it will be shown in patient view

# APPOINTMENTS



The screenshot shows a mobile application interface for managing appointments. At the top, the status bar displays the time 20:18 and signal strength. Below the status bar is a blue header with a back arrow and the text 'Appointment Booked'. Under the header is a search bar containing the text 'General Checkup'. The main content area is a table with two columns: 'PATIENT NAME' and 'CONTACT'. The table lists 12 patients with their names and contact numbers. At the bottom of the screen is a blue button labeled 'Home'.

PATIENT NAME	CONTACT
P.Guna	75681 85632
Y.Yuva	85147 65841
M.lakshmi	85697 21478
R.Dinesh	96523 14759
K.Kaviya	96584 26875
S.Dharshini	85623 02548
A.Anisha	96523 65412
S.Irfan	98601 23567
Y.Kamalesh	87456 12598
R.Ajay	85479 23568
P.Karthick	75689 12498
A.Jeswini	96501 78695

By clicking the Appointment option, the patients who booked appointments through this app will be listed with their names and contact number.



# CHALLENGES FACED

- We have **learnt new tools** from scratch to create prototype.
- **User Interface was difficult** to design because it was new to us.
- Collecting Health **relevant details will be more difficult**
- To fix an appointment with a doctor for getting feedback will be so difficult.
- Designing a **logo** is a challenging one.
- **Building trust among users** regarding the accuracy of information and reliability of the app.
- Handling sensitive **patient data securely** and complying with healthcare data regulations.



# END USERS REACTION

- We have showcased our prototype to more than 10 end users and validated our idea.
- Their reaction made us to involve more in our project.
- They felt easy to use our app (User friendliness).
- They expected more features in our app.
- They felt this app will save their time.
- Senior citizens found it more useful and helpful.

# FEEDBACKS

- We got our feedbacks through videos and audios.
- They suggested us to keep video conference facility with doctors, to be available in many languages, and to connect with E-pharmacies
- We improved them by adding what's app bot facility instead of video conference facility.
- The above mentioned suggestions will be improved by us in future.

# OBSERVED OR EXPECTED IMPACT

- Our project can increase access to medical services by allowing patients to find available doctors quickly, **reducing wait times for appointments.**
- Patients can **save time** by booking appointments or consultations **without** lengthy phone calls or **clinic visits.**
- Patients can schedule appointments, and **access medical advice** without the need for physical visits, making healthcare more convenient.
- In case of urgent **medical needs**, these apps can help patients find **nearby healthcare providers swiftly.**
- Doctors can manage their schedules more efficiently and **reduce administrative work**, allowing them to focus on patient care.

# ADAPTATION IN IDENTIFIED TARGET AUDIENCE

- **Suggestion:** Video Conference facility with Doctors.  
**Solution:** Replaced with **What's app bot**.
- **Suggestion:** To be available in many languages.  
**Solution:** Will be implemented in future.
- **Suggestion:** Connecting with E-Pharmacies.  
**Solution:** Will be implemented in future.

# OVERALL EXPERIENCE

- We played a pivotal role in developing a **doctor's availability app** aimed at simplifying **appointment bookings** for patients and **waiting list** of the **patients**.
- Challenges included integrating **real-time data** and **ensuring data security**.
- Collaborative efforts, led to a user-friendly app.
- User feedback and iterative improvements resulted in **increased engagement, reduced waiting times, and optimized schedules**.
- This experience enhanced our **adaptability**, communication skills, and **problem-solving abilities**, reinforcing the importance of adhering to **industry standards** in healthcare technology.
- We are enthusiastic about **applying these lessons** to future projects.

# BIGGEST LESSON LEARNED

- During the DO phase, the biggest lesson we have learnt was the importance of **effective collaboration**. Our team had chosen a complex project and as we delved into prototype, we encountered numerous roadblocks and disagreements on this approach. This situation made us realize that even the most talented individuals need to **work together seamlessly to succeed**.
- To address this, we initiated **daily stand-up meetings** to **discuss progress** and concerns openly. We also assigned specific roles to each team member based on their strengths and expertise. As a result, our communication improved and we began to make more efficient decisions. Ultimately, we not only **completed our task on time** but also developed a stronger bond as a team.
- This expertise taught us that collaboration is not just about dividing tasks but about effective **communication, mutual respect** and **adaptability**. This lesson has been invaluable not only in this particular DO phase but also in our professional career, where **teamwork plays a crucial role in achieving success**.



# SCALABILITY OF OUR SOLUTION

- Our medical app is designed with **scalability** as a top priority. It efficiently manages **patient records** and **user accounts**, safety to use multiple healthcare facilities.
- In evaluating the scalability of our app, its essential to conduct through **validation** and include both **current and future demands easily**.
- Our model is not just about maintaining performance, **reliability** and security when the app grows, **consulting with an expert** help to ensure our model scale up further.
- By implementing our app, the solution can scale efficiently to meet the increasing demands of hospitals, doctors, and patients, ensuring a **smooth and reliable experience** even as the user base grows

# TARGET AUDIENCE PAYING FOR THIS SOLUTION

- We believe that our target audience will be willing to pay for our Doctor Availability app for several reasons. First and foremost, our extensive market research including **surveys and interviews with potential users**, has indicated a strong demand for **convenient and reliable platform** to access the doctor availability.
- In short, based on user friendliness, pricing strategy, user feedback and market trends. We are confident that our target audience especially those who are **senior citizen**, recognize the value of our Doctor Availability app and be willing to pay for the services it provides.

# ABOUT OUR TEAM

## KAVIYA J (Team Leader)

- **Brief Intro:** Kaviya is an ambitious college student majoring in Computer Science Engineering. With a passion for technology and improving innovation, she has taken the lead in forming the Innovative Visionaries team.
- **Role:** As the team leader, Kaviya brings enthusiasm and organizational skills to the group. She's responsible for guiding the team's projects and ensuring everyone stays motivated and on track.

## ANISHA J (Designer)

- **Brief Intro:** Anisha is a talented college student pursuing a degree in Computer Science Engineering. Her creative flair and interest in healthcare innovation make her an invaluable asset to the team.
- **Role:** Anisha specializes in creating eye-catching designs and intuitive user interfaces for the team's digital health solutions. She's excited to apply her design skills to improve patient experiences.

## DHARSHINI S (Researcher)

- **Brief Intro:** Dharshini is a studious college student majoring in Computer Science Engineering. Her fascination with data-driven decision making led her to project statistics ideas
- **Role:** Dharshini conducts research on healthcare technology trends, AI applications, and data analytics methodologies. Her findings contribute to the team's evidence-based decision-making.

## KIRUTHIKA G (Project Coordinator)

- **Brief Intro:** Kiruthika is a proactive college student with a knack for managing tasks and projects. She's pursuing a degree in Computer Science Engineering with a focus on project management.
- **Role:** Kiruthika excels at keeping the team organized and on schedule. She ensures effective communication among team members and coordinates project tasks, allowing the team to work efficiently.

# ABOUT OUR TEAM

**Photographs of our team during the brainstorm session and working together**



# ABOUT OUR MENTOR

Mentor name : N.J.DIVYA.

Specialization : IOT in healthcare, pursuing her PhD in Healthcare application. So she is interested in carrying out our problem statement intentionally.

Role :

- She supported to develop our prototype design.
- Guided to choose our problem statement and what type of quality features to be included in our DO phase and it was explained by her elaborately.
- Supported in carrying out our both presentation work and in academics wise scheduling of classes also.
- She helped in such a way to understand the clarity of idea we presented, supported to teach us experimental knowledge and the content depth of the idea visually.