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GitHub Username : nishapmore@gmail.com

App Name : Arogyasathi

Description :

Problem:

This is my personal experience. I need to visit a particular hospital to get the treatment. The typical experience at the hospital is explained below.
Due to the doctor's reputation the appointments have to be booked in advance otherwise it is difficult to get the appointment. To get the appointment, a patient needs to call at the reception a priori. Sometimes the receptionist is not at her place or he/she is on another call. The patient has to keep calling until receptionist from other end answers the call. The patient needs to give the detail like name, mobile number,... etc. to get the appointment. The register is maintained by the receptionist to record the patient's information. On day of the appointment the patient needs to visit the reception counter to pay the fees. Generally all the patients are called at one standard time i.e. say at 10 AM. Many patient have to wait for long time for their turn to come for the check up. This process is cumbersome, needs lot paperwork and file handling. A doctor may prescribe some medicines. The patient may forget which tablet to take when, how many times a

day because sometimes it is difficult to read what has been written on prescription. So this creates confusion among patients.

Solution:

The app ‘Arogyasathi’ will be made to reduce the hassles of appointment booking. The app will be made only for one hospital with one doctor, many patients. Through this app patients will be able to book appointments. Patient will get notification before his/her specified time. Patient goes to reception and pays fee. When doctor login can view today’s patient list. Then he/she will check the patient and add medicines details like tablet name , when to take it, frequency,quantities etc in the app. All these medicine details will be available on patient’s login. It will also maintain patient history of medicines. If due to some reason doctor wants to change timing of OPD, he/she can set the details in Change appointment Schedule tab. If the patients already given appointment on that date then they will get notified. This will help patient to save waiting time.

Intended User :

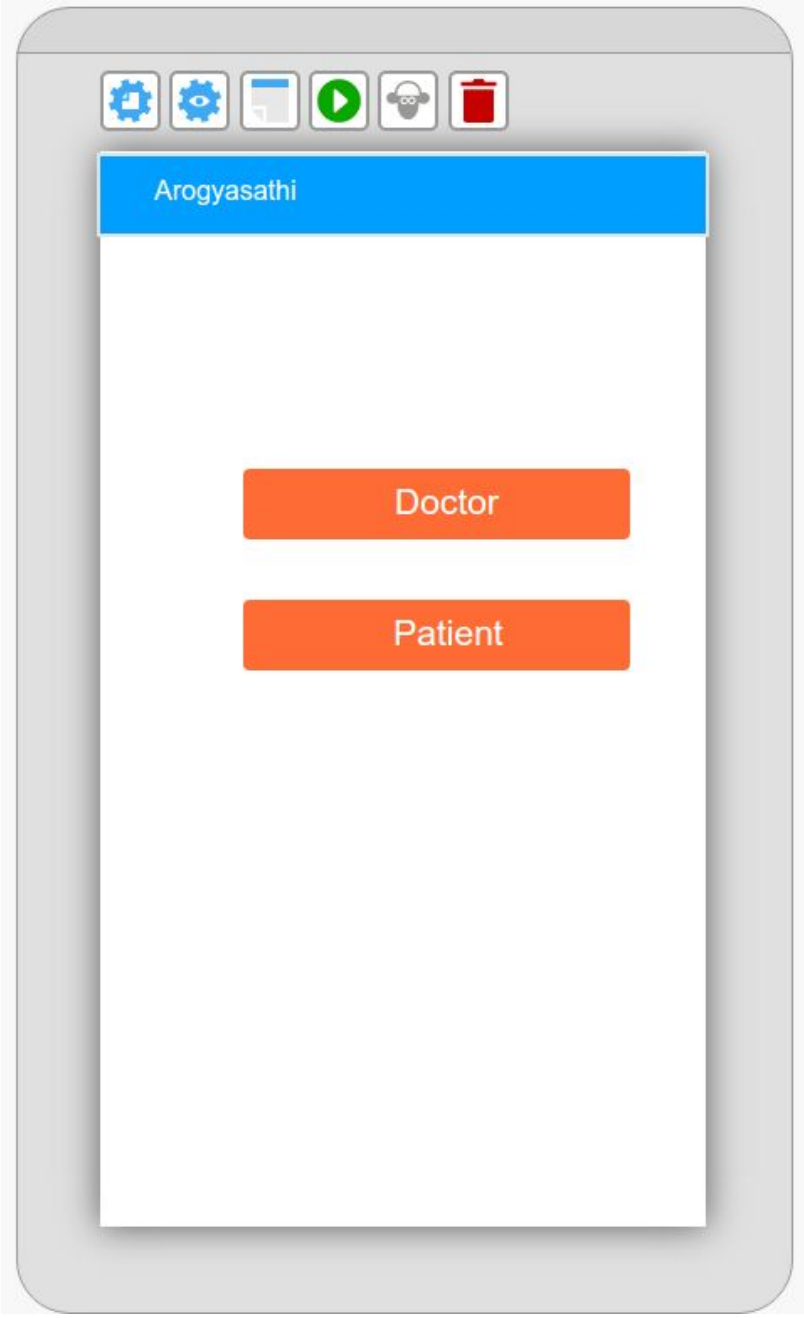
One doctor , many Patients.

Features

- Book/cancel an appointment
- Save patient, doctor and hospital details.
- Get notification before appointment.
- Save medicine details for later reference.
- Show today’s patient list on doctors login.
- Show doctor,patient,hospital details.
- Show information about fees for different tests.

User Interface Mocks

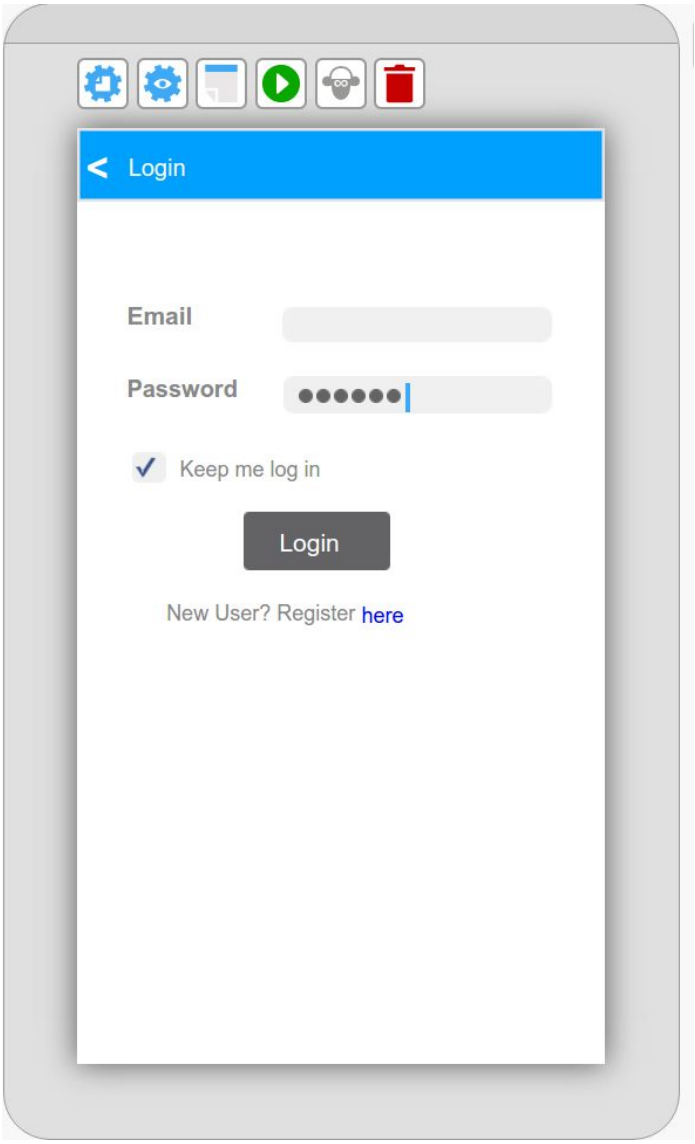
Screen 1 :



The first screen show two buttons one for patient and other for doctor :

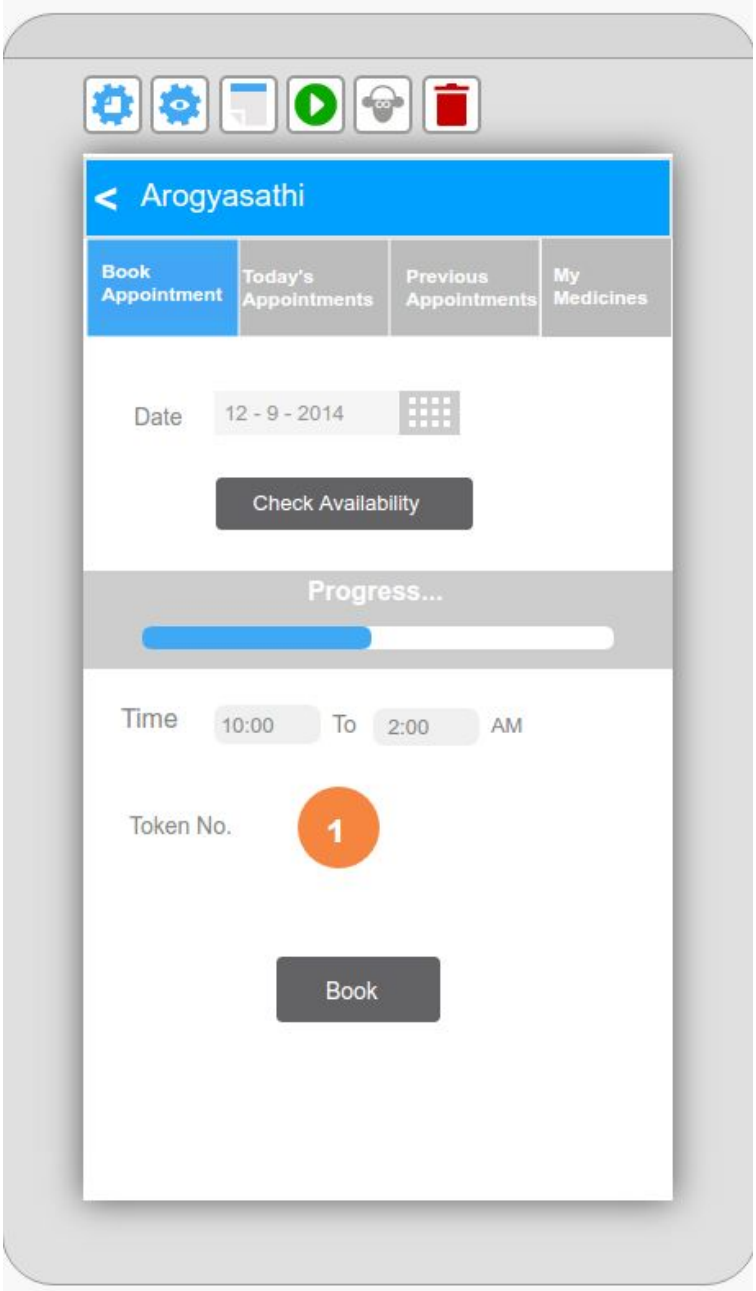
Onclick of button login screen will appear means if a doctor opens an app he/she will click on ‘Doctor’ button and login screen will appears. The same applies for patient also.

Screen 2 :



This is login screen . If user is new then he/she will register here. Also if already registered can log in here.

Screen 3 :

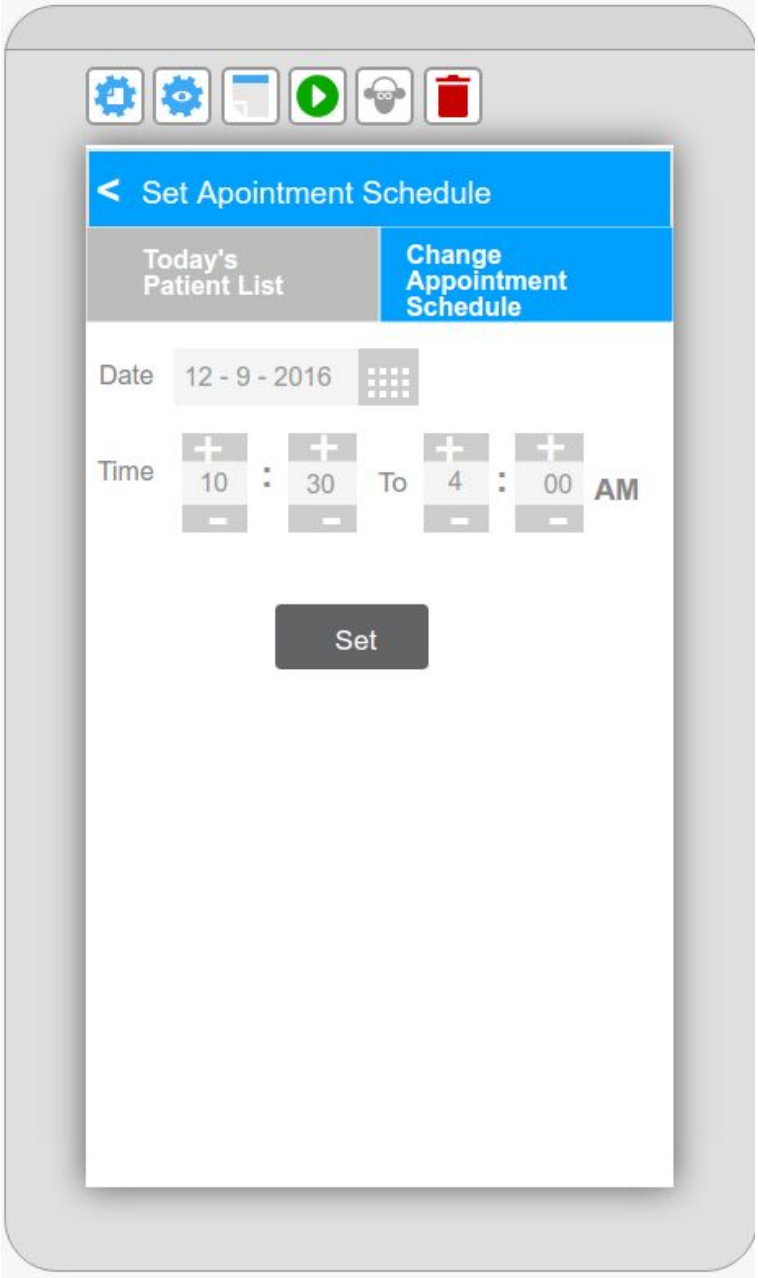


When patient login he/she can book appointment through this screen. The patient will select date and click on check availability. The app then fetch availability from backend and show time, token number if appointment is available otherwise show message saying ‘Appointment not available’. This screen also provide Today’s appointment, previous appointments, My Medicine tabs.

Screen 4 :

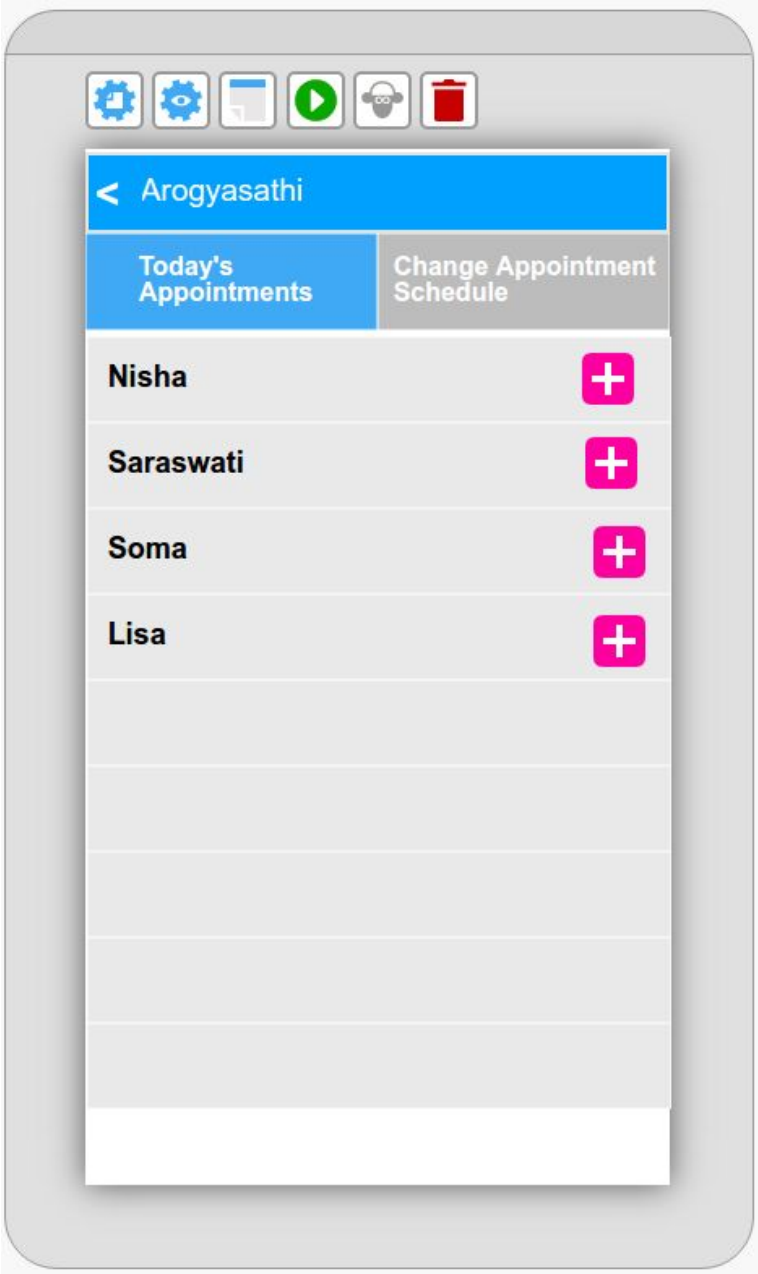
When patient login he/she can see medicine details such as date, tablet name, total quantity, frequency, when to take etc by clicking My Medicine tab shown in screen 3.

Screen 5 :



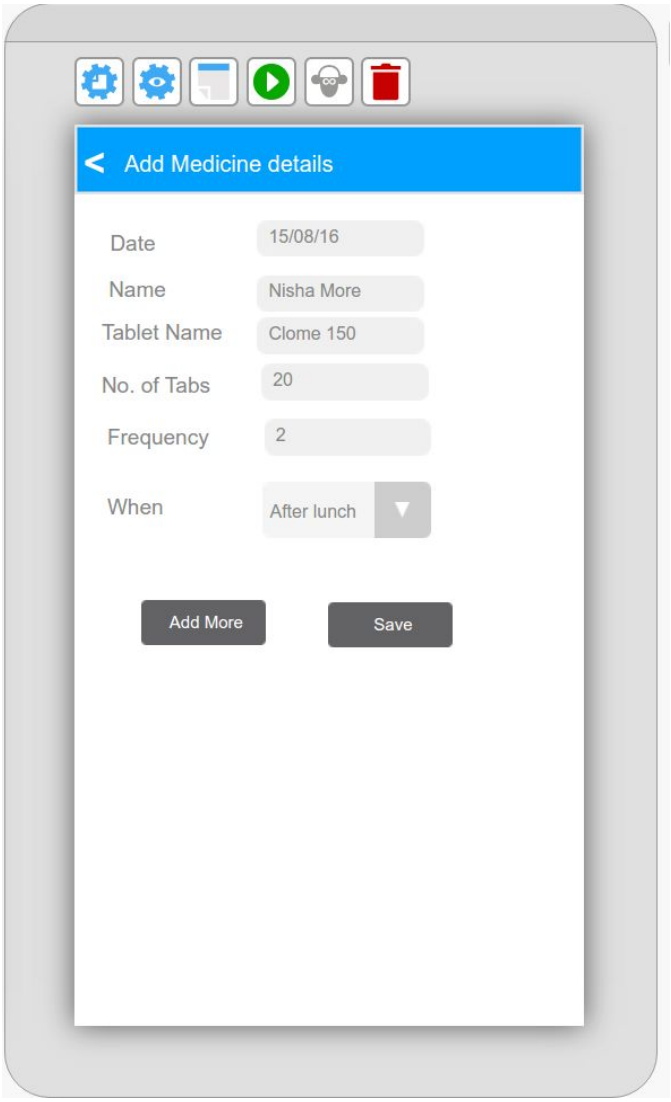
When doctor login he/she can set the appointment details. Generally every doctor has daily routine for example the doctor sits at 10 to 2 in morning .That standard timing will be taken from doctor at doctor's registration page. Which is a one time setup. Sometime due to some reason doctor needs to change schedule then this screen comes into picture. For example on 12th sept he/she wants to sit from 10:30 to 4:00 . he/she will enter these details and click on set button. This will insert these details in database.

Screen 6 :



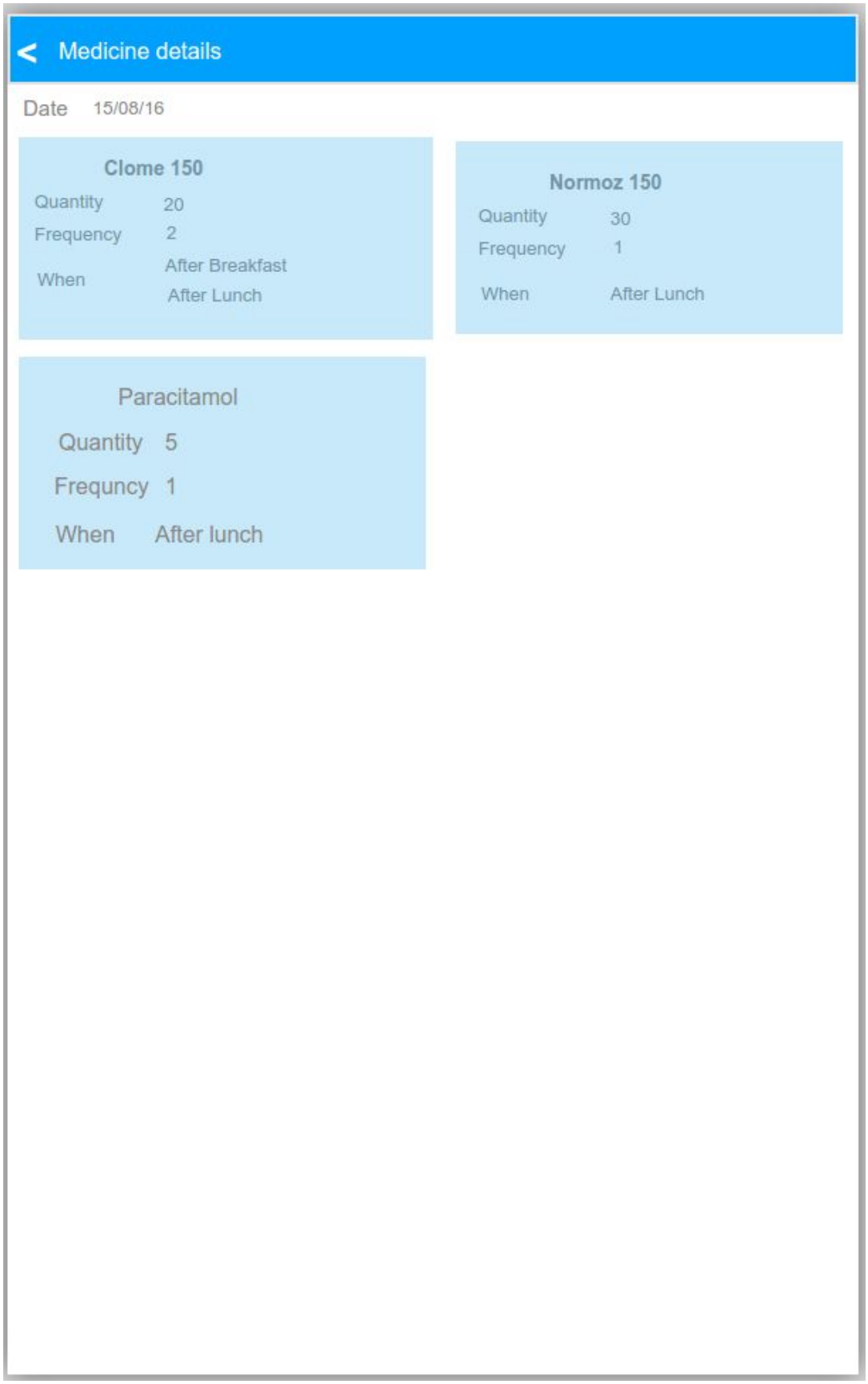
When doctor login he/she can view today’s patient list Onclick of + button in front of patient name, doctor can add medicine details.

Screen 7 :



In this screen doctor can add medicine details. Onclick of ‘Add More’ button all the input fields will be reset and on click of ‘Save’ button the medicine details will be stored in backend.

Screen 8 :


< Medicine details
Date 15/08/16
Clome 150
Quantity 20
Frequency 2
When After Breakfast
After Lunch
Normoz 150
Quantity 30
Frequency 1
When After Lunch
Paracitamol
Quantity 5
Frequncy 1
When After lunch

This screen is designed for tablet. On tablet the medicines will appear like this.

Key Considerations

How will your app handle data persistence?

1. Most of the data will be stored in firebase. For example user account details, appointment details, Medicine details, and so on.
2. The fee details will be stored in firebase centrally. When first time patient wants to see the fee details, app will fetch it from firebase and save these details in sqlite using content provider. Next time patient logs in to app the fee details will be fetched from local database (sqlite). This will minimize network calls.

Describe any corner cases in the UX.

1. When user tries to login with wrong credentials or directly hit login button without entering any details, app will provide proper error message.

2. If screen rotates the app will not crash.

3. As the booking appointment depends upon doctor's schedule , doctor must have to enter date, time , details. Here if doctor don't enter details and directly hit set schedule button , app shows proper error message.

4. While scrolling list of patients doctor has crossed 10 patient now when the screen change to landscape orientation , doctor will scroll from where he left i.e. from 10th patient.

Describe any libraries you'll be using and share your reasoning for including them.

Following libraries will be used:

1. **com.jakewharton:butterknife:8.4.0 :** Field and method binding for Android views.
2. **com.firebase:firebase-client-android:2.5.2+ :** To use firebase as backend.
3. **com.android.support:appcompat-v7:24.2.0 :** For Toolbar.
4. **com.android.support:cardview-v7:24.2.0 :** To add cardview for displaying medicine details
5. **'com.android.support:design:23.1.1' :** To add material design specs.
6. **'com.squareup:otto:1.3.8' :** Otto provides an event bus. Event publishing is the most important part of the bus as it allows you to tell subscribers that an action has occurred. In app to book the appointment patient need to check if the appointment is available prior to filling all the details. So while checking availability , app needs to wait till all background processing such as fetch how many patients already taken appointment for that date and how many patients doctor will see and so on. Upon these details calculate whether appointment is available or not. Once this process done, the event bus will publish to all subscribed methods with the result.

Describe how you will implement Google Play Services.

1. **com.google.android.gms:play-services-analytics:9.4.0 :** For adding analytics feature.
2. **com.google.android.gms.ads :** To show test ads.

Task 1: Project setup

Create new project with Empty activity in android studio. Add all dependencies in build.gradle under /app folder. Sync project and build UI for each required activities.

User Interface :

The app will do following :

- Upon launch shows two buttons one for patient and other for doctor. If you are patient click on patient button otherwise click on doctor button.
- Onclick of button app shows login screen. If user is new to app first he/she has to create account.
- When doctor click on create account link , he/she need to fill the important details such as personal info , visiting time , facilities email, password, confirm password entries. When doctor tap on create Account button, app will create a new user (doctor) in firebase.
- When patient create account he will be given a form to fill up which will contain basic personal information and email , password, confirm password etc. When patient tap create account app will create new user (patient).
- As now each user has their own login details. A Doctor can do below things :
    - Doctor logs in : The app will show following features:
        - Today's Patient List : A doctor can view today's patient list along with '+' in front of each patient. Onclick of '+' button doctor can enter patients medicine details such as tablet name, frequency, quantity etc. When doctor click save button , all the details will be stored in firebase. And onclick of patient name in the listview doctor can see patient details.
        - Update Appointment Schedule : Sometimes due to some reason doctor wants to sit at different time than given standard time, he/she can set date and time when he/she will sit be sitting in OPD. This will be useful for patient because when patient tries to book appointment for that day the app will auto fill time from database. This will save patients waiting time.

    - Patient logs in : The app will show Hospital Information, Book appointment, Today's Appointments, My Medicine.
        - Hospital Information : This option will give basic information about hospital, which is filled by doctor.
        - Book Appointment : Here patient can book appointment depending upon availability.

- Today's Appointments : A patient can see which appointments he has to attend today.
- My Medicine : This option will give a patient information about prescribed medicines by doctor with date, tablet name, frequency etc.

Task 2: Configure gradle dependencies

Configure the build.gradle file with all dependencies listed above. So the build.gradle file will look like this:

Dependencies{
Compile 'com.jakewharton:butterknife:8.4.0'

Compile 'com.firebase:firebase-client-android:2.5.2+'

....

}

Task 3: User Authentication:

Upon launch, app shows Two buttons for users such patient, doctor.
To handle user authentication the app will use Firebase as a backend.

Task 4 : Build different UIs as shown in screenshots above

- Build UI for MainActivity show two buttons "Patient" and "Doctor"
- Build UI for create new account screen.
- Build UI Login screen.
- On Doctors successful log in build UI for input form containing basic hospital information such as address , standard OPD timing etc.
- When patient logs in successfully , show Hospital information, book appointment, Today's Appointments, My Medicine tabs.
- Build UI for both tablet and phone.
- Build UI for all tabs.
- When doctor successfully logs in show today's patient list. Each list item contains '+' button in front of list item.

- Build UI add medicine screen which will be shown when doctor clicks on '+' button.
- The UI might look like as shown above in screenshots.

Task 5 : Implement Google play services

- Implement Google Play Service for showing test ads and analytics feature in app.

Task 6: Implementing login activity

When the user new to app he will create new account using firebase.

- Make the app ready to use firebase. The steps are provided https://firebase.google.com/docs/auth/android/manage-users .
- Once the user register successfully. All the authentication will be done by firebase.

Task 7: Implementing Book Appointment activity

Below are the steps :

- To book appointment user must log in by clicking patient button on main screen.
- Patient will enter date and click on check availability button. The app then fetches data from firebase for that date using below query:

Query query = databaseRef.orderByChild("date").equals("user-entered-date");

This will fetch patient details for that particular date. Now if we add listener to this query we will get number of patients already booked appointment for that date. So if appointment is available , patient will get Toast of result. Then patient can enter all his details like name, email,mobile number etc. and book appointment. When click on book appointment app will save all the details in firebase using push() method.

Task 8: Implement fetching today's patient list

Use FirebaseListadapter to quickly hook a Firebase database reference or query to a ListView.

Task 9 :

App keeps all strings in a strings.xml file and enables RTL layout switching on all layouts.

Task 10 : Add content description

Add content description to required elements such as button , imageview , and so on to achieve accessibility feature.

Task 11: Show widget on home screen

The App provides a two widget one for doctor and one for patient. In doctor's widget the app will show today's patient list and in patient's widget app shows today's appointment.

Task 12 : Build and deploys using the installRelease Gradle task.

Task 13: Use asyncTask to show the hospital information, fees details etc on click of respective option placed in overflow menu.

Task 14 : The app uses a Loader to display fee details.

When patient clicks on fee details option from overflow menu, all the available tests will be shown in recyclerView. These details can be fetched from sqlite using Cursor Loader.