Virtual i

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Link for wireframe

https://pr.to/N3TASE/

Drive link

https://drive.google.com/open?id=1IQjguXZKK88WoFM62o_1QVNWBdfbK2Cm

Project Description

This is an app targeted towards blind people to assist them in recognizing medicines by using OCR to detect the name of the medicine.The list of medicines along with their dosage, prescription and instructions on how to take them are stored in the firebase database.

The app focuses on the following functionalities

- Search for medicines
- Maintain voice notes
- Maintain reminders
- OCR based search

Apart from the above functionalities, the app also uses text-to-speech, speech-to-text and google talk-back.

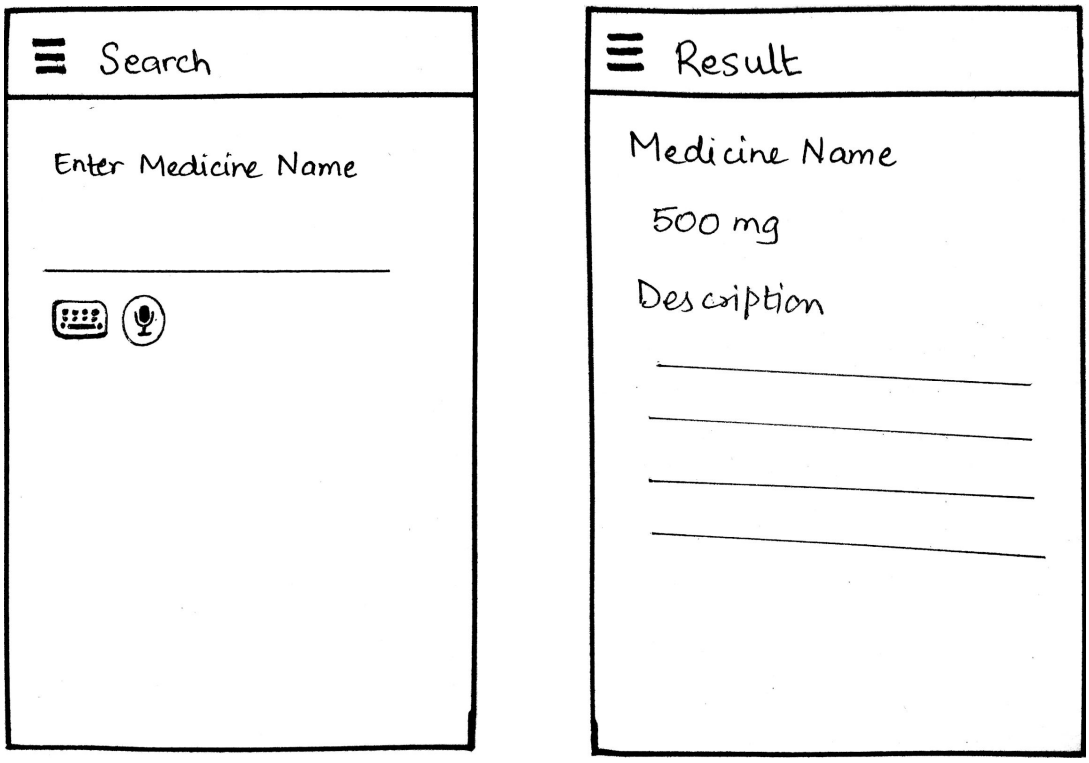
Database collection

The database consists of more than 1300 medicines sorted in lexicographical order.
The database was generated by crawling the following website:
https://www.medindia.net/drug-price/index.asp

For each alphabet, automation was used to go to the links of each medicine from where the details about the medicine were scraped.

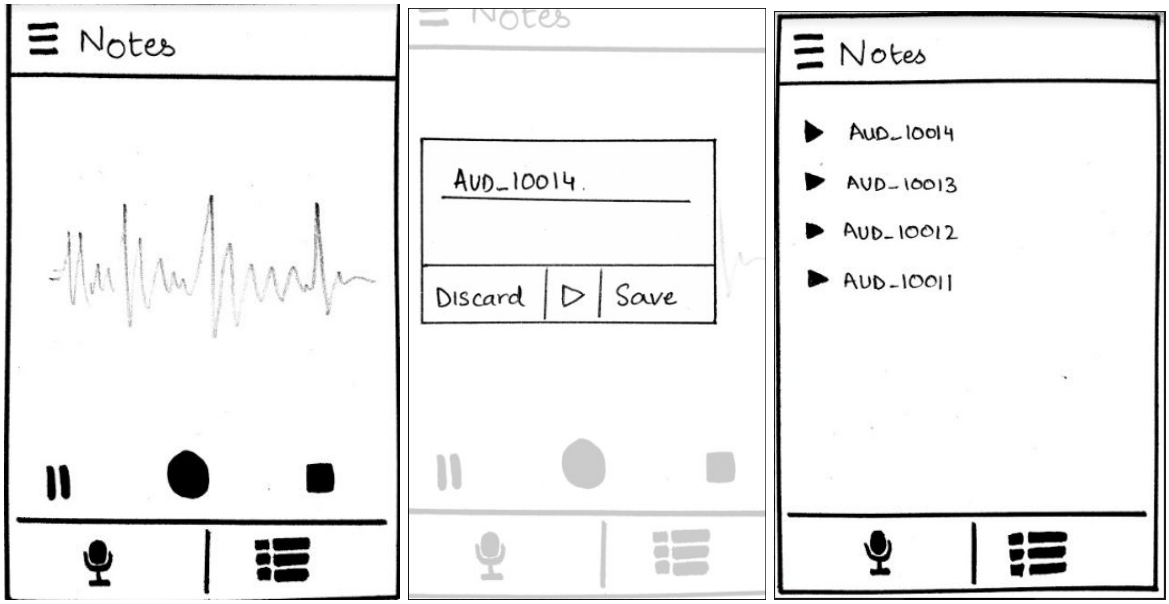
Selenium was used for automation tasks and Scraping was done using Beautiful soup.
The obtained data was then stored in a json file and uploaded on firebase.

Search for medicines:



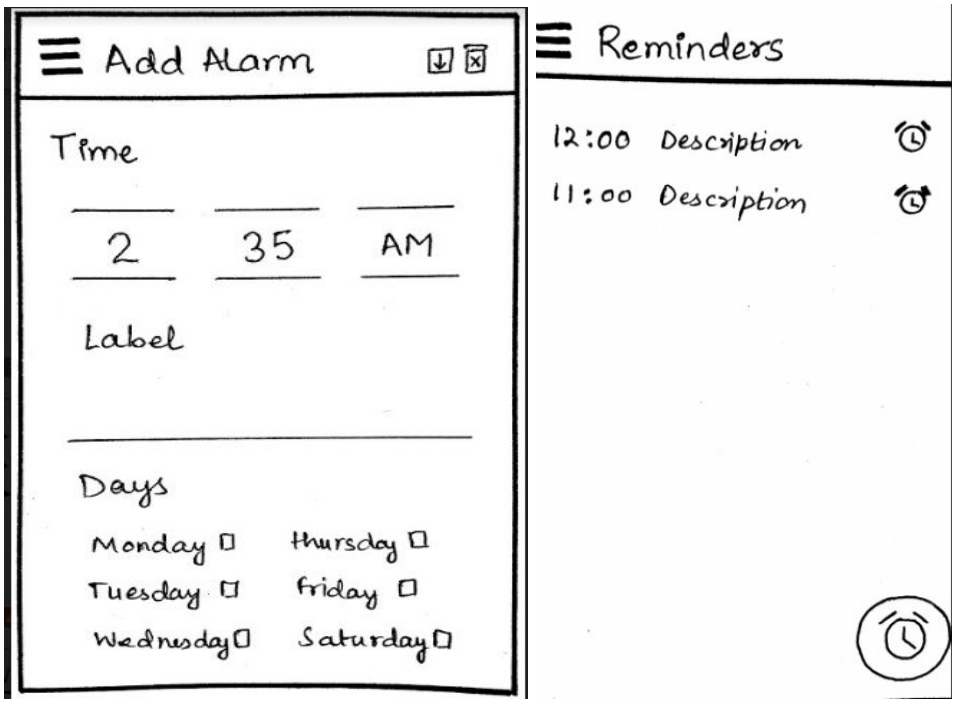
The basic layout of the search activity is shown above.This activity consists of an edit text which can be filled either by typing using a keyboard or using a voice input.The search bar uses a recyclerview and will give top 10 results matching the string . The user can then click on one of the items in the list and can access the information related to the dosage , prescription and can get to know how to take that particular medicine.

Maintain Voice Notes:



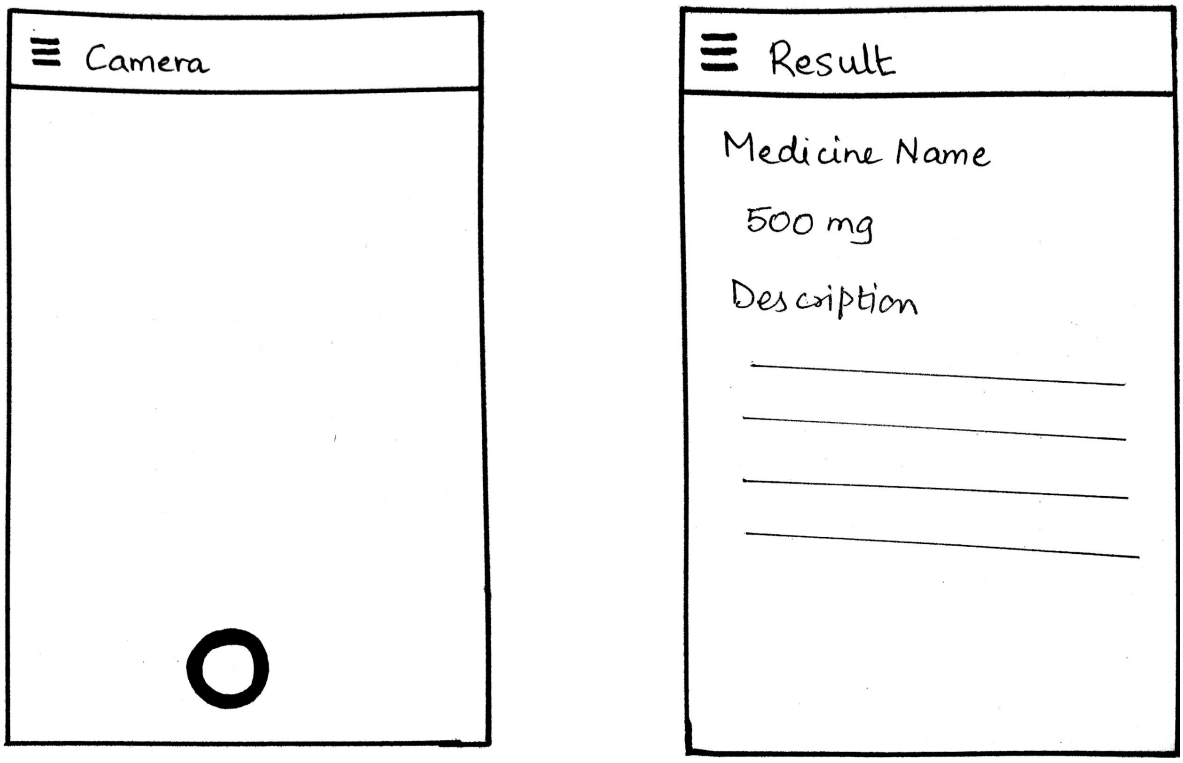
Users will be provided with the functionality of adding voice notes which can be accessed in future. The user will be first asked to record the voice note after which a pop-up (alert dialog) will appear which asks the user to either play or discard or save the voice note in mp3 format. If none of the option is selected and previous activity is clicked then the voice note will automatically be saved. This functionality of Virtual-i can also be used to show all the voice notes which have been recorded so far. These voice notes can be played if the user wants to hear them.

Maintain reminders:



User will be able to set reminders on daily basis. A created reminder can be deleted as and when required. Options are provided to extend same alarm for other days of the week.

OCR based search:



The app will use OCR (optical character recognition) to detect the name of the medicine on the packaging. The OCR then predicts the word and will search for the best matching medicines from the database. The application then gives a list of all the predicted medicines and the user can click on one of the medicine to get dosage, prescription and intake instructions of that medicine.

References

1. https://github.com/DushyantMainwal/FirebaseDemo -Search Bar with Firebase

Files that referenced above code:
SearchAdapter.java
SearchBarActivity.java
SearchResultsActivity.java

2. https://www.youtube.com/watch?v=CLjzLiU_GpE

   File that referenced above code:
   ocr.java
   LauncherActivity.java

3. Permissions
   https://stackoverflow.com/questions/33162152/storage-permission-error-in-marshmallow
4. Drug database site for web crawling
   https://www.drugs.com/drug_information.html
5. Alarms
   https://github.com/PPartisan/Simple-Alarms
6. Opencv
   https://www.youtube.com/watch?v=VRLfzi5bdJs&t=389s
   https://github.com/vmtram/AndroidRecognizeText
   https://www.learn2crack.com/2016/03/setup-opencv-sdk-android-studio.html
7. firebase search option
   https://www.youtube.com/watch?v=b_tz8kbFUsU
8. notes and prescriptions
   https://www.simplifiedcoding.net/audio-recording-android-example/