IT314

SOFTWARE ENGINEERING

Project: Health Center Management

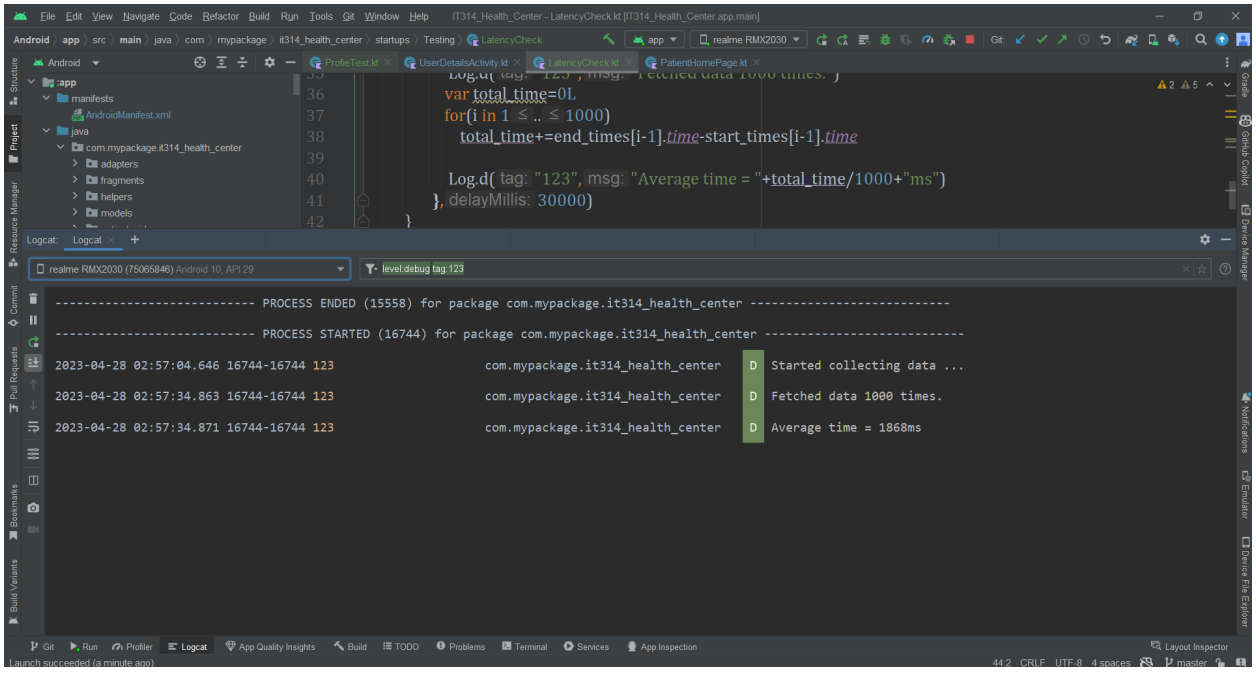
Group: 12

Non-Functional Testing

1) Low Latency

Test case: The average response time of the app to get the user data and display it should be less than 2 sec.

Test method: Simulated the latency check by storing the starting and ending times and measuring the difference between these. The process is repeated multiple times and averaged time is calculated.



It can be seen that the latency is 1868 ms.

Status: Passed

2) Security

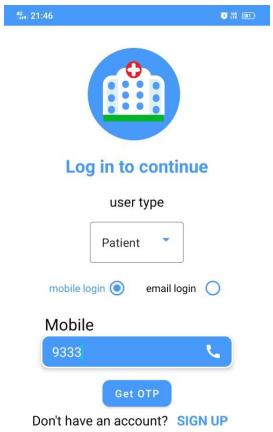
The following are the features that application provides as a way to ensure security to the users

Authentication

Testcase: Users should be able to sign in to the application.

Test method:

The following screen opens at the start of the application



Users that are not logged in cannot enter the application.

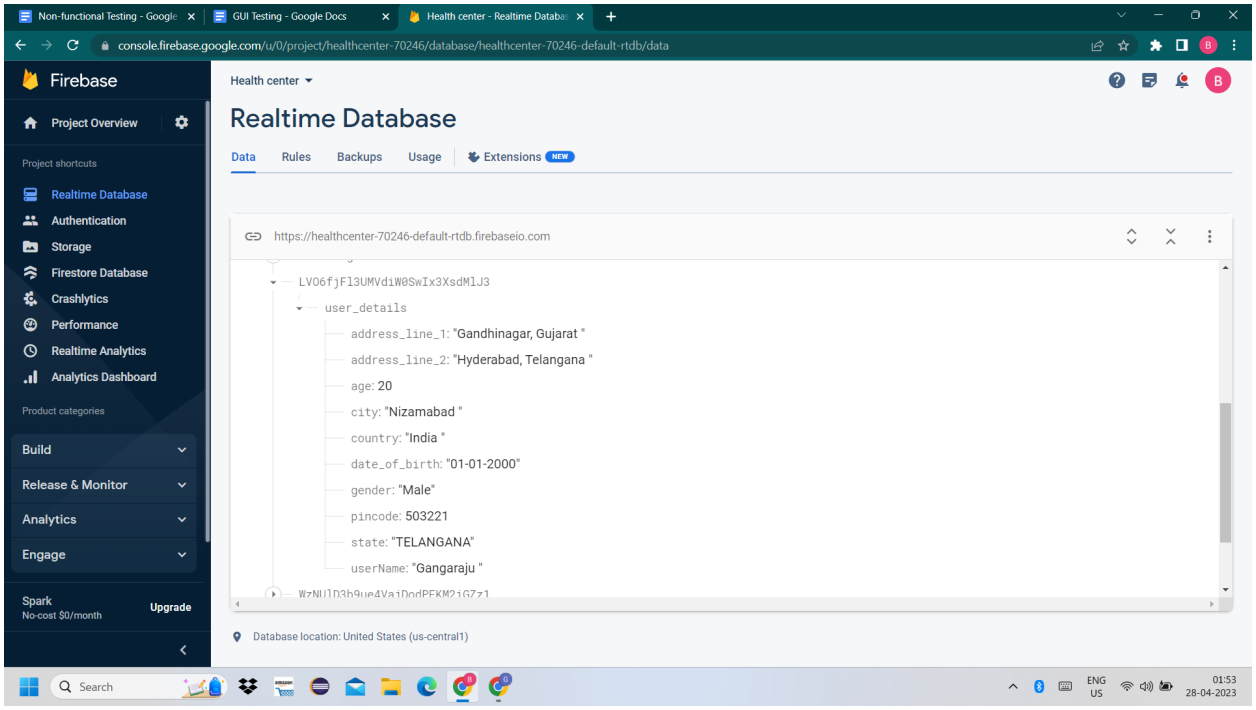
Status: Passed

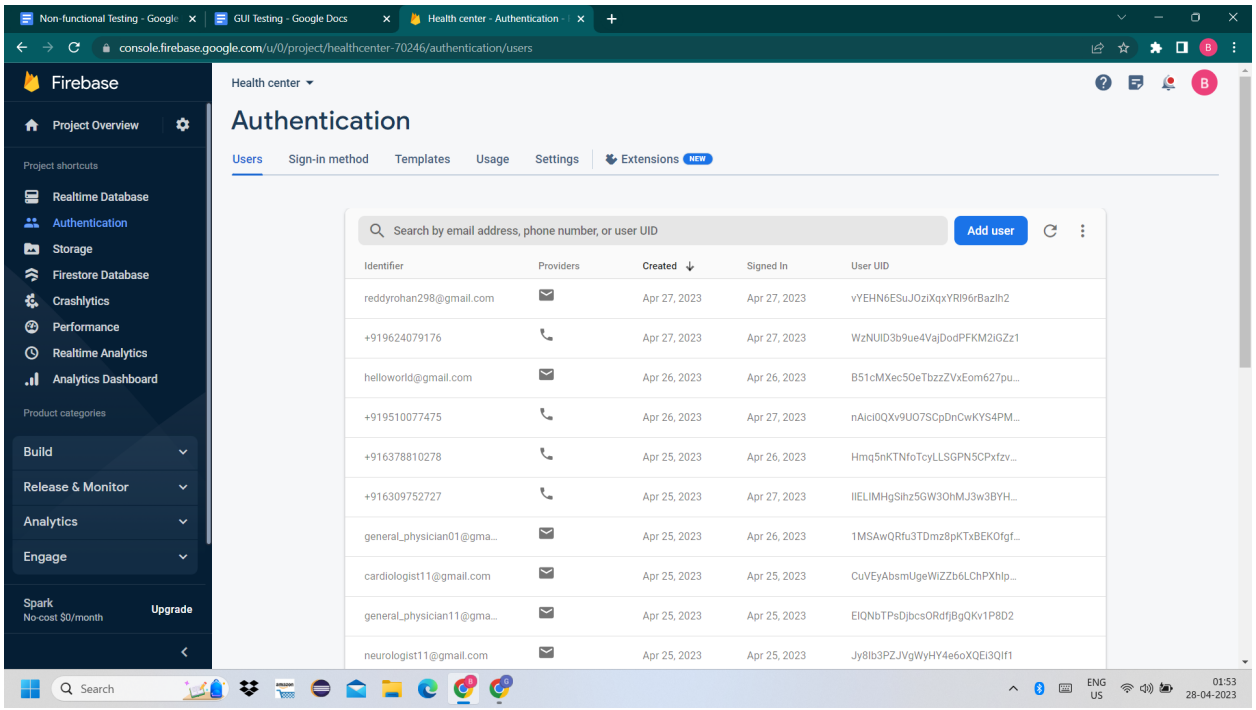
Password protection

Test case: Passwords entered by the users should be secured and protected.

Test method:

Passwords are encrypted by the Firebase Authentication service and are not stored anywhere in the database.Firebase Authentication uses an internally modified version of script to hash account passwords





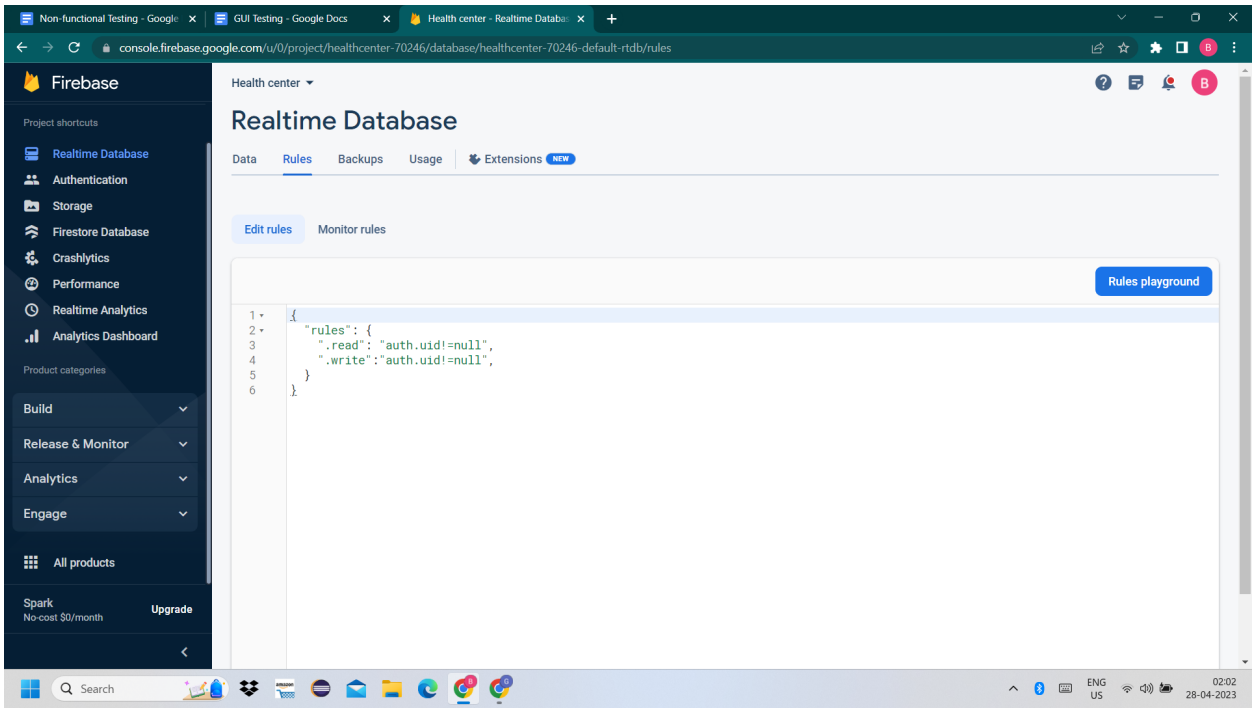
By checking the details in the database we can see that the password is not stored in the database.This assures password protection

Status: Passed

Authorization

Test case: Only those users who are logged in can access their data through application.

Test method: Firebase database is configured with the read and write access rules. The following images show the rules configured.



Only users who are signed in can access the data according to the above rules.

Securing patients medical data

Test: Medical data related to patients should not be leaked or accessed by other third party applications.
Test method: All the data is stored in secure bare-metal servers controlled by Firebase. Firebase manages the data backup and disaster recovery and thus can be assumed that these are assured.
Status: Passed

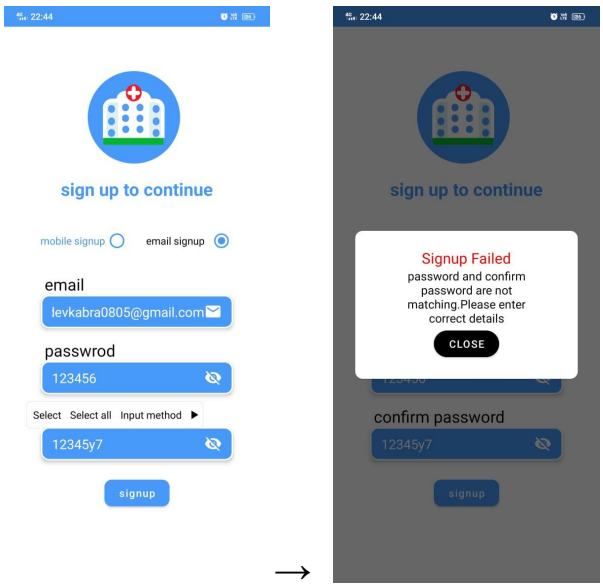
3) Usability

The usability of a system is checked using these parameters:

Recovery from error

Testcase: Recovery from error prone actions through a well designed error messages should be adopted.

Test Method: Taking email sign up as an example, if the user enters the different password in the 'Password' and 'Confirm Password' fields then it should display a proper error message indicating what the error is.



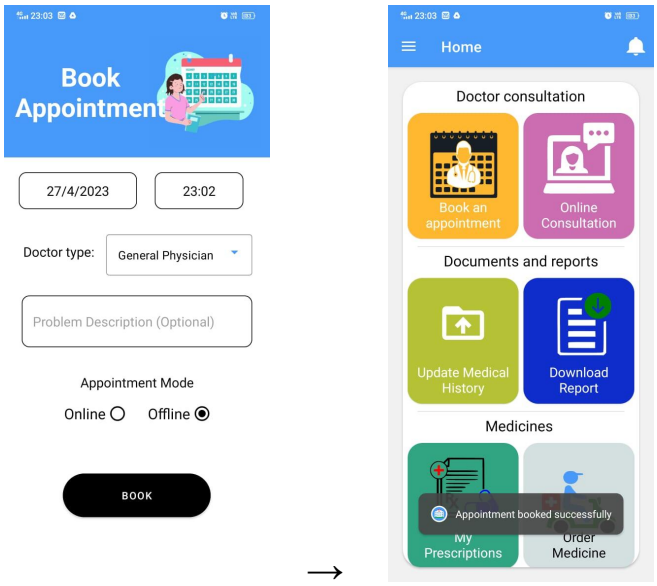
Status: Passed

Providing Feedback

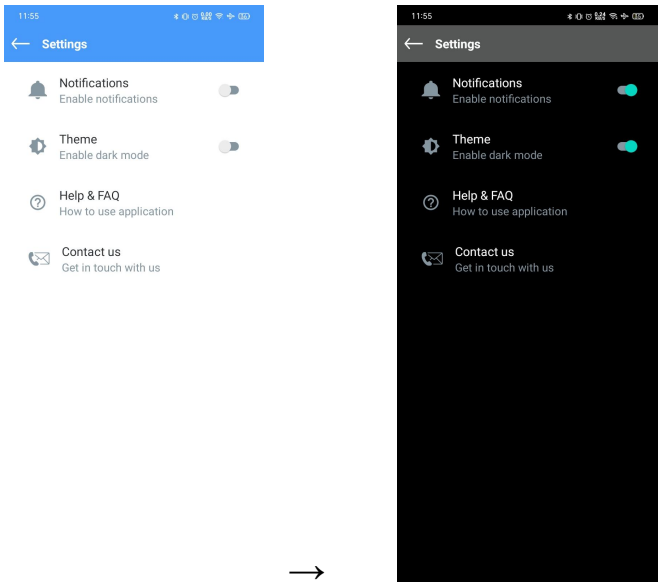
Testcase: Users need to be kept informed by the system about what is going on, through appropriate feedback within reasonable time.

Test Method: Taking booking an appointment and changing theme as examples, the user should get the feedback after booking an appointment or changing the theme, that the task has been executed successfully or whether there is an error.

When an appointment is booked,



When theme is changed,



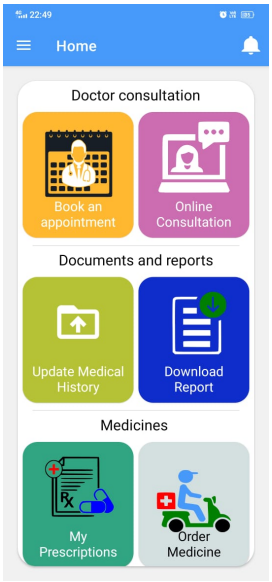
Status: Passed

Visibility of the elements/options

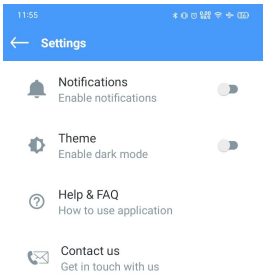
Testcase: User should be able to understand all the elements. The visibility or the design of the element should be understandable.

Test Method: We checked the visibility of different screens of our application and checked their elements.

Patient home page,



Settings page,

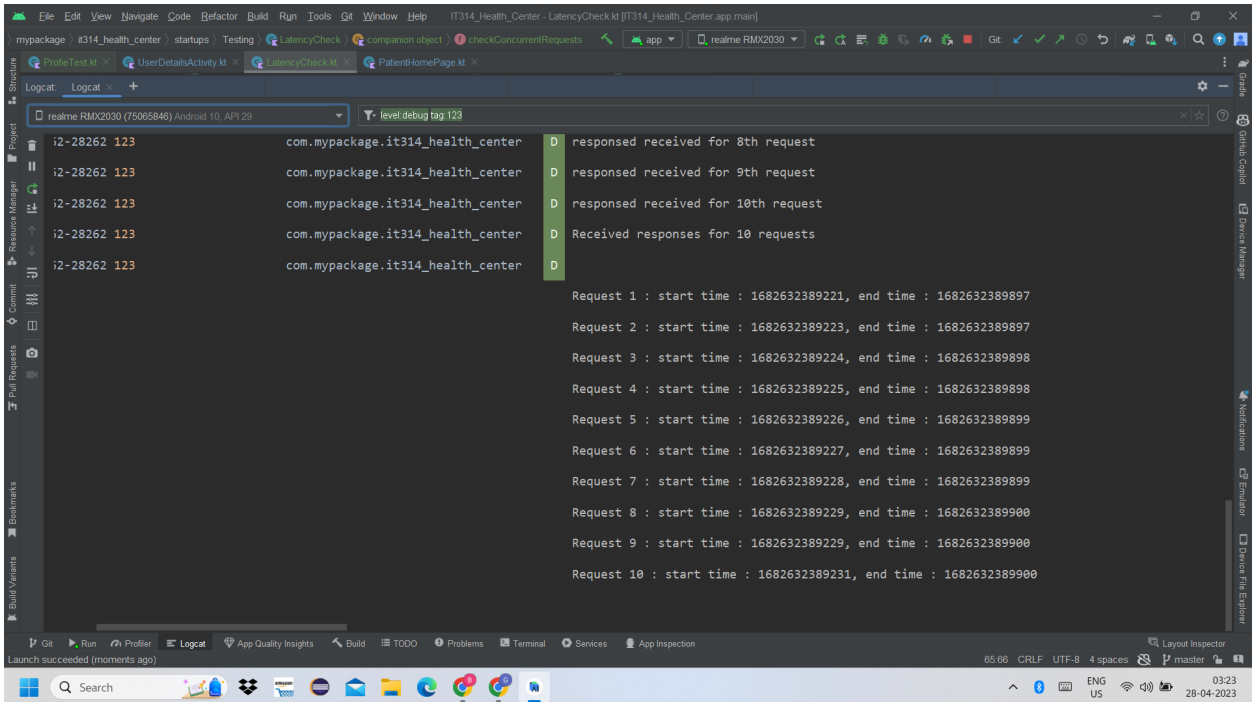


Status: Passed

4) Concurrent request handling

Testcase: The system should be able to handle concurrent requests and should be able to process them effectively.

Test Method: To test this, very few users were available, so to test the concurrency we ran a loop in which in each iteration we would request some information from our Firebase database and then we would note the request and response timings in each iteration.



Status: passed (handling concurrent requests)

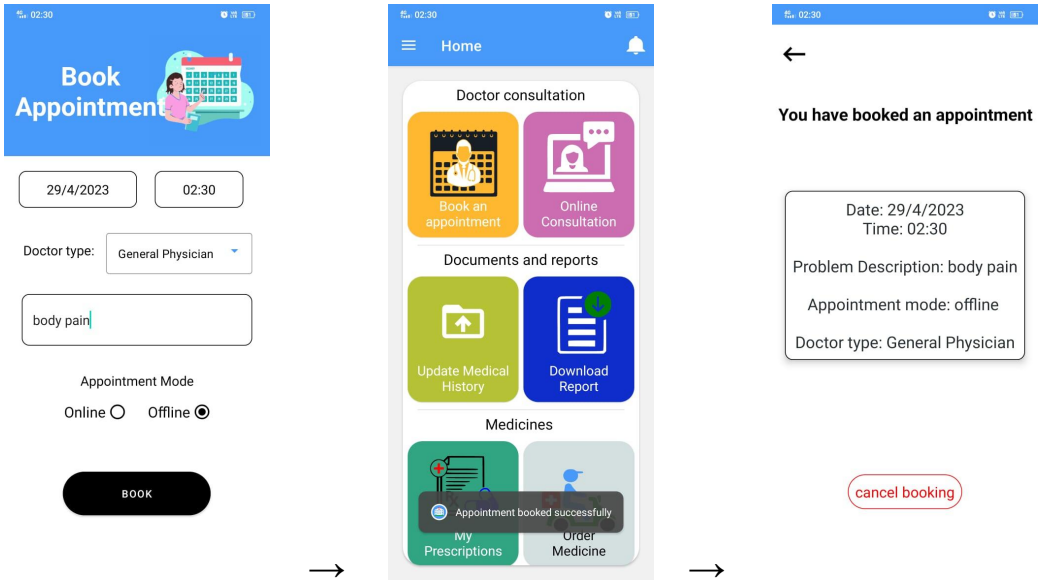
5) Load Testing :

Our Android app doesn't have any URL through which it can be accessed and hence multiple requests to the app cannot be sent. As a reason, load testing is not possible to perform.

6) Reliability

Testcase: The system should be ready to use at any point of time and it should be able to execute the tasks perfectly without any failure.

Test method: Taking Book Appointment as an example, we tested that when the user books an appointment then does it book successfully and shows the user that the appointment has been booked or not.



Status: Passed