PROJECT REPORT:CHATCONNECT

Team ID	Team-590882

1. INTRODUCTION

1.1. Project Overview

The ChatConnect app is a communication platform designed to connect users through text messaging. The app allows users to register with their mobile numbers, send and receive text messages in real-time, set profile pictures, and receive push notifications for new messages.

1.2. Purpose

The purpose of the ChatConnect app is to provide a simple and effective means for users to communicate with their contacts via text messages. It aims to facilitate seamless, real-time, and secure text-based conversations.

2. LITERATURE SURVEY

2.1. Existing Problem

The purpose of the ChatConnect app is to provide a simple and effective means for users to communicate with their contacts via text messages. It aims to facilitate seamless, real-time, and secure text-based conversations.

2.2. References

Chatgpt, , Other dependencies that are not part of the Andoid studio like the Countrycode picker and others we have used in the code

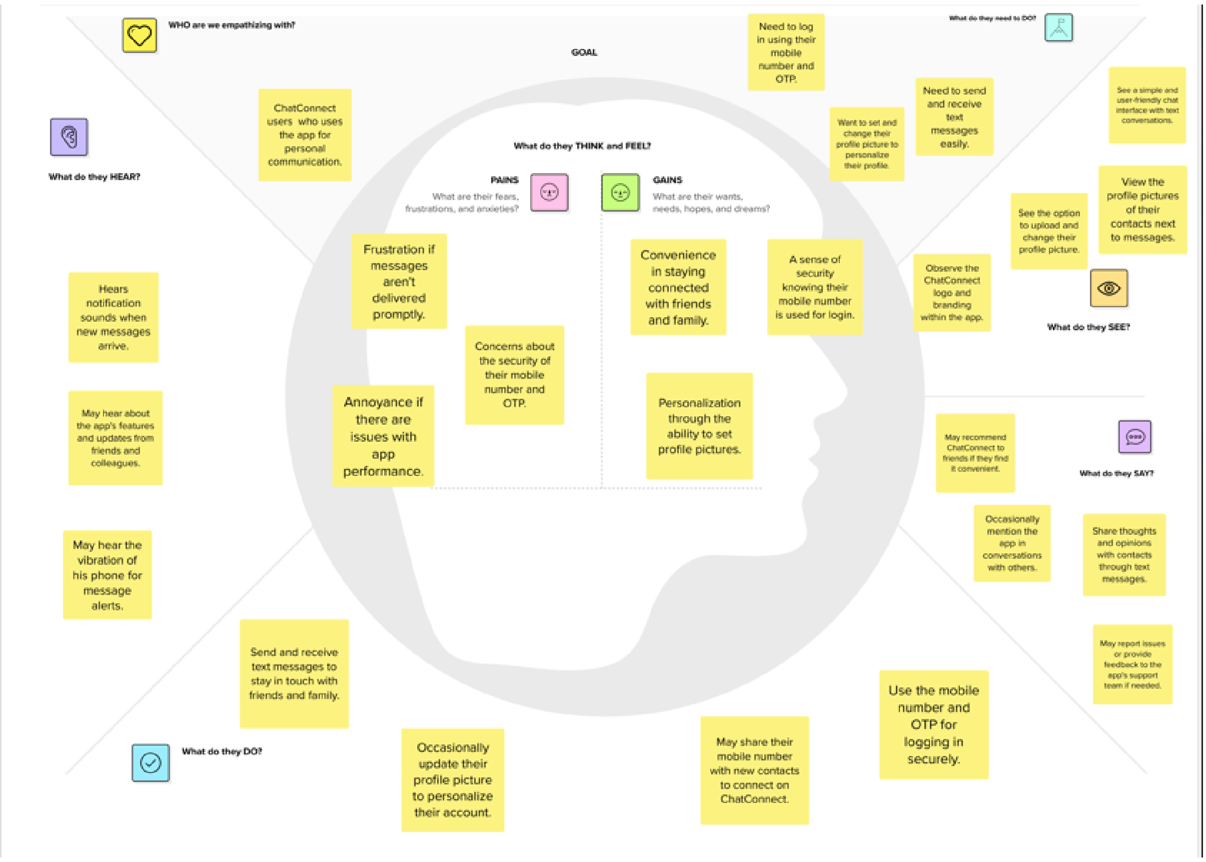
2.3. Problem Statement definition

The problem statement for the ChatConnect app is to create a secure and user-friendly messaging application that ensures privacy and convenience for users.

3. IDEATION & PROPOSED SOLUTION

3.1. Empathy Map Canvas

To understand user needs, an empathy map canvas was created to capture user emotions, concerns, and aspirations related to messaging applications.


WHO are we empathizing with?
GOAL
What do they need to DO?
What do they THINK and FEEL?
PAINS
What are their fears, frustrations, and anxieties?
GAINS
What are their wants, needs, hopes, and dreams?
What do they HEAR?
What do they SEE?
What do they SAY?
What do they DO?

ChatConnect users who uses the app for personal communication.

Need to log in using their mobile number and OTP.

Want to set and change their profile picture to personalize their profile.

Need to send and receive text messages easily.

See a simple and user-friendly chat interface with text conversations.

Frustration if messages aren't delivered promptly.

Concerns about the security of their mobile number and OTP.

Annoyance if there are issues with app performance.

Convenience in staying connected with friends and family.

A sense of security knowing their mobile number is used for login.

Personalization through the ability to set profile pictures.

Hears notification sounds when new messages arrive.

May hear about the app's features and updates from friends and colleagues.

May hear the vibration of his phone for message alerts.

Observe the ChatConnect logo and branding within the app.

See the option to upload and change their profile picture.

View the profile pictures of their contacts next to messages.

May recommend ChatConnect to friends if they find it convenient.

Occasionally mention the app in conversations with others.

Share thoughts and opinions with contacts through text messages.

May report issues or provide feedback to the app's support team if needed.

Send and receive text messages to stay in touch with friends and family.

Occasionally update their profile picture to personalize their account.

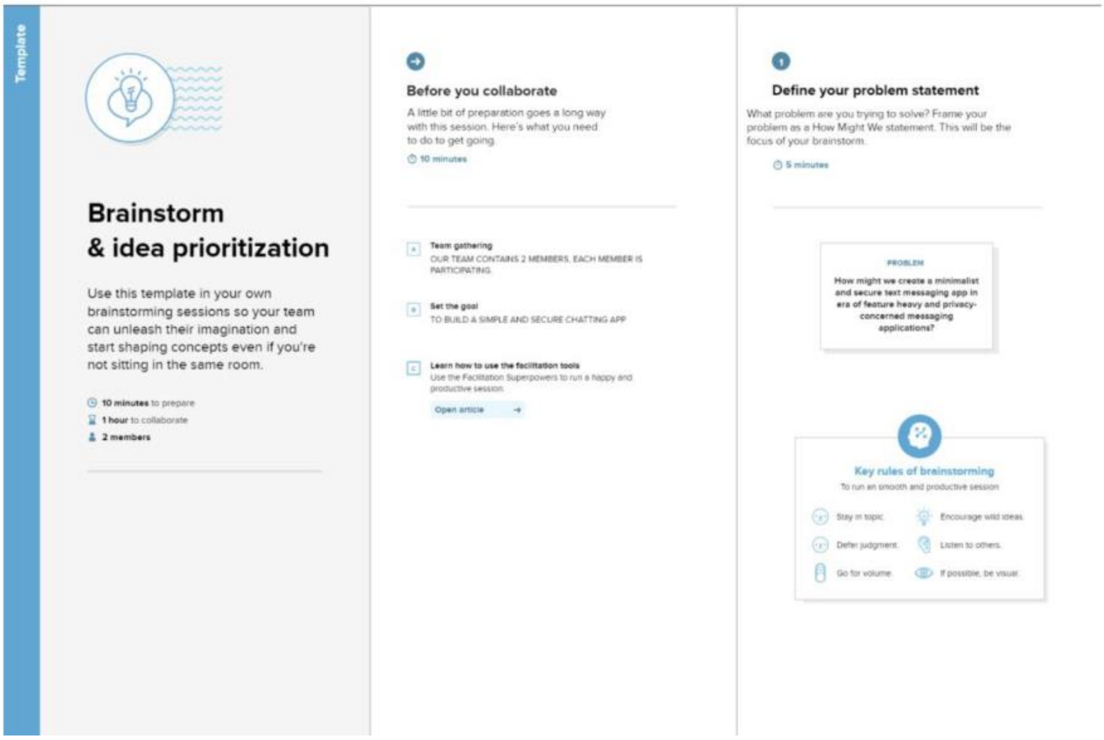
May share their mobile number with new contacts to connect on ChatConnect.

Use the mobile number and OTP for logging in securely.

3.2. Ideation and Brainstorming

The ideation phase involved brainstorming ideas for creating an intuitive and secure messaging platform. Key features such as one-time password (OTP) authentication, real-time messaging, and push notifications were identified.

Team Gathering, Collaboration and Select Problem Statement



Template

Brainstorm & idea prioritization

Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.

10 minutes to prepare
1 hour to collaborate
2 members

Before you collaborate

A little bit of preparation goes a long way with this session. Here's what you need to do to get going.

10 minutes

A Team gathering
OUR TEAM CONTAINS 2 MEMBERS. EACH MEMBER IS PARTICIPATING

B Set the goal
TO BUILD A SIMPLE AND SECURE CHATTING APP

C Learn how to use the facilitation tools
Use the Facilitation Superpowers to run a happy and productive session.

Open article →

1 Define your problem statement

What problem are you trying to solve? Frame your problem as a How Might We statement. This will be the focus of your brainstorm.

5 minutes

PROBLEM

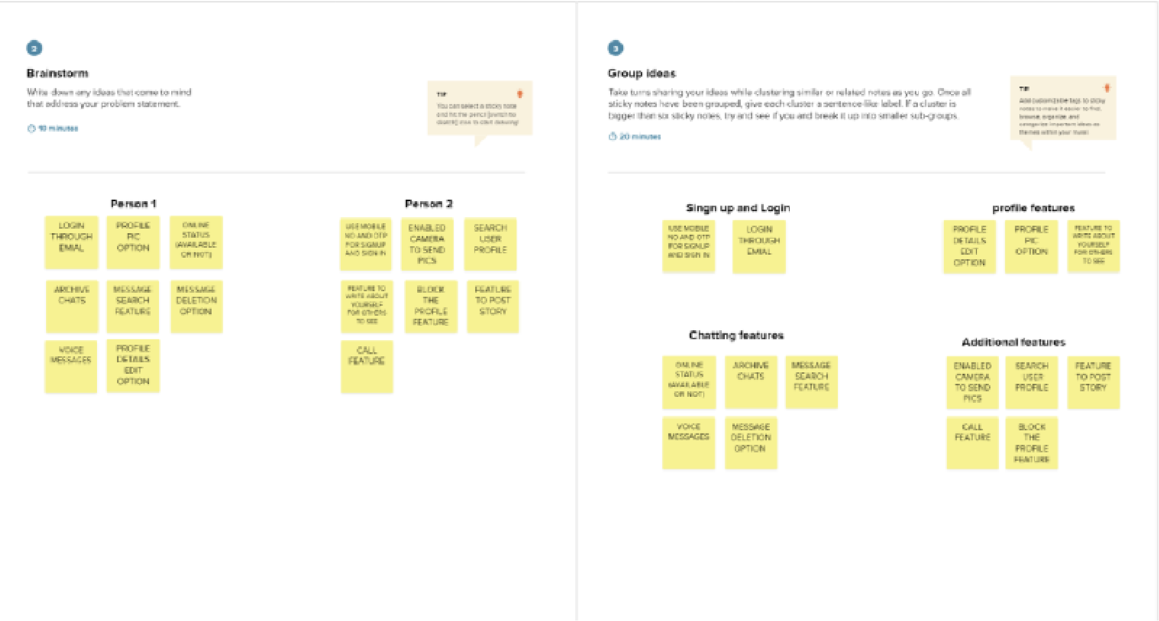
How might we create a minimalist and secure text messaging app in era of feature heavy and privacy-concerned messaging applications?

Key rules of brainstorming

To run an smooth and productive session

Stay in topic.
Encourage wild ideas.
Defer judgment.
Listen to others.
Go for volume.
If possible, be visual.

Brainstorm, Idea Listing and Grouping



2 Brainstorm

Write down any ideas that come to mind that address your problem statement.

10 minutes

TIP
You can select a sticky note and hit the pencil [switch to sketch] icon to start drawing!

Person 1

LOGIN THROUGH EMAIL
PROFILE PIC OPTION
ONLINE STATUS (AVAILABLE OR NOT)
ARCHIVE CHATS
MESSAGE SEARCH FEATURE
MESSAGE DELETION OPTION
VOICE MESSAGES
PROFILE DETAILS EDIT OPTION

Person 2

USE MOBILE NO AND OTP FOR SIGNUP AND SIGN IN
ENABLED CAMERA TO SEND PICS
SEARCH USER PROFILE
FEATURE TO WRITE ABOUT YOURSELF FOR OTHERS TO SEE
BLOCK THE PROFILE FEATURE
FEATURE TO POST STORY
CALL FEATURE

3 Group ideas

Take turns sharing your ideas while clustering similar or related notes as you go. Once all sticky notes have been grouped, give each cluster a sentence-like label. If a cluster is bigger than six sticky notes, try and see if you and break it up into smaller sub-groups.

20 minutes

TIP
Add customizable tags to sticky notes to make it easier to find, browse, organize and categorize important ideas as themes within your mural.

Singn up and Login

USE MOBILE NO AND OTP FOR SIGNUP AND SIGN IN
LOGIN THROUGH EMAIL

profile features

PROFILE DETAILS EDIT OPTION
PROFILE PIC OPTION
FEATURE TO WRITE ABOUT YOURSELF FOR OTHERS TO SEE

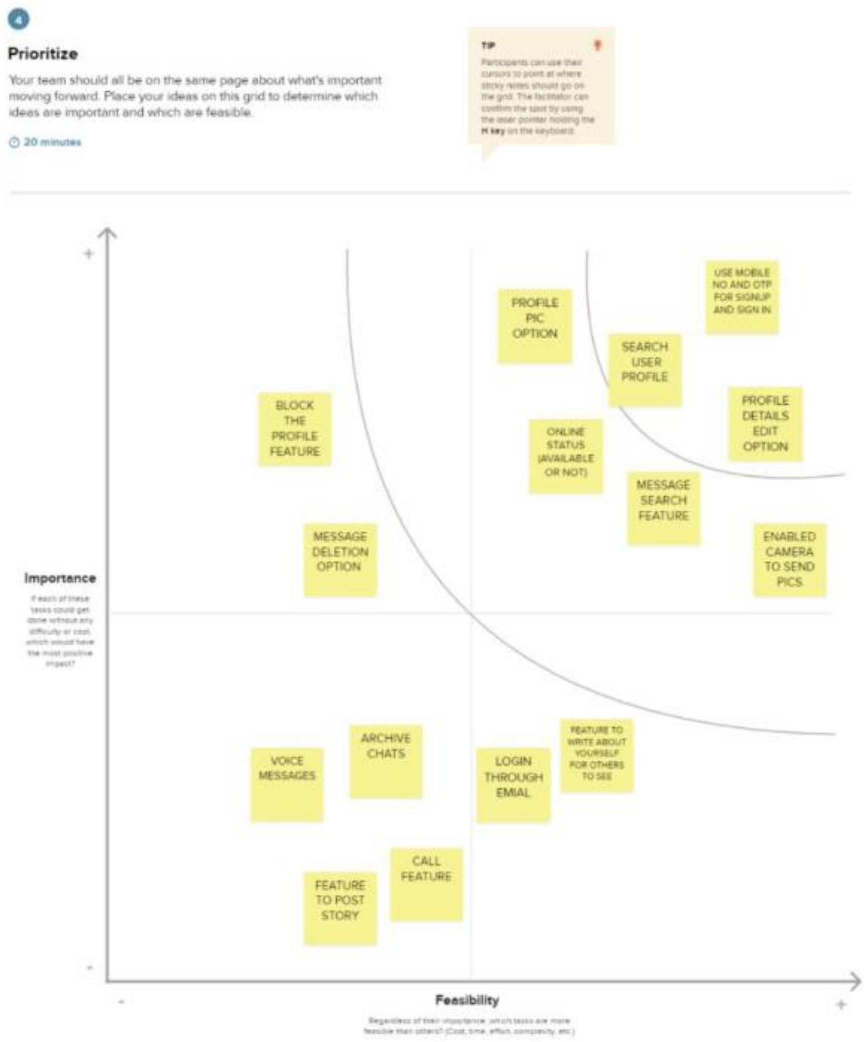
Chatting features

ONLINE STATUS (AVAILABLE OR NOT)
ARCHIVE CHATS
MESSAGE SEARCH FEATURE
VOICE MESSAGES
MESSAGE DELETION OPTION

Additional features

ENABLED CAMERA TO SEND PICS
SEARCH USER PROFILE
FEATURE TO POST STORY
CALL FEATURE
BLOCK THE PROFILE FEATURE

Idea Prioritization



4

Prioritize

Your team should all be on the same page about what's important moving forward. Place your ideas on this grid to determine which ideas are important and which are feasible.

20 minutes

TIP

Participants can use their cursors to point at where sticky notes should go on the grid. The facilitator can confirm the spot by using the laser pointer holding the **H key** on the keyboard.

Importance

If each of these tasks could get done without any difficulty or cost, which would have the most positive impact?

Feasibility

Regardless of their importance, which tasks are more feasible than others? (Cost, time, effort, complexity, etc.)

+
-
-
+
PROFILE PIC OPTION
USE MOBILE NO AND OTP FOR SIGNUP AND SIGN IN
SEARCH USER PROFILE
BLOCK THE PROFILE FEATURE
ONLINE STATUS (AVAILABLE OR NOT)
PROFILE DETAILS EDIT OPTION
MESSAGE SEARCH FEATURE
MESSAGE DELETION OPTION
ENABLED CAMERA TO SEND PICS
ARCHIVE CHATS
FEATURE TO WRITE ABOUT YOURSELF FOR OTHERS TO SEE
VOICE MESSAGES
LOGIN THROUGH EMIAL
CALL FEATURE
FEATURE TO POST STORY

4. REQUIRMENT ANALYSIS

4.1. Functional Requirements

- User registration with mobile number and OTP.
- Real-time text messaging.
- Profile picture uploads.
- Push notifications for new messages

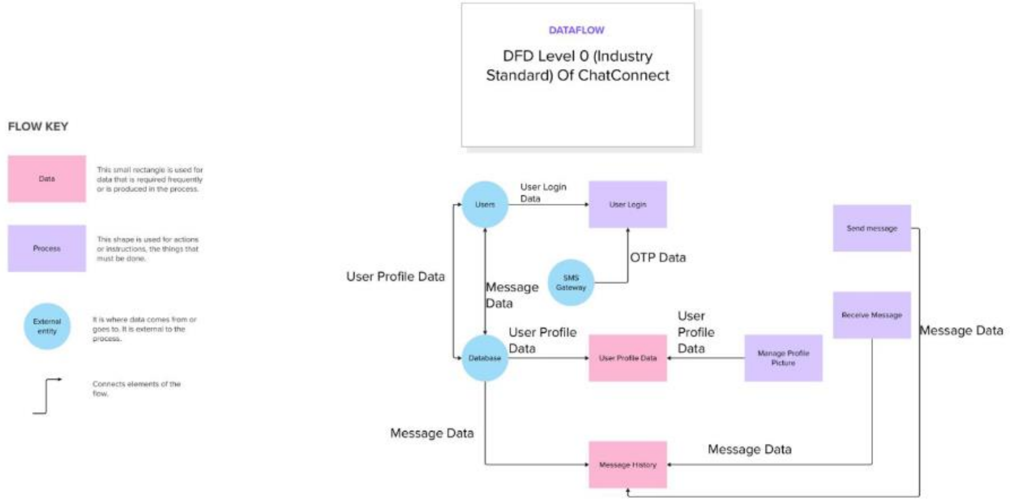
4.2. Non-Functional Requirements

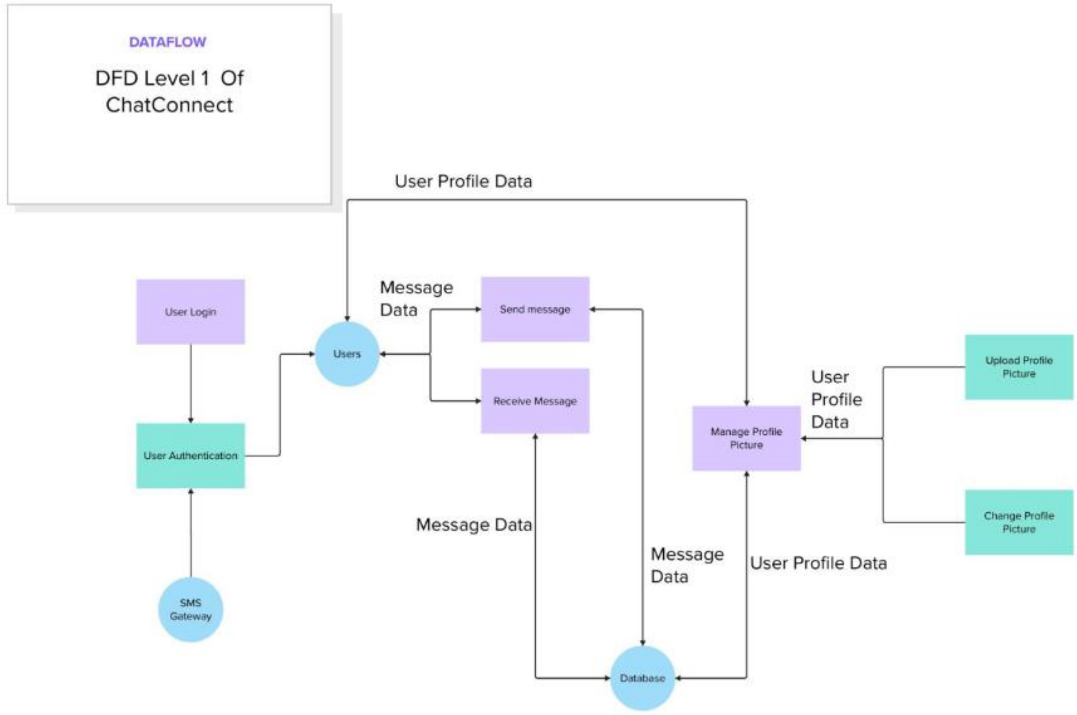
- Security and data privacy.
- Scalability to accommodate a growing user base.
- Low-latency real-time messaging

5. PROJECT DESIGN

5.1. Data Flow Diagrams and User Stories

Data flow diagrams were created to visualize the flow of information within the app. User stories were developed to define user requirements and expectations.


DATAFLOW
DFD Level 0 (Industry Standard) Of ChatConnect
FLOW KEY
Data
This small rectangle is used for data that is required frequently or is produced in the process.
Process
This shape is used for actions or instructions, the things that must be done.
External entity
It is where data comes from or goes to. It is external to the process.
Connects elements of the flow.
Users
User Login Data
User Login
OTP Data
SMS Gateway
Send message
User Profile Data
Message Data
Receive Message
Message Data
User Profile Data
User Profile Data
Database
User Profile Data
Manage Profile Picture
Message Data
Message History
Message Data

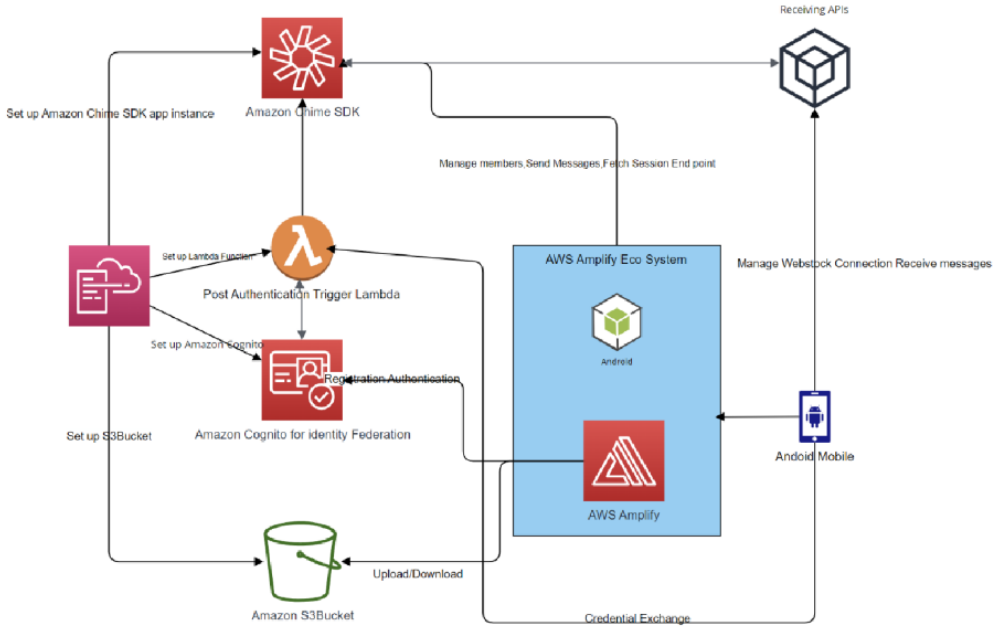


User Stories

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
New User	Registration	USN-1	As a user, I want to create an account by providing my mobile number and receive an OTP for registration.I want to create an account by providing my mobile number and receive an OTP for registration.	The app should allow a user to enter their mobile number. An OTP should be sent to the provided mobile number. The user should be able to enter the OTP to complete registration.	High	Sprint-1
Registered User	User Login	USN-2	As a Registered user, I want to login using my mobile number and OTP.	The app should have a login screen where users can enter their mobile number. The app should send an OTP to the user's mobile number. The user should enter the OTP to access their account.	High	Sprint-1
Registered User	Send Text Messages	USN-3	As a ChatConnect user, I want to send text messages to my contacts.	Users should be able to select a contact or enter a mobile number. Users should be able to type and send text messages to the selected contact.	High	Sprint-1
Registered User	Receive Text Messages	USN-4	As a ChatConnect user, I want to receive text messages from my contacts.	Users should receive text messages from their contacts. Messages should be displayed in the chat interface.	High	Sprint-1
Registered User	Manage Profile Details	USN-5	As a ChatConnect user, I want to be able to upload and change my profile details	Users should be able to upload profile details during registration. Users should have the option to change their profile picture and their personal details in the app's settings	High	Sprint-1

5.2. Solution Architecture

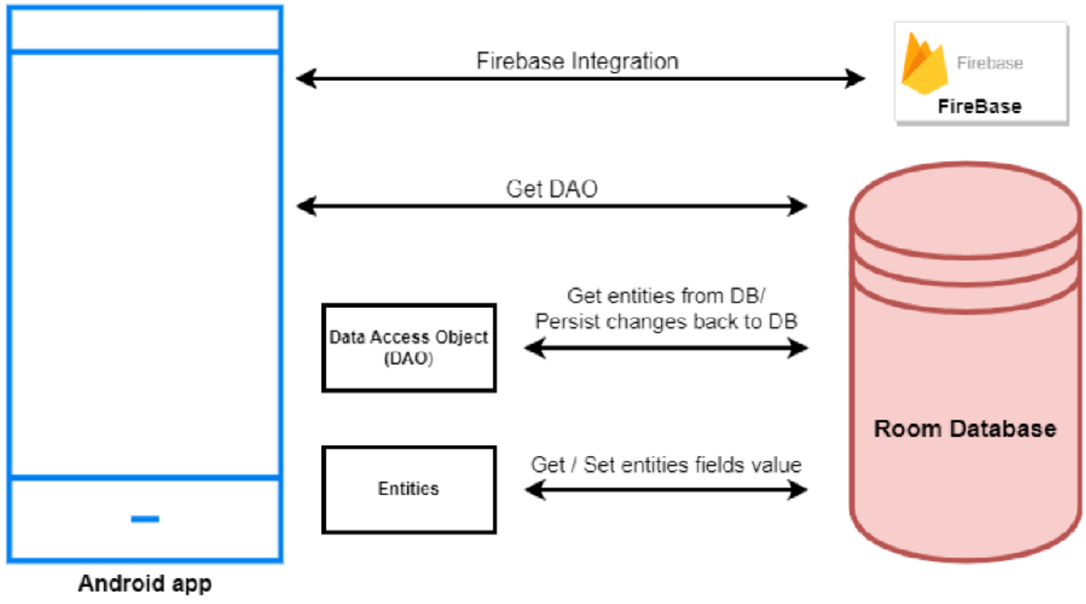
The architecture includes a backend server, a database for storing user data and messages, real-time messaging using WebSockets, and cloud-based storage for profile pictures.


Receiving APIs
Set up Amazon Chime SDK app instance
Amazon Chime SDK
Manage members,Send Messages,Fetch Session End point
Set up Lambda Function
Post Authentication Trigger Lambda
AWS Amplify Eco System
Android
Manage Webstock Connection Receive messages
Set up Amazon Cognito
Registration Authentication
Set up S3Bucket
Amazon Cognito for identity Federation
Andoid Mobile
AWS Amplify
Upload/Download
Amazon S3Bucket
Credential Exchange

6. PROJECT PLANNING AND SCHEDULING

6.1. Technical Architecture

Architecture



6.2. Sprint planning and estimation

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed	Sprint Release Date (Actual)
Sprint-1	8	4 Days	18 Oct 2023	22 Oct 2023	8	22 Oct 2023
Sprint-2	16	6 Days	22 Oct 2023	28 Oct 2022	14	28 Oct 2022
Sprint-3	13	6 Days	29 Nov 2022	3 Nov 2022	13	3 Nov 2022
Sprint-4	13	3 Days	4 Nov 2022	6 Nov 2022	12	6 Nov 2022

6.3. Sprint Delivery Schedule

The sprints were scheduled with the aim to release a fully functional app by the project deadline on November 6, 2023.

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Registration	USN-1	As a user, I want to be able to register with my mobile number and receive an OTP for verification.	5	High	Niranjan, Jayachandra
Sprint-1	Login	USN-2	As a user, I want to be able to log in using my registered mobile number and OTP.	3	High	Niranjan, Jayachandra
Sprint-3	Update Profile Details	USN-3	As a user, I want to update my profile details for my ChatCnnect account.	5	High	Niranjan, Jayachandra
Sprint-2	Send Text messages	USN-4	As a user, I want to send text messages to my contacts in real-time.	8	High	Niranjan, Jayachandra
Sprint-2	Receive Text messages	USN-5	As a user, I want to receive text messages in real-time from my contacts.	8	High	Niranjan, Jayachandra
Sprint-4	Message history	USN-6	As a user, I want to view my chat history with contacts.	5	High	Niranjan, Jayachandra
Sprint-4	Push Notifications	USN-7	As a user, I want to receive push notifications for new messsages.	8	High	Niranjan, Jayachandra
Sprint-4	File Storage	USN-8	As a user, I want my profile details to be stored securely.	5	High	Niranjan, Jayachandra

7. CODING AND SOLUTIONING

7.1. Feature 1: User Registration

SplashActivity: The first screen that seen by the user which shows Icon and Text Chatconnect

https://github.com/smartinternz02/SI-GuidedProject-587527-1696962169/blob/master/Project%20Code/app/src/main/java/com/example/chatconnect/SplashActivity.java

LoginPhonenumberActivity

https://github.com/smartinternz02/SI-GuidedProject-587527-1696962169/blob/master/Project%20Code/app/src/main/java/com/example/chatconnect/LoginPhoneNumberActivity.java

LoginOtpActivity

https://github.com/smartinternz02/SI-GuidedProject-587527-1696962169/blob/master/Project%20Code/app/src/main/java/com/example/chatconnect/LoginOtpActivity.java

LoginUsernameActivity

https://github.com/smartinternz02/SI-GuidedProject-587527-1696962169/blob/master/Project%20Code/app/src/main/java/com/example/chatconnect/LoginUsernameActivity.java

7.2. Feature 2: Real time Messaging

The following are the codes for Searching user, Chatroom display, Chatting Activity, Receiving Notifications, Updating Profile features.

https://github.com/smartinternz02/SI-GuidedProject-587527-1696962169/blob/master/Project%20Code/app/src/main/java/com/example/chatconnect/ChatActivity.java

https://github.com/smartinternz02/SI-GuidedProject-587527-1696962169/blob/master/Project%20Code/app/src/main/java/com/example/chatconnect/ChatFragment.java

https://github.com/smartinternz02/SI-GuidedProject-587527-1696962169/blob/master/Project%20Code/app/src/main/java/com/example/chatconnect/FCMNotificationService.java

https://github.com/smartinternz02/SI-GuidedProject-587527-1696962169/blob/master/Project%20Code/app/src/main/java/com/example/chatconnect/MainActivity.java

https://github.com/smartinternz02/SI-GuidedProject-587527-1696962169/blob/master/Project%20Code/app/src/main/java/com/example/chatconnect/ProfileFragment.java https://github.com/smartinternz02/SI-GuidedProject-587527-1696962169/blob/master/Project%20Code/app/src/main/java/com/example/chatconnect/SearchUserActivity.java

7.3. Database Schema

The utils below have Android Util and Firebase Util which have methods that interact with the Firebase.
https://github.com/smartinternz02/SI-GuidedProject-587527-1696962169/tree/master/Project%20Code/app/src/main/java/com/example/chatconnect/utils

There are other codes like Models which have three files ChatMessageModel which have message related methods like getmessage, setmessage, getSenderId, SetSenderId, getTimestamp, setTimestamp and other code files are ChatroomModel which deal with the chatroomIds which deals with the getters and setter of ChatroomId, LastMessage, Userid's that interacted with eachother and created a chatroom and LastMessageSenderId

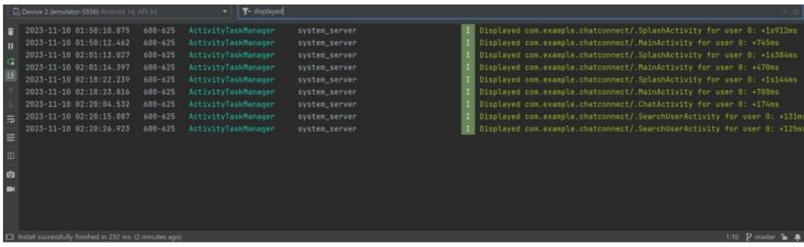
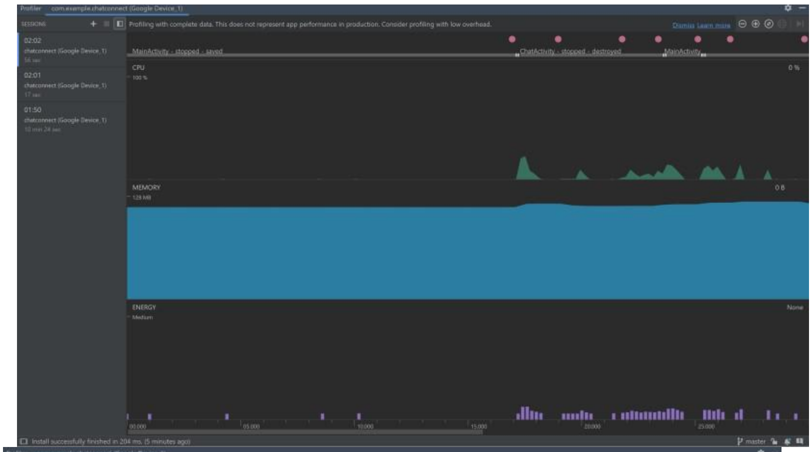
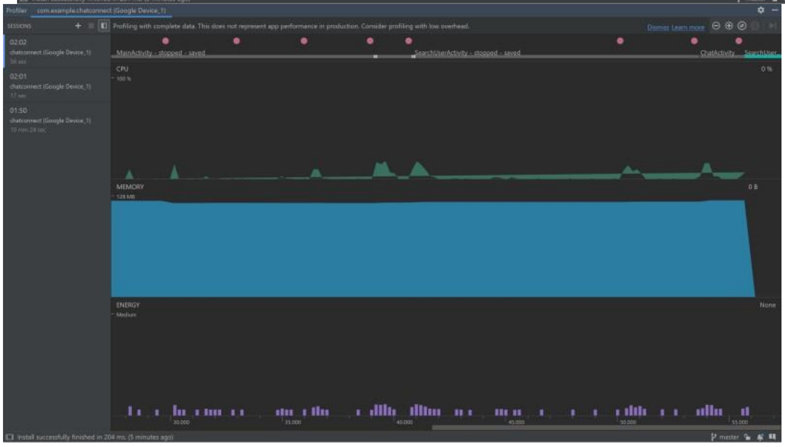
https://github.com/smartinternz02/SI-GuidedProject-587527-1696962169/tree/master/Project%20Code/app/src/main/java/com/example/chatconnect/model

And there are Adapter codes which deals with the left and right side of the chat, see the last message of the User or You with that user and also deals with when clicked on the user you will navigate to Chat Activity with that user and also handle the search feature in the app.

https://github.com/smartinternz02/SI-GuidedProject-587527-1696962169/tree/master/Project%20Code/app/src/main/java/com/example/chatconnect/adapter

8. PERFORMANCE TESTING

8.1. Performance Metrics

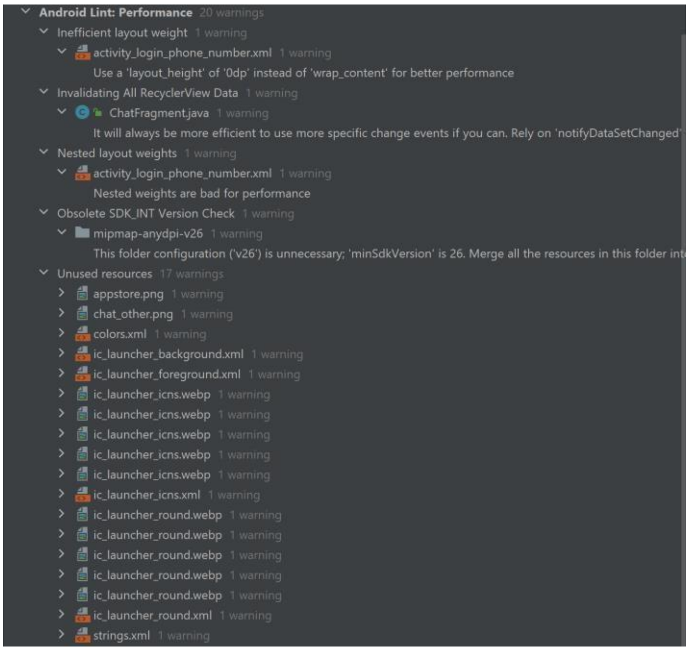
S.No.	Parameter	Values	Screenshot
1.	Metrics	**App Launch Time Screen Render Time**- Logcat and profiler screen shots are added	  

```
Device 2 (emulator-5556) Android 14, API 34        displayed
2023-11-10 01:50:10.875   600-625   ActivityTaskManager   system_server   I  Displayed com.example.chatconnect/.SplashActivity for user 0: +1s912ms
2023-11-10 01:50:12.462   600-625   ActivityTaskManager   system_server   I  Displayed com.example.chatconnect/.MainActivity for user 0: +745ms
2023-11-10 02:01:13.027   600-625   ActivityTaskManager   system_server   I  Displayed com.example.chatconnect/.SplashActivity for user 0: +1s384ms
2023-11-10 02:01:14.397   600-625   ActivityTaskManager   system_server   I  Displayed com.example.chatconnect/.MainActivity for user 0: +470ms
2023-11-10 02:18:22.239   600-625   ActivityTaskManager   system_server   I  Displayed com.example.chatconnect/.SplashActivity for user 0: +1s144ms
2023-11-10 02:18:23.816   600-625   ActivityTaskManager   system_server   I  Displayed com.example.chatconnect/.MainActivity for user 0: +700ms
2023-11-10 02:20:04.532   600-625   ActivityTaskManager   system_server   I  Displayed com.example.chatconnect/.ChatActivity for user 0: +174ms
2023-11-10 02:20:15.087   600-625   ActivityTaskManager   system_server   I  Displayed com.example.chatconnect/.SearchUserActivity for user 0: +131m
2023-11-10 02:20:26.923   600-625   ActivityTaskManager   system_server   I  Displayed com.example.chatconnect/.SearchUserActivity for user 0: +125m
Install successfully finished in 232 ms. (2 minutes ago)
```

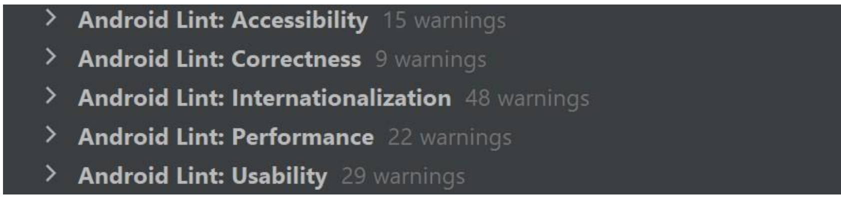
Profiling with complete data. This does not represent app performance in production. Consider profiling with low overhead.

Profiler
com.example.chatconnect (Google Device_1)
SESSIONS
02:02
chatconnect (Google Device_1)
02:01
chatconnect (Google Device_1)
01:50
chatconnect (Google Device_1)
Dismiss
Learn more
MainActivity - stopped - saved
ChatActivity - stopped - destroyed
MainActivity
SearchUserActivity - stopped - saved
CPU
100 %
0 %
MEMORY
128 MB
0 B
ENERGY
Medium
None
Install successfully finished in 204 ms. (5 minutes ago)
master

Code Quality- As we can see there are some warnings in the Lint about app performance and others but for app performance and others there are no errors and only have suggestions to increase the performance of app So we can overall quality of code is good.

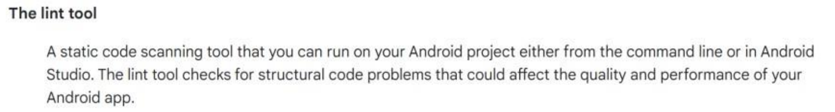


```
Android Lint: Performance 20 warnings
  Inefficient layout weight 1 warning
    activity_login_phone_number.xml 1 warning
      Use a 'layout_height' of '0dp' instead of 'wrap_content' for better performance
  Invalidating All RecyclerView Data 1 warning
    ChatFragment.java 1 warning
      It will always be more efficient to use more specific change events if you can. Rely on 'notifyDataSetChanged'
  Nested layout weights 1 warning
    activity_login_phone_number.xml 1 warning
      Nested weights are bad for performance
  Obsolete SDK_INT Version Check 1 warning
    mipmap-anydpi-v26 1 warning
      This folder configuration ('v26') is unnecessary; 'minSdkVersion' is 26. Merge all the resources in this folder int
  Unused resources 17 warnings
    appstore.png 1 warning
    chat_other.png 1 warning
    colors.xml 1 warning
    ic_launcher_background.xml 1 warning
    ic_launcher_foreground.xml 1 warning
    ic_launcher_icns.webp 1 warning
    ic_launcher_icns.webp 1 warning
    ic_launcher_icns.webp 1 warning
    ic_launcher_icns.webp 1 warning
    ic_launcher_icns.webp 1 warning
    ic_launcher_icns.xml 1 warning
    ic_launcher_round.webp 1 warning
    ic_launcher_round.webp 1 warning
    ic_launcher_round.webp 1 warning
    ic_launcher_round.webp 1 warning
    ic_launcher_round.webp 1 warning
    ic_launcher_round.xml 1 warning
    strings.xml 1 warning
```



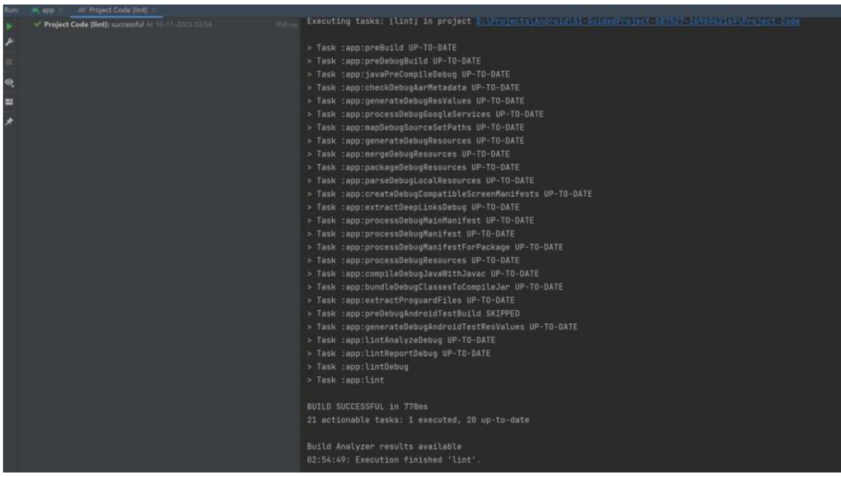
```
> Android Lint: Accessibility 15 warnings
> Android Lint: Correctness 9 warnings
> Android Lint: Internationalization 48 warnings
> Android Lint: Performance 22 warnings
> Android Lint: Usability 29 warnings
```

This is about Lint



The lint tool

A static code scanning tool that you can run on your Android project either from the command line or in Android Studio. The lint tool checks for structural code problems that could affect the quality and performance of your Android app.



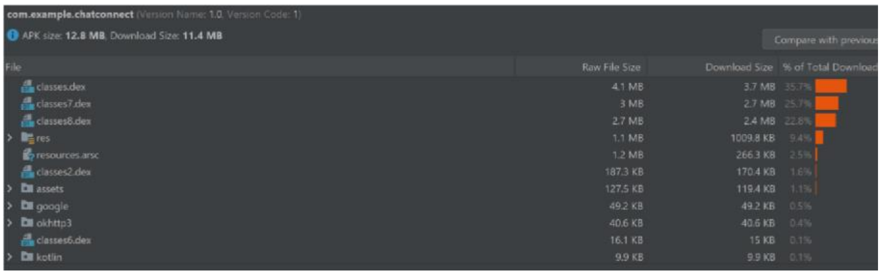
```
Executing tasks: [lint] in project D:\Projects\Android\SI-GuidedProject-587527-1696962169\Project Code

> Task :app:preBuild UP-TO-DATE
> Task :app:preDebugBuild UP-TO-DATE
> Task :app:javaPreCompileDebug UP-TO-DATE
> Task :app:checkDebugAarMetadata UP-TO-DATE
> Task :app:generateDebugResValues UP-TO-DATE
> Task :app:processDebugGoogleServices UP-TO-DATE
> Task :app:mapDebugSourceSetPaths UP-TO-DATE
> Task :app:generateDebugResources UP-TO-DATE
> Task :app:mergeDebugResources UP-TO-DATE
> Task :app:packageDebugResources UP-TO-DATE
> Task :app:parseDebugLocalResources UP-TO-DATE
> Task :app:createDebugCompatibleScreenManifests UP-TO-DATE
> Task :app:extractDeepLinksDebug UP-TO-DATE
> Task :app:processDebugMainManifest UP-TO-DATE
> Task :app:processDebugManifest UP-TO-DATE
> Task :app:processDebugManifestForPackage UP-TO-DATE
> Task :app:processDebugResources UP-TO-DATE
> Task :app:compileDebugJavaWithJavac UP-TO-DATE
> Task :app:bundleDebugClassesToCompileJar UP-TO-DATE
> Task :app:extractProguardFiles UP-TO-DATE
> Task :app:preDebugAndroidTestBuild SKIPPED
> Task :app:generateDebugAndroidTestResValues UP-TO-DATE
> Task :app:lintAnalyzeDebug UP-TO-DATE
> Task :app:lintReportDebug UP-TO-DATE
> Task :app:lintDebug
> Task :app:lint

BUILD SUCCESSFUL in 778ms
21 actionable tasks: 1 executed, 20 up-to-date

Build Analyzer results available
02:54:49: Execution finished 'lint'.
```

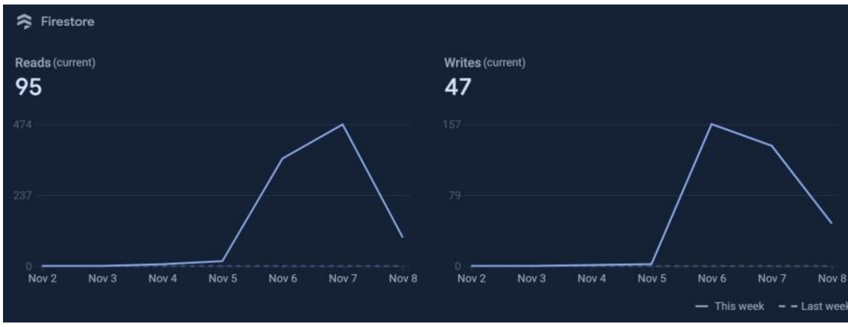
<table>
<tr>
<td>2.</td>
<td>Usage</td>
<td><b>App Size-</b>

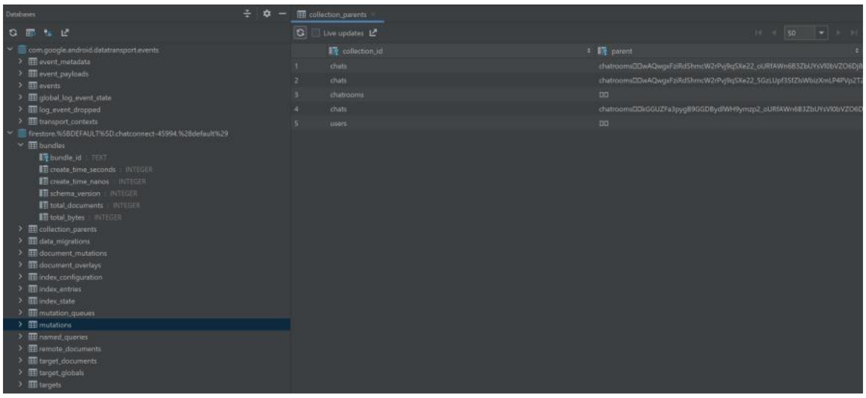
<b>Customer Experience-</b></td>
<td>
com.example.chatconnect (Version Name: 1.0, Version Code: 1)
APK size: 12.8 MB, Download Size: 11.4 MB

<table>
<tr><th>File</th><th>Raw File Size</th><th>Download Size</th><th>% of Total Download</th></tr>
<tr><td>classes.dex</td><td>4.1 MB</td><td>3.7 MB</td><td>35.7%</td></tr>
<tr><td>classes7.dex</td><td>3 MB</td><td>2.7 MB</td><td>25.7%</td></tr>
<tr><td>classes8.dex</td><td>2.7 MB</td><td>2.4 MB</td><td>22.8%</td></tr>
<tr><td>res</td><td>1.1 MB</td><td>1009.8 KB</td><td>9.4%</td></tr>
<tr><td>resources.arsc</td><td>1.2 MB</td><td>266.3 KB</td><td>2.5%</td></tr>
<tr><td>classes2.dex</td><td>187.3 KB</td><td>170.4 KB</td><td>1.6%</td></tr>
<tr><td>assets</td><td>127.5 KB</td><td>119.4 KB</td><td>1.1%</td></tr>
<tr><td>google</td><td>49.2 KB</td><td>49.2 KB</td><td>0.5%</td></tr>
<tr><td>okhttp3</td><td>40.6 KB</td><td>40.6 KB</td><td>0.4%</td></tr>
<tr><td>classes6.dex</td><td>16.1 KB</td><td>15 KB</td><td>0.1%</td></tr>
<tr><td>kotlin</td><td>9.9 KB</td><td>9.9 KB</td><td>0.1%</td></tr>
</table>

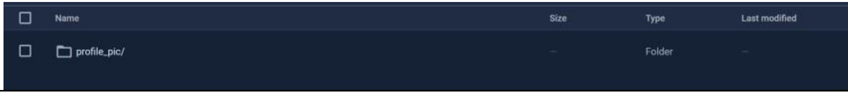
We tested with 3 users everyone said that it is good app that does not involv complicated features and 1 user said that app is good but needs little development with receiving messages.</td>
</tr>
<tr>
<td>3.</td>
<td>Performance</td>
<td><b>Error and Crash Rates</b>

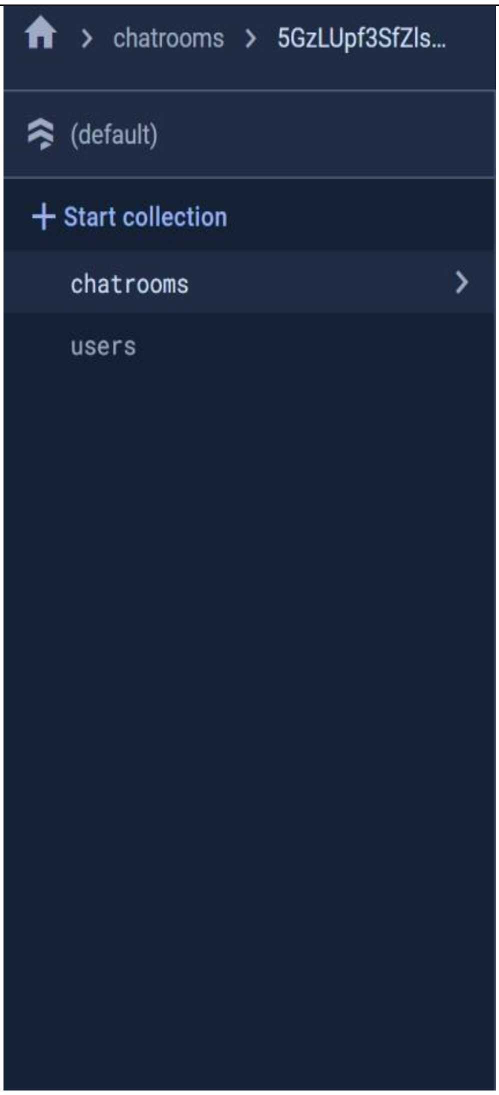
<b>Database Query Performance</b>
The chatrooms id's and users id's who have exchanged a chat between them are store in chatrooms and user ids when they create their account will be stored in users</td>
<td>After about 30 minutes or sometimes 40 and on the emulator it is showing that app is keep getting stopped close app and sometimes this does not occu for a long time.





<pre>
com.google.android.datatransport.events
  event_metadata
  event_payloads
  events
  global_log_event_state
  log_event_dropped
  transport_contexts
firestore.%5BDEFAULT%5D.chatconnect-45994.%28default%29
  bundles
    bundle_id : TEXT
    create_time_seconds : INTEGER
    create_time_nanos : INTEGER
    schema_version : INTEGER
    total_documents : INTEGER
    total_bytes : INTEGER
  collection_parents
  data_migrations
  document_mutations
  document_overlays
  index_configuration
  index_entries
  index_state
  mutation_queues
  mutations
  named_queries
  remote_documents
  target_documents
  target_globals
  targets
</pre>
<table>
<tr><th></th><th>collection_id</th><th>parent</th></tr>
<tr><td>1</td><td>chats</td><td>chatrooms□□DwAQwgxFziRdShmcW2rPvj9qSXe22_oURfAWn6B3ZbUYsVl0bVZO6Dj8</td></tr>
<tr><td>2</td><td>chats</td><td>chatrooms□□DwAQwgxFziRdShmcW2rPvj9qSXe22_5GzLUpf35fZlsWbizXmLP4PVpZT2</td></tr>
<tr><td>3</td><td>chatrooms</td><td>□□</td></tr>
<tr><td>4</td><td>chats</td><td>chatrooms□□kGGUZFa3pyg89GGDBydWH9ymzp2_oURfAWn6B3ZbUYsVl0bVZO6D</td></tr>
<tr><td>5</td><td>users</td><td>□□</td></tr>
</table>

Profile pic information is stored as shown below in storage

<table>
<tr><th>□</th><th>Name</th><th>Size</th><th>Type</th><th>Last modified</th></tr>
<tr><td>□</td><td>profile_pic/</td><td>—</td><td>Folder</td><td>—</td></tr>
</table></td>
</tr>
</table>

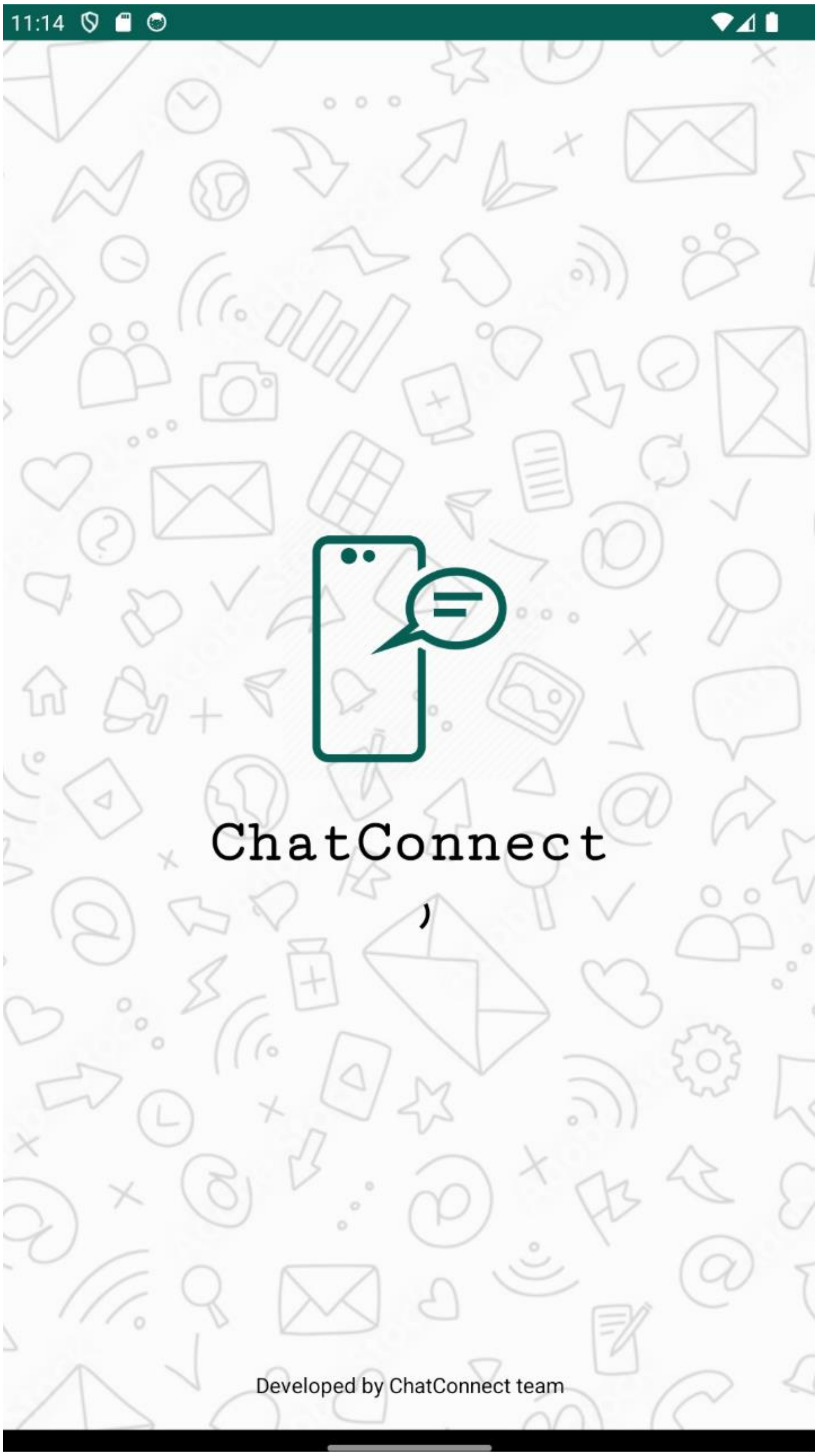
			chatrooms 5GzLUpf3SfZls… (default) + Start collection chatrooms users

9. RESULTS

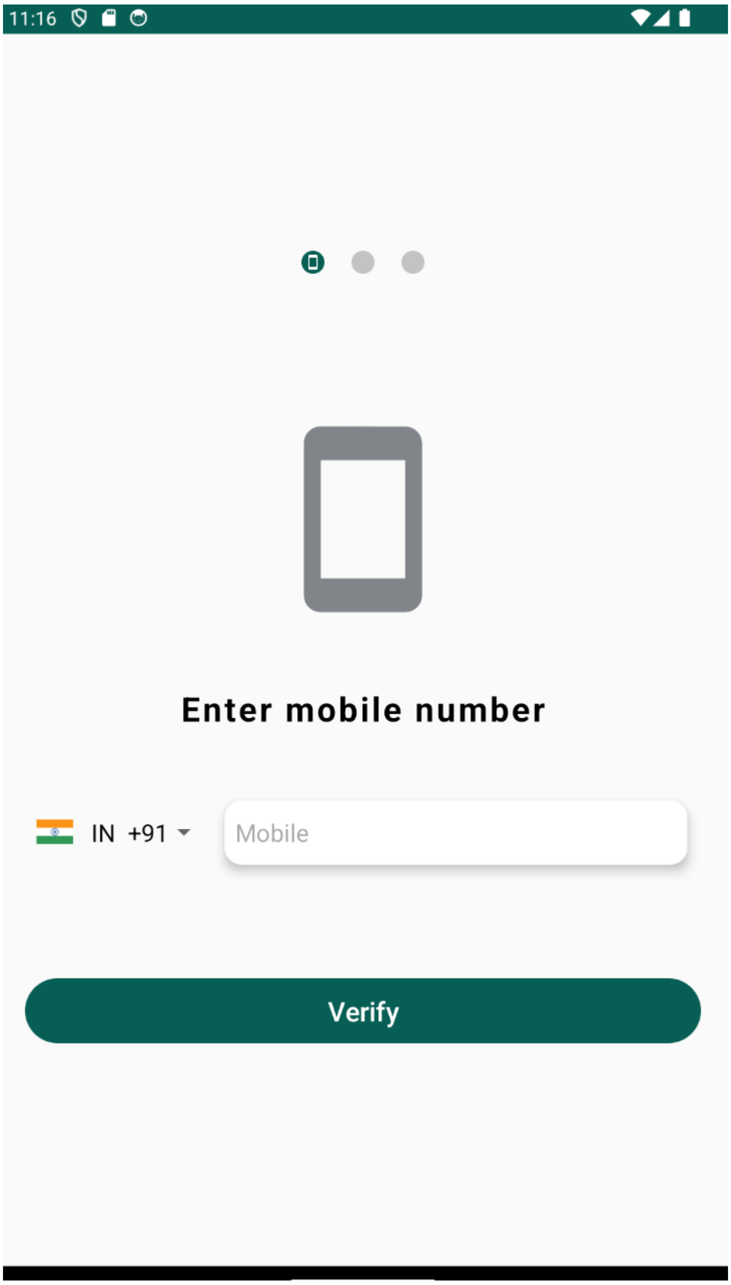
9.1. Output Screenshots

Screenshots were captured to showcase the app's user interface and functionality.

First Screen:



<u>Sign-in and Sign-up using Phone number and OTP</u>:



11:16

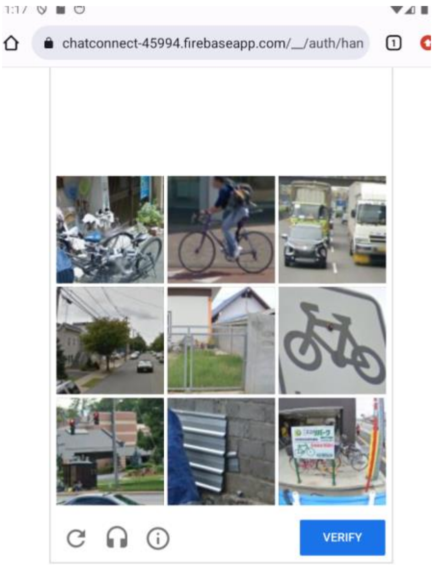
Enter mobile number

IN +91

Mobile

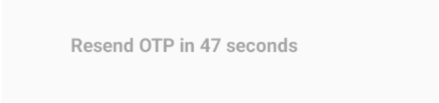
Verify

- Next a verification will happen

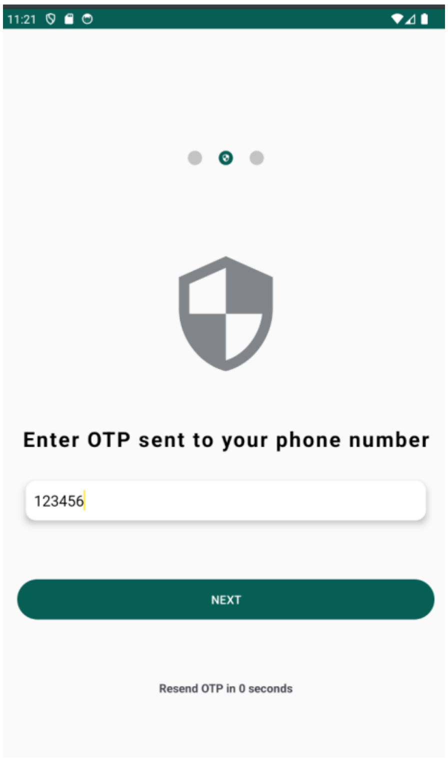


OTP Screen

- “OTP sent successful” this message will be seen on screen and Enter OTP on screen.
- Resend OTP will be available after 60sec.



Resend OTP in 47 seconds

- 

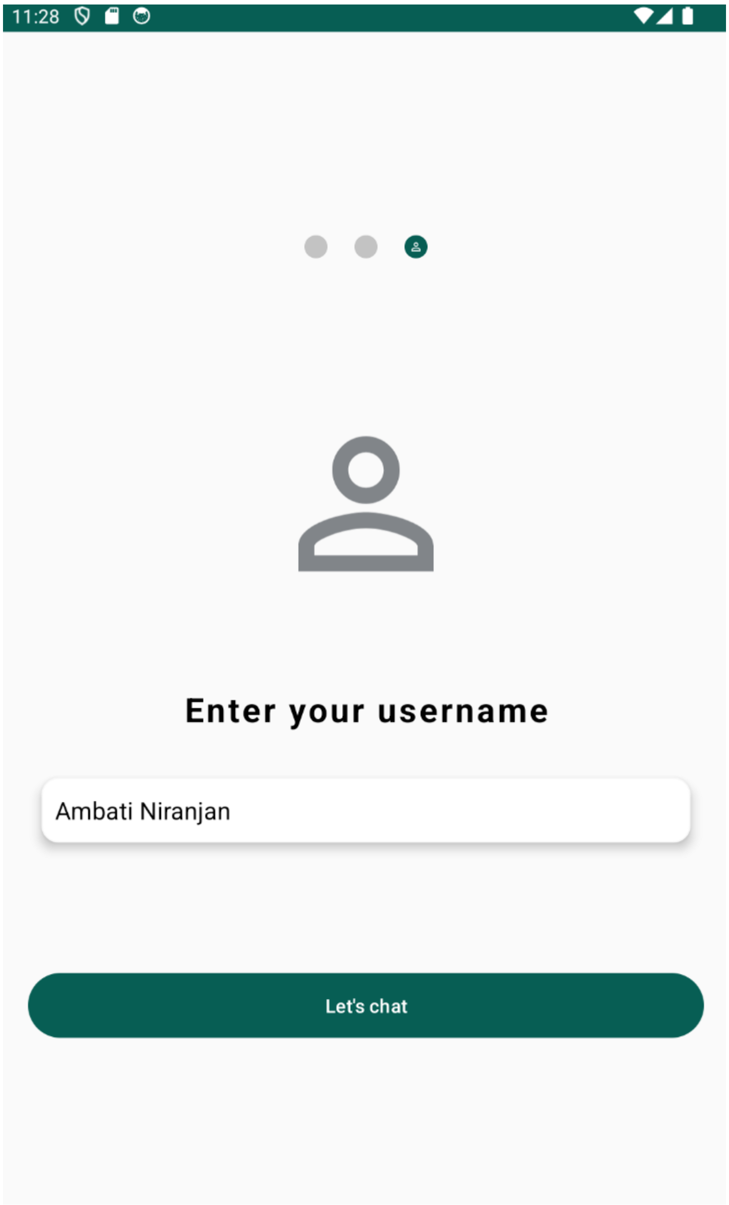
Enter OTP sent to your phone number

123456

Resend OTP in 0 seconds

- Click Next

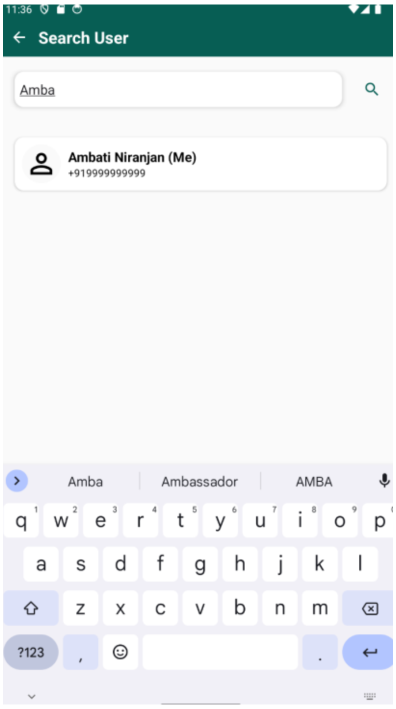
- Write Username (if you are already an user the username you kept before will appear automatically) after click Lets Chat.



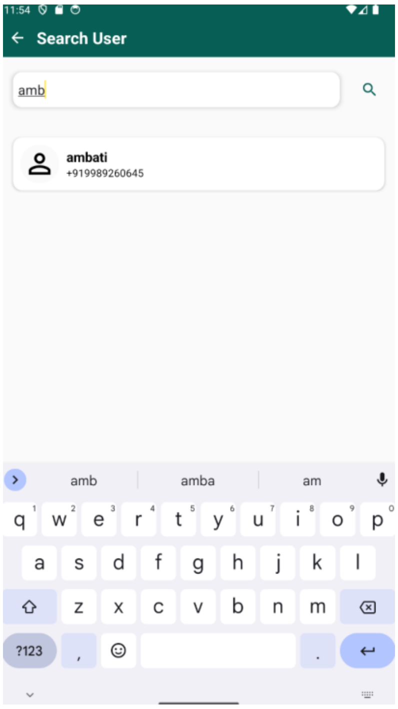
Enter your username

Ambati Niranjan

- Even if you are a old user if it is a new device the Chat Screen will be empty but all your chats are stored you just need to search for that user and then click on that user and you can see Chat, Now if you go back Chat room have a user and your previous chat. For new user it is the same process go to search and select user you want to chat with (**User name are Case sensitive**).

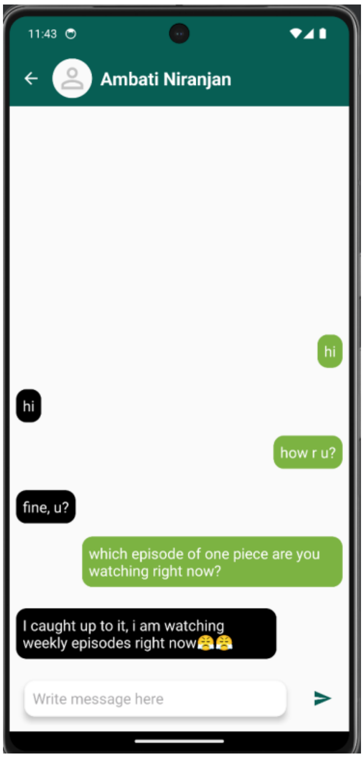


Ambati Niranjan (Me)
+919999999999



ambati
+919989260645

- Now chat with user



hi

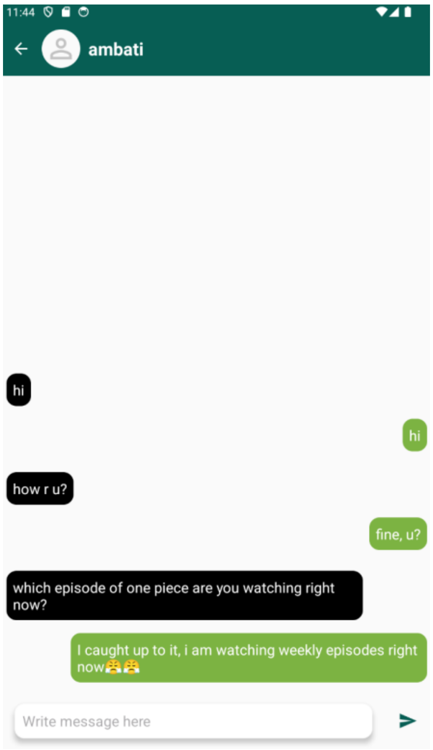
hi

how r u?

fine, u?

which episode of one piece are you watching right now?

I caught up to it, i am watching weekly episodes right now😤😤



hi

hi

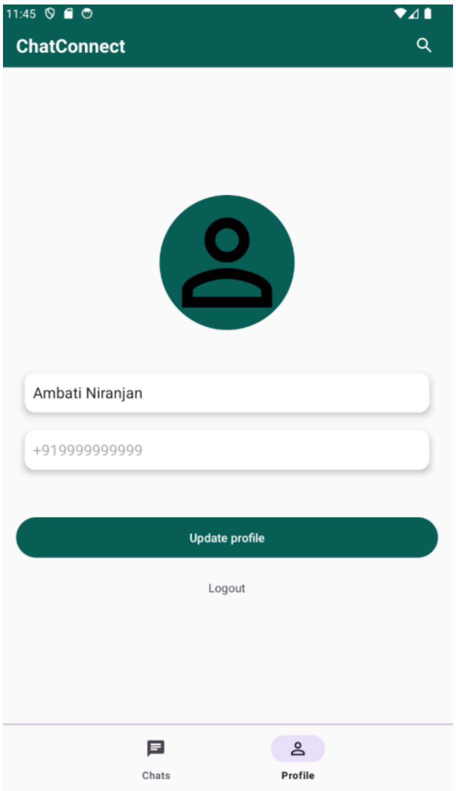
how r u?

fine, u?

which episode of one piece are you watching right now?

I caught up to it, i am watching weekly episodes right now😤😤

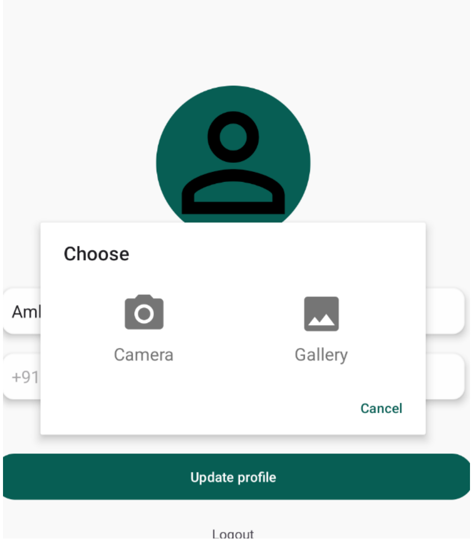
- You can update your profile as well and upload a pic as well.



Ambati Niranjan

+919999999999

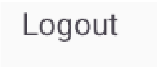
- Click on Person icon to add profile pic



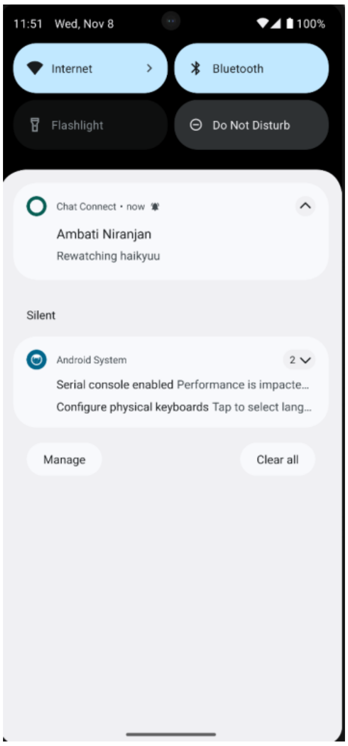
Aml

+91

- You can logout by clicking on logout



- You will get notifications as well



Chat Connect • now

Ambati Niranjan

Rewatching haikyuu

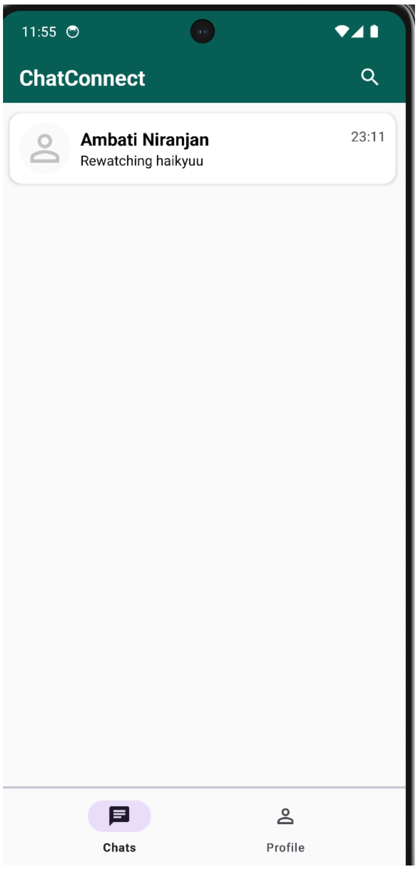
Silent

Android System 2

Serial console enabled Performance is impacte...

Configure physical keyboards Tap to select lang...

- But you need to have at least one interaction in order to receive a notification and click on notification to go to chat.
- So this is about.
- Chats will appear like this(followimg is the image of user ambati screen)



Ambati Niranjan 23:11

Rewatching haikyuu

10. ADVANTAGES AND DISADVANTAGES

The advantages of the ChatConnect app include instant messaging, user-friendly interface, and secure user registration. Disadvantages may include limited features compared to some existing messaging apps.

11. CONCLUSION

The ChatConnect app is a valuable addition to the messaging app ecosystem, providing a secure and efficient means of communication.

12. FUTURE SCOPE

The future scope includes adding multimedia messaging, group chat features, and further enhancing security measures.