Name: Muhammad Usman  
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Roll No: BSIT-M2-20-48

Submitted to: Professor Jameel

Subject: Android Development

Semester Project

Topic: Live Chat App

**Live Chat App Documentation**

**Overview**

The Live Chat App is an Android application that allows users to engage in real-time chat with other app users. It leverages Firebase Realtime Database for storing and retrieving chat messages, and Firebase Cloud Messaging for push notifications when new messages arrive.

The app provides a simple and intuitive user interface for sending and receiving messages. It also supports real-time updates, automatic message retrieval, and push notifications for an enhanced chat experience.

**Features**

The Live Chat App includes the following features:

1. User Registration: Users can enter their name to identify themselves in the chat.
2. Real-time Chat: Users can send and receive messages in real-time.
3. Chat History: The app stores chat messages in the Firebase Realtime Database, allowing users to view the chat history.
4. Auto Refresh: The chat messages are automatically refreshed in real-time to display the latest messages.
5. Push Notifications: Users receive push notifications when new messages arrive, even if the app is in the background or closed.

**Prerequisites**

To use the Live Chat App, ensure the following prerequisites are met:

1. Android device or emulator running Android OS (version 5.0 or above).
2. Firebase account and project setup.
3. Google Play Services and Firebase dependencies added to the project.

**Installation**

To install and run the Live Chat App on an Android device or emulator, follow these steps:

1. Clone the repository or download the source code.
2. Open the project in Android Studio.
3. Connect your Android device or start an emulator.
4. Build and run the app on the device/emulator.

**Usage**

Upon launching the Live Chat App, the user will be prompted to enter their name. Once a name is entered, the app will open a chat window where the user can send and receive messages.

* To send a message, enter the text in the input field at the bottom of the screen and tap the send button.
* Received messages will be displayed in the chat window, and the screen will scroll automatically to show the latest messages.
* Chat history will be fetched from the Firebase Realtime Database and displayed in the chat window.

When a new message arrives, the user will receive a push notification. Tapping on the notification will open the app and display the new message.

**Implementation Details**

The Live Chat App is implemented using the following technologies and libraries:

* Java programming language.
* Android SDK and Android Studio for development.
* Firebase Realtime Database for storing and retrieving chat messages.
* Firebase Cloud Messaging for push notifications.
* Firebase Authentication for user authentication (optional feature not included in the current implementation).
* Google Play Services and Firebase SDKs for Android.

The app architecture follows the Model-View-Controller (MVC) pattern:

* Model: Message and User classes represent the chat message and user objects.
* View: XML layout files define the app's UI components.
* Controller: MainActivity, ChatActivity, and MyFirebaseMessagingService classes handle the app's logic and user interactions.

The app uses Firebase Realtime Database for storing and retrieving chat messages. Each message is stored with a unique key, and the app listens for new messages in real-time using the ValueEventListener. Messages are displayed in the app's UI using a ListView and an ArrayAdapter.

Firebase Cloud Messaging is integrated to enable push notifications when new messages arrive. The MyFirebaseMessagingService class handles the incoming messages and shows notifications to the user.

**Conclusion**

The Live Chat App provides a simple and interactive platform for users to engage in real-time chat conversations. It leverages Firebase Realtime Database for message storage and retrieval, and Firebase Cloud Messaging for push notifications. With its intuitive UI and real-time updates, the app offers an enhanced chat experience.

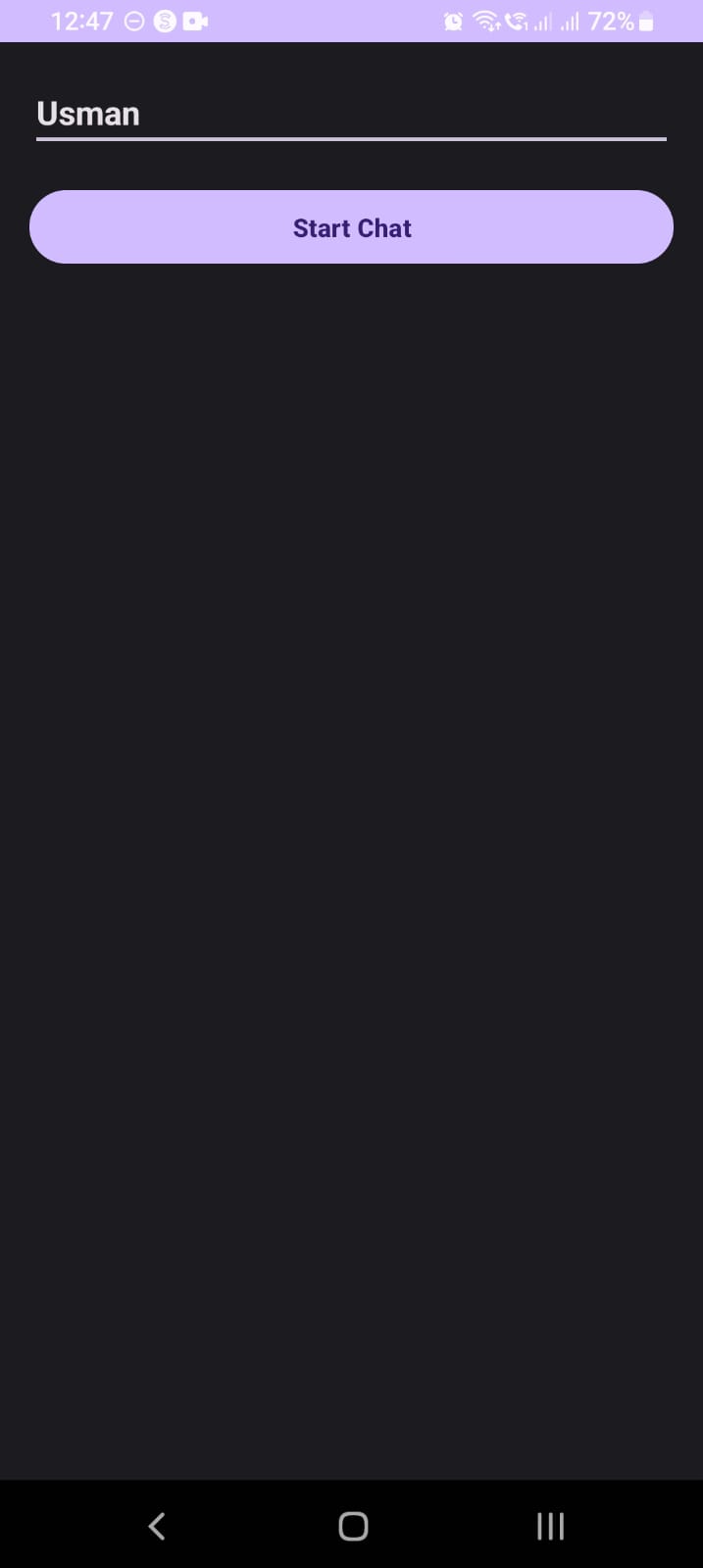
**Code**

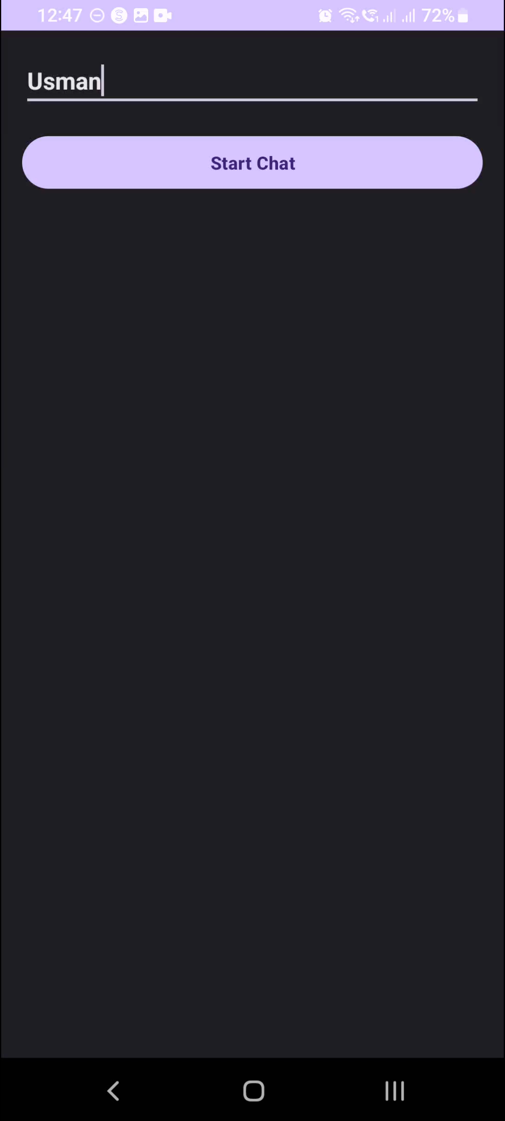
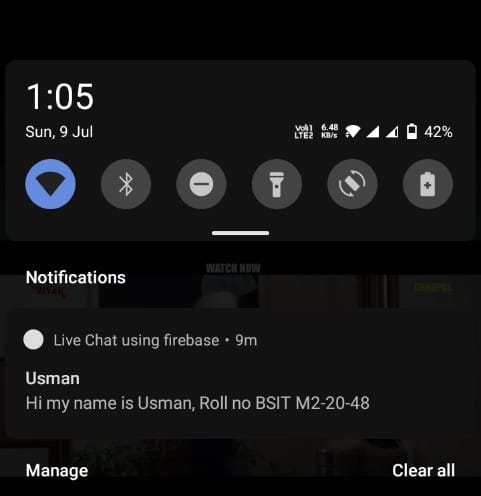
Complete code can be found on my [GitHub](https://github.com/MatrixUsman/BSITM2/tree/main/Semester%206/Android%20Devlopment/Semester%20Project/LiveChatusingfirebase/LiveChatusingfirebase).

Link to [APK](https://github.com/MatrixUsman/BSITM2/blob/main/Semester%206/Android%20Devlopment/Semester%20Project/LiveChatusingfirebase/LiveChatusingfirebase.apk)

[Compressed Code zip](https://github.com/MatrixUsman/BSITM2/blob/main/Semester%206/Android%20Devlopment/Semester%20Project/LiveChatusingfirebase/LiveChatusingfirebase.zip)

[Link to Media](https://github.com/MatrixUsman/BSITM2/tree/main/Semester%206/Android%20Devlopment/Semester%20Project/LiveChatusingfirebase/Media)

**Screenshots  
  
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