Peer to Peer Messaging Application

CS4099 Project

End Sem Evaluation

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Outline

Introduction I

- Client-server technology has been around for some times. Some examples of client-server applications are web access, network time and windows login.
- Specific to user login, users credentials are stored in the database at the server side. Anyone who has an access to the server and the database can easily access user information.
- A peer-to-peer network does not have the notion of clients or servers, but only equal peer nodes that simultaneously function as both clients and servers to the other nodes on the network.
- In our peer to peer messaging application,we will have no central server through which messages are passed.

Introduction II

- The messages will be directly delivered to the recipient.and even if the next person is not online,the text will be stored locally on the device instead of storing in a server.
- All chat history and conversations will be stored locally on device.

Problem Statement

- The problem is to create an encrypted messaging application based on peer to peer (serverless) architecture on an android platform which can be used to send/receive text and images.There will be end to end encryption and message will only be stored locally on the device.

Literature Survey I

- The fundamentals of P2P based models are presented in Cracking the Code [1]
- Considering our requirements of the application,a P2P model with simple discovery server proved to be the best choice.
- Research paper [2] helped us in understanding the decentralized P2P architecture better as well as choosing appropriate methodology for building a secure chat application.
- Research paper [3] showcases the IEEE Recommended Practices for Software Requirements Specifications (SRS).

Work done in previous semester I

- First step was finishing the literary survey and brainstroming the application features.
- Next step was to solve the user experience or UX.UX Mockups allow us to quickly design UX without having to worry about the actual UI design.We did our UX design with the help of the tool WireframeSketcher.Using it,we build a number of UI screens and later connected them for a smooth and convenient user experience.
- After solving the UI/UX problem we documented SRS and built the design document using StarUML tool.

Implementation Details

- Identity Verification
- Material Design
- Implementation of tabs
- Simple chat between two peers
- Incognito Chat
- Group Chat
- Encryption
- Server Script

Conclusion

- Our team started out with the humble objective of learning android application development through a project over the course of the year. We also aimed to implement a secured and safe chat application to prevent hacks into people's conversation, and at this juncture, we believe that we have been able to successfully do so.

References I

[1] *Peer-to-Peer Application Development: Cracking the Code*, Published by Hungry Minds,2002.

[2] *A Secure Chat Application Based on Pure Peer-to-Peer Architecture*, ,Mohamad Afendee Mohamed,Abdullah Muhammed and Mustafa Man,Accepted: 28-05-2015.

[3] *IEEE Recommended Practice for Software Requirements Specifications*, Approved 25 June 1998.