COMPUTER NETWORK PROJECT REPORT

Share your file

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Submitted To:

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Acknowledgement

It gives immense pleasure in bringing out this synopsis of the project entitled

“SHARE YOUR FILE”

Firstly we would like to thank our teacher and guide professor Dr. Narottam Chand who gave us his valuable suggestions and ideas when we were in need of them. He encouraged us to work on this project.

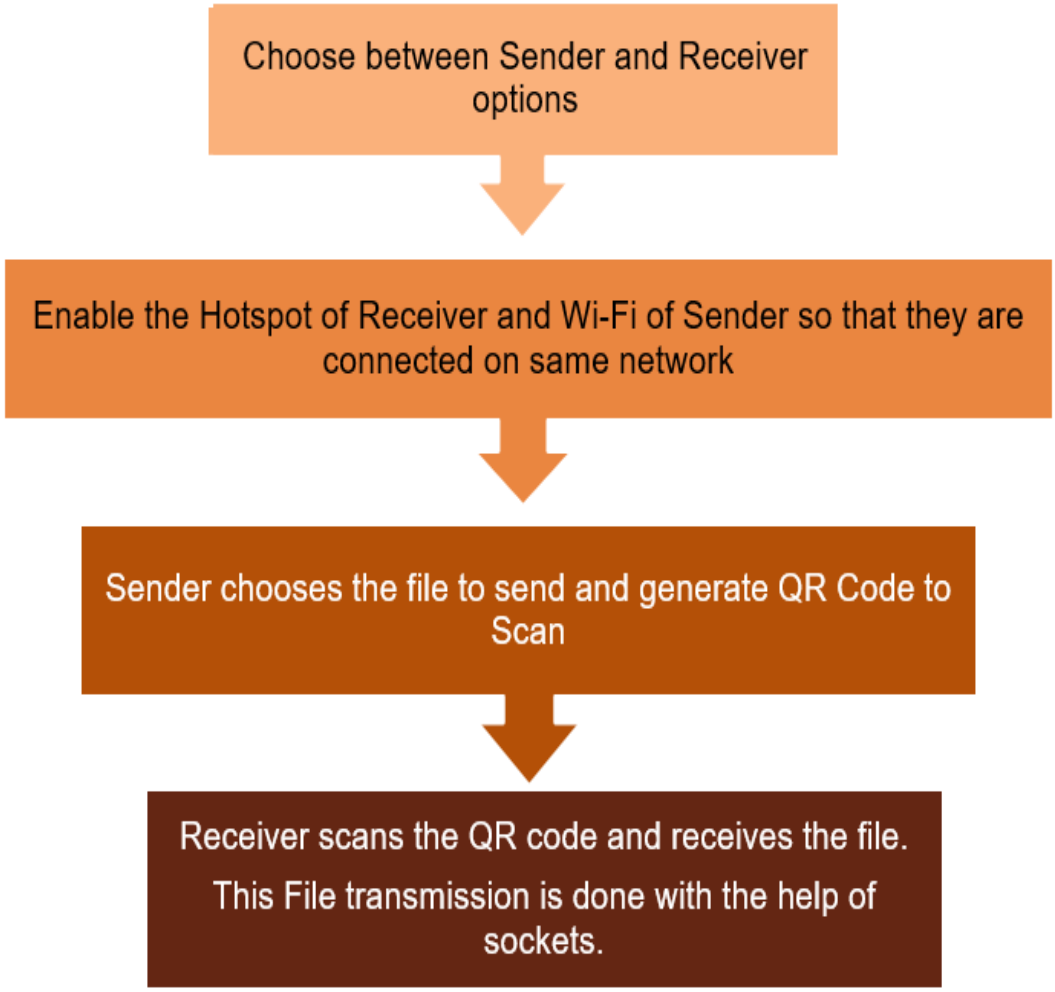
We are also grateful to our college for giving us the opportunity to work with them and providing us the necessary resources for the project

We would also thank to all of them who helped us to complete this project.

We are immensely grateful to all involved in this project as without their inspiration and valuable suggestion it would not have been possible to develop the project within the prescribed time.

Table of Contents

PROJECT FLOW



SYNOPSIS

PURPOSE:

The purpose of Share File is to easily share files between two devices without internet. It is based on idea that if 2 devices are connected to same IP address, then with the help of socket, sender can act as server and receiver as client using which we can share files between two.

SCOPE:

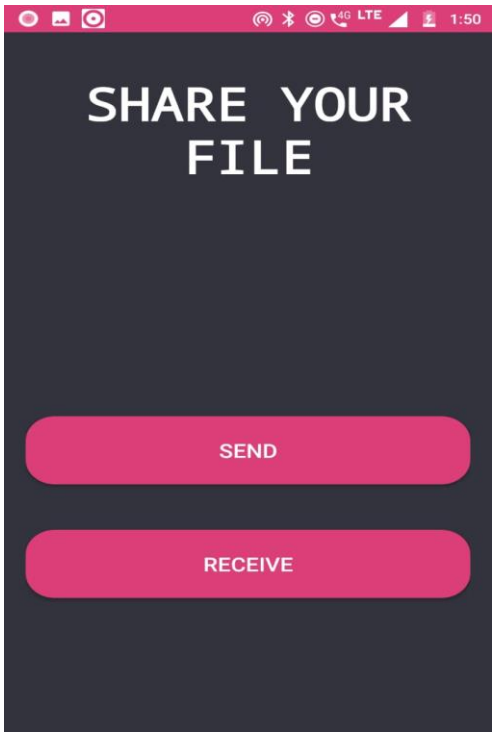
- To easily transfer files between 2 devices when there is no internet.
- To share large files fast between 2 devices.

FEATURES:

- Secure, reliable and accurate
- Easy to use
- Ask user permission before accessing internal storage.

OVERVIEW:

On entering the app, we will see a screen as shown:



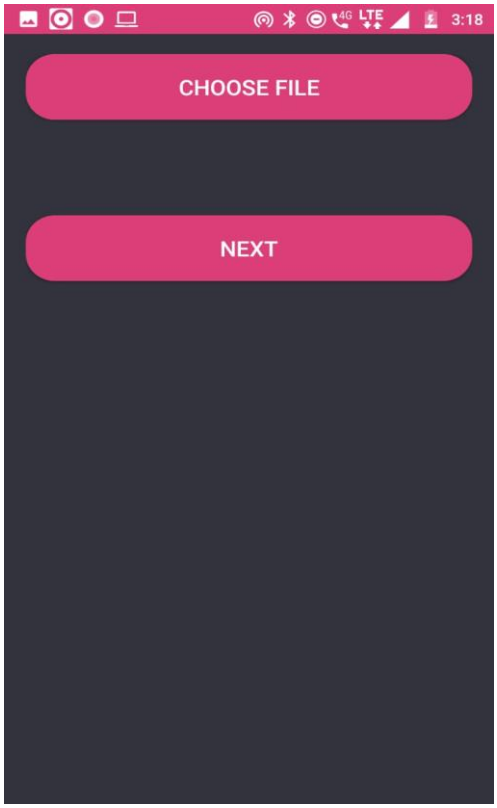
This project can majorly be divided into 2 parts:

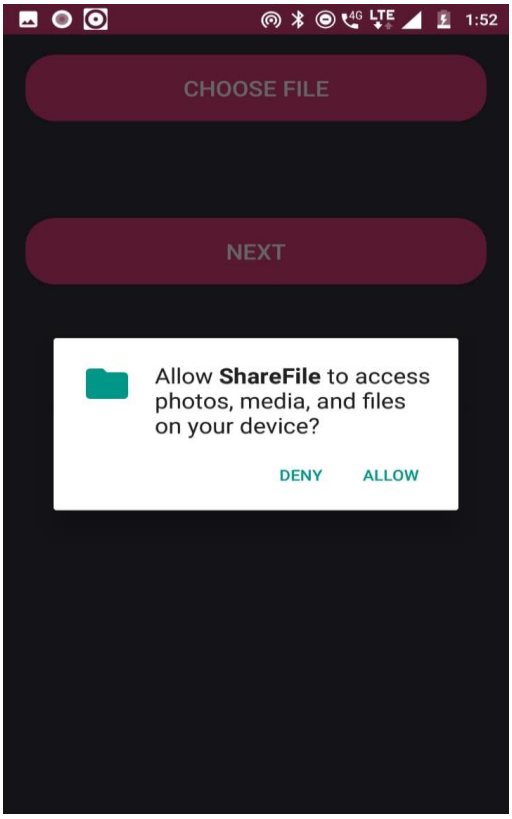
1. Sender
2. Receiver

Sender:

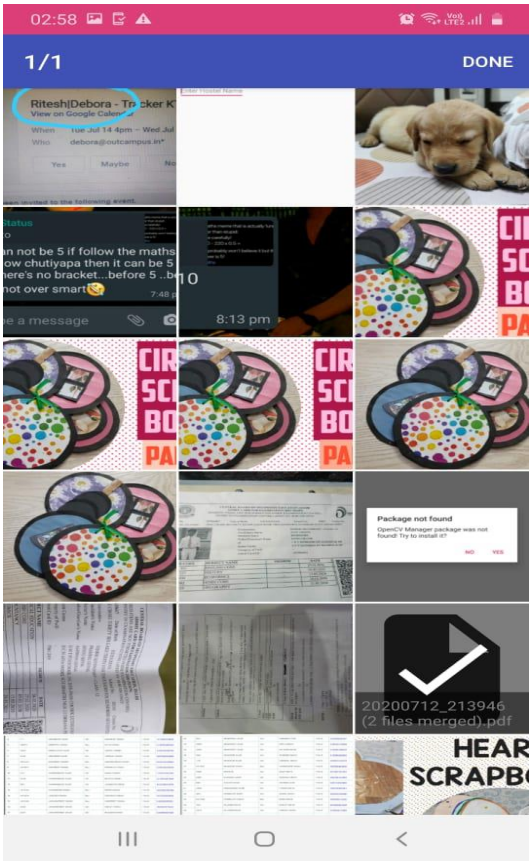
The sender part will act as Server for sending file to client. On clicking sender, we will be redirected to following activity, in which we will select the file before proceeding further.

Before selecting the file, it first asks for user permission.

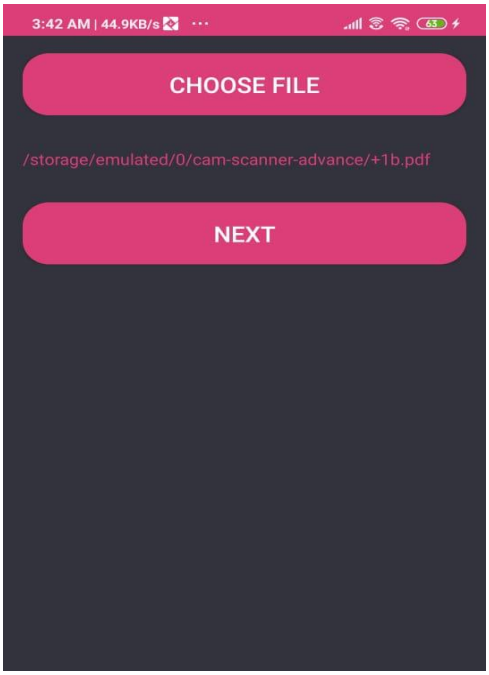




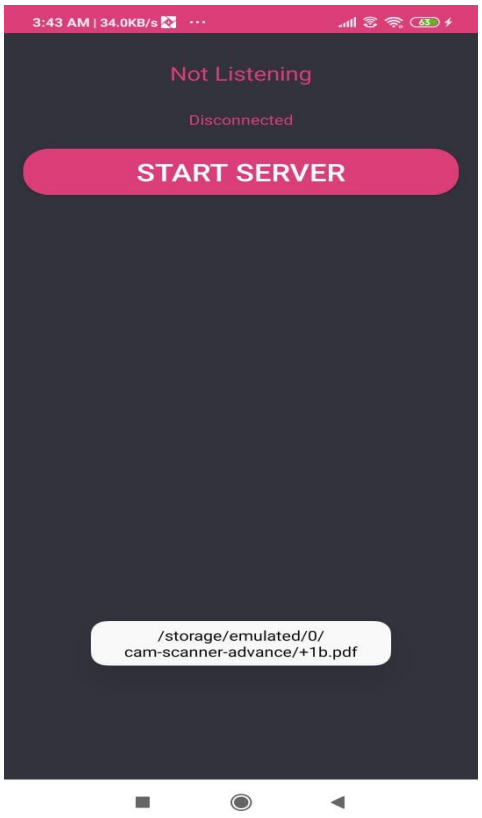
It will ask for user permission to access their gallery. When given the permission and selecting choose file, user will be redirected to gallery from where user will select a file to send.



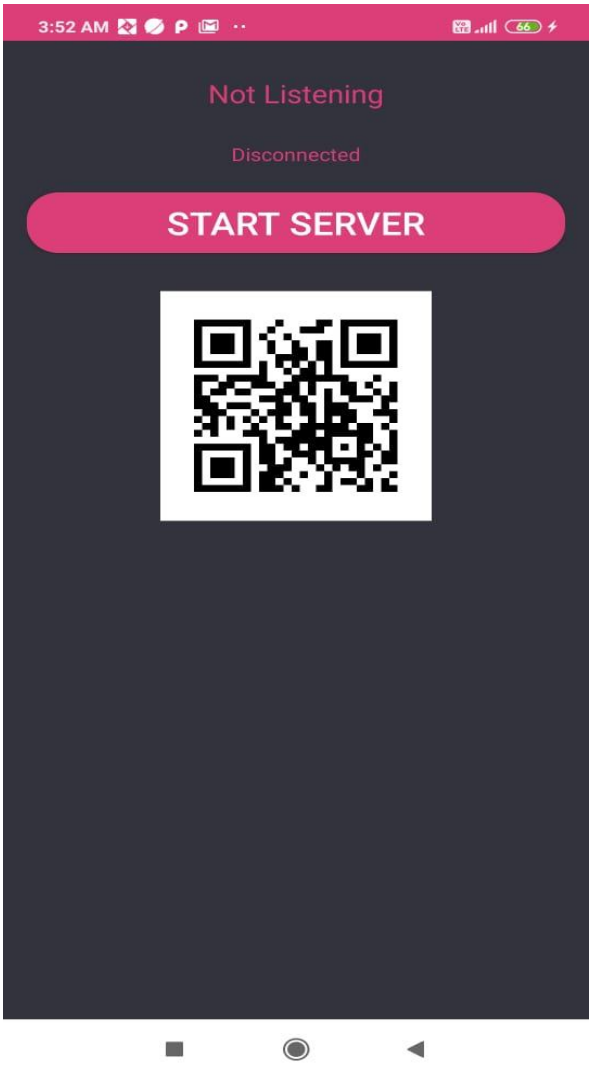
On selecting the file, The path of file will be shown.



Clicking on next, will bring us to following activity and will show the path of file:



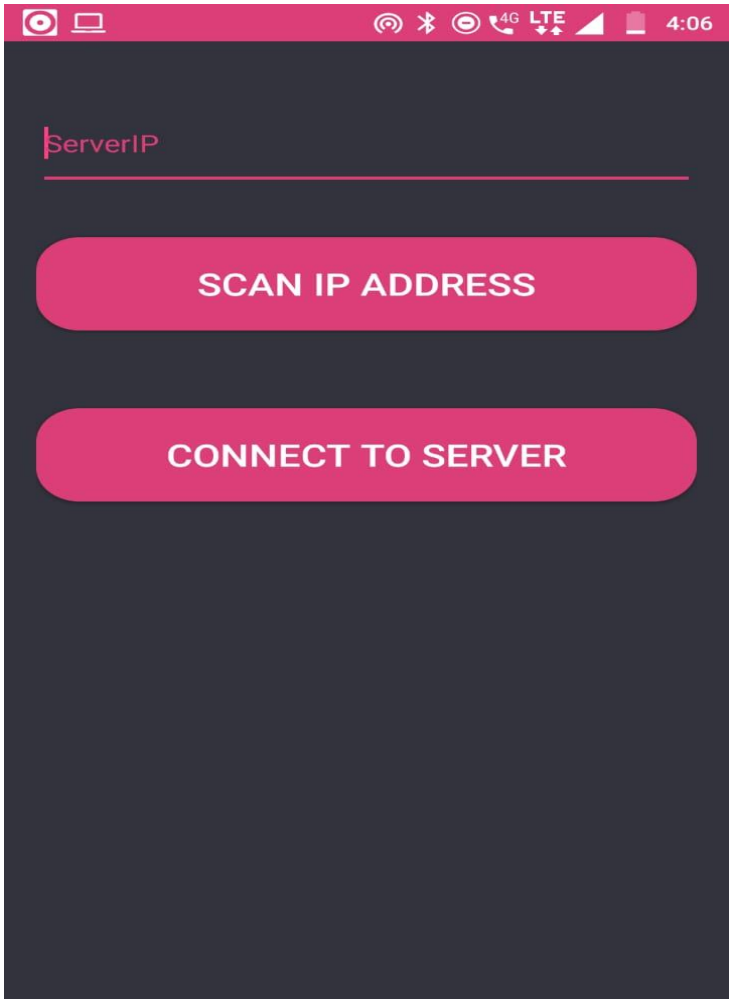
Initially, the device would not be connected. Hence it is showing disconnected. When the user click on start Server, a QR Code comes which contain the IP address and the information about file to send, which the receiver has to scan.



RECEIVER

The Receiver receives the file which the sender has to send and acts as a client. This activity contains following components:

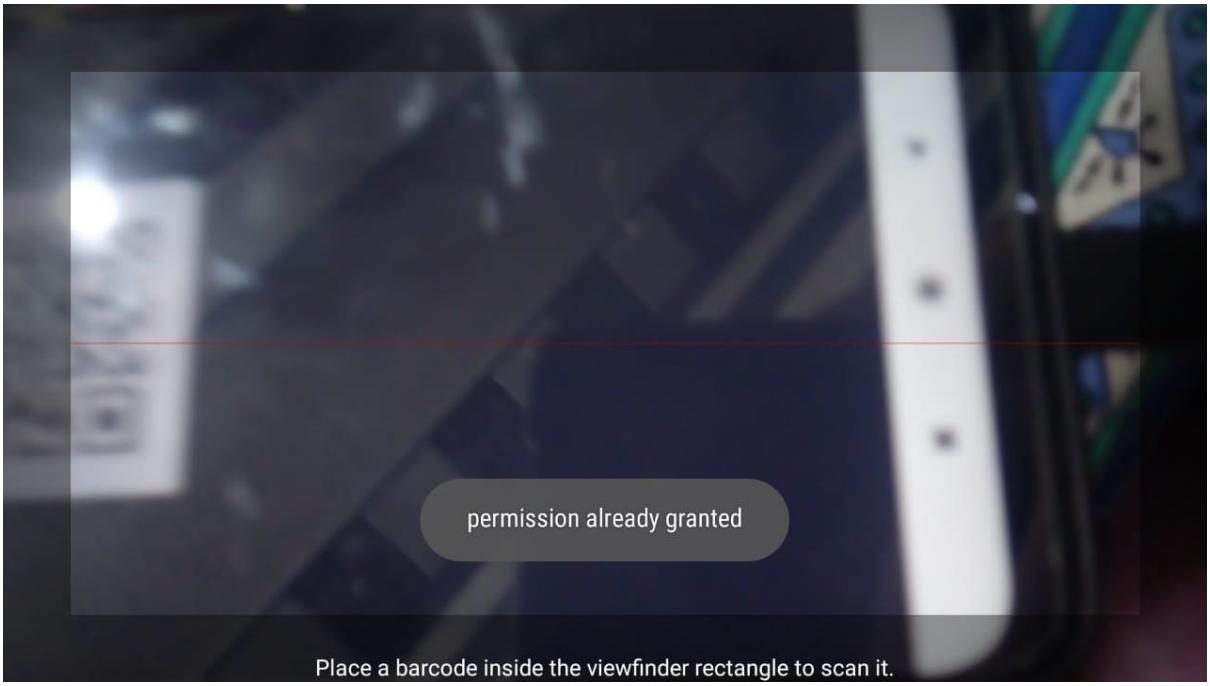
1. Scan IP Address- To scan the QR code generated by sender
2. Manually enter serverIP.



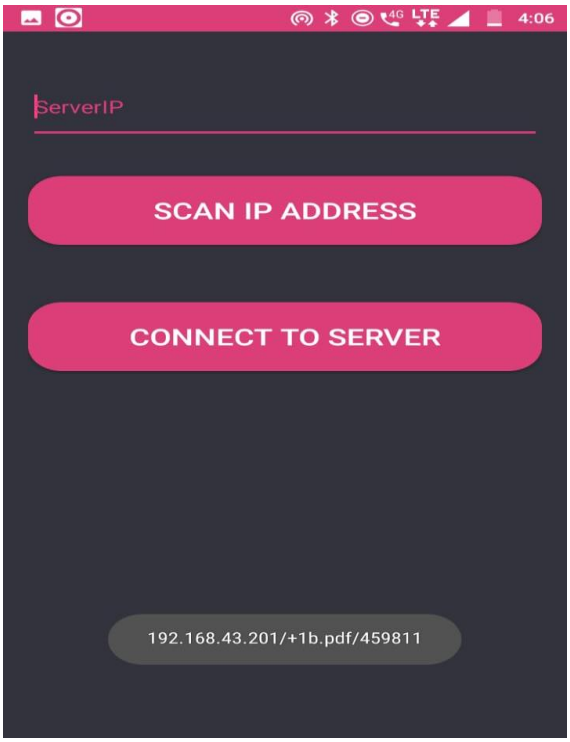
After clicking on scan IP address, it will ask for permission to access camera. If permission has already been granted, then it will continue. If the permission has not been granted, then it will ask for the same.

Permissions are necessary to take user's consent to allow the application to access hardware/software of a device.

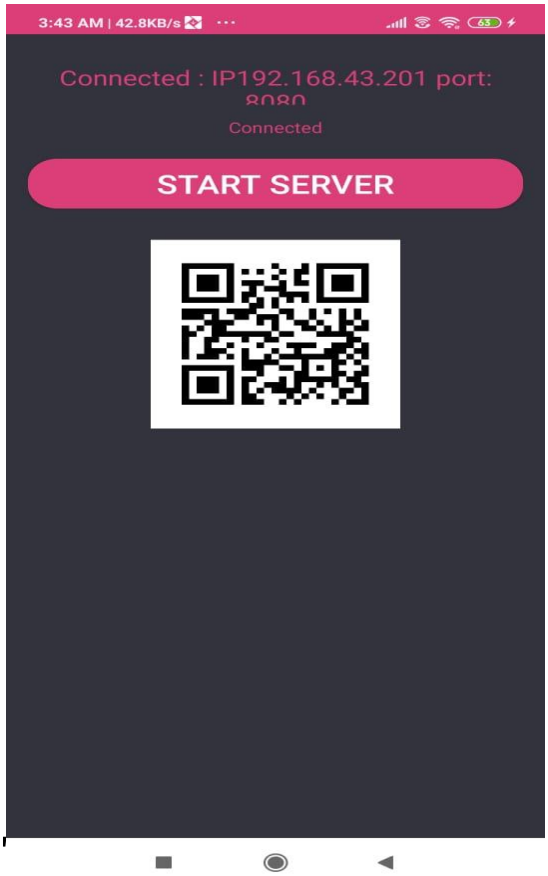
After this, a Scanner will show which will scan for the QR Code generated by sender automatically.

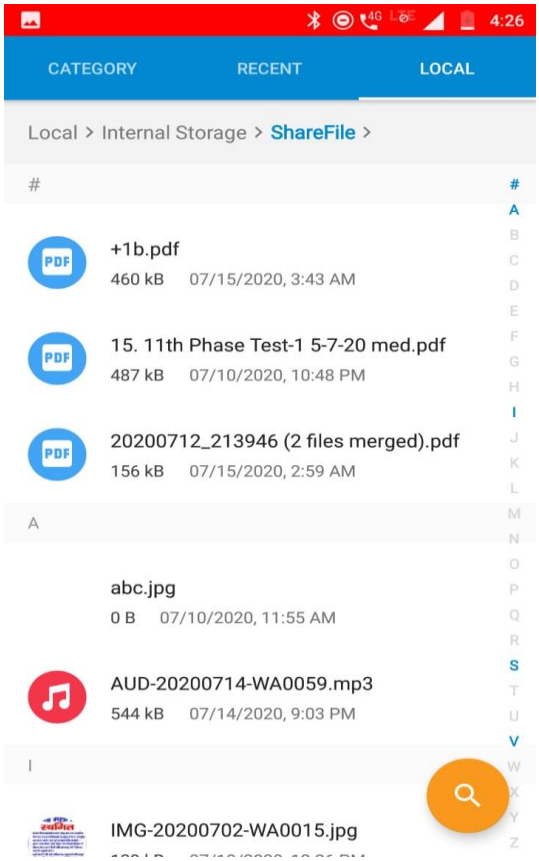


After scanning the code, it will get the IP address and desired content of file. Here 192.168.43.201 is the IP and the rest is address of file to be sent.



After clicking on connect, the connection would be made using sockets and file would be sent. When connect button is clicked, the status on server i.e sender would also change.





The file would be sent in chunks of data and not as whole. It takes the help of Buffered Input and Output Stream to make performance fast. When the bytes from the stream are skipped or read, the internal buffer automatically refilled from the contained input stream, many bytes at a time.

After file is received, a finished popup will come , and the file can be seen in the File Manager under Sharefile folder.

TECHNOLOGY USED:

1. JAVA FOR ANDROID- The platform for app development in Android is Java. This means that you use the Java library and code the applications in Java, C, and C++ programming language.

   Android applications are usually developed in the Java language using the Android Software Development Kit. It's designed to be platform-independent and secure, using virtual machines and is object-oriented

   Android relies heavily on these Java fundamentals. The Android SDK includes many standard Java libraries (data structure libraries, math libraries, graphics libraries, networking libraries and everything else)

2. SOCKET PROGRAMMING- Network sockets are the endpoints of internet connections between devices. Basically we need two types of sockets to handle the connection - client and server. The main difference between them is that a server socket is listening for incoming connection requests.

   We had used AsyncTask to make connection as a background task, Callback Interface for managing the incoming messages, Handler for updating GUI and TCPClient class representing the client.

3. MULTI-THREADED ANDROID- It is essential to avoid using the main thread to perform any operation that may end up keeping it blocked. Network operations or database calls or loading of certain components are some examples that may cause blocking of the main thread when they are being executed on the main thread. To avoid this situation, they are usually executed in separate threads, which avoids blocking the UI while the tasks are being performed. That means they are executed asynchronously from the UI.

4. I/O STREAM IN JAVA: Streams are clean way to deal with input/output without having every part of your code understand the physical. A stream can be defined as a sequence of data. There are two kinds of Streams –

InPutStream − The InputStream is used to read data from a source.

OutPutStream − The OutputStream is used for writing data to a destination.

We have also used Buffered I/O Stream for fast data transfer.

CONCLUSION

Share Your File is basically used to send files between 2 devices. The main aim of project is to implement this transfer using socket programming and understand client-server system. The future aspects of the project is to send large video files over network as currently large video files take lot of time to transfer and sometimes also don’t get transferred. This could come in need when the internet connection is weak at places. It is fast and secure for devices, hence can be used to share files between them.

The main aim of the project is to understand the concept that how data transmission can take place between 2 devices when they are connected on same IP address. Hence, with the help of sockets ,port and IP Address, this transmission can be done.