North South University

Department of Electrical And Computer Engineering

Project Proposal

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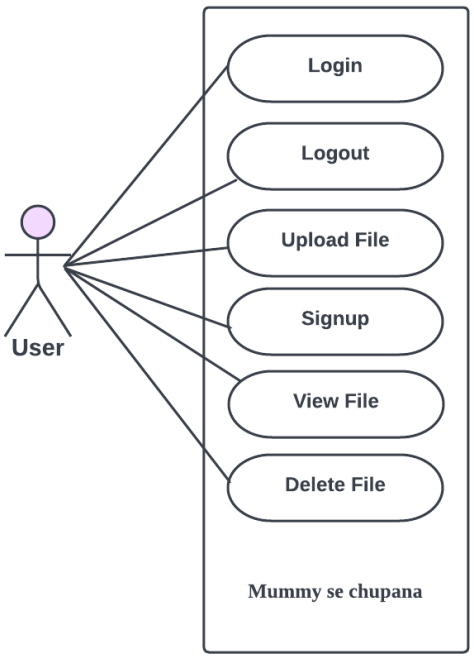
Project Description:

The software “Mummy se chupana” is to help the users to upload files in Goggle drive whose content will be protected by the encryption and can’t be viewed by others except the original owner. With the help of this software, a user can:

1. Upload the files that he wants to be encrypted by this software. Once the files are uploaded, only the user can view it from the app.
2. View the files. The software after verifying, if the user who wants to access the content is the original user of the file, the software will decrypt the file and show it.
3. The software with the help of face anti-spoofing and face recognition will verify the user and will accordingly allow the user to view, upload, and delete the files that has been encrypted by the software.
4. Overall, the software will help the user to protect the files uploaded through the software.

UML Use Case Diagram:



List of Software Interfaces:

Framework: Django, Django REST

API: Google Login API, Google OAuth, Google drive API

Database: MongoDB

Android: Native Android framework, networking library (such as volley, retrofit), Google's ML kit

Our Plan to Approach the Development:

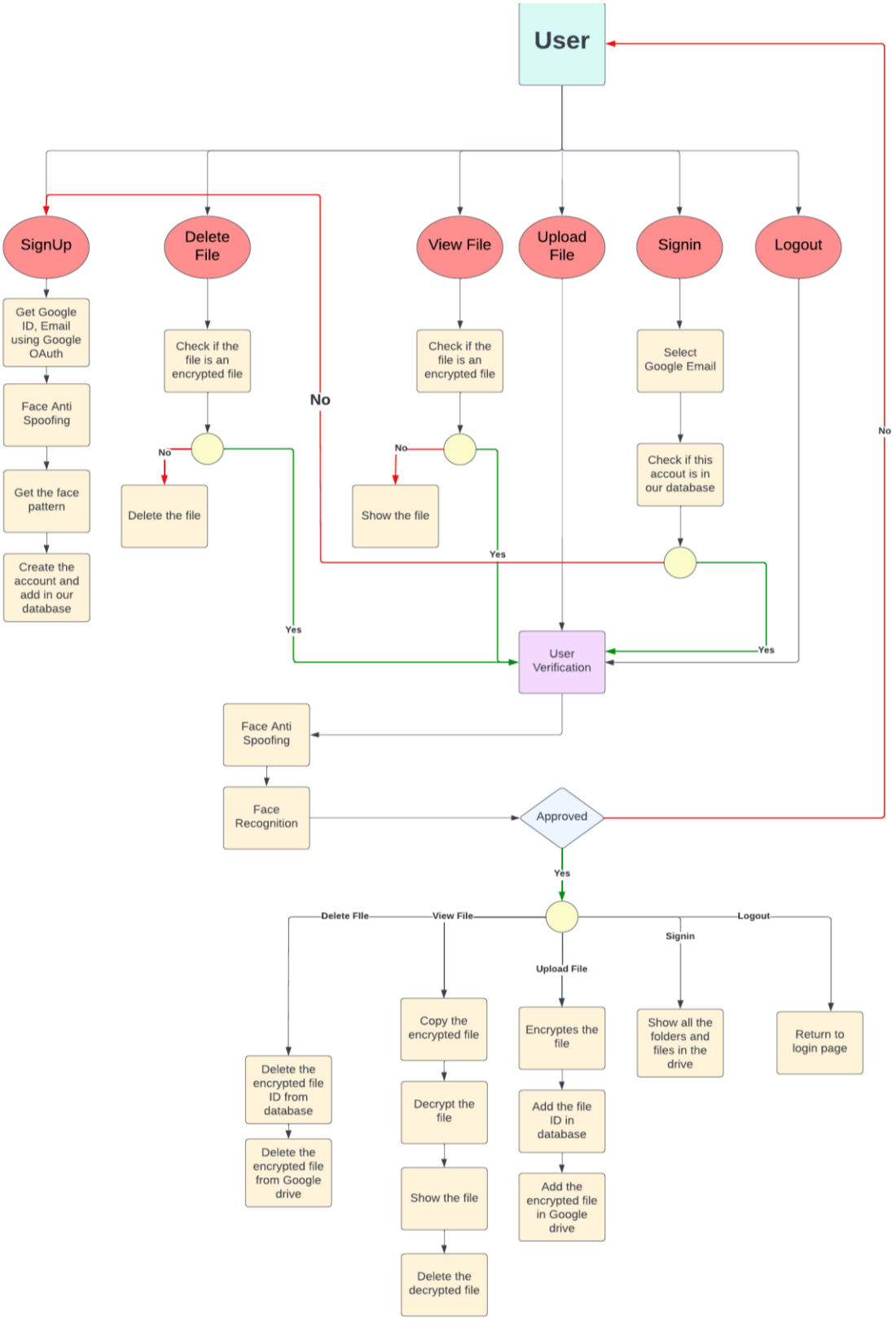
The project will be split up among the three members, each tackling a different part. The code will be modular to make integration with other parts easy. We will develop the mobile application. Several features will be developed in parallel, with the face anti-spoofing, face recognition, encryption, and decryption taking most priority at the start. We will try to make as much use of a REST API as possible. The main frameworks we will be using are Django and the native Android framework, as we are well acquainted with both. To make the development process easier, we will use available libraries wherever possible.

Constrains:

The constant verification of the file's user or owner will take quite time and might slow the app. The encryption and decryption, face recognition can become a challenge too.

The face anti spoofing, managing the decryption and encryption algorithm will also be a challenge.

Information Flow:



Week Plan:

Week 1:

SignUp, Login, Logout

Connect the app with google drive

Upload file

Delete file

View File

Without face recognition and face spoofing

Week 2:

SignUp, Login, Logout

Connect the app with google drive

Upload file

Delete file

View File

With face recognition and face spoofing version 1

Week 3:

Face recognition and face spoofing version 2

Encryption and decryption version 1

Week 4:

App testing

Encryption and decryption version 2

Week 5:

Project Submission

Justification:

- We choose Django REST as the backend framework since we have to use different python libraries for our encryption, decryption, and face anti spoofing, face recognition.
- We are using MongoDB as the database for this project. It will reduce the difficulty of creating relational databases and tables. Moreover, Django allows Django maps python objects to MongoDB documents which are easy to use.
- We are using python libraries and android studio SDK for face anti spoofing and recognition.
- We are using volley, retrofit as an HTTP networking library which is the easiest to implement, and we have previous experience with it.
- For android, we will use the Native Android Framework using Java. We have used it previously, and it is said to have better performance.
- We will also use Google Login API for authentication and Google Drive API for getting the drive files and folders.
- We will use the cryptography library of python for encryption, decryption of the files.