OOAD MINI PROJECT

Project Title: SECURE FILE SHARING SYSTEM

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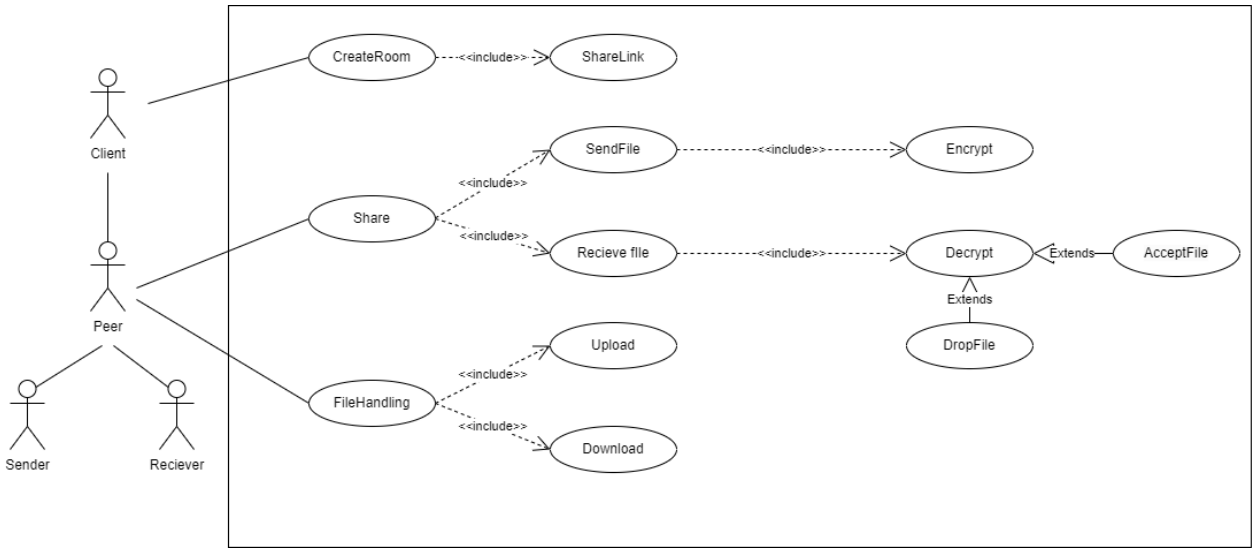
USE CASE DIAGRAM



USE CASE DESCRIPTIONS

1. CREATE ROOM
    1. Name: CreateRoom

2. Summary: Create a room where peers can share files
3. Actor: Client/Peer
4. Preconditions: The Client has entered the platform
5. Description:

    - Click on “create room”

    - Click on “generate room link”

    - Click on “share link” and share it with other peers and the peers can join the room if the room limit has not been exceeded
6. Exceptions: The room limit exceeds
7. Post-condition: Peers can join and share files
8. Alternate flow: Restart the system and re-login with valid credentials
9. Assumptions: The user is authorized

2. <u>DROP FILE</u>

1. Name: DropFile
2. Summary: On receiving the file, drop the file if it was corrupted

during transfer.

3. Actor: Receiver/Peer
4. Preconditions: File is uploaded and is ready to be sent over the network
5. Description:

    - Calculate the file parity at the sender side, which upon received at the receiver side is used to verify the integrity of the file

    - It is added as metadata of the file

- It is encrypted, sent over the network and received on the other side, and decrypted.

- The metadata appended to the file is used to check the integrity of the file

- If the file is found to be tampered, it is dropped immediately and a new request to resend the file goes to the sender, else accept the file.

6. Exceptions: The file doesn't reach the receiver side
7. Post-condition: Receiver can download the files
8. Alternate flow: Secure file preview that allows users to view files without downloading them
9. Assumptions:
    - User Authentication
    - Secure storage of files

3. SendFile

1. Name: SendFile
2. Summary: To send file over the network
3. Actor: Sender/Peer
4. Preconditions: Upload the file to be sent
5. Description:
    - On starting the connection, keys generated for secure transmission i.e encryption
    - Share the public key to the receiver
    - Encrypt the file with the key already generated
    - Send the file to the receiver
    - Receive at the receiver side
    - Close connection

6. Exceptions: File doesn't exist in the DB
7. Post-condition: Receiver can receive the sent file
8. Alternate Flows: The system can use a secure transfer protocol such as SFTP or HTTPS to ensure that the file is transmitted securely over the internet.
9. Assumption: Encryption technique is common throughout the groups.

4. Receive File

1. Name: Receive File
2. Summary: Receive the file sent over the network.
3. Actor:Peer/Receiver
4. Preconditions: The Sender has pushed a file to the fileDB
5. Description:
   - Click on "receive" file
   - Click on "verify" to verify the contents of the file by decrypting the file using the public key of the sender.
   - Click on "download" to download the file after successful verification.
6. Exceptions: Verification fails.
7. Post-condition: The file can now be downloaded by the receiver.
8. Alternate flow: Create a new account and send request
9. Assumptions: No third-party access , File is not corrupted

5. Upload File

1. Name: Upload File use case
2. Summary: Select the file and upload the file in the FileDB

3. Actor: Client/Peer
4. Pre-conditions: The Client has entered the platform
5. Description:
   - Click on “upload” to upload the file
   - Select the file from the peer local system.
   - Click on “OK” to start uploading.
   - The uploading actions have start, pause and stop options.
6. Exception: File is invalid or corrupted.
7. Post-condition: Send the file for encryption.
8. Alternate Flow: The uploader can be prompted for a second form of authentication before uploading the file.
9. Assumptions: Only one file is sent over the network

6.Download File

1. Name: Download File use case
2. Summary: Download the shared file in the room
3. Actor: Receiver/Peer
4. Pre-conditions: The file had been received and verified by decryption.
5. Description:
   - Click on “download” to download the file.
   - Select the destination to download in the peer’s local system.
   - Click on “OK” to start downloading.
   - The downloading actions have start, pause and stop options.
6. Exception: File is invalid or corrupted (verification failed).

7. Post-condition: The peer can continue being in the room to share and receive files.
8. Alternate flow: Download Notifications that alert the file owner when file has been downloaded successfully
9. Assumptions:
    -Secure file download
    -User authentication
    -Secure storage of files