**SecureCEdit: P2P Secure Document Editing Framework**

**Problem Statement:**

P2P applications are composed of a collection of peer nodes that cooperate with each other in order to perform some task and share their resources. In the P2P framework, each peer can act as both a provider and consumer of services. SecureCEdit is a system where a peer can communicate with peers within the same or a different network and have access to multiple documents. It allows the users to easily and securely access and share documents real time with other users from their devices without a centralized support. This system allows the peers to broadcast the changes made to their documents through a subnet.

Each document has a document owner who creates the document and other peers who act as collaborators. The documents are encrypted and stored on a drive and when requested are shared with peers. There is a message queue for each peer for every document it is editing. The peers communicate with each other using message queues. The peers can keep adding requests to add, delete or update the document to the message queue. The messages sent between the peers are encrypted and decrypted at the opposite end. The document is updated and saved on the cloud at intervals once the message queue for a peer becomes empty and there are no requests to be served. A user who joins a network in the middle must download the updated document from the cloud and then decrypt the document at his end and start editing.

**Deliverables:**

1. Code of the project

**Timelines for the project:**

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| **Tasks** | **Timeline** |
| Background study on P2P architecture and development of P2P applications and finalizing the technology stack | 2/20-2/28 |
| Setting up P2P subnetworks; setting up broadcast messages; prototype an editor | 3/1-3/14 |
| Configuring and coding edit operations | 3/15-4/4 |
| Incorporating Operational Transformation (concurrency control) | 4/5-4/18 |
| Incorporating Shamir Secret Sharing for content security | 4/19-5/2 |