

## Project Title: P2P LAN File Sharing System

### Objective:

Design and implement a P2P file sharing system that allows users to share, search, download, and upload files over a Local Area Network (LAN).

### Features:

1. User Registration: Allow users to register and create a unique username.
2. File Sharing: Enable users to share files from their local machines.
3. Search Functionality: Implement a search feature to find shared files by name, type, or description.
4. Download and Upload: Allow users to download shared files and upload files to share with others.
5. File Transfer: Implement a file transfer protocol to transfer files between peers.
6. LAN Connectivity: Ensure the system works over a LAN, using IP addresses or hostnames to connect peers.
7. User Interface: Develop a user-friendly interface for users to interact with the system.

### Additional Features (optional):

1. File Encryption: Encrypt files during transfer for security.
2. Access Control: Implement access control to restrict file sharing based on user roles or permissions.
3. File Categorization: Allow users to categorize shared files by type (e.g., documents, images, videos).
4. File Rating and Comments: Enable users to rate and comment on shared files.
5. Network Discovery: Implement network discovery to automatically detect peers on the LAN.
6. Chat or Messaging: Integrate a chat or messaging system for users to communicate.

### Technical Requirements:

1. Programming Language: Choose a suitable programming language (e.g., Python, Java, C++).
2. Network Programming: Use socket programming or a library (e.g., Twisted, Scapy) for network communication.
3. File Transfer Protocol: Implement a file transfer protocol (e.g., TCP, UDP, FTP).
4. Database: Use a database (e.g., SQLite, MySQL) to store user information, file metadata, and search indexes.

5. Operating System: Ensure compatibility with multiple operating systems (e.g., Windows, macOS, Linux).

Project Timeline:

21<sup>ST</sup> October – Mid Term Progress. Video Upload on Youtube like last time

Final Deadline: 5<sup>th</sup> December 2024

Group of 2 students.

Assessment Criteria:

1. Functionality: Does the system meet the required features and functionality?
2. Performance: How efficient is the system in terms of file transfer speed and network usage?
3. Usability: Is the user interface intuitive and user-friendly?
4. Security: Are files transferred securely, and is user data protected?
5. Documentation: Is the project documentation clear, concise, and well-organized?