#### **1. Set Up the Tracker:**

1. Choose a device to act as the tracker. Ideally, this should have a stable network connection.
2. Open tracker.py on the chosen device.

Modify the host and port variables if needed:  
host = "0.0.0.0" # Listen on all available interfaces

port = 5000 # Port for peer connections

1. Ensure that the port is open in the device's firewall:

* For local testing, you may not need to adjust settings.
* For internet-wide access, forward the port in your router's settings.

Run the tracker: python tracker.py

You should see: Tracker running on 0.0.0.0:5000

#### **2. Configure Peers:**

1. On each device that will act as a peer:
   * Open peer.py.

Update the tracker\_address variable to point to the tracker's IP and port:  
tracker\_address = ("<TRACKER\_IP>", 5000)

* + Replace <TRACKER\_IP> with:
    - The tracker's local IP (e.g., 192.168.1.100) for testing within the same network.
    - The public IP of the tracker if peers are on different networks.\

1. Place the file you want to share in the same directory as the script.
   * Rename the file to example\_file.txt or update the filename variable in peer.py.

Run the peer:  
python peer.py

Each peer will register with the tracker and display:  
Peer server running on <PEER\_IP>:<PEER\_PORT>

File chunks generated.

#### **3. Test the Network:**

* **On the Tracker**:
  + Monitor registrations as peers connect. The tracker's terminal will log their IP and ports.
* **On Each Peer**:
  + The script fetches the list of connected peers and attempts file sharing with them.

#### **4. Connect Peers for File Sharing:**

1. When one peer requests a file, it contacts other peers based on the chunk information obtained from the tracker.
2. The requesting peer downloads chunks from other peers and merges them into the complete file.

### **Example Testing Scenario**

1. **Tracker Setup**:
   * Device 1 (IP: 192.168.1.100) runs tracker.py.
2. **Peers**:
   * Device 2 (IP: 192.168.1.101) and Device 3 (IP: 192.168.1.102) run peer.py, connecting to the tracker at 192.168.1.100:5000.
3. **File Transfer**:
   * Device 2 splits and shares example\_file.txt.
   * Device 3 requests the file, downloads chunks, and merges them locally.