Team Name : `encoder`
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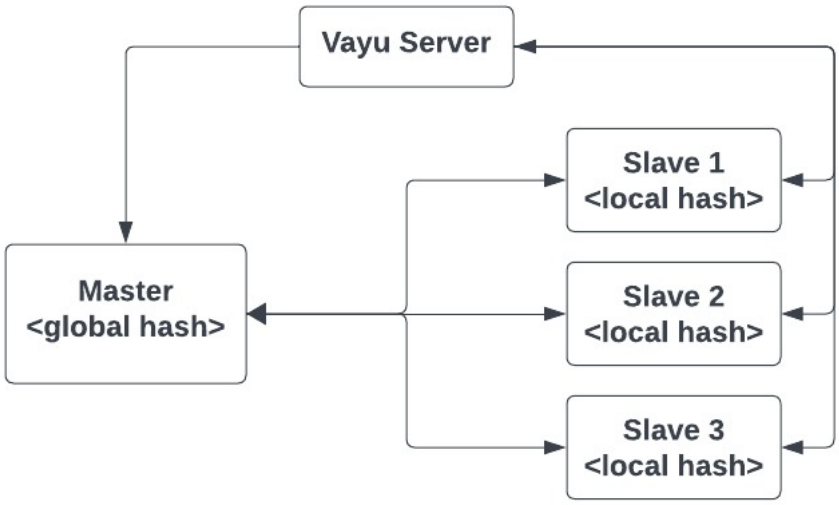
The P2P exchange was conducted by applying the Master-Slave configuration of clients and a server. All the 3 clients were connected to a local server. All the clients and server would request the lines from the `vayu` server.

All the clients when received a line from the `vayu` server, would send the received line to the the master server directly without creating a database of the lines received up till now. This approach would reduce the computation cost in figuring out if the line is redundant.

The master server would receive the lines from the clients and also from the `vayu` server. The master server maintains a `dictionary` with line number as the key, to check if the line received is a duplicate or not, by storing only the unique lines.

After receiving all the 1000 unique lines, the server would send the dictionary maintained as a `pickle` object to all the clients, and then initiate the submit request and simultaneously close connections with all the clients, the clients when receive the `pickle` object will also initiate their submit request.



`Fig.1.` **Flow diagram for the P2P exchange configuration**

Given below are the plots of the time taken (in ms) to get all the 1000 unique lines, with increasing the number of devices requesting from 1 to 4.

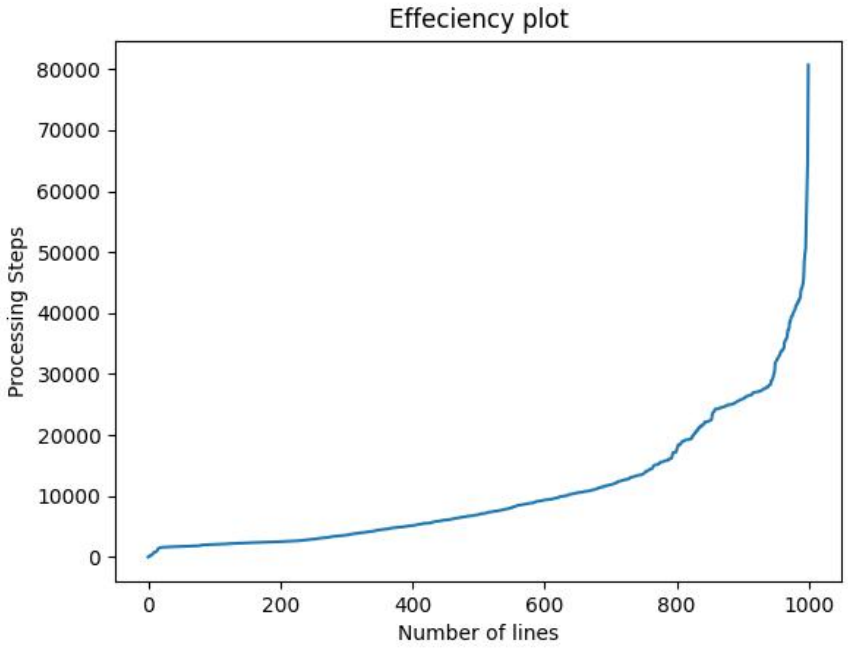


Fig.2. **Only 1 device (master server) receiving the whole file**
(time in ms v/s No of unique lines read)

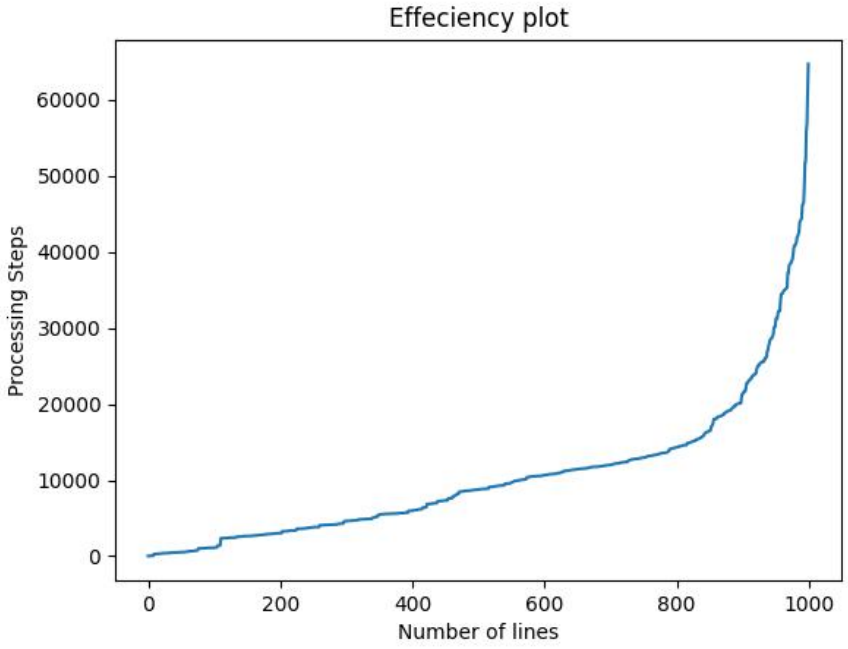


Fig.3. **2 clients (1 master, 1 client) running in cooperation**
(time in ms v/s No of unique lines read)

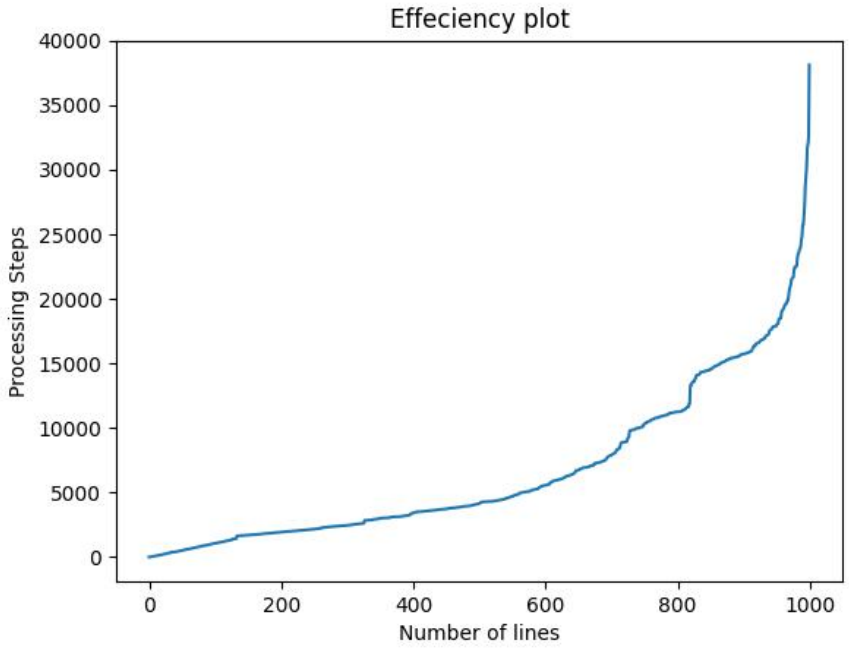


Fig.4. **3 clients (1 master, 2 clients) running in cooperation**
(time in ms v/s No of unique lines read)

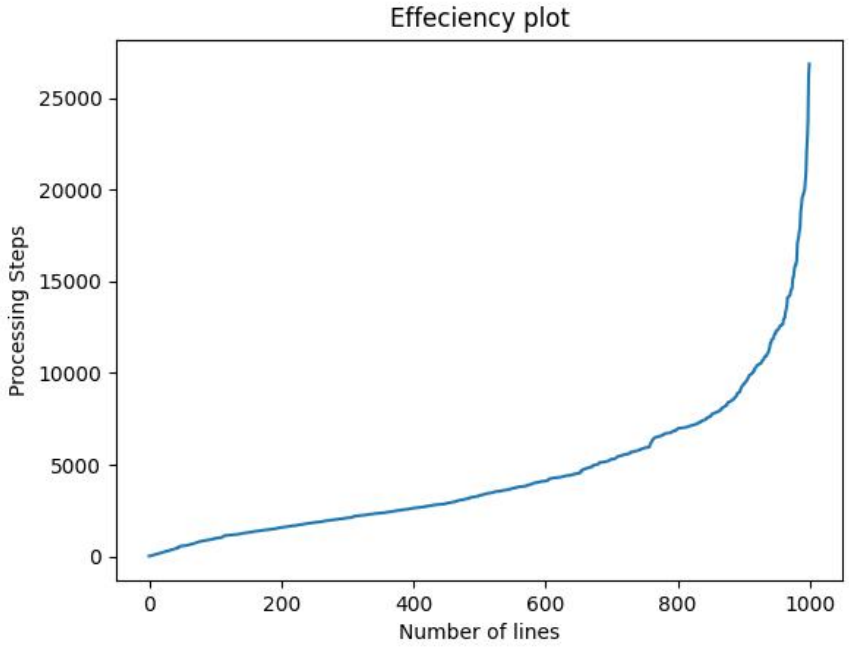


Fig.5. **4 clients (1 master, 3 clients) running in cooperation**
(time in ms v/s No of unique lines read)

From the above plots, we can observe that the time taken to get all the 1000 unique lines decreases linearly as the number of devices increased.