Project Progress Report #1

Team Members: Yueran and Kang

Week: April 17

What have we done so far?

- We reviewed the paper Practical Locally Private Heavy Hitters and discussed the algorithm introduced in class.
- We checked out some GitHub examples of heavy hitter implementations under LDP.
- We reached out to the instructor to ask if it's okay to simulate the client-server behavior in one program. The instructor confirmed this is totally fine.
- We decided on the structure: generate user data → apply local randomization → aggregate → decode.

Deviations from original plan

Originally, we thought about building a full client-server system with separate components, but after reviewing the requirements and emailing the instructor, we realized it was unnecessary. Since the client-side's job is just to apply randomization, we're now planning to simulate everything in one place. This change keeps things simpler and lets us focus more on the algorithm itself.

Next steps / Progress plan

Next week, we plan to:

- Start implementing the data generation and local randomization parts
- Choose a simple LDP mechanism to start with (most likely randomized response with hashing)
- Set up basic aggregation logic and start thinking about the decoding procedure
- Run small-scale tests to confirm our logic before scaling up

We're not rushing into code yet because we wanted to first fully understand the protocol. Now that the planning is done, we're ready to begin the implementation phase.