Progress & Plan

Current Progress:

- **Setup Completed**: Environment configuration and dataset import has been completed to ensure that all team members can access and run the experimental environment.
- **Algorithm/Design Understanding and Implementation**: We have worked together to complete the understanding of the framework design.
- **Results Generation Plan**: The plan is to identify the key metrics for the experiment and plan to develop experimental steps for each modal combination for performance evaluation.

Progress Attributed to Each Team Member:

Caiyue Chen

- **Current Contributions**:
  - **Setup**: Complete specific steps for environment configuration and dataset import to ensure data preprocessing is completed.
  - **Algorithm Understood**: Understood the implementation of self-encoder structures on unimodal and multimodal clients, including the implementation and optimization of segmented self-encoders and typical correlation self-encoders.
- **Next Steps**:
  - **Algorithm Implementation**: Implementation of the algorithms described above after understanding them.
  - **Results Generation**: Perform local experiments and test steps to record the classification accuracy and convergence speed of multimodal data in different combinations to provide data support for subsequent analysis.

Han Gao

- **Current Contributions**:
  - **Setup**: Complete specific steps for environment configuration and dataset import to ensure data preprocessing is completed.
  - **Algorithm Understood**: Understood the multimodal FedAvg algorithm, designed a partial strategy for the aggregation policy.
- **Next Steps**:
  - **Algorithm Implementation**: An implementation of the multimodal FedAvg algorithm is carried out to design aggregation strategies and adjust the weighting assignment of multimodal clients.
  - **Demonstration Plan**: A demonstration flow was developed to show the application of the framework in an IoT environment, including the operation of the system and actual classification tasks.
  - **Results Analysis and Visualization**: Analyze the experimental data, transform the results into visual graphs, and delve into the classification performance and convergence speed of multimodal data.