State the given problem in your own words

Federated machine learning is the idea (from Google) of anonymised machine learning (or rather deep learning). It is a way to get a Neural Network trained on everyone's data, but without having direct access to everyone's data.

Traditionally, a Neural Network would require a lot of data from users to train a model that is fairly accurate. But with the federated approach, the users dont have to share their data with anyone else to obtain a better overall model. Instead, they train a model locally no their own data, and then send the weights and biases of the model (the original user data cannot be recreated with these weights and biases) to a server which then averages them and sends them to you all the users. Because the weight and biases are being sent, instead of the user's actual data (like their images), privacy is maintained and essentially a model is trained using anonymised data from several users.

My project is based on implementing the way in which Google does this, and then implementing several more strategies proposed by Derek and comparing their outcome. At a high level, these strategies include discarding the weights of users in certain conditions or using a weighted average of their weights and biases.