Fraud Detection Using an Autoencoder and Variational Autoencoder

1. Max 5 members per teamk
2. Develop a neural autoencoder for detecting fraudulent transactions within a dataset.
3. The dataset contains 284,807 credit card transactions, of which 492 are fraudulent.
4. The dataset contains 30 attributes, including 28 principal components, the time between each transaction and the first transaction in the data set, and the amount paid for each transaction.
5. You can consider converting time difference and amount features into log scale for dynamic range compression,
6. Your objective includes designing an autoencoder and justifying the choices made for its architecture, and loss function.
7. For the evaluation phase, you are required to utilize the prediction score and F1 score to assess the model's performance on the test data.
8. Repear similar steps to design the fraud detection model using the Variational Autoencoder.