**FINAL PROJECT**

**Problem 1: Predict happiness scores**

1. EDA.
2. Build 2 simple models with all features.
3. Select important features based on your correlation plot (or any method) and then build 2 or 3 models (Use Optuna or GridsearchCV).
4. Report your final model with the best metric of your choice.

**Problem 2: Classify fruits**

1. EDA
2. Split: X (features) and y (target).

**Part 1:**

* 1. Work with X (ignore y): perform k-means clustering using any method to select the best k.
  2. Perform PCA on X by selecting 2 principal components and then report how much variance can be explained by the model.

**Part 2:**

* 1. Use both X and y to build at least 3 models and then report the best model (Plot ROC curve).

**Problem 3: Predict energy consumption**

1. Process column ‘Amount’. Convert to the correct decimal format by first removing ‘.’ and then replacing ‘,’ with ‘.’ Finally, convert string to float.
2. Process column ‘Date’
3. Build a simple Prophet model and then tune some hyperparameters.