# PMDS505P Data Mining and Machine Learning
# Experiment 10

March 2025

## 1 Work to do today

Note: Make a single pdf file of the work you are doing in jupyter notebook. Upload with proper format. Please mention your name and roll no properly with Experiment number in the first page of your submission.

Q1. Download the dataset provided to you. The dataset **'data.csv'** gives you a dataset collected regarding the heart disease of a few individuals. '1' in the target column represents that the person has disease and '0' represents that the person doesn't have heart disease.

- Perform necessary pre-processing of the data.
- Perform PCA on the given data to reduce the data to 2 dimensions
- Fit different models using the given techniques to predict the target variables and compare the accuracy of the models.
  (a) Logistic Regression
  (b) Decision tree.
  (c) Bagging
  (d) RandomForest with hyperparamter tuning
  (e) Adaboost with hyperparameter tuning
  (f) Gradientboosting with hyperparameter tuning
- Find out the predictions in each case and print them.
- Also evaluate the model based on suitable performance measures other than accuracy.
- Print the decision boundaries wherever possible.