Statistical Machine Learning Winter 2022
Assignment - 4 Deadline : $14^{th} May, 11:59 PM$

April 2022

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1 Instructions

- You are free to use either python or MATLAB for this assignment.
- You can use inbuilt libraries for Math, plotting, and handling the data (eg. NumPy, Pandas, Matplotlib).
- Usage instructions for other libraries can be found in the question.
- Only (*.py) and (*.m) files should be submitted for code.
- Create a (*.pdf) report explaining your assumptions, approach, results, and any further detail asked in the question.
- You should be able to replicate your results if required.

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2 Question [4 Marks]

Use MNISTdataset and follow below instructions to solve this question.
Create Gradient Boosting Classifier from scratch with following instructions.

- As a base model, use DecisionTreeRegression(max depth = 1) from sklearn.
- Use **Number of Itertaions M = 5** and **learning rate = 0.1**
- Plot iteration-wise training and testing accuracy
- Report all the assumptions that you made, and report final testing accuracy.