

Experiment 2

*Start Date: Oct. 26, 2021

*Report Due Date: Nov. 09, 2021

Notes:

- Each experiment must be done individually. You can search material through Internet but remember to mark it.
- Write an experiment report to describe and analyze the experimental observations.
- You should pack your files including **source code, report, readme file, and other related files** in one .zip/.rar/.7z file.
- Please submit on the Web Learning platform. Do NOT Email or Wechat your report to the instructor or TAs.
- No late report is accepted. No exceptions.
- You can write the report using English or Chinese.

Task:

Use the sklearn classification models to finish the experiment.

Goal:

We hope you know better about the classification models and try to use the models better on the given dataset.

Data:

For **CS background** students, you should use the attached dataset file.

For **Non CS background** students, you can use the [scikit-learn package](#) to load the MNIST dataset.

Divide the data into train set and test set.

Experiment Step:

- Use the [SVM](#) to classify the data. Try to change kernel and other related parameters to see the change of metric you use. Record the result and try to explain it.
- Use the [Decision Tree](#) to classify the data, use the API to [visualize the tree](#). Try to change the related parameters to see the change of metric you use. Record the result and try to explain it.
- Use the [KMeans](#) to cluster the data and [visualize](#) it. (The PCA may not be covered in the lecture currently, just use it.)