## **ICS 435/635**

## **Machine Learning**

Spring 2025

## *Assignment Report Example*

(font size: 10, single space, maximum report length: no more than 4 pages.

Please delete/update the highlighted parts in red fonts in this report template to enter your contents)

**Section 1: Task Description**

(Please provide a brief description of your studied task in this project)

**Section 2: Model Description**

(Provide an overview of the three models (KNN, Decision Tree, Random Forest).)

**Section 3: Experiment Settings**

**3.1 Dataset Description**

(Describe the Breast Cancer dataset, including the number of features, classes, and samples.

Explain how you partitioned the dataset into training and testing sets.)

**3.2 Detailed Experimental Setups**

Detail your model settings and hyperparameters for each classifier.

If you experimented with multiple hyperparameter configurations, describe these variations.

**3.3 Evaluation Metrics**

Describe the evaluation metrics used (Accuracy, Precision, Recall, F1-Score). Provide a brief explanation of their significance in binary classification.

**3.4 Source Code**

(Please upload your code to github and add the link here)

**3.5 Model Performance**

Present the performance results of each model (Accuracy, Precision, Recall, F1-Score) in a table or plot.

Include confusion matrices for each classifier.

**3.6 Ablation Studies**

Discuss how hyperparameter tuning impacted model performance. Present a comparison of results based on different hyperparameter configurations.

**Section 4: Conclusion**

Summarize your findings. Highlight the strengths and weaknesses of each model based on the results. Discuss which model performed best for the given task and why.