Assignment 3

Machine Learning Course, GSU

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Logistic Regression & SVM

Q 1-1. Define the Sigmoid Function using python, and draw a graph using matplotlib (20%)

- x value (independent variable) range: -5 ~ 5
- Capture the graph, and your code

Q 1-2. Using given dataset below, write the classification function with Logistic Regression using python and predict the class label of [5, 7], [6, 4], [2, 15] (40%)

(Capture your code)

- conditions

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x_data = [1, 2], [2, 2], [3, 4], [5, 5], [7, 5], [2, 5], [1,0], [8, 9], [9, 10], [6, 12], [9, 2], [6, 10], [3, 1], [8, 8]

y_data = [0, 0, 0, 1, 1, 0, 0, 1, 1, 1, 1, 1, 0, 1]

x_data indicates independent variable, where y_data is a class label for each value in x

e.g. (1,2) = 0, (2,2) = 0 … (8,8) = 1

Any other parameter is to set by yourself. (E.g. train_test_split size, etc)

Q 2. Write the Support Vector Machine code using given data, and make predictions for [5, 7], [6, 4], [2, 15] (40%)

(Capture your code)

- conditions

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x_data = [1, 2], [2, 2], [3, 4], [5, 5], [7, 5], [2, 5], [1,0], [8, 9], [9, 10], [6, 12], [9, 2], [6, 10], [3, 1], [8, 8]

y_data = [0, 0, 0, 1, 1, 0, 0, 1, 1, 1, 1, 1, 0, 1]

x_data indicates independent variable, where y_data is a class label for each value in x

e.g. (1,2) = 0, (2,2) = 0 … (8,8) = 1

Any other parameter is to set by yourself. (E.g., train_test_split size, linear kernel, C value, random state, etc)
