In the name of God

Artificial Intelligence

Faculty of mechanical engineering

1928
K. N. Toosi University of Technology

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Assignment 2

Due date: 99/02/01

1. Apply **Linear SVM** and **Logistic Regression** on:
   a. Cancer dataset
   b. Churn dataset

And then compare the results by using precision, recall, F1 score and log loss.

Note 1: use same train-data for both cases.

2. Apply **Decision Tree**, **SVM** and **KNN** on:
   a. Drug dataset
   b. Telecommunication Customer dataset

And then compare the result by using Jaccard index and F1 score.

Note 1: use same train-data for all cases.

Note 2: in case of KNN, find the best value for K and use it in comparison.

3. Try to fit a **Logistic Regression** model on Churn dataset, once with normalized data and the other time without normalization and:
   a. Plot confusion matrix
   b. Explain effect of this preprocessing technique on this example.

Note 1: use same train-data for both cases.

Extra Credit Question:

Do some research on kernels in SVM algorithm and explain them briefly. Then use **RBF**, **Polynomial** and **Linear** and try to fit a model on cancer dataset. Compare the result with F1 score.

Good Luck