CSE472 (Machine Learning Sessional)

Assignment 1: Decision Tree and AdaBoost for Classification

Submitted by

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Telcom Customer Churn Dataset

Decision Tree

Performance measure	Training	Testing
Accuracy	80.30	79.35
True positive rate (Recall)	51.24	51.62
True negative rate	91.13	88.13
Positive predictive value	68.29	57.95
False discovery rate	31.71	42.05
F1 score	58.55	54.60

Adaboost

Number of boosting rounds	Training	Testing
5	78.77	80.06
10	79.04	79.63
15	79.25	80.12
20	79.69	80.30

Adult Income Dataset

Decision Tree

Performance measure	Training	Testing
Accuracy	85.96	82.54
True positive rate (Recall)	60.73	56.65
True negative rate	93.82	91.03
Positive predictive value	75.35	67.44
False discovery rate	24.65	32.56
F1 score	67.26	61.58

Adaboost

Number of boosting rounds	Training	Testing
5	82.34	81.51
10	82.60	82.12
15	83.61	82.95
20	83.33	82.46

Credit Card Fraud Detection Dataset

<u>Decision Tree</u>

Performance measure	Training	Testing
Accuracy	99.92	99.22
True positive rate (Recall)	96.73	85.26
True negative rate	100.0	99.55
Positive predictive value	100.0	81.82
False discovery rate	0.0	18.18
F1 score	98.34	83.50

<u>Adaboost</u>

Number of boosting rounds	Training	Testing
5	99.13	99.32
10	99.23	99.44
15	99.34	99.49
20	99.30	99.51