PS10

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Worked with Conrad

1 Part 7

From tuning model
Tree
minsplit=10;
minbucket=6;
cp=0.0269 :
f1.test.mean=0.89,
gmean.test.mean=0.686

Logit Regression
lambda=0.0263;
alpha=0.786 :
f1.test.mean=0.897
,gmean.test.mean=0.662

Neural Network
size=9;
decay=0.357;
maxit=1000 :
f1.test.mean=0.907
,gmean.test.mean=0.756

KKNN
k=23 :
f1.test.mean=0.897
,gmean.test.mean=0.747

SVM
cost=1;
gamma=0.5
: f1.test.mean=0.904,

gmean.test.mean=0.736

2 Part 8 and 9

With the optimal tuning parameters: verifying the performance on cross validated sets:

performance.Tree Aggr perf:
f1.test.mean=0.896,gmean.testmean=0.658

performance.Logit
Aggr perf: f1.test.mean=0.897,gmean.test.mean=0.662

performance.Neural
Aggr perf: f1.test.mean=0.906,gmean.test.mean=0.753

performance.KKNN
Aggr perf: f1.test.mean=0.896,gmean.test.mean=0.744

performance.SVM
Aggr perf: f1.test.mean=0.906,gmean.test.mean=0.735

performance.Bayes
Aggr perf: f1.test.mean=0.884,gmean.test.mean=0.726

Out of sample performance:
Tree
out of sample performance: f1:0.8968421 gmean 0.6730932
Logit
out of sample performance: f1 0.8986422 gmean 0.6762722
Neural
out of sample performacne: f1 0.9094500 gmean 0.7675114
KKNN
out of sample performance: f1 0.8975970 gmean 0.7564945
SVM
out of sample performance: f1 0.9048742 gmean 0.7478175
Bayes
out of sample performance: f1 0.8825952 gmean 0.7340489

Only the tree and logit models varied from the rest but were close to each other. The rest of the model's numbers are close to each other. It appears that either model will be beneficial.