On the Use of Evaluation Measures for Defect Prediction Studies

Jan 28 2022

Abstract

This online appendix is supplementary to the paper titled "On the Use of Evaluation Measures for Defect Prediction Studies", which is submitted for review at ISSTA 2022. It contains the data used in the study and the win-tie-loss results of our experiments. We will also include the scripts and confusion matrices upon acceptance.

1 Empirical Study Data

The datasets we used to run our experiments can be download from https://figshare.com/s/f0a8168d34dcbb57bacf.

2 Empirical Study Results

The results of the empirical study are described in Section 3 of the paper. Here we include the raw results of the win-tie-loss procedures used to compute the discordant ranking and rank disruption for the NASA datasets (Table 1) and Realistic datasets, cross-version (Tables 2 and 3) and cross-project (Tables 4 and 5).

Dataset		F1 win/loss/tie	G-measure win/loss/tie	MCC win/loss/tie	Balance win/loss/tie	AUC win/loss/tie	FPR win/loss/tie
	Dummy SVM	5 / 1 / 0 0 / 6 / 0	5 / 0 / 1 0 / 6 / 0	0 / 3 / 3 1 / 3 / 2	5 / 0 / 1 0 / 5 / 1	1 / 5 / 0 0 / 6 / 0	0 / 6 / 0 6 / 0 / 0
	${\bf SVM_Tuned}$	3 / 2 / 1	3 / 2 / 1	4 / 1 / 1	3 / 2 / 1	2 / 4 / 0	2 / 2 / 2
	RF_Tuned	1 / 4 / 1 1 / 4 / 1	1 / 4 / 1 1 / 4 / 1	0 / 3 / 3 0 / 4 / 2	0 / 4 / 2 1 / 4 / 1	4 / 0 / 2 4 / 0 / 2	2 / 1 / 3 3 / 1 / 2
	NB	6 / 0 / 0	5 / 0 / 1	5 / 0 / 1	5 / 0 / 1	4 / 0 / 2	1 / 5 / 0
CM1	LR	3 / 2 / 1 small/med/large	3 / 2 / 1 small/med/large	4 / 0 / 2 small/med/large	3 / 2 / 1 small/med/large	3 / 3 / 0 small/med/large	2 / 1 / 3 small/med/large
	Dummy	1 / 0 / 4 0 / 0 / 0	0 / 0 / 5 0 / 0 / 0	0 / 0 / 0 0 / 0 / 1	0 / 1 / 4 0 / 0 / 0	0 / 0 / 1 0 / 0 / 0	0 / 0 / 0 0 0 0 / 0 / 6
	SVM_Tuned	0 / 0 / 0 0 0 0 / 1 / 2	0 / 0 / 0 0 0 0 / 1 / 2	0 / 1 / 3	0 / 1 / 2	0 / 0 / 0 0 0 0 0 / 0 / 2	0 / 0 / 6
	RF RF_Tuned	1 / 0 / 0 0 / 0 / 1	1 / 0 / 0 0 / 0 / 1	0 / 0 / 0 0 / 0 / 0	0 / 0 / 0 0 / 0 / 1	0 / 1 / 2 0 / 1 / 3	0 / 0 / 2 0 / 0 / 3
	NB	1/1/4	0 / 0 / 5	1 / 2 / 2	0 / 1 / 4	1 / 0 / 3	0 / 0 / 1
	LR	2 / 0 / 1 F1	2 / 0 / 1 G-measure	3 / 1 / 0 MCC	3 / 0 / 0 Balance	0 / 1 / 2 AUC	0 / 0 / 2 FPR
	D	win/loss/tie	win/loss/tie	win/loss/tie	win/loss/tie	win/loss/tie	win/loss/tie
	Dummy SVM	3 / 1 / 2 0 / 6 / 0	4 / 1 / 1 0 / 6 / 0	0 / 4 / 2 1 / 4 / 1	4 / 1 / 1 0 / 6 / 0	1 / 5 / 0 0 / 6 / 0	0 / 6 / 0 6 / 0 / 0
	SVM_Tuned RF	1 / 5 / 0 3 / 1 / 2	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	0 / 5 / 1 3 / 1 / 2	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	2 / 4 / 0 4 / 1 / 1	3 / 2 / 1 3 / 1 / 2
	RF_Tuned	2 / 4 / 0	2 / 4 / 0	3 / 2 / 1	2 / 4 / 0	5 / 0 / 1	4 / 1 / 1
	NB LR	6 / 0 / 0 3 / 1 / 2	6 / 0 / 0 3 / 1 / 2	6 / 0 / 0 4 / 1 / 1	6 / 0 / 0 3 / 1 / 2	4 / 1 / 1 3 / 3 / 0	1 / 5 / 0 2 / 4 / 0
KC3		small/med/large	small/med/large	small/med/large	small/med/large	small/med/large	small/med/large
	Dummy SVM	0 / 0 / 3 0 / 0 / 0	0 / 1 / 3 0 / 0 / 0	0 / 0 / 0 0 / 0 / 1	1 / 0 / 3 0 / 0 / 0	0 / 0 / 1 0 / 0 / 0	0 / 0 / 0 0 / 1 / 5
	${\rm SVM_Tuned}$	0 / 0 / 1	0 / 0 / 1	0 / 0 / 0	0 / 0 / 1	0 / 0 / 2	0 / 0 / 3
	RF_Tuned	0 / 1 / 0 0 / 0 / 2	0 / 1 / 0 0 / 0 / 2	1 / 2 / 0 0 / 1 / 2	1 / 0 / 0 0 / 0 / 2	1 / 0 / 3 1 / 1 / 3	0 / 1 / 2 0 / 0 / 4
	NB LR	0 / 2 / 4 0 / 2 / 1	0 / 2 / 4 0 / 2 / 1	2 / 0 / 4 1 / 2 / 1	0 / 3 / 3 0 / 3 / 0	1 / 0 / 3 0 / 3 / 0	0 / 0 / 1 1 / 0 / 1
		F1	G-measure	MCC	Balance	AUC	FPR
	Dummy	win/loss/tie 2 / 1 / 3	win/loss/tie 5 / 1 / 0	win/loss/tie 0 / 4 / 2	win/loss/tie 4 / 1 / 1	win/loss/tie 1 / 4 / 1	win/loss/tie 0 / 6 / 0
	SVM	0 / 6 / 0	0 / 6 / 0	0 / 4 / 2	0 / 5 / 1	0 / 5 / 1	6 / 0 / 0
	SVM_Tuned RF	1 / 5 / 0 2 / 2 / 2	1 / 5 / 0 2 / 3 / 1	0 / 4 / 2 3 / 1 / 2	0 / 5 / 1 2 / 2 / 2	0 / 4 / 2 3 / 1 / 2	2 / 4 / 0 3 / 1 / 2
	RF_Tuned	2 / 2 / 2	2 / 3 / 1	3 / 2 / 1	2 / 3 / 1	3 / 1 / 2	4/1/1
	NB LR	6 / 0 / 0 4 / 1 / 1	6 / 0 / 0 4 / 2 / 0	5 / 0 / 1 4 / 0 / 2	6 / 0 / 0 3 / 1 / 2	6 / 0 / 0 3 / 1 / 2	1 / 5 / 0 3 / 2 / 1
MW1	Dummy	small/med/large 0 / 0 / 2	small/med/large 1 / 0 / 4	small/med/large 0 / 0 / 0	small/med/large 0 / 2 / 2	small/med/large 1 / 0 / 0	small/med/large 0 / 0 / 0
	SVM	0 / 0 / 0	0 / 0 / 0	0 / 0 / 0	0 / 0 / 0	0 / 0 / 0	0 / 0 / 6
	SVM_Tuned RF	1 / 0 / 0 1 / 1 / 0	1 / 0 / 0 1 / 1 / 0	0 / 0 / 0 1 / 1 / 0	0 / 0 / 0 0 / 1 / 0	0 / 0 / 0 0 / 0 / 3	0 / 0 / 2 0 / 1 / 2
	RF_Tuned	0 / 1 / 1	0 / 1 / 1	1 / 1 / 1	0 / 1 / 1	0 / 0 / 3	1 / 1 / 2
	NB LR	1 / 0 / 5 2 / 1 / 1	0 / 0 / 6 1 / 1 / 1	0 / 2 / 3 1 / 1 / 1	0 / 0 / 6 1 / 1 / 0	2 / 1 / 3 0 / 0 / 3	0 / 0 / 1 0 / 1 / 2
		F1 win/loss/tie	G-measure win/loss/tie	MCC win/loss/tie	Balance win/loss/tie	AUC win/loss/tie	FPR win/loss/tie
	Dummy	2 / 4 / 0	5 / 0 / 1	0 / 4 / 2	5 / 0 / 1	1 / 4 / 1	0 / 6 / 0
	SVM_Tuned	0 / 6 / 0 1 / 5 / 0	0 / 6 / 0 1 / 5 / 0	0 / 4 / 2 0 / 4 / 2	0 / 6 / 0 1 / 5 / 0	0 / 6 / 0 1 / 4 / 1	6 / 0 / 0 2 / 4 / 0
	RF	4 / 0 / 2	3 / 2 / 1	5 / 0 / 1	3 / 2 / 1	4 / 1 / 1	4 / 1 / 1
	RF_Tuned NB	4 / 0 / 2 4 / 0 / 2	3 / 2 / 1 5 / 0 / 1	5 / 0 / 1 3 / 2 / 1	3 / 2 / 1 5 / 0 / 1	6 / 0 / 0 3 / 3 / 0	4 / 1 / 1 1 / 5 / 0
PC1	LR	3 / 3 / 0 small/med/large	2 / 4 / 0 small/med/large	3 / 2 / 1 small/med/large	2 / 4 / 0 small/med/large	4 / 1 / 1 small/med/large	3 / 3 / 0 small/med/large
101	Dummy	0 / 1 / 1	0 / 1 / 4	0 / 0 / 0	0 / 3 / 2	0 / 0 / 1	0 / 0 / 0
	SVM_Tuned	0 / 0 / 0 0 / 1 / 0	0 / 0 / 0 0 / 1 / 0	0 / 0 / 0 0 / 0 / 0	0 / 0 / 0 0 / 0 / 0	0 / 0 / 0 0 / 0 / 1	0 / 1 / 5 1 / 0 / 1
	RF	1 / 0 / 3	0 / 0 / 2	2 / 0 / 3	1 / 0 / 2	0 / 1 / 3	0 / 1 / 3
	RF_Tuned NB	1 / 0 / 3 1 / 0 / 3	0 / 0 / 2 0 / 2 / 3	2 / 0 / 3 0 / 0 / 3	1 / 0 / 2 0 / 2 / 3	2 / 0 / 4 0 / 0 / 3	1 / 0 / 3 0 / 0 / 1
	LR	1 / 0 / 2 F1	0 / 1 / 1	0 / 0 / 3 MCC	0 / 1 / 1	0 / 1 / 3	0 / 1 / 2
		win/loss/tie	G-measure win/loss/tie	win/loss/tie	Balance win/loss/tie	AUC win/loss/tie	FPR win/loss/tie
	Dummy SVM	2 / 1 / 3 0 / 6 / 0	6 / 0 / 0 0 / 6 / 0	1 / 4 / 1 1 / 4 / 1	6 / 0 / 0 0 / 6 / 0	0 / 6 / 0 2 / 3 / 1	1 / 5 / 0 6 / 0 / 0
	${\bf SVM_Tuned}$	1 / 0 / 5	5 / 1 / 0	3 / 2 / 1	5 / 1 / 0	1 / 4 / 1	2 / 4 / 0
	RF_Tuned	1 / 0 / 5 1 / 2 / 3	3 / 2 / 1 2 / 3 / 1	4 / 0 / 2 4 / 0 / 2	3 / 2 / 1 2 / 3 / 1	4 / 1 / 1 6 / 0 / 0	3 / 3 / 0 4 / 1 / 1
PC3	NB LR	4 / 0 / 2	1 / 5 / 0 2 / 2 / 2	0 / 6 / 0	1 / 5 / 0 2 / 2 / 2	4 / 1 / 1	0 / 6 / 0
		1 / 1 / 4 small/med/large	small/med/large	3 / 0 / 3 small/med/large	small/med/large	1 / 3 / 2 small/med/large	4 / 1 / 1 small/med/large
	Dummy SVM	1 / 0 / 1 0 / 0 / 0	0 / 0 / 6 0 / 0 / 0	1 / 0 / 0 0 / 1 / 0	0 / 0 / 6 0 / 0 / 0	0 / 0 / 0 0 / 0 / 2	0 / 0 / 1 0 / 0 / 6
	SVM_Tuned	0 / 0 / 1	2 / 1 / 2	0 / 0 / 3	2 / 1 / 2	0 / 0 / 1	0 / 0 / 2
	RF_Tuned	0 / 0 / 1 0 / 0 / 1	0 / 0 / 2 0 / 0 / 2	0 / 1 / 3 0 / 1 / 3	0 / 0 / 2 0 / 0 / 2	0 / 1 / 3 0 / 0 / 6	0 / 0 / 3 1 / 0 / 3
	NB	1 / 1 / 1	0 / 0 / 1	0 / 0 / 0	0 / 0 / 1	0 / 1 / 3 1 / 0 / 0	0/0/0
	LR	0 / 0 / 1 F1	0 / 0 / 1 G-measure	0 / 2 / 1 MCC	0 / 1 / 0 Balance	AUC	0 / 1 / 3 FPR
	Dummy	win/loss/tie 1 / 2 / 3	win/loss/tie 2 / 0 / 4	win/loss/tie 0 / 4 / 2	win/loss/tie 2 / 0 / 4	win/loss/tie 0 / 6 / 0	win/loss/tie 1 / 5 / 0
		0/6/0	0 / 6 / 0	0 / 4 / 2	0 / 6 / 0	2 / 1 / 3	6 / 0 / 0
	SVM		0 / 0 / 0	5 / 0 / 1	3 / 0 / 3 2 / 1 / 3	1 / 4 / 1 3 / 1 / 2	2 / 2 / 2 2 / 2 / 2
	SVM SVM_Tuned	5 / 0 / 1	3 / 0 / 3 2 / 1 / 3	3 / 3 / 0			· / = / =
	SVM_Tuned RF RF_Tuned	5 / 0 / 1 1 / 2 / 3 2 / 1 / 3	2 / 1 / 3 2 / 1 / 3	3 / 3 / 0 4 / 1 / 1	2 / 1 / 3	6 / 0 / 0	3 / 1 / 2
	SVM SVM_Tuned RF RF_Tuned NB	5 / 0 / 1 1 / 2 / 3 2 / 1 / 3 1 / 1 / 4	2 / 1 / 3 2 / 1 / 3 1 / 5 / 0	4 / 1 / 1 0 / 4 / 2	2 / 1 / 3 1 / 5 / 0	6 / 0 / 0 2 / 1 / 3	0 / 6 / 0
PC5	SVM SVM_Tuned RF RF_Tuned NB LR	5 / 0 / 1 1 / 2 / 3 2 / 1 / 3 1 / 1 / 4 2 / 0 / 4 small/med/large	2 / 1 / 3 2 / 1 / 3 1 / 5 / 0 3 / 0 / 3 small/med/large	4 / 1 / 1 0 / 4 / 2 4 / 0 / 2 small/med/large	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	0 / 6 / 0 3 / 1 / 2 small/med/large
PC5	SVM SVM_Tuned RF RF_Tuned NB	5 / 0 / 1 1 / 2 / 3 2 / 1 / 3 1 / 1 / 4 2 / 0 / 4	2 / 1 / 3 2 / 1 / 3 1 / 5 / 0 3 / 0 / 3	4 / 1 / 1 0 / 4 / 2 4 / 0 / 2	2 / 1 / 3 1 / 5 / 0 3 / 0 / 3	6 / 0 / 0 2 / 1 / 3 1 / 2 / 3	0 / 6 / 0 3 / 1 / 2
PC5	SVM SVM_Tuned RF RF_Tuned NB LR Dummy SVM SVM_Tuned	5 / 0 / 1 1 / 2 / 3 2 / 1 / 3 1 / 1 / 4 2 / 0 / 4 small/med/large 0 / 0 / 1 0 / 0 / 0 3 / 1 / 1	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	4 / 1 / 1 0 / 4 / 2 4 / 0 / 2 small/med/large 0 / 0 / 0 0 / 0 / 0 1 / 1 / 3	2 / 1 / 3 1 / 5 / 0 3 / 0 / 3 small/med/large 1 / 1 / 0 0 / 0 / 0 0 / 0 / 3	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	0 / 6 / 0 3 / 1 / 2 small/med/large 0 / 0 / 1 0 / 1 / 5 0 / 0 / 2
PC5	SVM SVM_Tuned RF RF_Tuned NB LR Dummy SVM	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	4 / 1 / 1 0 / 4 / 2 4 / 0 / 2 small/med/large 0 / 0 / 0 0 / 0 / 0	2 / 1 / 3 1 / 5 / 0 3 / 0 / 3 small/med/large 1 / 1 / 0 0 / 0 / 0	6 / 0 / 0 $2 / 1 / 3$ $1 / 2 / 3$ small/med/large $0 / 0 / 0$ $0 / 0 / 2$	0 / 6 / 0 3 / 1 / 2 small/med/large 0 / 0 / 1 0 / 1 / 5

Table 1: The win-tie-loss results of the within-project scenario.

Dataset		F1 win/loss/tie	G-measure win/loss/tie	MCC win/loss/tie	Balance win/loss/tie	AUC win/loss/tie	FPR win/loss/tie
	Dummy SVM SVM_Tuned RF	1 / 5 / 0 0 / 6 / 0 4 / 2 / 0 5 / 1 / 0	1 / 4 / 1 0 / 6 / 0 4 / 1 / 1 3 / 2 / 1	1 / 5 / 0 0 / 6 / 0 4 / 2 / 0 5 / 1 / 0	1 / 5 / 0 0 / 6 / 0 4 / 1 / 1 3 / 2 / 1	0 / 6 / 0 1 / 5 / 0 2 / 4 / 0 4 / 2 / 0	0 / 6 / 0 6 / 0 / 0 2 / 4 / 0 4 / 2 / 0
ActiveMQ	RF_Tuned NB LR	6 / 0 / 0 2 / 4 / 0 3 / 3 / 0 small/med/large	3 / 1 / 2 6 / 0 / 0 1 / 4 / 1 small/med/large	6 / 0 / 0 3 / 3 / 0 2 / 4 / 0 small/med/large	3 / 1 / 2 6 / 0 / 0 2 / 4 / 0 small/med/large	6 / 0 / 0 5 / 1 / 0 3 / 3 / 0 small/med/large	5 / 1 / 0 1 / 5 / 0 3 / 3 / 0 small/med/large
	Dummy SVM SVM_Tuned RF	0 / 0 / 1 0 / 0 / 0 0 / 0 / 4 0 / 0 / 5	0 / 0 / 1 0 / 0 / 0 0 / 1 / 3 0 / 1 / 2	0 / 1 / 0 0 / 0 / 0 0 / 0 / 4 0 / 0 / 5	0 / 0 / 1 0 / 0 / 0 0 / 1 / 3 0 / 0 / 3	0 / 0 / 0 0 / 0 / 1 0 / 0 / 2 0 / 0 / 4	0 / 0 / 0 0 / 0 / 6 0 / 0 / 2 0 / 0 / 4
	RF_Tuned NB LR	0 / 0 / 6 0 / 0 / 2 0 / 0 / 3 F1	0 / 0 / 3 0 / 0 / 6 0 / 0 / 1 G-measure	0 / 0 / 6 0 / 0 / 3 0 / 0 / 2 MCC	0 / 0 / 3 0 / 0 / 6 0 / 0 / 2 Balance	0 / 0 / 6 0 / 0 / 5 0 / 0 / 3 AUC	0 / 0 / 5 0 / 0 / 1 0 / 0 / 3 FPR
	Dummy SVM SVM_Tuned	win/loss/tie 2 / 4 / 0 0 / 6 / 0 5 / 1 / 0	win/loss/tie 5 / 1 / 0 0 / 6 / 0 4 / 2 / 0	win/loss/tie 2 / 4 / 0 1 / 5 / 0 3 / 2 / 1	win/loss/tie 5 / 1 / 0 1 / 5 / 0 4 / 2 / 0	win/loss/tie 1 / 5 / 0 6 / 0 / 0 2 / 4 / 0	win/loss/tie 0 / 6 / 0 6 / 0 / 0 2 / 4 / 0
	RF RF_Tuned NB LR	3 / 2 / 1 3 / 2 / 1 6 / 0 / 0 0 / 6 / 0	3 / 3 / 0 2 / 4 / 0 6 / 0 / 0 0 / 6 / 0	3 / 2 / 1 5 / 1 / 0 6 / 0 / 0 0 / 6 / 0	3 / 3 / 0 2 / 4 / 0 6 / 0 / 0 0 / 6 / 0	3 / 3 / 0 5 / 1 / 0 4 / 2 / 0 0 / 6 / 0	3 / 3 / 0 4 / 2 / 0 1 / 5 / 0 5 / 1 / 0
Camel	Dummy SVM	small/med/large 0 / 0 / 2 0 / 0 / 0	small/med/large 0 / 0 / 5 0 / 0 / 0	small/med/large 0 / 1 / 1 0 / 0 / 1	small/med/large 0 / 0 / 5 0 / 0 / 1	small/med/large 0 / 0 / 1 0 / 0 / 6	small/med/large 0 / 0 / 0 0 / 0 / 6
	SVM_Tuned RF RF_Tuned NB	1 / 0 / 4 0 / 0 / 3 0 / 0 / 3 0 / 0 / 6	0 / 1 / 3 1 / 0 / 2 0 / 0 / 2 0 / 1 / 5	0 / 0 / 3 0 / 0 / 3 1 / 1 / 3 0 / 0 / 6	0 / 1 / 3 1 / 0 / 2 0 / 0 / 2 0 / 0 / 6	0 / 0 / 2 0 / 0 / 3 0 / 0 / 5 0 / 0 / 4	0 / 0 / 2 0 / 0 / 3 0 / 1 / 3 0 / 0 / 1
	LR	0 / 0 / 0 F1 win/loss/tie 2 / 4 / 0	0 / 0 / 0 G-measure win/loss/tie 3 / 3 / 0	0 / 0 / 0 MCC win/loss/tie 0 / 6 / 0	0 / 0 / 0 Balance win/loss/tie 3 / 3 / 0	0 / 0 / 0 AUC win/loss/tie 0 / 6 / 0	0 / 0 / 5 FPR win/loss/tie 1 / 5 / 0
	SVM_Tuned RF RF_Tuned	1 / 5 / 0 4 / 2 / 0 5 / 0 / 1 5 / 0 / 1	1 / 5 / 0 5 / 1 / 0 6 / 0 / 0 4 / 2 / 0	1 / 5 / 0 5 / 1 / 0 4 / 2 / 0 6 / 0 / 0	1 / 5 / 0 5 / 1 / 0 6 / 0 / 0 4 / 2 / 0	3 / 3 / 0 1 / 5 / 0 5 / 1 / 0 6 / 0 / 0	5 / 1 / 0 3 / 3 / 0 2 / 4 / 0 4 / 2 / 0
Derby	NB LR Dummy	0 / 6 / 0 3 / 3 / 0 small/med/large 0 / 0 / 2	0 / 6 / 0 2 / 4 / 0 small/med/large 0 / 0 / 3	2 / 4 / 0 3 / 3 / 0 small/med/large 0 / 0 / 0	0 / 6 / 0 2 / 4 / 0 small/med/large 0 / 0 / 3	4 / 2 / 0 2 / 4 / 0 small/med/large 0 / 0 / 0	6 / 0 / 0 0 / 6 / 0 small/med/large 0 / 0 / 1
	SVM_Tuned RF RF_Tuned	0 / 0 / 1 0 / 0 / 4 1 / 0 / 4 0 / 0 / 5	0 / 0 / 1 0 / 0 / 5 0 / 0 / 6 0 / 0 / 4	0 / 0 / 1 1 / 0 / 4 0 / 0 / 4 0 / 0 / 6	0 / 0 / 1 0 / 0 / 5 0 / 0 / 6 0 / 0 / 4	0 / 0 / 3 0 / 0 / 1 0 / 0 / 5 0 / 0 / 6	0 / 0 / 5 0 / 0 / 3 0 / 0 / 2 0 / 0 / 4
	NB LR	0 / 0 / 0 0 / 0 / 3 F1 win/loss/tie	0 / 0 / 0 0 / 0 / 2 G-measure win/loss/tie	0 / 0 / 2 0 / 0 / 3 MCC win/loss/tie	0 / 0 / 0 0 / 0 / 2 Balance win/loss/tie	0 / 0 / 4 0 / 0 / 2 AUC win/loss/tie	0 / 0 / 6 0 / 0 / 0 FPR win/loss/tie
	Dummy SVM SVM_Tuned RF	2 / 4 / 0 0 / 6 / 0 5 / 1 / 0 6 / 0 / 0	6 / 0 / 0 1 / 5 / 0 4 / 2 / 0 5 / 1 / 0	1 / 5 / 0 2 / 4 / 0 4 / 2 / 0 6 / 0 / 0	6 / 0 / 0 1 / 5 / 0 4 / 2 / 0 5 / 1 / 0	1 / 5 / 0 4 / 1 / 1 3 / 3 / 0 4 / 1 / 1	1 / 5 / 0 5 / 1 / 0 2 / 4 / 0 3 / 3 / 0
Groovy	RF_Tuned NB LR	4 / 2 / 0 3 / 3 / 0 1 / 5 / 0 small/med/large	3 / 3 / 0 0 / 6 / 0 2 / 4 / 0 small/med/large	5 / 1 / 0 0 / 6 / 0 3 / 3 / 0 small/med/large	3 / 3 / 0 0 / 6 / 0 2 / 4 / 0 small/med/large	6 / 0 / 0 2 / 4 / 0 0 / 6 / 0 small/med/large	4 / 2 / 0 0 / 6 / 0 6 / 0 / 0 small/med/large
Gloovy	Dummy SVM SVM_Tuned RF	0 / 0 / 2 0 / 0 / 0 0 / 0 / 5	0 / 0 / 6 0 / 0 / 1 0 / 0 / 4	0 / 0 / 1 0 / 0 / 2 0 / 0 / 4	0 / 1 / 5 0 / 0 / 1 0 / 0 / 4 0 / 1 / 4	0 / 0 / 1 0 / 0 / 4 0 / 0 / 3 0 / 0 / 4	0 / 0 / 1 0 / 1 / 4 0 / 0 / 2
	RF_Tuned NB LR	0 / 0 / 6 0 / 0 / 4 0 / 0 / 3 0 / 0 / 1	0 / 1 / 4 0 / 0 / 3 0 / 0 / 0 0 / 0 / 2	0 / 1 / 5 0 / 0 / 5 0 / 0 / 0 0 / 0 / 3	0 / 0 / 3 0 / 0 / 0 0 / 0 / 2	0 / 0 / 6 0 / 0 / 2 0 / 0 / 0	0 / 0 / 3 0 / 0 / 4 0 / 0 / 0 0 / 0 / 6
	Dummy SVM	F1 win/loss/tie 3 / 3 / 0 1 / 5 / 0	G-measure win/loss/tie 6 / 0 / 0 1 / 5 / 0	MCC win/loss/tie 1 / 5 / 0 0 / 6 / 0	Balance win/loss/tie 4 / 1 / 1 1 / 5 / 0	AUC win/loss/tie 1 / 5 / 0 3 / 3 / 0	FPR win/loss/tie 0 / 6 / 0 5 / 1 / 0
	SVM_Tuned RF RF_Tuned NB	4 / 2 / 0 5 / 1 / 0 6 / 0 / 0 0 / 6 / 0	3 / 3 / 0 5 / 1 / 0 4 / 2 / 0 0 / 6 / 0	4 / 2 / 0 5 / 1 / 0 6 / 0 / 0 3 / 3 / 0	3 / 3 / 0 6 / 0 / 0 4 / 1 / 1 0 / 6 / 0	2 / 4 / 0 4 / 2 / 0 5 / 0 / 1 5 / 0 / 1	1 / 5 / 0 2 / 4 / 0 3 / 3 / 0 6 / 0 / 0
HBase	LR Dummy SVM	2 / 4 / 0 small/med/large 0 / 0 / 3 0 / 0 / 1	2 / 4 / 0 small/med/large 0 / 0 / 6 0 / 0 / 1	2 / 4 / 0 small/med/large 0 / 0 / 1 0 / 0 / 0	2 / 4 / 0 small/med/large 0 / 1 / 3 0 / 0 / 1	0 / 6 / 0 small/med/large 0 / 0 / 1 0 / 0 / 3	4 / 2 / 0 small/med/large 0 / 0 / 0 0 / 0 / 5
	SVM_Tuned RF RF_Tuned NB	0 / 1 / 3 0 / 0 / 5 1 / 0 / 5 0 / 0 / 0	0 / 0 / 3 1 / 0 / 4 1 / 0 / 3 0 / 0 / 0	0 / 0 / 4 0 / 0 / 5 0 / 0 / 6 0 / 0 / 3	0 / 0 / 3 1 / 1 / 4 0 / 1 / 3 0 / 0 / 0	0 / 0 / 2 0 / 0 / 4 0 / 0 / 5 0 / 0 / 5	0 / 0 / 1 0 / 0 / 2 0 / 0 / 3 0 / 0 / 6
	Dummy	0 / 0 / 2 F1 win/loss/tie 3 / 3 / 0	0 / 0 / 2 G-measure win/loss/tie 3 / 2 / 1	0 / 0 / 2 MCC win/loss/tie 1 / 4 / 1	0 / 0 / 2 Balance win/loss/tie 3 / 3 / 0	0 / 0 / 0 AUC win/loss/tie 2 / 4 / 0	0 / 0 / 4 FPR win/loss/tie 0 / 6 / 0
	SVM_Tuned RF RF_Tuned	0 / 6 / 0 4 / 2 / 0 5 / 1 / 0 6 / 0 / 0	0 / 6 / 0 3 / 2 / 1 5 / 1 / 0 6 / 0 / 0	0 / 6 / 0 4 / 2 / 0 5 / 1 / 0 6 / 0 / 0	0 / 6 / 0 4 / 2 / 0 5 / 1 / 0 6 / 0 / 0	4 / 2 / 0 0 / 5 / 1 5 / 1 / 0 6 / 0 / 0	6 / 0 / 0 3 / 3 / 0 2 / 4 / 0 1 / 5 / 0
Hive	NB LR Dummy	1 / 5 / 0 2 / 4 / 0 small/med/large 0 / 0 / 3	1 / 5 / 0 2 / 4 / 0 small/med/large 0 / 0 / 3	1 / 4 / 1 3 / 3 / 0 small/med/large 0 / 1 / 0	1 / 5 / 0 2 / 4 / 0 small/med/large 0 / 0 / 3	3 / 3 / 0 0 / 5 / 1 small/med/large 1 / 0 / 1	5 / 1 / 0 4 / 2 / 0 small/med/large 0 / 0 / 0
	SVM_Tuned RF RF_Tuned NB	0 / 0 / 0 0 / 0 / 4 0 / 0 / 5 0 / 0 / 6 0 / 0 / 1	0 / 0 / 0 0 / 0 / 3 0 / 0 / 5 0 / 0 / 6 0 / 0 / 1	0 / 0 / 0 0 / 0 / 4 0 / 0 / 5 0 / 0 / 6 0 / 0 / 1	0 / 0 / 0 0 / 0 / 4 0 / 0 / 5 0 / 0 / 6 0 / 0 / 1	0 / 0 / 4 0 / 0 / 0 0 / 0 / 5 0 / 0 / 6 0 / 0 / 3	0 / 0 / 6 1 / 0 / 2 1 / 0 / 1 0 / 0 / 1 0 / 0 / 5
	RF_Tuned	0 / 0 / 6	0 / 0 / 6	0 / 0 / 6	0 / 0 / 6	0 / 0 / 6	0 / 0 / 1

Table 2: The win-tie-loss results of the cross-version scenario.

Dataset		F1	G-measure	MCC	Balance	AUC	FPR
		win/loss/tie	win/loss/tie	win/loss/tie	win/loss/tie	win/loss/tie	win/loss/tie
	Dummy	1 / 5 / 0	4 / 1 / 1	1 / 5 / 0	3 / 2 / 1	2 / 4 / 0	0 / 6 / 0
	SVM	0 / 6 / 0	0 / 6 / 0	0 / 6 / 0	0 / 6 / 0	3 / 3 / 0	6 / 0 / 0
	SVM_Tuned	3 / 3 / 0	1 / 5 / 0	3 / 3 / 0	1 / 5 / 0	0 / 6 / 0	2 / 4 / 0
	RF	5 / 1 / 0	4 / 1 / 1	5 / 1 / 0	5 / 1 / 0	4 / 1 / 1	3 / 3 / 0
	RF_Tuned NB	6 / 0 / 0 4 / 2 / 0	3 / 3 / 0	6 / 0 / 0 4 / 2 / 0	3 / 2 / 1	6 / 0 / 0 4 / 1 / 1	5 / 1 / 0 4 / 2 / 0
	LR	2 / 4 / 0	2 / 4 / 0 6 / 0 / 0	2 / 4 / 0	2 / 4 / 0 6 / 0 / 0	1/5/0	1/5/0
JRuby	LIC	small/med/large	small/med/large	small/med/large	small/med/large	small/med/large	small/med/large
	Dummy	0 / 0 / 1	0 / 0 / 4	0 / 1 / 0	0 / 0 / 3	0 / 0 / 2	0 / 0 / 0
	SVM	0/0/1	0/0/4	0/0/0	0/0/0	0 / 0 / 3	0/0/6
	SVM_Tuned		0 / 0 / 1	0 / 0 / 3	0 / 0 / 1	0/0/0	0 / 0 / 2
	RF	0 / 0 / 5	0 / 0 / 3	0 / 0 / 5	0 / 0 / 3	0 / 0 / 4	0 / 0 / 3
	RF_Tuned	0 / 0 / 6	0 / 0 / 3	0/0/6	0 / 0 / 3	0/0/6	0 / 0 / 5
	NB	0 / 0 / 4	0 / 0 / 2	0 / 0 / 4	0 / 0 / 2	0 / 0 / 4	1 / 0 / 3
	LR	0 / 0 / 2	0 / 0 / 6	0 / 0 / 2	0 / 0 / 6	0 / 0 / 1	0 / 0 / 1
		F1	G-measure	MCC	Balance	AUC	FPR
		win/loss/tie	win/loss/tie	win/loss/tie	win/loss/tie	win/loss/tie	win/loss/tie
	Dummy	3 / 1 / 2	6 / 0 / 0	0 / 5 / 1	6 / 0 / 0	1 / 5 / 0	0 / 6 / 0
	SVM	0 / 6 / 0	0 / 6 / 0	0 / 5 / 1	0 / 6 / 0	3 / 2 / 1	6 / 0 / 0
	SVM_Tuned	6 / 0 / 0	5 / 1 / 0	4 / 1 / 1	5 / 1 / 0	2 / 4 / 0	1 / 5 / 0
	RF	3 / 1 / 2	3 / 2 / 1	2 / 2 / 2	3 / 2 / 1	3 / 2 / 1	2 / 4 / 0
	RF_Tuned	3 / 1 / 2	3 / 2 / 1	3 / 1 / 2	3 / 2 / 1	5 / 0 / 1	3 / 3 / 0
	NB LR	2 / 4 / 0	2 / 4 / 0	6 / 0 / 0	2 / 4 / 0	5 / 0 / 1	5 / 1 / 0
Lucene	LK	1 / 5 / 0	1 / 5 / 0 small/med/large	2 / 3 / 1 small/med/large	1 / 5 / 0 small/med/large	0 / 6 / 0 small/med/large	4 / 2 / 0 small/med/large
Lucene	Dummy	small/med/large 0 / 0 / 3	0 / 0 / 6	0 / 0 / 0	0 / 0 / 6	0 / 0 / 1	0 / 0 / 0
	Dummy SVM	0/0/3	0/0/0	0/0/0	0/0/0	0 / 0 / 1	0/0/0
	SVM_Tuned	0/0/6	0/0/5	0 / 1 / 3	0/0/5	0 / 0 / 2	0 / 0 / 1
	RF	1 / 0 / 2	0 / 0 / 3	0 / 0 / 2	0 / 0 / 3	0 / 0 / 3	0 / 0 / 2
	RF_Tuned	0 / 0 / 3	0 / 0 / 3	0 / 0 / 3	0 / 0 / 3	0 / 0 / 5	0 / 0 / 3
	NB	0 / 0 / 2	0 / 0 / 2	0/0/6	0 / 0 / 2	0 / 0 / 5	0 / 0 / 5
	LR	0 / 0 / 1	0 / 0 / 1	0 / 0 / 2	0 / 0 / 1	0/0/0	0 / 0 / 4
		F1	G-measure	MCC	Balance	AUC	FPR
		win/loss/tie	win/loss/tie	win/loss/tie	win/loss/tie	win/loss/tie	win/loss/tie
	Dummy	3 / 3 / 0	5 / 0 / 1	0 / 4 / 2	5 / 1 / 0	1 / 5 / 0	0 / 6 / 0
	SVM	0 / 6 / 0	0 / 6 / 0	1 / 4 / 1	1 / 5 / 0	2 / 4 / 0	6 / 0 / 0
	SVM_Tuned	2 / 4 / 0	2 / 4 / 0	3 / 3 / 0	2 / 4 / 0	3 / 3 / 0	3 / 3 / 0
	RF	5 / 1 / 0	4 / 2 / 0	4 / 2 / 0	4 / 2 / 0	4 / 2 / 0	2 / 4 / 0
	RF_Tuned	4 / 2 / 0	3 / 3 / 0	5 / 1 / 0	3 / 3 / 0	6 / 0 / 0	4 / 2 / 0
	NB	6 / 0 / 0	5 / 0 / 1	6 / 0 / 0	6 / 0 / 0	5 / 1 / 0	1 / 5 / 0
****	LR	0 / 6 / 0	0 / 6 / 0	0 / 5 / 1	0 / 6 / 0	0 / 6 / 0	5 / 1 / 0
Wicket	D	small/med/large	small/med/large	small/med/large	small/med/large	small/med/large	small/med/large
	Dummy SVM	0 / 0 / 3 0 / 0 / 0	0 / 0 / 5 0 / 0 / 0	0 / 0 / 0 0 / 0 / 1	0 / 0 / 5 0 / 0 / 1	0 / 0 / 1	0 / 0 / 0 0 / 0 / 6
	SVM_Tuned	0 / 0 / 0	0 / 0 / 0	0 / 0 / 1	0 / 0 / 1	0 / 0 / 2 0 / 0 / 3	0 / 0 / 8
	RF	1 / 0 / 4	0 / 0 / 2	0 / 0 / 3	0 / 0 / 2	0 / 0 / 3	0 / 0 / 3
	RF_Tuned	0/0/4	0 / 0 / 3	1/0/4	0 / 0 / 3	0 / 0 / 6	0 / 0 / 2
	NB	0/0/6	0/0/5	0/0/6	0/0/6	0/0/5	0 / 0 / 1
	LR	0/0/0	0 / 0 / 0	0 / 0 / 0	0/0/0	0/0/0	0 / 0 / 5
						- ' '	

Table 3: The win-tie-loss results of the cross-version scenario.

Dataset		F1 win/loss/tie	G-measure win/loss/tie	MCC win/loss/tie	Balance win/loss/tie	AUC win/loss/tie	FPR win/loss/tie
	Dummy SVM	3 / 2 / 1 0 / 6 / 0	6 / 0 / 0 0 / 6 / 0	1 / 4 / 1 0 / 6 / 0	6 / 0 / 0 0 / 6 / 0	1 / 5 / 0 3 / 3 / 0	0 / 6 / 0 2 / 4 / 0
	SVM_Tuned	6/0/0	5 / 1 / 0	5 / 1 / 0	5 / 1 / 0	2 / 4 / 0	1/5/0
	RF	5 / 1 / 0	4 / 2 / 0	4 / 2 / 0	4 / 2 / 0	4 / 2 / 0	3 / 3 / 0
	RF_Tuned NB	3 / 2 / 1 0 / 6 / 0	3 / 3 / 0 0 / 6 / 0	6 / 0 / 0 1 / 4 / 1	3 / 3 / 0 1 / 5 / 0	5 / 0 / 1 5 / 0 / 1	5 / 1 / 0 6 / 0 / 0
	LR	2 / 4 / 0	2 / 4 / 0	3 / 3 / 0	2 / 4 / 0	0 / 6 / 0	4 / 2 / 0
ActiveMQ		small/med/large	small/med/large	small/med/large	small/med/large	small/med/large	small/med/larg
	Dummy SVM	0 / 0 / 3 0 / 0 / 0	0 / 0 / 6 0 / 0 / 0	0 / 0 / 1 0 / 0 / 0	0 / 0 / 6 0 / 0 / 0	0 / 0 / 1 0 / 0 / 3	0 / 0 / 0 0 / 0 / 2
	SVM_Tuned	0 / 0 / 6	0 / 0 / 5	0 / 0 / 5	0 / 0 / 5	0 / 0 / 2	0 / 0 / 1
	RF	0 / 1 / 4	0 / 0 / 4	0 / 0 / 4	0 / 0 / 4	0 / 0 / 4	0 / 0 / 3
	RF_Tuned NB	0 / 0 / 3 0 / 0 / 0	0 / 0 / 3 0 / 0 / 0	0 / 0 / 5 0 / 0 / 1	0 / 0 / 3 0 / 0 / 1	0 / 0 / 5 0 / 0 / 5	0 / 0 / 5 1 / 0 / 5
	LR	0 / 0 / 2	0 / 0 / 2	0 / 0 / 3	0 / 0 / 2	0 / 0 / 0	0 / 0 / 4
		F1	G-measure	MCC	Balance	AUC	FPR
	Dummy	win/loss/tie 3 / 3 / 0	win/loss/tie 6 / 0 / 0	win/loss/tie 0 / 4 / 2	win/loss/tie 6 / 0 / 0	win/loss/tie 1 / 5 / 0	win/loss/tie 0 / 6 / 0
	SVM	0 / 6 / 0	0 / 6 / 0	0 / 5 / 1	0 / 6 / 0	4 / 2 / 0	5 / 1 / 0
	SVM_Tuned	4 / 2 / 0	3 / 3 / 0	4 / 2 / 0	3 / 3 / 0	2 / 4 / 0	1 / 4 / 1
	RF_Tuned	5 / 1 / 0 6 / 0 / 0	5 / 1 / 0 4 / 2 / 0	5 / 1 / 0 6 / 0 / 0	5 / 1 / 0 4 / 2 / 0	3 / 3 / 0 6 / 0 / 0	1 / 4 / 1 4 / 2 / 0
	NB	0 / 6 / 0	0 / 6 / 0	1 / 4 / 1	1 / 5 / 0	5 / 1 / 0	6 / 0 / 0
o 1	LR	2 / 4 / 0	2 / 4 / 0	3 / 3 / 0	2 / 4 / 0	0 / 6 / 0	3 / 3 / 0
Camel	Dummy	small/med/large 0 / 0 / 3	small/med/large 0 / 0 / 6	small/med/large 0 / 0 / 0	small/med/large 0 / 0 / 6	small/med/large 0 / 0 / 1	small/med/larg 0 / 0 / 0
	SVM	0 / 0 / 0	0 / 0 / 0	0 / 0 / 0	0 / 0 / 0	0 / 0 / 4	0 / 0 / 5
	SVM_Tuned	0 / 0 / 4	0/0/3	0 / 0 / 4	0 / 0 / 3	0 / 0 / 2	0 / 0 / 1
	RF RF_Tuned	0 / 0 / 5 0 / 1 / 5	0 / 0 / 4 0 / 0 / 4	0 / 0 / 5 0 / 0 / 6	0 / 0 / 4 0 / 0 / 4	0 / 0 / 3 0 / 0 / 6	0 / 0 / 1 0 / 0 / 4
	NB	0 / 0 / 0	0 / 0 / 0	0 / 0 / 1	0 / 0 / 1	0 / 0 / 5	0 / 0 / 6
	LR	0 / 0 / 2	0 / 0 / 2	0 / 0 / 3	0 / 0 / 2	0 / 0 / 0	0 / 0 / 3
		F1 win/loss/tie	G-measure win/loss/tie	MCC win/loss/tie	Balance win/loss/tie	AUC win/loss/tie	FPR win/loss/tie
	Dummy	6 / 0 / 0	6 / 0 / 0	1 / 4 / 1	6 / 0 / 0	2 / 4 / 0	0 / 6 / 0
	SVM	0 / 6 / 0	0 / 6 / 0	0 / 6 / 0	0 / 6 / 0	3 / 3 / 0	6 / 0 / 0
	SVM_Tuned RF	5 / 1 / 0 4 / 2 / 0	5 / 1 / 0 4 / 2 / 0	4 / 2 / 0 6 / 0 / 0	5 / 1 / 0 4 / 2 / 0	1 / 5 / 0 4 / 2 / 0	1 / 5 / 0 2 / 4 / 0
	RF_Tuned	2 / 4 / 0	2 / 4 / 0	5 / 1 / 0	2 / 4 / 0	5 / 0 / 1	5/1/0
	NB	3 / 3 / 0	3 / 3 / 0	3 / 3 / 0	3 / 3 / 0	5 / 0 / 1	3 / 3 / 0
Derby	LR	1 / 5 / 0 small/med/large	1 / 5 / 0 small/med/large	1 / 4 / 1 small/med/large	1 / 5 / 0 small/med/large	0 / 6 / 0 small/med/large	4 / 2 / 0 small/med/larg
Derby	Dummy	0 / 0 / 6	0 / 0 / 6	0 / 1 / 0	0 / 0 / 6	0 / 0 / 2	0 / 0 / 0
	SVM	0 / 0 / 0	0 / 0 / 0	0 / 0 / 0	0 / 0 / 0	0 / 0 / 3	1 / 0 / 5
	SVM_Tuned RF	0 / 0 / 5 0 / 0 / 4	0 / 0 / 5 0 / 0 / 4	0 / 0 / 4 1 / 1 / 4	0 / 0 / 5 0 / 0 / 4	0 / 0 / 1 0 / 0 / 4	0 / 0 / 1 0 / 0 / 2
	RF_Tuned	0 / 0 / 2	0 / 0 / 2	0/0/5	0 / 0 / 2	0/0/4	0/0/2
	NB	0 / 0 / 3	0 / 0 / 3	0 / 0 / 3	0 / 0 / 3	0 / 0 / 5	1 / 0 / 2
	LR	0 / 0 / 1 F1	0 / 0 / 1 G-measure	0 / 0 / 1 MCC	0 / 0 / 1 Balance	0 / 0 / 0 AUC	0 / 0 / 4 FPR
		win/loss/tie	win/loss/tie	win/loss/tie	win/loss/tie	win/loss/tie	win/loss/tie
	Dummy	4 / 2 / 0	6 / 0 / 0	0 / 4 / 2	6 / 0 / 0	2 / 4 / 0	0 / 6 / 0
	SVM_Tuned	0 / 6 / 0 3 / 3 / 0	0 / 6 / 0 3 / 3 / 0	1 / 4 / 1 3 / 3 / 0	1 / 5 / 0 3 / 3 / 0	4 / 1 / 1 1 / 5 / 0	6 / 0 / 0 1 / 4 / 1
	RF	6/0/0	5 / 1 / 0	5 / 1 / 0	5 / 1 / 0	3 / 1 / 2	1/4/1
	RF_Tuned	5 / 1 / 0	4 / 2 / 0	6 / 0 / 0	4 / 2 / 0	6 / 0 / 0	3 / 3 / 0
	NB LR	2 / 4 / 0	2 / 4 / 0 0 / 6 / 0	4 / 2 / 0 0 / 5 / 1	2 / 4 / 0 0 / 6 / 0	3 / 2 / 1 0 / 6 / 0	4 / 2 / 0 4 / 2 / 0
Groovy		0 / 6 / 0				small/med/large	small/med/larg
		0 / 6 / 0 small/med/large	small/med/large	small/med/large	small/med/large		0 10 10
Groovy	Dummy	small/med/large 0 / 0 / 4	small/med/large 0 / 0 / 6	0 / 0 / 0	0 / 0 / 6	0 / 0 / 2	0 / 0 / 0
Groovy	SVM	small/med/large 0 / 0 / 4 0 / 0 / 0	small/med/large 0 / 0 / 6 0 / 0 / 0	0 / 0 / 0 0 / 0 / 1	0 / 0 / 6 0 / 0 / 1	0 / 0 / 4	0 / 0 / 6
Gioovy		small/med/large 0 / 0 / 4	small/med/large 0 / 0 / 6	0 / 0 / 0	0 / 0 / 6		
Gioovy	SVM SVM_Tuned RF RF_Tuned	small/med/large 0 / 0 / 4 0 / 0 / 0 0 / 0 / 3 0 / 1 / 5 0 / 0 / 5	small/med/large 0 / 0 / 6 0 / 0 / 0 0 / 0 / 3 0 / 1 / 4 0 / 0 / 4	0 / 0 / 0 0 / 0 / 1 0 / 0 / 3 0 / 0 / 5 1 / 0 / 5	0 / 0 / 6 0 / 0 / 1 0 / 0 / 3 0 / 1 / 4 0 / 0 / 4	0 / 0 / 4 0 / 0 / 1 0 / 0 / 3 0 / 0 / 6	0 / 0 / 6 0 / 0 / 1 0 / 0 / 1 0 / 0 / 1 0 / 0 / 3
groovy	SVM SVM_Tuned RF RF_Tuned NB	small/med/large 0 / 0 / 4 0 / 0 / 0 0 / 0 / 3 0 / 1 / 5 0 / 0 / 5 0 / 0 / 2	small/med/large 0 / 0 / 6 0 / 0 / 0 0 / 0 / 3 0 / 1 / 4 0 / 0 / 4 0 / 0 / 2	0 / 0 / 0 0 / 0 / 1 0 / 0 / 3 0 / 0 / 5 1 / 0 / 5 0 / 0 / 4	0 / 0 / 6 0 / 0 / 1 0 / 0 / 3 0 / 1 / 4 0 / 0 / 4 0 / 0 / 2	0 / 0 / 4 0 / 0 / 1 0 / 0 / 3 0 / 0 / 6 0 / 0 / 3	0 / 0 / 6 0 / 0 / 1 0 / 0 / 1 0 / 0 / 3 0 / 0 / 4
Groovy	SVM SVM_Tuned RF RF_Tuned	small/med/large 0 / 0 / 4 0 / 0 / 0 0 / 0 / 3 0 / 1 / 5 0 / 0 / 5	small/med/large 0 / 0 / 6 0 / 0 / 0 0 / 0 / 3 0 / 1 / 4 0 / 0 / 4	0 / 0 / 0 0 / 0 / 1 0 / 0 / 3 0 / 0 / 5 1 / 0 / 5	0 / 0 / 6 0 / 0 / 1 0 / 0 / 3 0 / 1 / 4 0 / 0 / 4	0 / 0 / 4 0 / 0 / 1 0 / 0 / 3 0 / 0 / 6	0 / 0 / 6 0 / 0 / 1 0 / 0 / 1 0 / 0 / 1 0 / 0 / 3
Gloovy	SVM SVM_Tuned RF RF_Tuned NB LR	small/med/large 0 / 0 / 4 0 / 0 / 0 0 / 0 / 3 0 / 1 / 5 0 / 0 / 5 0 / 0 / 2 0 / 0 / 0 F1 win/loss/tie	small/med/large 0 / 0 / 6 0 / 0 / 0 0 / 0 / 0 0 / 0 / 3 0 / 1 / 4 0 / 0 / 4 0 / 0 / 2 0 / 0 / 0 G-measure win/loss/tie	0 / 0 / 0 0 / 0 / 1 0 / 0 / 3 0 / 0 / 5 1 / 0 / 5 0 / 0 / 4 0 / 0 / 0 MCC win/loss/tie	0 / 0 / 6 0 / 0 / 1 0 / 0 / 3 0 / 1 / 4 0 / 0 / 4 0 / 0 / 2 0 / 0 / 0 Balance win/loss/tie	0 / 0 / 4 0 / 0 / 1 0 / 0 / 3 0 / 0 / 6 0 / 0 / 3 0 / 0 / 0 AUC win/loss/tie	0 / 0 / 6 0 / 0 / 1 0 / 0 / 1 0 / 0 / 1 0 / 0 / 3 0 / 0 / 4 0 / 0 / 4 FPR win/loss/tie
Gloovy	SVM SVM_Tuned RF RF_Tuned NB LR	$\begin{array}{l} small/med/large \\ 0 \ / \ 0 \ / \ 4 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 3 \\ 0 \ / \ 1 \ / \ 5 \\ 0 \ / \ 0 \ / \ 5 \\ 0 \ / \ 0 \ / \ 2 \\ 0 \ / \ 0 \ / \ 0 \\ \end{array}$	$\begin{array}{llllllllllllllllllllllllllllllllllll$	0 / 0 / 0 0 / 0 / 1 0 / 0 / 3 0 / 0 / 5 1 / 0 / 5 0 / 0 / 4 0 / 0 / 0 MCC win/loss/tie 1 / 4 / 1	0 / 0 / 6 0 / 0 / 1 0 / 0 / 3 0 / 1 / 4 0 / 0 / 4 0 / 0 / 2 0 / 0 / 0 Balance win/loss/tie 6 / 0 / 0	0 / 0 / 4 0 / 0 / 1 0 / 0 / 3 0 / 0 / 6 0 / 0 / 3 0 / 0 / 0 AUC win/loss/tie 1 / 5 / 0	0 / 0 / 6 0 / 0 / 1 0 / 0 / 1 0 / 0 / 3 0 / 0 / 4 0 / 0 / 4 FPR win/loss/tie 0 / 6 / 0
3100Vy	SVM SVM_Tuned RF RF_Tuned NB LR	small/med/large 0 / 0 / 4 0 / 0 / 0 0 / 0 / 3 0 / 1 / 5 0 / 0 / 5 0 / 0 / 2 0 / 0 / 0 F1 win/loss/tie	small/med/large 0 / 0 / 6 0 / 0 / 0 0 / 0 / 0 0 / 0 / 3 0 / 1 / 4 0 / 0 / 4 0 / 0 / 2 0 / 0 / 0 G-measure win/loss/tie	0 / 0 / 0 0 / 0 / 1 0 / 0 / 3 0 / 0 / 5 1 / 0 / 5 0 / 0 / 4 0 / 0 / 0 MCC win/loss/tie	0 / 0 / 6 0 / 0 / 1 0 / 0 / 3 0 / 1 / 4 0 / 0 / 4 0 / 0 / 2 0 / 0 / 0 Balance win/loss/tie	0 / 0 / 4 0 / 0 / 1 0 / 0 / 3 0 / 0 / 6 0 / 0 / 3 0 / 0 / 0 AUC win/loss/tie	0 / 0 / 6 0 / 0 / 1 0 / 0 / 1 0 / 0 / 1 0 / 0 / 3 0 / 0 / 4 0 / 0 / 4 FPR win/loss/tie
	SVM SVM_Tuned RF RF_Tuned NB LR Dummy SVM SVM_Tuned RF	small/med/large 0 / 0 / 4 0 / 0 / 0 0 / 0 / 0 0 / 0 / 3 0 / 1 / 5 0 / 0 / 5 0 / 0 / 5 0 / 0 / 0 F1 win/loss/tie 6 / 0 / 0 0 / 6 / 0 3 / 3 / 0 4 / 1 / 1	small/med/large 0 / 0 / 6 0 / 0 / 0 0 / 0 / 0 0 / 0 / 3 0 / 1 / 4 0 / 0 / 4 0 / 0 / 2 0 / 0 / 0 G-measure win/loss/tie 6 / 0 / 0 0 / 6 / 0 3 / 2 / 1 5 / 1 / 0	$\begin{array}{c} 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 3 \\ 0 \ / \ 0 \ / \ 5 \\ 1 \ / \ 0 \ / \ 5 \\ 0 \ / \ 0 \ / \ 4 \\ 0 \ / \ 0 \ / \ 0 \\ \end{array}$	$\begin{array}{c} 0 \ / \ 0 \ / \ 6 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 3 \\ 0 \ / \ 1 \ / \ 4 \\ 0 \ / \ 0 \ / \ 4 \\ 0 \ / \ 0 \ / \ 2 \\ 0 \ / \ 0 \ / \ 0 \\ \end{array}$	0 / 0 / 4 0 / 0 / 1 0 / 0 / 3 0 / 0 / 6 0 / 0 / 3 0 / 0 / 0 AUC win/loss/tie 1 / 5 / 0 3 / 3 / 0 2 / 4 / 0 4 / 2 / 0	$\begin{array}{c} 0 \ / \ 0 \ / \ 6 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 3 \\ 0 \ / \ 0 \ / \ 4 \\ 0 \ / \ 0 \ / \ 4 \\ \hline FPR \\ win/loss/tie \\ 0 \ / \ 6 \ / \ 0 \\ 6 \ / \ 0 \ / \ 0 \\ 1 \ / \ 5 \ / \ 0 \\ 2 \ / \ 4 \ / \ 0 \end{array}$
3100Vy	SVM SVM Tuned RF RF. Tuned NB LR Dummy SVM SVM Tuned RF RF. Tuned	$\begin{array}{l} {\rm small/med/large} \\ 0 / 0 / 0 / 4 \\ 0 / 0 / 0 / 0 \\ 0 / 0 / 3 \\ 0 / 1 / 5 \\ 0 / 0 / 5 \\ 0 / 0 / 5 \\ 0 / 0 / 0 \\ \hline {\rm FI} \\ {\rm win/loss/tie} \\ 6 / 0 / 0 \\ 0 / 6 / 0 \\ 3 / 3 / 0 \\ 4 / 1 / 1 \\ 4 / 1 / 1 \\ \end{array}$	$\begin{array}{lll} & small/med/large \\ 0 / 0 / 6 \\ 0 / 0 / 0 \\ 0 / 0 / 3 \\ 0 / 1 / 4 \\ 0 / 0 / 4 \\ 0 / 0 / 2 \\ 0 / 0 / 0 \\ \hline G-measure \\ win/loss/tie \\ 6 / 0 / 0 \\ 0 / 6 / 0 \\ 3 / 2 / 1 \\ 5 / 1 / 0 \\ 3 / 2 / 1 \\ \end{array}$	0 / 0 / 0 0 / 0 / 1 0 / 0 / 3 0 / 0 / 5 1 / 0 / 5 0 / 0 / 4 0 / 0 / 0 MCC win/loss/tie 1 / 4 / 1 1 / 4 / 1 4 / 2 / 0 5 / 1 / 0 6 / 0 / 0	0 / 0 / 6 0 / 0 / 1 0 / 0 / 1 0 / 0 / 3 0 / 1 / 4 0 / 0 / 2 0 / 0 / 0 Balance win/loss/tie 6 / 0 / 0 1 / 5 / 0 3 / 2 / 1 5 / 1 / 0 3 / 2 / 1	$\begin{array}{c} 0 \ / \ 0 \ / \ 4 \\ 0 \ / \ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ \end{array}$ $\begin{array}{c} 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ \end{array}$ $\begin{array}{c} AUC \\ win/loss/tie \\ 1 \ / \ 5 \ / \ 0 \\ 3 \ / \ 3 \ / \ 0 \\ 2 \ / \ 4 \ / \ 0 \\ 4 \ / \ 2 \ / \ 0 \\ 6 \ / \ 0 \ / \ 0 \end{array}$	0 / 0 / 6 0 / 0 / 1 0 / 0 / 1 0 / 0 / 1 0 / 0 / 3 0 / 0 / 4 FPR win/loss/tie 0 / 6 / 0 6 / 0 / 0 1 / 5 / 0 2 / 4 / 0 3 / 3 / 0
3100Vy	SVM SVM_Tuned RF RF_Tuned NB LR Dummy SVM SVM_Tuned RF	small/med/large 0 / 0 / 4 0 / 0 / 0 0 / 0 / 0 0 / 0 / 3 0 / 1 / 5 0 / 0 / 5 0 / 0 / 5 0 / 0 / 0 F1 win/loss/tie 6 / 0 / 0 0 / 6 / 0 3 / 3 / 0 4 / 1 / 1 4 / 1 / 1 2 / 4 / 0	small/med/large 0 / 0 / 6 0 / 0 / 0 0 / 0 / 0 0 / 0 / 0	$\begin{array}{c} 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 3 \\ 0 \ / \ 0 \ / \ 5 \\ 1 \ / \ 0 \ / \ 5 \\ 0 \ / \ 0 \ / \ 4 \\ 0 \ / \ 0 \ / \ 0 \\ \end{array}$	0 / 0 / 6 0 / 0 / 1 0 / 0 / 3 0 / 1 / 4 0 / 0 / 2 0 / 0 / 0 Balance win/loss/tie 6 / 0 / 0 1 / 5 / 0 3 / 2 / 1 5 / 1 / 0 3 / 2 / 1 2 / 4 / 0	$\begin{array}{c} 0 / 0 / 4 \\ 0 / 0 / 1 \\ 0 / 0 / 3 \\ 0 / 0 / 3 \\ 0 / 0 / 6 \\ 0 / 0 / 0 \\ AUC \\ win/loss/tie \\ 1 / 5 / 0 \\ 3 / 3 / 0 \\ 2 / 4 / 0 \\ 4 / 2 / 0 \\ 6 / 0 / 0 \\ 5 / 1 / 0 \end{array}$	$\begin{array}{c} 0 / 0 / 6 \\ 0 / 0 / 1 \\ 0 / 0 / 1 \\ 0 / 0 / 1 \\ 0 / 0 / 1 \\ 0 / 0 / 3 \\ 0 / 0 / 4 \\ 0 / 0 / 4 \\ \hline \text{FPR} \\ \text{win/loss/tie} \\ 0 / 6 / 0 \\ 6 / 0 / 0 \\ 1 / 5 / 0 \\ 2 / 4 / 0 \\ 3 / 3 / 0 \\ 4 / 2 / 0 \end{array}$
	SVM SVM_Tuned RF RF_Tuned NB LR Dummy SVM SVM_Tuned RF RF_Tuned NB LR LR	$\begin{array}{l} {\rm small/med/large} \\ 0 / 0 / 4 \\ 0 / 0 / 0 \\ 0 / 0 / 3 \\ 0 / 1 / 5 \\ 0 / 0 / 5 \\ 0 / 0 / 5 \\ 0 / 0 / 2 \\ \hline 0 / 0 / 0 \\ \hline {\rm FI} \\ {\rm win/loss/tie} \\ 6 / 0 / 0 \\ 0 / 6 / 0 \\ 3 / 3 / 0 \\ 4 / 1 / 1 \\ 4 / 1 / 1 \\ 2 / 4 / 0 \\ 0 / 6 / 0 \\ {\rm small/med/large} \\ \end{array}$	$\begin{array}{l} \text{small/med/large} \\ 0 / 0 / 6 \\ 0 / 0 / 0 \\ 0 / 0 / 3 \\ 0 / 1 / 4 \\ 0 / 0 / 4 \\ 0 / 0 / 2 \\ \hline 0 / 0 / 0 \\ \hline \text{G-measure} \\ \text{win/loss/tie} \\ 6 / 0 / 0 \\ 0 / 6 / 0 \\ 3 / 2 / 1 \\ 5 / 1 / 0 \\ 3 / 2 / 1 \\ 2 / 4 / 0 \\ 0 / 6 / 0 \\ \text{small/med/large} \\ \end{array}$	0 / 0 / 0 0 / 0 / 1 0 / 0 / 3 0 / 0 / 5 1 / 0 / 5 0 / 0 / 4 0 / 0 / 0 MCC win/loss/tie 1 / 4 / 1 1 / 4 / 1 4 / 2 / 0 5 / 1 / 0 6 / 0 / 0 3 / 3 / 0 0 / 6 / 0 small/med/large	0 / 0 / 6 0 / 0 / 1 0 / 0 / 3 0 / 1 / 4 0 / 0 / 2 0 / 0 / 0 Balance win/loss/tie 6 / 0 / 0 1 / 5 / 0 3 / 2 / 1 5 / 1 / 0 3 / 2 / 1 2 / 4 / 0 0 / 6 / 0 small/med/large	$\begin{array}{c} 0 \ / \ 0 \ / \ 4 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 3 \\ 0 \ / \ 0 \ / \ 6 \\ 0 \ / \ 0 \ / \ 3 \\ 0 \ / \ 0 \ / \ 0 \\ \end{array}$ $\begin{array}{c} AUC \\ win/loss/tie \\ 1 \ / \ 5 \ / \ 0 \\ 3 \ / \ 3 \ / \ 0 \\ 2 \ / \ 4 \ / \ 0 \\ 6 \ / \ 0 \ / \ 0 \\ 5 \ / \ 1 \ / \ 0 \\ 0 \ / \ 6 \ / \ 0 \\ \end{array}$ small/med/large	$\begin{array}{c} 0 \ / \ 0 \ / \ 6 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 3 \\ 0 \ / \ 0 \ / \ 4 \\ \hline FPR \\ \text{win/loss/tie} \\ 0 \ / \ 6 \ / \ 0 \\ 6 \ / \ 0 \ 0 \\ 1 \ / \ 5 \ / \ 0 \\ 2 \ / \ 4 \ / \ 0 \\ 3 \ / \ 3 \ / \ 0 \\ 4 \ / \ 2 \ / \ 0 \\ 5 \ / \ 1 \ / \ 0 \\ \text{small/med/larg} \end{array}$
	SVM Tuned RF RF,Tuned NB LR Dummy SVM SVM,Tuned RF RF,Tuned NB LR Dummy	$\begin{array}{c} \text{small/med/large} \\ 0 / 0 / 0 / 4 \\ 0 / 0 / 0 \\ 0 / 0 / 0 \\ 0 / 0 / 3 \\ 0 / 1 / 5 \\ 0 / 0 / 5 \\ 0 / 0 / 5 \\ 0 / 0 / 2 \\ 0 / 0 / 0 \\ \hline \text{F1} \\ \text{win/loss/tie} \\ 6 / 0 / 0 \\ 0 / 6 / 0 \\ 3 / 3 / 0 \\ 4 / 1 / 1 \\ 4 / 1 / 1 \\ 2 / 4 / 0 \\ 0 / 6 / 0 \\ \text{small/med/large} \\ 0 / 0 / 6 \end{array}$	$\begin{array}{lll} small/med/large \\ 0 / 0 / 6 \\ 0 / 0 / 0 \\ 0 / 0 / 0 \\ 0 / 0 / 3 \\ 0 / 1 / 4 \\ 0 / 0 / 4 \\ 0 / 0 / 2 \\ 0 / 0 / 0 \\ \hline G-measure \\ win/loss/tie \\ 6 / 0 / 0 \\ 0 / 6 / 0 \\ 3 / 2 / 1 \\ 5 / 1 / 0 \\ 3 / 2 / 1 \\ 2 / 4 / 0 \\ 0 / 6 / 0 \\ small/med/large \\ 0 / 0 / 6 \end{array}$	$\begin{array}{c} 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 3 \\ 0 \ / \ 0 \ / \ 5 \\ 1 \ / \ 0 \ / \ 5 \\ 1 \ / \ 0 \ / \ 0 \ / \ 4 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ \end{array}$	$\begin{array}{c} 0 \ / \ 0 \ / \ 6 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 3 \\ 0 \ / \ 1 \ / \ 4 \\ 0 \ / \ 0 \ / \ 2 \\ 0 \ / \ 0 \ / \ 2 \\ 0 \ / \ 0 \ / \ 0 \\ \end{array}$	$\begin{array}{c} 0 \ / \ 0 \ / \ 4 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ AUC \\ win/loss/tie \\ 1 \ / \ 5 \ / \ 0 \\ 3 \ / \ 3 \ / \ 0 \\ 2 \ / \ 4 \ / \ 0 \\ 4 \ / \ 2 \ / \ 0 \\ 6 \ / \ 0 \ / \ 0 \\ 5 \ / \ 1 \ / \ 0 \\ 0 \ / \ 6 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 1 \\ \end{array}$	$\begin{array}{c} 0 \ / \ 0 \ / \ 6 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 3 \\ 0 \ / \ 0 \ / \ 4 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ 0 \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \\ 0 \ 0 \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \\ 0 \ 0 \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \\ 0 \ 0 \ 0 \ 0 \\ 0 \ 0 \ 0 \ 0$
	SVM SVM_Tuned RF RF_Tuned NB LR Dummy SVM SVM_Tuned RF RF_Tuned NB LR LR	$\begin{array}{l} {\rm small/med/large} \\ 0 / 0 / 4 \\ 0 / 0 / 0 \\ 0 / 0 / 3 \\ 0 / 1 / 5 \\ 0 / 0 / 5 \\ 0 / 0 / 5 \\ 0 / 0 / 2 \\ \hline 0 / 0 / 0 \\ \hline {\rm FI} \\ {\rm win/loss/tie} \\ 6 / 0 / 0 \\ 0 / 6 / 0 \\ 3 / 3 / 0 \\ 4 / 1 / 1 \\ 4 / 1 / 1 \\ 2 / 4 / 0 \\ 0 / 6 / 0 \\ {\rm small/med/large} \\ \end{array}$	$\begin{array}{l} \text{small/med/large} \\ 0 / 0 / 6 \\ 0 / 0 / 0 \\ 0 / 0 / 3 \\ 0 / 1 / 4 \\ 0 / 0 / 4 \\ 0 / 0 / 2 \\ \hline 0 / 0 / 0 \\ \hline \text{G-measure} \\ \text{win/loss/tie} \\ 6 / 0 / 0 \\ 0 / 6 / 0 \\ 3 / 2 / 1 \\ 5 / 1 / 0 \\ 3 / 2 / 1 \\ 2 / 4 / 0 \\ 0 / 6 / 0 \\ \text{small/med/large} \\ \end{array}$	0 / 0 / 0 0 / 0 / 1 0 / 0 / 3 0 / 0 / 5 1 / 0 / 5 0 / 0 / 4 0 / 0 / 0 MCC win/loss/tie 1 / 4 / 1 1 / 4 / 1 4 / 2 / 0 5 / 1 / 0 6 / 0 / 0 3 / 3 / 0 0 / 6 / 0 small/med/large	0 / 0 / 6 0 / 0 / 1 0 / 0 / 3 0 / 1 / 4 0 / 0 / 2 0 / 0 / 0 Balance win/loss/tie 6 / 0 / 0 1 / 5 / 0 3 / 2 / 1 5 / 1 / 0 3 / 2 / 1 2 / 4 / 0 0 / 6 / 0 small/med/large	$\begin{array}{c} 0 \ / \ 0 \ / \ 4 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 3 \\ 0 \ / \ 0 \ / \ 6 \\ 0 \ / \ 0 \ / \ 3 \\ 0 \ / \ 0 \ / \ 0 \\ \end{array}$ $\begin{array}{c} AUC \\ win/loss/tie \\ 1 \ / \ 5 \ / \ 0 \\ 3 \ / \ 3 \ / \ 0 \\ 2 \ / \ 4 \ / \ 0 \\ 6 \ / \ 0 \ / \ 0 \\ 5 \ / \ 1 \ / \ 0 \\ 0 \ / \ 6 \ / \ 0 \\ \end{array}$ small/med/large	$\begin{array}{c} 0 \ / \ 0 \ / \ 6 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 3 \\ 0 \ / \ 0 \ / \ 4 \\ \hline FPR \\ \text{win/loss/tie} \\ 0 \ / \ 6 \ / \ 0 \\ 6 \ / \ 0 \ 0 \\ 1 \ / \ 5 \ / \ 0 \\ 2 \ / \ 4 \ / \ 0 \\ 3 \ / \ 3 \ / \ 0 \\ 4 \ / \ 2 \ / \ 0 \\ 5 \ / \ 1 \ / \ 0 \\ \text{small/med/larg} \end{array}$
	SVM Tuned RF RF, Tuned NB LR Dummy SVM SVM, Tuned RF RF, Tuned NB LR Dummy SVM SVM, Tuned RF SVM, Tuned RF	$\begin{array}{c} \text{small/med/large} \\ 0 / 0 / 0 / 4 \\ 0 / 0 / 0 \\ 0 / 0 / 3 \\ 0 / 1 / 5 \\ 0 / 0 / 5 \\ 0 / 0 / 5 \\ 0 / 0 / 5 \\ 0 / 0 / 5 \\ 0 / 0 / 0 \\ \end{array}$ F1 win/loss/tie 6 / 0 / 0 0 / 6 / 0 3 / 3 / 0 4 / 1 / 1 4 / 1 / 1 2 / 4 / 0 0 / 6 / 0 0 small/med/large 0 / 0 / 6 0 0 / 0 / 0 / 0 / 0 / 0 / 0 /	$\begin{array}{lll} & \text{small/med/large} \\ 0 / 0 / 6 \\ 0 / 0 / 0 \\ 0 / 0 / 0 \\ 0 / 0 / 3 \\ 0 / 1 / 4 \\ 0 / 0 / 4 \\ 0 / 0 / 4 \\ 0 / 0 / 0 \\ \end{array}$ G-measure win/loss/tie $6 / 0 / 0 \\ 0 / 6 / 0 \\ 3 / 2 / 1 \\ 5 / 1 / 0 \\ 3 / 2 / 1 \\ 2 / 4 / 0 \\ 0 / 6 / 0 \\ \text{small/med/large} \\ 0 / 0 / 6 \\ 0 / 0 / 0 \\ 0 / 0 / 3 \\ 1 / 0 / 4 \\ \end{array}$	$\begin{array}{c} 0 \ / \$	$\begin{array}{c} 0 \ / \ 0 \ / \ 6 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 3 \\ 0 \ / \ 1 \ / \ 4 \\ 0 \ / \ 0 \ / \ 2 \\ 0 \ / \ 0 \ / \ 0 \\ \end{array}$	$\begin{array}{c} 0 \ / \ 0 \ / \ 4 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ \end{array}$ $\begin{array}{c} 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 $	$\begin{array}{c} 0 \ / \ 0 \ / \ 6 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 3 \\ 0 \ / \ 0 \ / \ 4 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ 0 \\ 0 \ / \ 0 \ / \ 0 \ 0 \\ 0 \ / \ 0 \ / \ 0 \ 0 \\ 0 \ / \ 0 \ / \ 0 \ 0 \\ 0 \ / \ 0 \ / \ 0 \ 0 \\ 0 \ / \ 0 \ / \ 0 \ 0 \\ 0 \ / \ 0 \ / \ 0 \ 0 \ 0 \\ 0 \ / \ 0 \ / \ 0 \ 0 \ 0 \\ 0 \ / \ 0 \ / \ 0 \ 0 \ 0 \ 0 \\ 0 \ / \ 0 \ / \ 0 \ 0 \ 0 \ 0 \ 0 \\ 0 \ / \ 0 \ / \ 0 \ 0 \ 0 \ 0 \ 0 \\ 0 \ / \ 0 \ / \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \\ 0 \ / \ 0 \ / \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \$
	SVM Tuned RF RF.Tuned NB LR Dummy SVM SVM-Tuned RF RF.Tuned NB LR Dummy SVM SVM-Tuned RF RF.Tuned NB LR FRF.Tuned RF RF.Tuned RF RF.Tuned RF RF.Tuned RF RF.Tuned RF RF.Tuned	$\begin{array}{l} small/med/large \\ 0 / 0 / 4 \\ 0 / 0 / 0 \\ 0 / 0 / 3 \\ 0 / 1 / 5 \\ 0 / 0 / 5 \\ 0 / 0 / 5 \\ 0 / 0 / 2 \\ \hline 0 / 0 / 0 \\ \hline \\ F1 \\ win/loss/tie \\ 6 / 0 / 0 \\ 0 / 6 / 0 \\ 3 / 3 / 0 \\ 4 / 1 / 1 \\ 4 / 1 / 1 \\ 4 / 1 / 1 \\ 2 / 4 / 0 \\ 0 / 6 / 0 \\ small/med/large \\ 0 / 0 / 6 \\ 0 / 0 / 0 \\ 0 / 0 / 3 \\ 0 / 0 / 0 \\ 0 / 0 / 3 \\ 0 / 0 / 4 \\ 0 / 0 / 4 \\ \end{array}$	$\begin{array}{l} \text{small/med/large} \\ 0 / 0 / 6 \\ 0 / 0 / 0 \\ 0 / 0 / 0 \\ 0 / 0 / 3 \\ 0 / 1 / 4 \\ 0 / 0 / 4 \\ 0 / 0 / 0 \\ \hline \\ \text{G-measure} \\ \text{win/loss/tie} \\ 6 / 0 / 0 \\ 0 / 6 / 0 \\ 3 / 2 / 1 \\ 5 / 1 / 0 \\ 3 / 2 / 1 \\ 2 / 4 / 0 \\ 0 / 6 / 0 \\ \text{small/med/large} \\ 0 / 0 / 6 \\ 0 / 0 / 6 \\ 0 / 0 / 6 \\ 0 / 0 / 6 \\ 0 / 0 / 6 \\ 0 / 0 / 6 \\ 0 / 0 / 6 \\ 0 / 0 / 6 \\ 0 / 0 / 6 \\ 0 / 0 / 3 \\ 1 / 0 / 4 \\ 0 / 0 / 3 \\ 0 / 0 / 0 / 3 \\ 0 / 0 / 3 \\ 0 / 0 / 3 \\ 0 / 0 / 3 \\ 0 / 0 / 3 \\ 0 / 0 / 0 / 3 \\ 0 / 0 / 0 / 3 \\ 0 / 0 / 0 / 3 \\ 0 / 0 / 0 / 3 \\ 0 / 0 / 0 / 0 / 3 \\ 0 / 0 / 0 / 0 / 0 \\ 0 / 0 / 0 / 0 / 0$	$\begin{array}{c} 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \ / \ 0 \\ 0 \ / \ 0 \ 0 \ / \ 0 \\ 0 \ / \ 0 \ 0 \ / \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \ / \ 0 \\ 0 \ / \ 0 \ 0 \ / \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \ / \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \ 0 \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \$	$\begin{array}{c} 0 \ / \ 0 \ / \ 6 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 3 \\ 0 \ / \ 1 \ / \ 4 \\ 0 \ / \ 0 \ / \ 2 \\ 0 \ / \ 0 \ / \ 0 \\ \end{array}$	$\begin{array}{c} 0 \ / \ 0 \ / \ 4 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 3 \\ 0 \ / \ 0 \ / \ 6 \\ 0 \ / \ 0 \ / \ 0 \\ \end{array}$ $\begin{array}{c} AUC \\ \text{win/loss/tie} \\ \text{If } 5 \ / \ 0 \\ 3 \ / \ 3 \ / \ 0 \\ 2 \ / \ 4 \ / \ 0 \\ 4 \ / \ 2 \ / \ 0 \\ 6 \ / \ 0 \ / \ 0 \\ 5 \ / \ 1 \ / \ 0 \\ 5 \ / \ 1 \ / \ 0 \\ 0 \ / \ 6 \ / \ 0 \\ \text{small/med/large} \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 2 \\ 0 \ / \ 0 \ / \ 2 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ 0 \ / \ 0 \\ 0 \ 0 \ / \ 0 \\ 0 \ 0 \ / \ 0 \\ 0 \ 0 \ / \ 0 \\ 0 \ 0 \ / \ 0 \\ 0 \ 0 \ / \ 0 \\ 0 \ 0 \ 0 \ 0 \ 0 \\ 0 \ 0 \ 0 \ 0$	$\begin{array}{c} 0 \ / \ 0 \ / \ 6 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 3 \\ 0 \ / \ 0 \ / \ 4 \\ \end{array}$
	SVM Tuned RF RF, Tuned NB LR Dummy SVM SVM, Tuned RF RF, Tuned NB LR Dummy SVM SVM, Tuned RF SVM, Tuned RF	$\begin{array}{c} \text{small/med/large} \\ 0 / 0 / 0 / 4 \\ 0 / 0 / 0 \\ 0 / 0 / 3 \\ 0 / 1 / 5 \\ 0 / 0 / 5 \\ 0 / 0 / 5 \\ 0 / 0 / 5 \\ 0 / 0 / 5 \\ 0 / 0 / 0 \\ \end{array}$ F1 win/loss/tie 6 / 0 / 0 0 / 6 / 0 3 / 3 / 0 4 / 1 / 1 4 / 1 / 1 2 / 4 / 0 0 / 6 / 0 0 small/med/large 0 / 0 / 6 0 0 / 0 / 0 / 0 / 0 / 0 / 0 /	$\begin{array}{lll} & \text{small/med/large} \\ 0 / 0 / 6 \\ 0 / 0 / 0 \\ 0 / 0 / 0 \\ 0 / 0 / 3 \\ 0 / 1 / 4 \\ 0 / 0 / 4 \\ 0 / 0 / 4 \\ 0 / 0 / 0 \\ \end{array}$ G-measure win/loss/tie $6 / 0 / 0 \\ 0 / 6 / 0 \\ 3 / 2 / 1 \\ 5 / 1 / 0 \\ 3 / 2 / 1 \\ 2 / 4 / 0 \\ 0 / 6 / 0 \\ \text{small/med/large} \\ 0 / 0 / 6 \\ 0 / 0 / 0 \\ 0 / 0 / 3 \\ 1 / 0 / 4 \\ \end{array}$	$\begin{array}{c} 0 \ / \$	$\begin{array}{c} 0 \ / \ 0 \ / \ 6 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 3 \\ 0 \ / \ 1 \ / \ 4 \\ 0 \ / \ 0 \ / \ 2 \\ 0 \ / \ 0 \ / \ 0 \\ \end{array}$	$\begin{array}{c} 0 \ / \ 0 \ / \ 4 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ \end{array}$ $\begin{array}{c} 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 $	$\begin{array}{c} 0 \ / \ 0 \ / \ 6 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 3 \\ 0 \ / \ 0 \ / \ 4 \\ \end{array}$
	SVM Tuned RF RF.Tuned NB LR Dummy SVM SVM.Tuned RF RF.Tuned NB LR Dummy SVM.Tuned RF RF.Tuned NB LR Dummy SVM.Tuned RF RF.Tuned NB NS NM.Tuned RF RF.Tuned NB	$\begin{array}{l} small/med/large\\ 0 \ / \ 0 \ / \ 4\\ 0 \ / \ 0 \ / \ 0\\ 0 \ / \ 0 \ / \ 3\\ 0 \ / \ 1 \ / \ 5\\ 0 \ / \ 0 \ / \ 2\\ 0 \ / \ 0 \ / \ 0\\ \end{array}$	$\begin{array}{c} \text{small/med/large} \\ 0 / 0 / 6 \\ 0 / 0 / 0 \\ 0 / 0 / 3 \\ 0 / 1 / 4 \\ 0 / 0 / 4 \\ 0 / 0 / 4 \\ 0 / 0 / 0 \\ \hline \\ \text{G-measure} \\ \text{win/loss/tie} \\ 6 / 0 / 0 \\ 0 / 6 / 0 \\ 3 / 2 / 1 \\ 5 / 1 / 0 \\ 3 / 2 / 1 \\ 2 / 4 / 0 \\ 0 / 6 / 0 \\ \text{small/med/large} \\ 0 / 0 / 6 \\ 0 / 0 / 6 \\ 0 / 0 / 3 \\ 1 / 0 / 4 \\ 0 / 0 / 3 \\ 0 / 0 / 0 \\ 0 / 0 / 3 \\ 0 / 0 / 2 \\ \hline \\ \text{G-measure} \\ \hline \end{array}$	0 / 0 / 0 0 / 0 / 1 0 / 0 / 3 0 / 0 / 5 1 / 0 / 5 0 / 0 / 4 MCC win/loss/tie 1 / 4 / 1 4 / 2 / 0 5 / 1 / 0 6 / 0 / 0 3 / 3 / 0 0 / 6 / 0 small/med/large 0 / 0 / 1 0 / 0 / 4 0 / 0 / 5 0 / 0 / 6 0 / 0 / 3 0 / 0 / 0 0 / 0 / 1 0 / 0 / 5 0 / 0 / 0 0 /	$\begin{array}{c} 0 \ / \ 0 \ / \ 6 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ 0 \ / \ 0 \\ 0 \ Balance$	$\begin{array}{c} 0 \ / \ 0 \ / \ 4 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 3 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ \end{array}$ $\begin{array}{c} AUC \\ win/loss/tie \\ 1 \ / \ 5 \ / \ 0 \\ 3 \ / \ 3 \ / \ 0 \\ 2 \ / \ 4 \ / \ 0 \\ 4 \ / \ 2 \ / \ 0 \\ 6 \ / \ 0 \ / \ 0 \\ 5 \ / \ 1 \ / \ 0 \\ 5 \ / \ 1 \ / \ 0 \\ 0 \ / \ 6 \ / \ 0 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 2 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 2 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0$	$\begin{array}{c} 0 \ / \ 0 \ / \ 6 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 3 \\ 0 \ / \ 0 \ / \ 4 \\ \end{array}$
	SVM Tuned RF RF.Tuned NB LR Dummy SVM SVM.Tuned RF RF.Tuned NB LR Dummy SVM.Tuned RF RF.Tuned NB LR Dummy SVM SVM SVM SVM SVM.Tuned RF RF.Tuned NB LR	$\begin{array}{c} \text{small/med/large} \\ 0 / 0 / 0 / 4 \\ 0 / 0 / 0 \\ 0 / 0 / 3 \\ 0 / 1 / 5 \\ 0 / 0 / 5 \\ 0 / 0 / 5 \\ 0 / 0 / 5 \\ 0 / 0 / 5 \\ 0 / 0 / 0 \\ \hline \text{F1} \\ \text{win/loss/tie} \\ 6 / 0 / 0 \\ 0 / 6 / 0 \\ 3 / 3 / 0 \\ 4 / 1 / 1 \\ 4 / 1 / 1 \\ 2 / 4 / 0 \\ 0 / 6 / 0 \\ \text{small/med/large} \\ 0 / 0 / 6 \\ 0 / 0 / 0 \\ 0 / 0 / 3 \\ 0 / 0 / 4 \\ 0 / 0 / 4 \\ 0 / 0 / 4 \\ 0 / 0 / 2 \\ 0 / 0 / 0 \\ \hline \text{F1} \\ \text{win/loss/tie} \\ \end{array}$	$\begin{array}{lll} & \text{small/med/large} \\ 0 / 0 / 6 \\ 0 / 0 / 0 \\ 0 / 0 / 0 \\ 0 / 0 / 3 \\ 0 / 1 / 4 \\ 0 / 0 / 4 \\ 0 / 0 / 2 \\ 0 / 0 / 0 \\ \hline \\ & \text{G-measure} \\ & \text{win/loss/tie} \\ 6 / 0 / 0 \\ 0 / 6 / 0 \\ 3 / 2 / 1 \\ 5 / 1 / 0 \\ 3 / 2 / 1 \\ 5 / 1 / 0 \\ 3 / 2 / 1 \\ 5 / 1 / 0 \\ 3 / 2 / 1 \\ 5 / 1 / 0 \\ 0 / 6 / 0 \\ & \text{small/med/large} \\ 0 / 0 / 6 \\ 0 / 0 / 0 \\ 0 / 0 / 3 \\ 1 / 0 / 4 \\ 0 / 0 / 3 \\ 0 / 0 / 2 \\ 0 / 0 / 0 \\ \hline \\ 0 - \text{G-measure} \\ & \text{win/loss/tie} \\ \end{array}$	$\begin{array}{c} 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 3 \\ 0 \ / \ 0 \ / \ 3 \\ 0 \ / \ 0 \ / \ 3 \\ 0 \ / \ 0 \ / \ 3 \\ 0 \ / \ 0 \ / \ 4 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ 3 \ / \ 3 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ 0 \ / \ 0 \\ 0 \ / \ 0 \ 0 \ / \ 0 \\ 0 \ / \ 0 \ 0 \ / \ 0 \\ 0 \ / \ 0 \ 0 \ / \ 0 \\ 0 \ / \ 0 \ 0 \ / \ 0 \\ 0 \ / \ 0 \ 0 \ / \ 0 \\ 0 \ / \ 0 \ 0 \ / \ 0 \\ 0 \ / \ 0 \ 0 \ / \ 0 \\ 0 \ / \ 0 \ 0 \ / \ 0 \\ 0 \ / \ 0 \ 0 \ / \ 0 \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \ / \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \ / \ 0 \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \ / \ 0 \ 0 \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \$	$\begin{array}{c} 0 \ / \ 0 \ / \ 6 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 3 \\ 0 \ / \ 1 \ / \ 4 \\ 0 \ / \ 0 \ / \ 2 \\ 0 \ / \ 0 \ / \ 2 \\ 0 \ / \ 0 \ / \ 2 \\ 0 \ / \ 0 \ / \ 2 \\ 0 \ / \ 0 \ / \ 2 \\ 0 \ / \ 0 \ / \ 2 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 6 \ / \ 0 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 6 \ / \ 0 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 3 \\ 1 \ / \ 0 \ / \ 3 \\ 1 \ / \ 0 \ / \ 3 \\ 0 \ 0 \ / \ 2 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ 0 \ / \ 0 \\ 0 \ 0 \ 0 \ / \ 0 \\ 0 \ 0 \ 0 \ 0 \ 0 \\ 0 \ 0 \ 0 \ 0$	$\begin{array}{c} 0 \ / \ 0 \ / \ 4 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ AUC \\ win/loss/tie \\ 1 \ / \ 5 \ / \ 0 \\ 3 \ / \ 3 \ / \ 0 \\ 2 \ / \ 4 \ / \ 2 \ / \ 0 \\ 6 \ / \ 0 \ / \ 0 \\ 5 \ / \ 1 \ / \ 0 \\ 0 \ / \ 6 \ / \ 0 \ / \ 0 \\ 5 \ / \ 1 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ 0 \ / \ 0 \\ 0 \ 0 \ / \ 0 \\ 0 \ 0 \ / \ 0 \\ 0 \ 0 \ / \ 0 \\ 0 \ 0 \ / \ 0 \\ 0 \ 0 \ / \ 0 \\ 0 \ 0 \ / \ 0 \\ 0 \ 0 \ / \ 0 \\ 0 \ 0 \ / \ 0 \\ 0 \ 0 \ / \ 0 \\ 0 \ 0 \ 0 \ / \ 0 \\ 0 \ 0 \ 0 \ / \ 0 \\ 0 \ 0 \ 0 \ 0 \\ 0 \ 0 \ 0 \ 0 \\ 0 \ 0 \$	$\begin{array}{c} 0 \ / \ 0 \ / \ 6 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 4 \\ 0 \ / \ 0 \ / \ 4 \\ 0 \ / \ 0 \ / \ 4 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \$
	SVM Tuned RF RF Tuned NB LR Dummy SVM Tuned RF RF.Tuned NB LR Dummy SVM SVM Tuned RF RF.Tuned NB LR Dummy SVM Tuned RF RF.Tuned NB LR Dummy SVM Tuned RF RF.Tuned NB LR Dummy SVM SVM Tuned RF RF.Tuned NB LR Dummy	$\begin{array}{c} \text{small/med/large} \\ 0 / 0 / 0 / 4 \\ 0 / 0 / 0 \\ 0 / 0 / 3 \\ 0 / 1 / 5 \\ 0 / 0 / 5 \\ 0 / 0 / 5 \\ 0 / 0 / 5 \\ 0 / 0 / 0 \\ \end{array}$ $\begin{array}{c} \text{F1} \\ \text{win/loss/tie} \\ 6 / 0 / 0 \\ 0 / 6 / 0 \\ 3 / 3 / 0 \\ 4 / 1 / 1 \\ 4 / 1 / 1 \\ 2 / 4 / 0 \\ 0 / 6 / 0 \\ \end{array}$ $\begin{array}{c} \text{small/med/large} \\ 0 / 0 / 0 \\ 0 / 0 / 0 \\ 0 / 0 / 0 \\ 0 / 0 /$	small/med/large 0 / 0 / 6 / 0 / 0 / 0 / 0 / 0 / 0 / 0 /	$\begin{array}{c} 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 3 \\ 0 \ / \ 0 \ / \ 5 \\ 0 \ / \ 0 \ / \ 4 \\ 0 \ / \ 0 \ / \ 0 \\ \end{array}$	$\begin{array}{c} 0 \ / \ 0 \ / \ 6 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ 0 \ / \ 0 \\ 0 \ / \ 0 \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \ 0 \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \ 0 \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \ 0 \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \\ 0 \ / \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \$	$\begin{array}{c} 0 \ / \ 0 \ / \ 4 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ AUC \\ win/loss/tie \\ 1 \ / \ 5 \ / \ 0 \\ 3 \ / \ 3 \ / \ 0 \\ 2 \ / \ 4 \ / \ 0 \\ 4 \ / \ 2 \ / \ 0 \\ 6 \ / \ 0 \ / \ 0 \\ 5 \ / \ 1 \ / \ 0 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 $	$\begin{array}{c} 0 \ / \ 0 \ / \ 6 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 4 \\ \end{array}$
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	SVM Tuned RF RF, Tuned NB LR Dummy SVM SVM, Tuned RF RF, Tuned NB LR Dummy SVM SVM, Tuned RF RF, Tuned NB LR Dummy SVM SVM, Tuned RF RF, Tuned NB LR Dummy SVM SVM, Tuned RF RF, Tuned NB LR	$\begin{array}{c} \text{small/med/large} \\ 0 / 0 / 0 / 4 \\ 0 / 0 / 0 / 0 \\ 0 / 0 / 3 \\ 0 / 1 / 5 \\ 0 / 0 / 5 \\ 0 / 0 / 5 \\ 0 / 0 / 5 \\ 0 / 0 / 5 \\ 0 / 0 / 0 \\ \hline \text{F1} \\ \text{win/loss/tie} \\ 6 / 0 / 0 \\ 0 / 6 / 0 \\ 3 / 3 / 0 \\ 4 / 1 / 1 \\ 4 / 1 / 1 \\ 2 / 4 / 0 \\ 0 / 6 / 0 \\ \text{small/med/large} \\ 0 / 0 / 6 \\ 0 / 0 / 0 \\ 0 / 0 / 3 \\ 0 / 0 / 4 \\ 0 / 0 / 2 \\ 0 / 0 / 0 \\ 0 / 0 / 3 \\ 0 / 0 / 4 \\ 0 / 0 / 4 \\ 0 / 0 / 4 \\ 0 / 0 / 4 \\ 0 / 0 / 6 / 0 \\ 0 / 0 / 0 \\ 0 / 0 / 0 \\ 0 / 0 / 0$	$\begin{array}{c} \text{small/med/large} \\ 0 / 0 / 6 \\ 0 / 0 / 0 \\ 0 / 0 / 0 \\ 0 / 0 / 3 \\ 0 / 0 / 4 \\ 0 / 0 / 4 \\ 0 / 0 / 4 \\ 0 / 0 / 4 \\ 0 / 0 / 2 \\ \hline \\ 0 / 0 / 0 \\ \hline \\ G\text{-measure} \\ \text{win/loss/tie} \\ 6 / 0 / 0 \\ 0 / 6 / 0 \\ 3 / 2 / 1 \\ 5 / 1 / 0 \\ 3 / 2 / 1 \\ 0 / 6 / 6 \\ 0 3 / 2 / 1 \\ 0 / 6 / 0 \\ 3 / 2 / 1 \\ 0 / 6 / 0 \\ 0 / 0 / 0 \\ 0 / 0 / 3 \\ 0 / 0 / 6 \\ 0 / 0 / 0 \\ 0 / 0 / 3 \\ 1 / 0 / 4 \\ 0 / 0 / 3 \\ 0 / 0 / 2 \\ 0 / 0 / 0 \\ 0 \\ G\text{-measure} \\ \text{win/loss/tie} \\ 6 / 0 / 0 \\ 0 / 6 / 0 \\ 4 / 2 / 0 \\ 5 / 1 / 0 \\ 3 / 3 / 0 \\ 1 / 5 / 0 \\ \end{array}$	0 / 0 / 0 0 / 0 / 1 0 / 0 / 3 0 / 0 / 5 1 / 0 / 5 1 / 0 / 5 0 / 0 / 4 0 / 0 / 0 MCC win/loss/tie 1 / 4 / 1 4 / 2 / 0 5 / 1 / 0 6 / 0 / 0 3 / 3 / 0 0 / 6 / 0 small/med/large 0 / 0 / 1 0 / 0 / 5 0 / 0 / 5 0 / 0 / 5 0 / 0 / 6 / 0 small/med/large 0 / 0 / 1 0 / 0 / 5 0 / 0 / 6 / 0 MCC win/loss/tie 0 / 6 / 0 1 / 5 / 0 4 / 2 / 0 5 / 1 / 0 6 / 0 / 0 0 /	$\begin{array}{c} 0 \ / \ 0 \ / \ 6 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 3 \\ 0 \ / \ 1 \ / \ 4 \\ 0 \ / \ 0 \ / \ 2 \\ 0 \ / \ 0 \ / \ 2 \\ 0 \ / \ 0 \ / \ 2 \\ 0 \ / \ 0 \ / \ 2 \\ 0 \ / \ 0 \ / \ 2 \\ 0 \ / \ 0 \ / \ 0 \\ 3 \ / \ 2 \ / \ 1 \\ 5 \ / \ 1 \ / \ 0 \\ 3 \ / \ 2 \ / \ 1 \\ 5 \ / \ 1 \ / \ 0 \\ 3 \ / \ 2 \ / \ 1 \\ 5 \ / \ 1 \ / \ 0 \\ 3 \ / \ 2 \ / \ 1 \\ 2 \ / \ 4 \ / \ 0 \\ 0 \ / \ 6 \ / \ 0 \\ 0 \ / \ 0 \ / \ 6 \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ 0 \ 0 \ / \ 0 \\ 0 \ 0 \ / \ 0 \\ 0 \ 0 \ 0 \ / \ 0 \\ 0 \ 0 \ 0 \ / \ 0 \\ 0 \ 0 \ 0 \ / \ 0 \\ 0 \ 0 \ 0 \ / \ 0 \\ 0 \ 0 \ 0 \ / \ 0 \\ 0 \ 0 \ 0 \ / \ 0 \\ 0 \ 0 \ 0 \ / \ 0 \\ 0 \ 0 \ 0 \ 0 \\ 0 \ 0 \ 0 \ 0 \\ 0 \ 0 \$	$\begin{array}{c} 0 \ / \ 0 \ / \ 4 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ AUC \\ win/loss/tie \\ 1 \ / \ 5 \ / \ 0 \\ 3 \ / \ 3 \ / \ 0 \\ 2 \ / \ 4 \ / \ 0 \\ 4 \ / \ 2 \ / \ 0 \\ 6 \ / \ 0 \ / \ 0 \\ 5 \ / \ 1 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / $	$\begin{array}{c} 0 \ / \ 0 \ / \ 6 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 4 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 1 \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ 0 \ 0 \ / \ 0 \$
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HBase	SVM Tuned RF RF.Tuned NB LR SVM.Tuned RF SVM.Tuned RF RF.Tuned NB SVM.Tuned NB	$\begin{array}{c} {\rm small/med/large} \\ 0 / 0 / 4 \\ 0 / 0 / 0 \\ 0 / 0 / 3 \\ 0 / 1 / 5 \\ 0 / 0 / 5 \\ 0 / 0 / 5 \\ 0 / 0 / 5 \\ 0 / 0 / 0 \\ \end{array}$ $\begin{array}{c} {\rm FI} \\ {\rm win/loss/tie} \\ 6 / 0 / 0 \\ 0 / 6 / 0 \\ 3 / 3 / 0 \\ 4 / 1 / 1 \\ 4 / 1 / 1 \\ 4 / 1 / 1 \\ 4 / 1 / 1 \\ 4 / 1 / 1 \\ 4 / 1 / 1 \\ 0 / 6 / 0 \\ 0 / 0 / 6 \\ 0 / 0 / 6 \\ 0 / 0 / 6 \\ 0 / 0 / 6 \\ 0 / 0 / 6 \\ 0 / 0 / 6 \\ 0 / 0 / 6 \\ 0 / 0 / 6 \\ 0 / 0 / 6 \\ 0 / 0 / 0 \\ 0 / 0 / 3 \\ 0 / 0 / 0 / 3 \\ 0 / 0 / 0 / 4 \\ 0 / 0 / 0 / 2 \\ 0 / 0 / 0 \\ 0 / 0 / 0 \\ 0 / 0 / 0 \\ 0 / 0 /$	$\begin{array}{c} \text{small/med/large} \\ 0 / 0 / 6 \\ 0 / 0 / 0 \\ 0 / 0 / 0 \\ 0 / 0 / 3 \\ 0 / 1 / 4 \\ 0 / 0 / 4 \\ 0 / 0 / 4 \\ 0 / 0 / 0 \\ \hline \\ 0 / 0 / 0 \\ \hline \\ 0 / 0 / 0 \\ \hline \\ G\text{-measure} \\ \text{win/loss/tie} \\ 6 / 0 / 0 \\ 0 / 6 / 0 \\ 3 / 2 / 1 \\ 2 / 4 / 0 \\ 0 / 6 / 0 \\ 3 / 2 / 1 \\ 2 / 4 / 0 \\ 0 / 6 / 0 \\ \hline \\ small/med/large \\ 0 / 0 / 6 \\ 0 / 0 / 0 \\ 0 / 0 / 3 \\ 1 / 0 / 4 \\ 0 / 0 / 3 \\ 0 / 0 / 2 \\ \hline \\ 0 / 0 / 0 \\ \hline \\ G\text{-measure} \\ \text{win/loss/tie} \\ 6 / 0 / 0 \\ 0 / 6 / 0 \\ 4 / 2 / 0 \\ \hline \\ 5 / 1 / 0 \\ 3 / 3 / 0 \\ 1 / 5 / 0 \\ 2 / 4 / 0 \\ \\ \text{small/med/large} \\ 0 / 0 / 6 \\ 0 \\ 0 / 0 / 0 \\ \end{array}$	$\begin{array}{c} 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 3 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \$	$\begin{array}{c} 0 \ / \ 0 \ / \ 6 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \$	$\begin{array}{c} 0 \ / \ 0 \ / \ 4 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 3 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \$	$\begin{array}{c} 0 \ / \ 0 \ / \ 6 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 4 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \$
HBase	SVM Tuned RF RF.Tuned NB LR Dummy SVM SVM Tuned RF RF.Tuned NB LR Dummy SVM Tuned RF RF.Tuned NB LR Dummy SVM Tuned RF RF.Tuned NB LR Dummy SVM SVM SVM Tuned RF RF.Tuned NB LR Dummy	$\begin{array}{c} \text{small/med/large} \\ 0 / 0 / 0 / 4 \\ 0 / 0 / 0 \\ 0 / 0 / 0 \\ 0 / 0 / 3 \\ 0 / 1 / 5 \\ 0 / 0 / 5 \\ 0 / 0 / 5 \\ 0 / 0 / 5 \\ 0 / 0 / 0 \\ \hline \text{F1} \\ \text{win/loss/tie} \\ 6 / 0 / 0 \\ 0 / 6 / 0 \\ 3 / 3 / 0 \\ 4 / 1 / 1 \\ 4 / 1 / 1 \\ 2 / 4 / 0 \\ 0 / 6 / 6 \\ 0 \\ 0 / 0 / 6 \\ 0 \\ 0 / 0 / 6 \\ 0 \\ 0 / 0 / 0 \\ 0 / 0 / 3 \\ 0 / 0 / 4 \\ 0 / 0 / 0 / 3 \\ 0 / 0 / 4 \\ 0 / 0 / 0 / 4 \\ 0 / 0 / 0 / 2 \\ 0 / 0 / 0 \\ 0 / 0 / 0 \\ \hline \text{F1} \\ \text{win/loss/tie} \\ 4 / 1 / 1 \\ 0 / 6 / 0 \\ 0 / 0 / 0 \\ 0 / 0 / 0 \\ \hline \text{Small/med/large} \\ 1 / 5 / 0 \\ 2 / 4 / 0 \\ \text{small/med/large} \\ 1 / 0 / 3 \\ \end{array}$	$\begin{array}{c} \text{small/med/large} \\ 0 / 0 / 6 \\ 0 / 0 / 0 \\ 0 / 0 / 0 \\ 0 / 0 / 3 \\ 0 / 1 / 4 \\ 0 / 0 / 4 \\ 0 / 0 / 4 \\ 0 / 0 / 2 \\ 0 / 0 / 0 \\ \hline \text{G-measure} \\ \text{win/loss/tie} \\ 6 / 0 / 0 \\ 0 / 6 / 0 \\ 3 / 2 / 1 \\ 2 / 4 / 0 \\ 0 / 6 / 0 \\ 3 / 2 / 1 \\ 2 / 4 / 0 \\ 0 / 6 / 6 \\ 0 \\ 0 / 0 / 6 \\ 0 \\ 0 / 0 / 0 \\ 0 / 0 / 3 \\ 1 / 0 / 4 \\ 0 / 0 / 0 \\ 0 / 0 / 3 \\ 1 / 0 / 4 \\ 0 / 0 / 0 \\ 0 / 0 / 3 \\ 0 / 0 / 0 \\ 0 / 0 / 3 \\ 0 / 0 / 0 \\ 0 / 0 / 3 \\ 0 / 0 / 0 \\ 0 / 0 / 3 \\ 0 / 0 / 0 \\ 0 / 0 / 3 \\ 0 / 0 / 0 \\ 0 / 0 / 3 \\ 0 / 0 / 0 \\ 0 / 0 / 0 \\ 0 / 0 / 3 \\ 0 / 0 / 0 \\ 0 / 0 / 0 \\ 0 / 0 / 0 \\ 0 / 0 /$	$\begin{array}{c} 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 3 \\ 0 \ / \ 0 \ / \ 5 \\ 0 \ / \ 0 \ / \ 4 \\ 0 \ / \ 0 \ / \ 0 \\ \end{array}$ $\begin{array}{c} MCC \\ win / loss / tie \\ 1 \ / \ 4 \ / \ 1 \\ 4 \ / \ 2 \ / \ 0 \\ 5 \ / \ 1 \ / \ 0 \\ 6 \ / \ 0 \ / \ 0 \\ 3 \ / \ 3 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 6 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ /$	$\begin{array}{c} 0 \ / \ 0 \ / \ 6 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 3 \\ 0 \ / \ 1 \ / \ 4 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ 1 \ / \ 5 \ / \ 1 \ / \ 0 \\ 3 \ / \ 2 \ / \ 1 \\ 5 \ / \ 1 \ / \ 0 \\ 3 \ / \ 2 \ / \ 1 \\ 2 \ / \ 4 \ / \ 0 \\ 0 \ / \ 6 \ / \ 0 \\ 0 \ / \ 6 \ / \ 0 \\ 0 \ / \ 6 \ / \ 0 \\ 0 \ / \ 0 \ / \ 6 \\ 0 \ 0 \ / \ 0 \\ 0 \ 0 \ / \ 6 \\ 0 \ 0 \ / \ 0 \\ 0 \ 0 \ / \ 6 \\ 0 \ 0 \ / \ 0 \\ 0 \ 0 \ 6 \ / \ 0 \\ 0 \ 0 \ 6 \ / \ 0 \\ 0 \ 0 \ 6 \ / \ 0 \\ 0 \ 0 \ 6 \ / \ 0 \\ 0 \ 0 \ 6 \ / \ 0 \\ 0 \ 0 \ 6 \ / \ 0 \\ 0 \ 0 \ 6 \ / \ 0 \\ 0 \ 0 \ 6 \ / \ 0 \\ 0 \ 0 \ 0 \ / \ 0 \\ 0 \ 0 \ 0 \ / \ 0 \\ 0 \ 0 \ 0 \ 0 \ 0 \\ 0 \ 0 \ 0 \ 0$	$\begin{array}{c} 0 \ / \ 0 \ / \ 4 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ AUC \\ win/loss/tie \\ 1 \ / \ 5 \ / \ 0 \\ 3 \ / \ 3 \ / \ 0 \\ 2 \ / \ 4 \ / \ 0 \\ 4 \ / \ 2 \ / \ 0 \\ 6 \ / \ 0 \ / \ 0 \\ 5 \ / \ 1 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / $	$\begin{array}{c} 0 \ / \ 0 \ / \ 6 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 4 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \$
HBase	SVM Tuned RF RF.Tuned NB LR Dummy SVM Tuned RF RF.Tuned NB LR Dummy SVM SVM.Tuned RF RF.Tuned NB LR SVM.Tuned RF RF.Tuned NB LR SVM.Tuned RF RF.Tuned NB LR SVM.Tuned SVM.Tuned SVM.Tuned SVM.Tuned SVM.Tuned RF SVM.Tuned SVM.Tuned NB LR SVM.Tuned SVM.Tuned	$\begin{array}{c} \text{small/med/large} \\ 0 / 0 / 0 / 4 \\ 0 / 0 / 0 / 0 \\ 0 / 0 / 3 \\ 0 / 1 / 5 \\ 0 / 0 / 5 \\ 0 / 0 / 5 \\ 0 / 0 / 5 \\ 0 / 0 / 5 \\ 0 / 0 / 5 \\ 0 / 0 / 5 \\ 0 / 0 / 0 \\ \hline \text{F1} \\ \text{win/loss/tie} \\ 6 / 0 / 0 \\ 0 / 6 / 0 \\ 3 / 3 / 0 \\ 4 / 1 / 1 \\ 4 / 1 / 1 \\ 2 / 4 / 0 \\ 0 / 6 / 0 \\ 0 / 0 / 6 \\ 0 / 0 / 6 \\ 0 / 0 / 0 \\ 0 / 0 / 3 \\ 0 / 0 / 4 \\ 0 / 0 / 2 \\ 0 / 0 / 0 \\ \hline \text{FI} \\ \text{win/loss/tie} \\ 4 / 1 / 1 \\ 0 / 6 / 0 \\ 0 / 0 / 0 \\ 0 / 0 / 0 \\ \hline \text{FI} \\ \text{win/loss/tie} \\ 4 / 1 / 1 \\ 1 / 5 / 0 \\ 2 / 4 / 0 \\ \text{small/med/large} \\ 1 / 0 / 3 \\ 0 / 0 / 0 \\ 0 / 0 / 3 \\ 0 / 0 / 0 \\ 0 / 0 / 0 \\ 0 / 0 / 0 / 0$	$\begin{array}{c} \text{small/med/large} \\ 0 / 0 / 6 \\ 0 / 0 / 0 \\ 0 / 0 / 0 \\ 0 / 0 / 3 \\ 0 / 0 / 1 \\ 0 / 0 / 4 \\ 0 / 0 / 4 \\ 0 / 0 / 4 \\ 0 / 0 / 2 \\ 0 / 0 / 0 \\ \hline \text{G-measure} \\ \text{win/loss/tie} \\ 6 / 0 / 0 \\ 0 / 6 / 0 \\ 3 / 2 / 1 \\ 5 / 1 / 0 \\ 3 / 2 / 1 \\ 5 / 1 / 0 \\ 3 / 2 / 1 \\ 5 / 1 / 0 \\ 0 / 6 / 0 \\ 0 / 0 / 0 \\ 0 / 6 / 0 \\ 0 / 0 / 0 \\ 0 / 0 / 3 \\ 1 / 0 / 4 \\ 0 / 0 / 3 \\ 1 / 0 / 4 \\ 0 / 0 / 3 \\ 0 / 0 / 2 \\ 0 / 0 / 0 \\ \hline \text{G-measure} \\ \text{win/loss/tie} \\ 6 / 0 / 0 \\ 0 / 6 / 0 \\ 0 / 0 / 0 \\ \hline \text{G-measure} \\ \text{win/loss/tie} \\ 6 / 0 / 0 \\ 0 / 6 / 0 \\ 0 / 0 / 0 \\ 0 / 6 / 0 \\ 0 / 0 / 0 \\ \hline \text{G-measure} \\ \text{win/loss/tie} \\ 6 / 0 / 0 \\ 0 / 0 / 0 \\ 0 / 0 / 0 \\ \text{S-measure} \\ \text{win/loss/tie} \\ 6 / 0 / 0 \\ 0 / 0 / 0 \\ 0 / 0 / 0 \\ \text{S-measure} \\ \text{win/loss/tie} \\ 6 / 0 / 0 \\ 0 / 0 / 0 \\ 0 / 0 / 0 \\ 0 / 0 /$	0 / 0 / 0 0 / 0 / 1 0 / 0 / 3 0 / 0 / 5 1 / 0 / 5 1 / 0 / 5 0 / 0 / 4 0 / 0 / 0 MCC win/loss/tie 1 / 4 / 1 4 / 2 / 0 5 / 1 / 0 6 / 0 / 0 3 / 3 / 0 0 / 6 / 0 small/med/large 0 / 0 / 1 0 / 0 / 5 0 / 0 / 5 0 / 0 / 6 0 / 0 / 1 0 / 0 / 5 0 / 0 / 6 0 / 0 / 3 0 / 0 / 5 0 / 0 / 6 0 / 0 / 3 0 / 0 / 5 0 / 0 / 6 0 / 0 / 3 0 / 0 / 0 MCC win/loss/tie 0 / 6 / 0 1 / 5 / 0 4 / 2 / 0 5 / 1 / 0 6 / 0 / 0 3 / 3 / 0 small/med/large 0 / 6 / 0 1 / 5 / 0 4 / 2 / 0 5 / 1 / 0 6 / 0 / 0 2 / 4 / 0 3 / 3 / 0 small/med/large 0 / 0 / 0 0 / 0	0 / 0 / 6 0 / 0 / 1 0 / 0 / 3 0 / 1 / 4 0 / 0 / 4 0 / 0 / 2 0 / 0 / 0 Balance win/loss/tie 6 / 0 / 0 1 / 5 / 0 3 / 2 / 1 5 / 1 / 0 3 / 2 / 1 2 / 4 / 0 0 / 6 / 0 small/med/large 0 / 0 / 6 0 / 0 / 1 0 / 0 / 3 1 / 0 / 4 0 / 0 / 3 1 / 0 / 4 0 / 0 / 3 1 / 0 / 4 0 / 0 / 5 1 / 5 / 1 / 0 3 / 2 / 1 2 / 4 / 0 0 / 6 / 0 0 / 0 / 1 0 / 0 / 3 1 / 0 / 4 0 / 0 / 3 1 / 0 / 4 0 / 0 / 2 0 / 0 / 0 5 / 1 / 0 3 / 3 / 0 1 / 5 / 0 2 / 4 / 0 5 / 1 / 0 6 / 0 / 0 0 / 0 / 6 0 / 0 / 6 0 / 0 / 6 0 / 0 / 0 0 / 0 / 6 0 / 0 / 0 0 / 0 / 6 0 / 0 / 0 / 0 0 / 0 / 0 0 / 0 / 0 / 0 0 / 0 / 0 0 / 0 / 0 0 / 0 / 0 / 0 / 0 / 0 0 / 0 / 0 / 0 / 0 / 0 / 0 0 / 0 / 0 / 0 / 0 / 0 / 0 / 0 0 / 0 / 0 / 0 / 0 / 0 / 0 / 0 / 0 / 0 /	$\begin{array}{c} 0 \ / \ 0 \ / \ 4 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \\ AUC \\ win/loss/tie \\ 1 \ / \ 5 \ / \ 0 \\ 3 \ / \ 3 \ / \ 0 \\ 2 \ / \ 4 \ / \ 0 \\ 4 \ / \ 2 \ / \ 0 \\ 6 \ / \ 0 \ / \ 0 \\ 5 \ / \ 1 \ / \ 0 \\ 0 \ / \ 6 \ / \ 0 \\ 5 \ / \ 1 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / $	$\begin{array}{c} 0 \ / \ 0 \ / \ 6 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 1 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \ / \ 0 \\ 0 \ / \$

Table 4: The win-tie-loss results of the cross-project scenario.

Dataset		F-measure	G-measure	MCC	Dis2heaven	AUC	FPR
Dutabet	_	win/loss/tie	win/loss/tie	win/loss/tie	win/loss/tie	win/loss/tie	win/loss/tie
	Dummy	1 / 5 / 0	4 / 2 / 0	0 / 5 / 1	2 / 3 / 1	1 / 5 / 0	0 / 6 / 0
	SVM	0 / 6 / 0	0 / 6 / 0	0 / 5 / 1	0 / 6 / 0	3 / 3 / 0	6 / 0 / 0
	SVM_Tuned	2 / 4 / 0	1 / 5 / 0	2 / 4 / 0	1 / 5 / 0	0 / 6 / 0	2 / 4 / 0
	RF	5 / 1 / 0	5 / 1 / 0	5 / 1 / 0	5 / 1 / 0	5 / 1 / 0	3 / 2 / 1
	RF_Tuned	6 / 0 / 0	2 / 4 / 0	6 / 0 / 0	2 / 3 / 1	6 / 0 / 0	5 / 1 / 0
	NB	4 / 2 / 0	3 / 3 / 0	4 / 2 / 0	4 / 2 / 0	4 / 2 / 0	3 / 2 / 1
TD 1	LR	3 / 3 / 0	6 / 0 / 0	3 / 3 / 0	6 / 0 / 0	2 / 4 / 0	1 / 5 / 0
JRuby	Dummy	small/med/large 0 / 0 / 1	small/med/large 0 / 1 / 3	small/med/large 0 / 0 / 0	small/med/large 0 / 0 / 2	small/med/large 0 / 0 / 1	small/med/large 0 / 0 / 0
	SVM	0 / 0 / 1	0 / 1 / 3	0/0/0	0/0/2	0 / 0 / 1	0/0/0
	SVM_Tuned		0 / 0 / 0	0 / 0 / 0	0 / 0 / 0	0/0/3	0 / 0 / 6
	RF	0/0/2	0 / 0 / 1	0/0/2	0 / 0 / 1	0/0/0	1 / 0 / 2
	RF_Tuned	0/0/5	0 / 0 / 3	0/0/5	0 / 0 / 3	0/0/5	0/0/5
	NB	0 / 0 / 4	0 / 0 / 2	0/0/0	0 / 0 / 2	0/0/0	0 / 0 / 3
	LR	0 / 0 / 4	0/0/3	0 / 0 / 4	0/1/3	0 / 0 / 4	0 / 0 / 3
	LIL	F-measure	G-measure	MCC	Dis2heaven	AUC	FPR
		win/loss/tie	win/loss/tie	win/loss/tie	win/loss/tie	win/loss/tie	win/loss/tie
	Dummy	3 / 3 / 0	6 / 0 / 0	0 / 5 / 1	6 / 0 / 0	1 / 5 / 0	0 / 6 / 0
	SVM	0/6/0	0/6/0	0 / 5 / 1	0/6/0	3 / 3 / 0	6/0/0
	SVM_Tuned	4 / 2 / 0	3 / 3 / 0	4 / 2 / 0	3 / 3 / 0	2 / 4 / 0	3 / 3 / 0
	RF	5 / 1 / 0	5 / 1 / 0	5 / 1 / 0	5 / 1 / 0	4/2/0	1/5/0
	RF_Tuned	6/0/0	4 / 2 / 0	6/0/0	4 / 2 / 0	5 / 1 / 0	2 / 4 / 0
	NB	2 / 4 / 0	2 / 4 / 0	3/3/0	2 / 4 / 0	6/0/0	5 / 1 / 0
	LR	1/5/0	1/5/0	2 / 4 / 0	1/5/0	0/6/0	4 / 2 / 0
Lucene		small/med/large	small/med/large	small/med/large	small/med/large	small/med/large	small/med/large
	Dummy	0 / 0 / 3	0 / 0 / 6	0 / 0 / 0	0 / 0 / 6	0 / 0 / 1	0 / 0 / 0
	SVM	0/0/0	0 / 0 / 0	0/0/0	0/0/0	0 / 0 / 3	0/0/6
	SVM_Tuned	0 / 0 / 4	0 / 0 / 3	0 / 0 / 4	0 / 0 / 3	0 / 0 / 2	0 / 0 / 3
	RF	0/0/5	0 / 0 / 5	0/0/5	0 / 0 / 5	0 / 0 / 4	0 / 0 / 1
	RF_Tuned	0 / 1 / 5	0 / 0 / 4	0 / 1 / 5	0 / 0 / 4	0 / 0 / 5	0 / 0 / 2
	NB	0 / 0 / 2	0 / 0 / 2	0 / 0 / 3	0 / 0 / 2	1 / 0 / 5	0 / 0 / 5
	LR	0 / 0 / 1	0 / 0 / 1	1 / 0 / 1	0 / 0 / 1	0 / 0 / 0	0 / 0 / 4
		F-measure	G-measure	MCC	Dis2heaven	AUC	FPR
		win/loss/tie	win/loss/tie	win/loss/tie	win/loss/tie	win/loss/tie	win/loss/tie
	Dummy	3 / 3 / 0	6 / 0 / 0	1 / 4 / 1	6 / 0 / 0	1 / 5 / 0	0 / 6 / 0
	SVM	0 / 6 / 0	0 / 6 / 0	0 / 6 / 0	0 / 6 / 0	4 / 2 / 0	5 / 1 / 0
	SVM_Tuned	5 / 0 / 1	5 / 1 / 0	4 / 1 / 1	5 / 1 / 0	2 / 4 / 0	1 / 5 / 0
	RF	5 / 0 / 1	4 / 2 / 0	4 / 1 / 1	4 / 2 / 0	3 / 3 / 0	2 / 4 / 0
	RF_Tuned	4 / 2 / 0	3 / 3 / 0	6 / 0 / 0	3 / 3 / 0	5 / 1 / 0	3 / 3 / 0
	NB	0 / 6 / 0	0 / 6 / 0	1 / 4 / 1	1 / 5 / 0	6 / 0 / 0	6 / 0 / 0
Wicket	LR	2 / 4 / 0	2 / 4 / 0	3 / 3 / 0	2 / 4 / 0	0 / 6 / 0	4 / 2 / 0
		small/med/large	small/med/large	small/med/large	small/med/large	small/med/large	small/med/large
	Dummy	0 / 0 / 3	0 / 0 / 6	1 / 0 / 0	0 / 0 / 6	0 / 0 / 1	0 / 0 / 0
	SVM	0 / 0 / 0	0 / 0 / 0	0 / 0 / 0	0 / 0 / 0	0 / 0 / 4	0 / 0 / 5
	SVM_Tuned		1 / 0 / 4	0 / 0 / 4	1 / 0 / 4	0 / 0 / 2	0 / 0 / 1
	RF	1 / 0 / 4	0 / 0 / 4	0 / 0 / 4	0 / 0 / 4	0 / 0 / 3	0 / 0 / 2
	RF_Tuned	0 / 0 / 4	0 / 0 / 3	0 / 0 / 6	0 / 0 / 3	0 / 0 / 5	0 / 0 / 3
	NB	0 / 0 / 0	0 / 0 / 0	0 / 0 / 1	0 / 0 / 1	0 / 0 / 6	0 / 0 / 6
	LR	0 / 0 / 2	0 / 0 / 2	0 / 0 / 3	0 / 0 / 2	0 / 0 / 0	0 / 0 / 4

Table 5: The win-tie-loss results of the cross-project scenario.