Table 1: Classification Result Based on Different Oversample Methods

Data Source	Method	Rec.	Pre.	F	G
ecoli	ADASYN	0.700	0.636	0.667	0.781
	No Sample	0.333	0.091	0.143	0.297
	SMOTE	0.625	0.455	0.526	0.660
	SMOTEBorderline-1	0.571	0.364	0.444	0.591
	SMOTEBorderline-2	**0.727**	**0.727**	**0.727**	**0.835**
	SVMSMOTE	0.500	0.273	0.353	0.511
	random	0.333	0.091	0.143	0.297
optical_digits	ADASYN	**0.981**	0.912	0.945	0.954
	No Sample	0.980	0.860	0.916	0.926
	SMOTE	0.964	0.939	**0.951**	0.967
	SMOTEBorderline-1	0.980	0.877	0.926	0.936
	SMOTEBorderline-2	0.962	0.877	0.917	0.935
	SVMSMOTE	0.946	0.930	0.938	0.962
	random	0.925	**0.974**	0.949	**0.983**
satimage	ADASYN	0.519	0.824	0.637	0.867
	No Sample	**0.746**	0.570	0.646	0.746
	SMOTE	0.561	0.758	0.644	0.840
	SMOTEBorderline-1	0.563	0.836	**0.673**	0.880
	SMOTEBorderline-2	0.516	**0.867**	0.647	**0.887**
	SVMSMOTE	0.556	0.836	0.668	0.879
	random	0.496	0.842	0.625	0.872
pen_digits	ADASYN	0.973	0.980	0.976	0.989
	No Sample	**1.000**	0.980	0.990	0.990
	SMOTE	0.996	**0.992**	**0.994**	**0.996**
	SMOTEBorderline-1	**1.000**	0.965	0.982	0.982
	SMOTEBorderline-2	0.992	0.969	0.980	0.984
	SVMSMOTE	0.992	0.988	0.990	0.994
	random	0.992	**0.992**	0.992	0.996
abalone	ADASYN	0.307	0.766	0.438	0.780
	No Sample	**0.800**	0.036	0.069	0.190
	SMOTE	0.321	0.721	0.444	0.768
	SMOTEBorderline-1	0.325	0.586	0.418	0.708
	SMOTEBorderline-2	0.331	0.541	0.411	0.686
	SVMSMOTE	0.312	0.523	0.391	0.672
	random	0.311	**0.820**	**0.450**	**0.802**
sick_euthyroid	ADASYN	0.824	0.893	0.857	0.934
	No Sample	0.860	0.881	0.871	0.931
	SMOTE	0.824	0.893	0.857	0.934
	SMOTEBorderline-1	0.841	0.881	0.860	0.929
	SMOTEBorderline-2	0.796	0.881	0.836	0.926
	SVMSMOTE	**0.874**	0.905	**0.889**	0.944
	random	0.808	**0.952**	0.874	**0.963**
spectrometer	ADASYN	**0.846**	**0.846**	**0.846**	**0.912**
	No Sample	0.833	0.385	0.526	0.618
	SMOTE	0.714	0.769	0.741	0.862
	SMOTEBorderline-1	0.700	0.538	0.609	0.725
	SMOTEBorderline-2	0.727	0.615	0.667	0.775
	SVMSMOTE	0.750	0.692	0.720	0.822
	random	0.700	0.538	0.609	0.725
car_eval_34	ADASYN	**0.951**	**1.000**	**0.975**	**0.997**
	No Sample	**0.951**	**1.000**	**0.975**	**0.997**
	SMOTE	**0.951**	**1.000**	**0.975**	**0.997**
	SMOTEBorderline-1	0.929	**1.000**	0.963	0.996
	SMOTEBorderline-2	**0.951**	**1.000**	**0.975**	**0.997**
	SVMSMOTE	0.830	**1.000**	0.907	0.990
	random	0.848	**1.000**	0.918	0.991
isolet	ADASYN	0.704	0.902	0.791	0.936
	No Sample	**0.886**	0.826	**0.855**	0.905
	SMOTE	0.759	0.955	0.846	0.966
	SMOTEBorderline-1	0.753	0.902	0.821	0.939
	SMOTEBorderline-2	0.702	0.909	0.792	0.940
	SVMSMOTE	0.678	0.939	0.787	0.953
	random	0.753	**0.970**	0.848	**0.973**
us_crime	ADASYN	0.463	0.528	0.494	0.709
	No Sample	**0.720**	0.500	**0.590**	0.702
	SMOTE	0.476	0.556	0.513	0.727
	SMOTEBorderline-1	0.477	0.583	0.525	0.745
	SMOTEBorderline-2	0.479	**0.639**	0.548	**0.777**
	SVMSMOTE	0.467	0.583	0.519	0.744
	random	0.429	0.583	0.494	0.740

Table 2: Classification Result Based on Different Oversample Methods

Data Source	Method	Rec.	Pre.	F	G
yeast_ml8	ADASYN	0.098	0.128	0.111	0.343
	No Sample	0.000	0.000	0.000	0.000
	SMOTE	0.099	**0.179**	0.127	**0.399**
	SMOTEBorderline-1	0.077	0.077	0.077	0.268
	SMOTEBorderline-2	0.136	0.154	**0.145**	0.379
	SVMSMOTE	0.083	0.077	0.080	0.269
	random	**0.161**	0.128	0.143	0.350
scene	ADASYN	0.246	**0.390**	**0.302**	**0.597**
	No Sample	**0.571**	0.098	0.167	0.312
	SMOTE	0.225	**0.390**	0.286	0.593
	SMOTEBorderline-1	0.271	0.317	0.292	0.545
	SMOTEBorderline-2	0.224	0.366	0.278	0.576
	SVMSMOTE	0.286	0.293	0.289	0.526
	random	0.323	0.244	0.278	0.485
libras_move	ADASYN	0.875	**0.875**	0.875	0.930
	No Sample	**1.000**	0.750	0.857	0.866
	SMOTE	0.875	**0.875**	0.875	0.930
	SMOTEBorderline-1	0.875	**0.875**	0.875	0.930
	SMOTEBorderline-2	**1.000**	**0.875**	**0.933**	**0.935**
	SVMSMOTE	**1.000**	**0.875**	**0.933**	**0.935**
	random	**1.000**	**0.875**	**0.933**	**0.935**
thyroid_sick	ADASYN	0.857	0.964	**0.908**	0.977
	No Sample	**0.902**	0.821	0.860	0.904
	SMOTE	0.867	0.929	0.897	0.959
	SMOTEBorderline-1	0.833	**0.982**	0.902	**0.985**
	SMOTEBorderline-2	0.823	0.911	0.864	0.948
	SVMSMOTE	0.852	0.929	0.889	0.959
	random	0.797	**0.982**	0.880	0.983
coil_2000	ADASYN	0.302	0.081	0.127	0.282
	No Sample	**1.000**	0.012	0.025	0.111
	SMOTE	0.288	0.093	0.141	0.303
	SMOTEBorderline-1	0.274	0.143	0.188	0.373
	SMOTEBorderline-2	0.348	0.099	0.155	0.313
	SVMSMOTE	0.353	0.149	0.210	0.382
	random	0.152	**0.609**	**0.243**	**0.681**
arrhythmia	ADASYN	0.667	**1.000**	0.800	0.991
	No Sample	0.500	0.500	0.500	0.701
	SMOTE	0.800	**1.000**	**0.889**	**0.995**
	SMOTEBorderline-1	0.800	**1.000**	**0.889**	**0.995**
	SMOTEBorderline-2	**1.000**	0.750	0.857	0.866
	SVMSMOTE	0.667	**1.000**	0.800	0.991
	random	0.667	**1.000**	0.800	0.991
solar_flare_m0	ADASYN	0.300	0.273	0.286	0.517
	No Sample	0.333	0.182	0.235	0.424
	SMOTE	0.300	0.273	0.286	0.517
	SMOTEBorderline-1	0.333	0.364	**0.348**	0.596
	SMOTEBorderline-2	**0.429**	0.273	0.333	0.519
	SVMSMOTE	0.333	0.273	0.300	0.518
	random	0.096	**0.727**	0.170	**0.752**
oil	ADASYN	0.750	0.643	0.692	0.796
	No Sample	**1.000**	0.286	0.444	0.535
	SMOTE	0.692	0.643	0.667	0.794
	SMOTEBorderline-1	0.800	0.571	0.667	0.753
	SMOTEBorderline-2	0.833	**0.714**	**0.769**	**0.841**
	SVMSMOTE	0.727	0.571	0.640	0.751
	random	0.727	0.571	0.640	0.751
car_eval_4	ADASYN	0.895	**1.000**	0.944	0.998
	No Sample	**0.944**	**1.000**	**0.971**	**0.999**
	SMOTE	0.895	**1.000**	0.944	0.998
	SMOTEBorderline-1	0.895	**1.000**	0.944	0.998
	SMOTEBorderline-2	0.895	**1.000**	0.944	0.998
	SVMSMOTE	0.850	**1.000**	0.919	0.996
	random	0.895	**1.000**	0.944	0.998
wine_quality	ADASYN	0.216	**0.533**	0.308	0.703
	No Sample	**0.833**	0.111	0.196	0.333
	SMOTE	0.220	**0.533**	0.312	**0.704**
	SMOTEBorderline-1	0.213	0.422	0.284	0.630
	SMOTEBorderline-2	0.202	0.511	0.289	0.687
	SVMSMOTE	0.328	0.444	**0.377**	0.655
	random	0.193	0.467	0.273	0.657

Table 3: Classification Result Based on Different Oversample Methods

Data Source	Method	Rec.	Pre.	F	G
letter_img	ADASYN	0.871	0.985	0.924	0.989
	No Sample	**0.978**	0.909	0.942	0.953
	SMOTE	0.873	0.970	0.919	0.982
	SMOTEBorderline-1	0.949	0.944	**0.947**	0.971
	SMOTEBorderline-2	0.853	0.848	0.851	0.918
	SVMSMOTE	0.848	0.990	0.914	0.991
	random	0.764	**1.000**	0.867	**0.994**
yeast_me2	ADASYN	0.250	0.625	0.357	0.774
	No Sample	**0.667**	0.250	0.364	0.499
	SMOTE	0.235	0.500	0.320	0.694
	SMOTEBorderline-1	0.333	**0.750**	**0.462**	**0.852**
	SMOTEBorderline-2	0.214	**0.750**	0.333	0.839
	SVMSMOTE	0.333	0.625	0.435	0.780
	random	0.278	0.625	0.385	0.776
webpage	ADASYN	0.367	0.598	0.455	0.761
	No Sample	**0.929**	0.512	**0.660**	0.715
	SMOTE	0.494	0.626	0.552	0.784
	SMOTEBorderline-1	0.362	0.606	0.454	0.766
	SMOTEBorderline-2	0.456	0.575	0.509	0.750
	SVMSMOTE	0.481	0.689	0.566	0.821
	random	0.413	**0.843**	0.554	**0.901**
ozone_level	ADASYN	0.407	0.407	0.407	0.630
	No Sample	0.500	0.037	0.069	0.192
	SMOTE	0.481	**0.481**	**0.481**	**0.686**
	SMOTEBorderline-1	0.500	0.259	0.341	0.506
	SMOTEBorderline-2	0.333	0.222	0.267	0.467
	SVMSMOTE	0.455	0.185	0.263	0.428
	random	**0.571**	0.296	0.390	0.542
mammography	ADASYN	0.410	**0.797**	0.542	**0.880**
	No Sample	**0.861**	0.449	0.590	0.670
	SMOTE	0.495	0.739	0.593	0.851
	SMOTEBorderline-1	0.580	0.681	0.627	0.820
	SMOTEBorderline-2	0.289	0.667	0.404	0.799
	SVMSMOTE	0.562	0.725	**0.633**	0.845
	random	0.478	0.783	0.593	0.875
protein_homo	ADASYN	0.317	**0.936**	0.473	**0.958**
	No Sample	**0.944**	0.738	**0.828**	0.859
	SMOTE	0.388	0.913	0.545	0.949
	SMOTEBorderline-1	0.579	0.854	0.690	0.922
	SMOTEBorderline-2	0.360	0.866	0.509	0.924
	SVMSMOTE	0.629	0.845	0.721	0.917
	random	0.442	0.927	0.599	0.958
abalone_19	ADASYN	0.060	0.333	0.102	0.564
	No Sample	0.000	0.000	0.000	0.000
	SMOTE	**0.098**	**0.556**	**0.167**	**0.729**
	SMOTEBorderline-1	0.000	0.000	0.000	0.000
	SMOTEBorderline-2	0.000	0.000	0.000	0.000
	SVMSMOTE	0.000	0.000	0.000	0.000
	random	0.091	0.222	0.129	0.467

Table 4: Classification Result Based on Different Oversample Methods

Data Source	random	SMOTE	SMOTEBorderline-1	SMOTEBorderline-2	SVMSMOTE	ADASYN
ecoli	0.001	0.002	0.003	0.003	0.004	0.002
optical_digits	0.003	0.034	0.200	0.209	0.686	0.235