## Supplementary Material: Complete Model Performance Results

## I. COMPLETE MODEL CONFIGURATIONS AND TEST PERFORMANCE EVALUATION RESULTS

This supplementary material presents two sets of experimental results: (1) the average performance of 120 model configurations ranked by validation F1 score, each averaged over five random seeds, and (2) the complete set of 600 individual results from 120 models  $\times$  5 seeds. To facilitate model selection for real-world (held-out) data, the models are ranked by their test set performance in descending order. Due to space constraints in the main paper, the full results are provided here across multiple tables.

Table 1 Validation & Test set classification performance (mean  $\pm$  SE) - part 1 (ranks 1-40)

Rank	Model	Weight	SO	SO	Val F1	Val AUC	Test F1	Test AUC
-	LightGBM	1:3	Tomek	ı	$0.5971 \pm 0.0045$	$0.8959 \pm 0.0019$	$0.5905 \pm 0.0033$	$0.9064 \pm 0.0019$
2	LightGBM	1:3	1	I	$0.5969 \pm 0.0006$	$0.8927 \pm 0.0030$	$0.5909 \pm 0.0034$	$0.9054 \pm 0.0018$
3	LightGBM	1:Log	I	I	$0.5955 \pm 0.0041$	$0.8998 \pm 0.0013$	$0.5972 \pm 0.0069$	$0.9054 \pm 0.0014$
4	LightGBM	1:Log	Tomek	I	$0.5935 \pm 0.0021$	$0.8936 \pm 0.0028$	$0.5843 \pm 0.0010$	$0.9021 \pm 0.0009$
S	LightGBM	1:Log	OSS	I	$0.5904 \pm 0.0075$	$0.8930 \pm 0.0024$	$0.5816 \pm 0.0039$	$0.9033 \pm 0.0017$
9	LightGBM	1:3	OSS	ı	$0.5898 \pm 0.0095$	$0.8949 \pm 0.0020$	$0.5884 \pm 0.0037$	$0.9039 \pm 0.0013$
7	CatBoost	1:Log	I	ı	$0.5885 \pm 0.0073$	$0.8882 \pm 0.0037$	$0.5762 \pm 0.0107$	$0.8794 \pm 0.0012$
8	LightGBM	1:5	OSS	1	$0.5882 \pm 0.0042$	$0.8973 \pm 0.0021$	$0.5801 \pm 0.0020$	$0.9052 \pm 0.0015$
6	CatBoost	1:3	OSS	ı	$0.5869 \pm 0.0077$	$0.8848 \pm 0.0019$	$0.5863 \pm 0.0064$	$0.8854 \pm 0.0043$
10	CatBoost	1:3	Tomek	I	$0.5865 \pm 0.0059$	$0.8797 \pm 0.0025$	$0.5809 \pm 0.0101$	$0.8827 \pm 0.0033$
11	XGBoost	1:Log	OSS	I	$0.5850 \pm 0.0093$	$0.8963 \pm 0.0026$	$0.5824 \pm 0.0068$	$0.8939 \pm 0.0026$
12	CatBoost	1:Log	OSS	I	$0.5824 \pm 0.0092$	$0.8823 \pm 0.0031$	$0.5686 \pm 0.0091$	$0.8804 \pm 0.0024$
13	XGBoost	1:3	OSS	I	$0.5820 \pm 0.0090$	$0.8950 \pm 0.0036$	$0.5821 \pm 0.0065$	$0.8962 \pm 0.0033$
14	XGBoost	1:Log	I	ı	$0.5815 \pm 0.0032$	$0.8881 \pm 0.0037$	$0.5575 \pm 0.0046$	$0.8949 \pm 0.0030$
15	CatBoost	1:Log	Tomek	ı	$0.5814 \pm 0.0043$	$0.8799 \pm 0.0031$	$0.5595 \pm 0.0074$	$0.8812 \pm 0.0030$
16	CatBoost	1:3	ı	1	$0.5810 \pm 0.0036$	$0.8865 \pm 0.0028$	$0.5741 \pm 0.0092$	$0.8863 \pm 0.0022$
17	LightGBM	1:5	Tomek	I	$0.5805 \pm 0.0019$	$0.8965 \pm 0.0023$	$0.5853 \pm 0.0020$	$0.9039 \pm 0.0010$
18	LightGBM	1:5	I	I	$0.5776 \pm 0.0045$	$0.8963 \pm 0.0021$	$0.5923 \pm 0.0050$	$0.9022 \pm 0.0023$
19	XGBoost	1:Log	Tomek	I	$0.5740 \pm 0.0076$	$0.8946 \pm 0.0013$	$0.5714 \pm 0.0033$	$0.8922 \pm 0.0023$
20	XGBoost	1:5	OSS	I	$0.5731 \pm 0.0052$	$0.8966 \pm 0.0011$	$0.5645 \pm 0.0085$	$0.8978 \pm 0.0036$
21	XGBoost	1:3	Tomek	I	$0.5711 \pm 0.0101$	$0.8911 \pm 0.0007$	$0.5962 \pm 0.0021$	$0.8914 \pm 0.0031$
22	CatBoost	1:3	Tomek	SMOTE	$0.5702 \pm 0.0077$	$0.8783 \pm 0.0033$	$0.5624 \pm 0.0071$	$0.8828 \pm 0.0045$
23	CatBoost	1:3	OSS	SMOTE	$0.5700 \pm 0.0154$	$0.8832 \pm 0.0048$	$0.5522 \pm 0.0159$	$0.8820 \pm 0.0024$
24	XGBoost	1:3	I	ı		$0.8888 \pm 0.0017$	$0.6012 \pm 0.0000$	$0.8977 \pm 0.0047$
25	CatBoost	1:Log	I	SMOTE	$0.5620 \pm 0.0063$	$0.8834 \pm 0.0031$	$0.5552 \pm 0.0066$	$0.8788 \pm 0.0048$
56	XGBoost	1:3	Tomek	SMOTE	$0.5617 \pm 0.0101$	$0.8925 \pm 0.0022$	+	$0.8872 \pm 0.0034$
27	XGBoost	1:3	OSS	SMOTE	$0.5617 \pm 0.0078$	$0.8937 \pm 0.0022$	$0.5748 \pm 0.0076$	$0.8882 \pm 0.0025$
28	CatBoost	1:5	OSS	ı	$0.5603 \pm 0.0089$	$0.8801 \pm 0.0036$	$0.5439 \pm 0.0105$	$0.8727 \pm 0.0044$
56	LightGBM	1:3	Tomek	SMOTE	$0.5601 \pm 0.0067$	$0.8940 \pm 0.0034$	$0.5785 \pm 0.0063$	$0.8957 \pm 0.0010$
30	XGBoost	1:5	I	ı	+	$0.8959 \pm 0.0014$	$0.5642 \pm 0.0062$	$0.8949 \pm 0.0051$
31	CatBoost	1:5	I	I	$0.5594 \pm 0.0101$	$0.8827 \pm 0.0034$	$0.5506 \pm 0.0091$	$0.8823 \pm 0.0031$
32	LightGBM	1:3	1	SMOTE	$0.5590 \pm 0.0074$	$0.8917 \pm 0.0025$	$0.5827 \pm 0.0064$	$0.8961 \pm 0.0009$
33	XGBoost	1:Log	I	SMOTE	$0.5588 \pm 0.0097$	$0.8928 \pm 0.0005$	$0.5709 \pm 0.0063$	$0.8871 \pm 0.0036$
34	XGBoost	1:5	Tomek	I	$0.5583 \pm 0.0037$	$0.8966 \pm 0.0002$	$0.5495 \pm 0.0045$	$0.8924 \pm 0.0028$
35	CatBoost	1:Log	Tomek	SMOTE	$0.5580 \pm 0.0082$	$0.8781 \pm 0.0026$	$0.5585 \pm 0.0062$	$0.8874 \pm 0.0038$
36	XGBoost	I	I	I	+	$0.8922 \pm 0.0044$	$0.5630 \pm 0.0036$	$0.8959 \pm 0.0009$
37	XGBoost	1:3	I	SMOTE	$0.5573 \pm 0.0126$	$0.8933 \pm 0.0026$	$0.5742 \pm 0.0045$	$0.8914 \pm 0.0035$
38	LightGBM	1:Log	I	SMOTE	+	$0.8903 \pm 0.0025$	+	$0.8964 \pm 0.0018$
39	XGBoost	1:Log	Tomek	SMOTE	+	$0.8930 \pm 0.0013$	+	+
40	LightGBM	1:Log	OSS	SMOTE	$0.5558 \pm 0.0076$	$0.8930 \pm 0.0028$	$0.5689 \pm 0.0066$	$0.8973 \pm 0.0012$

Rank	Model	Weight	ns	OS	Val F1	Val AUC	Test F1	Test AUC
41	XGBoost	1:Log	OSS	SMOTE	$0.5541 \pm 0.0065$	$0.8883 \pm 0.0035$	$0.5680 \pm 0.0069$	$0.8872 \pm 0.0019$
42	XGBoost	1:5	I	SMOTE	$0.5514 \pm 0.0113$	$0.8887 \pm 0.0018$	$0.5543 \pm 0.0115$	$0.8901 \pm 0.0037$
43	LightGBM	1:3	OSS	SMOTE	$0.5514 \pm 0.0044$	$0.8922 \pm 0.0036$	$0.5797 \pm 0.0046$	$0.8951 \pm 0.0017$
4	LightGBM	1:Log	Tomek	SMOTE	$0.5513 \pm 0.0083$	$0.8925 \pm 0.0025$	$0.5696 \pm 0.0045$	$0.8938 \pm 0.0009$
45	CatBoost	1:3	I	SMOTE	$0.5488 \pm 0.0082$	$0.8750 \pm 0.0036$	$0.5442 \pm 0.0062$	$0.8859 \pm 0.0030$
46	CatBoost	I	Tomek	I	$0.5488 \pm 0.0124$	$0.8840 \pm 0.0032$	$0.5638 \pm 0.0077$	$0.8913 \pm 0.0031$
47	XGBoost	1:5	Tomek	SMOTE	$0.5481 \pm 0.0059$	$0.8899 \pm 0.0009$	$0.5530 \pm 0.0077$	$0.8851 \pm 0.0030$
48	XGBoost	I	OSS	ı	$0.5476 \pm 0.0106$	$0.8931 \pm 0.0031$	$0.5594 \pm 0.0055$	$0.8965 \pm 0.0022$
49	CatBoost	1:5	Tomek	I	$0.5473 \pm 0.0059$	$0.8847 \pm 0.0035$	$0.5603 \pm 0.0090$	$0.8778 \pm 0.0028$
50	CatBoost	I	SSO	SMOTE	$0.5465 \pm 0.0092$	$0.8828 \pm 0.0016$	$0.5566 \pm 0.0053$	$0.8892 \pm 0.0029$
51	CatBoost	I	Tomek	SMOTE	$0.5460 \pm 0.0106$	$0.8848 \pm 0.0028$	$0.5404 \pm 0.0059$	$0.8872 \pm 0.0029$
52	LightGBM	I	Tomek	I	$0.5452 \pm 0.0114$	$0.8885 \pm 0.0042$	$0.5659 \pm 0.0036$	$0.9028 \pm 0.0018$
53	CatBoost	I	I	I	$0.5452 \pm 0.0124$	$0.8803 \pm 0.0035$	$0.5678 \pm 0.0075$	$0.8900 \pm 0.0020$
54	CatBoost	1:Log	OSS	SMOTE	$0.5447 \pm 0.0107$	$0.8821 \pm 0.0018$	$0.5517 \pm 0.0112$	$0.8864 \pm 0.0032$
55	CatBoost	I	OSS	ı	$0.5437 \pm 0.0115$	$0.8842 \pm 0.0022$	$0.5653 \pm 0.0085$	$0.8931 \pm 0.0016$
99	XGBoost	1	Tomek	ı	$0.5417 \pm 0.0102$	$0.8957 \pm 0.0012$	$0.5749 \pm 0.0012$	$0.8971 \pm 0.0032$
57	XGBoost	1	I	SMOTE	$0.5413 \pm 0.0071$	$0.8887 \pm 0.0018$	$0.5783 \pm 0.0055$	$0.8907 \pm 0.0021$
28	XGBoost	I	OSS	SMOTE	$0.5381 \pm 0.0111$	$0.8877 \pm 0.0037$	$0.5747 \pm 0.0040$	$0.8942 \pm 0.0036$
59	LightGBM	1	OSS	I	$0.5372 \pm 0.0144$	$0.8914 \pm 0.0024$	$0.5555 \pm 0.0057$	$0.9024 \pm 0.0029$
09	CatBoost	1:5	OSS	SMOTE	$0.5361 \pm 0.0114$	$0.8763 \pm 0.0015$	$0.5288 \pm 0.0075$	$0.8798 \pm 0.0046$
61	CatBoost	1:5	I	SMOTE	$0.5354 \pm 0.0028$	$0.8708 \pm 0.0043$	$0.5224 \pm 0.0052$	$0.8794 \pm 0.0023$
62	XGBoost	I	Tomek	SMOTE	$0.5353 \pm 0.0070$	$0.8906 \pm 0.0018$	$0.5720 \pm 0.0075$	$0.8926 \pm 0.0032$
63	CatBoost	I	I	SMOTE	$0.5345 \pm 0.0045$	$0.8830 \pm 0.0042$	$0.5440 \pm 0.0087$	$0.8945 \pm 0.0027$
49	XGBoost	1:5	OSS	SMOTE	$0.5342 \pm 0.0100$	$0.8916 \pm 0.0020$	$0.5426 \pm 0.0032$	$0.8856 \pm 0.0041$
92	LightGBM	1:5	I	SMOTE	$0.5323 \pm 0.0077$	$0.8921 \pm 0.0022$	$0.5443 \pm 0.0100$	$0.8944 \pm 0.0008$
99	LightGBM	I	OSS	SMOTE	$0.5312 \pm 0.0136$	$0.8905 \pm 0.0024$	$0.5644 \pm 0.0061$	$0.8955 \pm 0.0019$
<i>L</i> 9	LightGBM	I	I	I	$0.5284 \pm 0.0181$	$0.8896 \pm 0.0022$	$0.5591 \pm 0.0076$	$0.8993 \pm 0.0011$
89	LightGBM	I	Tomek	SMOTE	$0.5279 \pm 0.0116$	$0.8904 \pm 0.0030$	$0.5599 \pm 0.0038$	$0.8955 \pm 0.0011$
69	LightGBM	I	I	SMOTE	+	$0.8906 \pm 0.0032$	$0.5654 \pm 0.0029$	$0.8967 \pm 0.0014$
70	LightGBM	1:5	Tomek	SMOTE		#		
71	CatBoost	1:5	Tomek	SMOTE	+	+	$0.5207 \pm 0.0070$	$0.8840 \pm 0.0034$
72	LightGBM	1:5	OSS	SMOTE	$0.5187 \pm 0.0045$	$0.8942 \pm 0.0022$		+
73	RandomForest	1	OSS	SMOTE	+	+	$0.4896 \pm 0.0058$	+
74	RandomForest	I	Tomek	SMOTE	$0.4631 \pm 0.0168$		$0.4902 \pm 0.0062$	$0.8510 \pm 0.0039$
75	RandomForest	I	I	SMOTE	$0.4511 \pm 0.0212$	$0.8543 \pm 0.0050$	$0.4920 \pm 0.0061$	$0.8530 \pm 0.0022$
9/	RandomForest	I	OSS	I	$0.4489 \pm 0.0221$	$0.8541 \pm 0.0031$	$0.4806 \pm 0.0023$	$0.8543 \pm 0.0019$
77	RandomForest	I	I	I	$0.4487 \pm 0.0230$	$0.8539 \pm 0.0035$	$0.4727 \pm 0.0027$	$0.8538 \pm 0.0032$
78	RandomForest	1:3	I	SMOTE	$0.4477 \pm 0.0193$	$0.8589 \pm 0.0021$	$0.4764 \pm 0.0083$	$0.8500 \pm 0.0017$
79	RandomForest	1:Log	OSS	SMOTE	$0.4411 \pm 0.0159$	$0.8610 \pm 0.0016$	$0.4755 \pm 0.0087$	$0.8558 \pm 0.0042$
80	RandomForest	1:Log	Tomek	SMOTE	$0.4409 \pm 0.0186$	$0.8588 \pm 0.0023$	$0.4771 \pm 0.0059$	$0.8527 \pm 0.0057$
								* "-" = Not Applied

Rank	Model	Weight	SN	SO	Val F1	Val AUC	Test F1	Test AUC
81	RandomForest	1:5	OSS	SMOTE	$0.4401 \pm 0.0171$	$0.8582 \pm 0.0046$	$0.4664 \pm 0.0065$	$0.8559 \pm 0.0031$
82	RandomForest	I	Tomek	I	$0.4389 \pm 0.0222$	$0.8562 \pm 0.0044$	$0.4904 \pm 0.0051$	$0.8532 \pm 0.0023$
83	RandomForest	1:3	SSO	SMOTE	$0.4365 \pm 0.0213$	$0.8603 \pm 0.0040$	$0.4774 \pm 0.0062$	$0.8509 \pm 0.0013$
84	RandomForest	1:3	Tomek	I	$0.4345 \pm 0.0224$	$0.8574 \pm 0.0026$	$0.4730 \pm 0.0069$	$0.8551 \pm 0.0008$
85	RandomForest	1:5	Tomek	SMOTE	$0.4331 \pm 0.0146$	$0.8570 \pm 0.0023$	$0.4681 \pm 0.0063$	$0.8516 \pm 0.0028$
98	RandomForest	1:3	I	I	$0.4309 \pm 0.0156$	$0.8542 \pm 0.0031$	$0.4672 \pm 0.0039$	$0.8505 \pm 0.0044$
87	RandomForest	1:3	OSS	I	$0.4291 \pm 0.0170$	$0.8534 \pm 0.0034$	$0.4693 \pm 0.0071$	$0.8500 \pm 0.0014$
88	RandomForest	1:Log	OSS	I	$0.4285 \pm 0.0219$	$0.8607 \pm 0.0030$	$0.4765 \pm 0.0058$	$0.8526 \pm 0.0023$
68	RandomForest	1:Log	I	SMOTE	$0.4276 \pm 0.0142$	$0.8574 \pm 0.0026$	$0.4818 \pm 0.0033$	$0.8518 \pm 0.0031$
06	RandomForest	1:Log	Tomek	I	$0.4255 \pm 0.0167$	$0.8537 \pm 0.0028$	$0.4694 \pm 0.0053$	$0.8507 \pm 0.0020$
91	RandomForest	1:Log	I	I	$0.4252 \pm 0.0165$	$0.8570 \pm 0.0044$	$0.4680 \pm 0.0041$	$0.8547 \pm 0.0034$
92	RandomForest	1:5	OSS	I	$0.4234 \pm 0.0179$	$0.8564 \pm 0.0040$	$0.4578 \pm 0.0065$	$0.8531 \pm 0.0020$
93	RandomForest	1:5	Tomek	I	$0.4220 \pm 0.0135$	$0.8550 \pm 0.0051$	$0.4642 \pm 0.0076$	$0.8493 \pm 0.0009$
94	RandomForest	1:5	I	I	$0.4220 \pm 0.0156$	$0.8597 \pm 0.0020$	$0.4540 \pm 0.0071$	$0.8539 \pm 0.0017$
95	RandomForest	1:3	Tomek	SMOTE	+	$0.8531 \pm 0.0042$	$0.4856 \pm 0.0057$	$0.8488 \pm 0.0035$
96	RandomForest	1:5	I	SMOTE	$0.4193 \pm 0.0190$	$0.8551 \pm 0.0031$	$0.4642 \pm 0.0048$	$0.8501 \pm 0.0020$
67	LogisticRegression	1:5	OSS	I	$0.3741 \pm 0.0038$	$0.8191 \pm 0.0009$	$0.4137 \pm 0.0039$	$0.8185 \pm 0.0015$
86	LogisticRegression	1:Log	Tomek	I	$0.3635 \pm 0.0024$	$0.8173 \pm 0.0010$	$0.4019 \pm 0.0033$	$0.8140 \pm 0.0013$
66	LogisticRegression	1:5	I	I	$0.3612 \pm 0.0014$	$0.8186 \pm 0.0014$	$0.4021 \pm 0.0076$	+
100	LogisticRegression	1:Log	SSO	I	+	$0.8168 \pm 0.0010$	+	+
101	LogisticRegression	1:5	Tomek	I	$0.3592 \pm 0.0137$	$0.8195 \pm 0.0015$	$0.4076 \pm 0.0061$	+
102	LogisticRegression	1:3	SSO	I	$0.3586 \pm 0.0047$	$0.8144 \pm 0.0007$	+	+
103	LogisticRegression	1:Log	I	I	+	$0.8166 \pm 0.0004$	+	+
104	LogisticRegression	1:3	I	ı	+	$0.8137 \pm 0.0011$	+	+
105	LogisticRegression	1:3	Tomek	I	$0.3333 \pm 0.0176$	$0.8152 \pm 0.0013$	$0.3533 \pm 0.0217$	$0.8119 \pm 0.0016$
106	LogisticRegression	1:3	Tomek	SMOTE	$0.3091 \pm 0.0077$	$0.8030 \pm 0.0032$	+	+
107	LogisticRegression	1:5	I	SMOTE	$0.3070 \pm 0.0072$	$0.8040 \pm 0.0015$	+	$0.8100 \pm 0.0054$
108	LogisticRegression	1:Log	Tomek	SMOTE	+	$0.7941 \pm 0.0019$	+	+
109	LogisticRegression	1:5	OSS	SMOTE	+		+	+
110	LogisticRegression	1:Log	OSS	SMOTE	$0.3035 \pm 0.0051$	$0.7991 \pm 0.0030$	+	+
1111	LogisticRegression	1:5	Tomek	SMOTE			+	$\mathbb{H}$
112	LogisticRegression	1:3	I	SMOTE		$0.7997 \pm 0.0011$		+
113	LogisticRegression	1:Log	I	SMOTE	+	$0.8030 \pm 0.0017$	+	$0.8119 \pm 0.0034$
114	LogisticRegression	1:3	OSS	SMOTE		$0.7993 \pm 0.0009$	$0.3406 \pm 0.0052$	+
115	LogisticRegression	I	OSS	SMOTE	$0.2417 \pm 0.0183$	$0.7887 \pm 0.0021$	$0.2710 \pm 0.0112$	$0.7863 \pm 0.0023$
116	LogisticRegression	I	I	SMOTE	$0.2322 \pm 0.0236$	$0.7856 \pm 0.0032$	$0.2532 \pm 0.0107$	$0.7875 \pm 0.0043$
117	LogisticRegression	I	SSO	I	$0.2266 \pm 0.0092$	$0.8054 \pm 0.0005$	$0.2439 \pm 0.0107$	$0.7985 \pm 0.0024$
118	LogisticRegression	I	I	I		$0.8030 \pm 0.0013$	$0.2437 \pm 0.0125$	+
119	LogisticRegression	I	Tomek	I	+		+	+
120	LogisticRegression	ı	Tomek	SMOTE	$0.2052 \pm 0.0159$	$0.7865 \pm 0.0018$	$0.2449 \pm 0.0074$	$0.7876 \pm 0.0022$

Randoméreces         —         (6778)         08424         0880         0,689         0,997         0332           Randoméreces         —         —         (6778)         08850         0,998         0,474         0,898         0,997         0,333         D           Randoméreces         —         —         —         (7720)         0,851         0,988         0,471         0,997         0,373         0,878         0,997         0,373         0,878         0,997         0,373         0,878         0,997         0,373         0,878         0,998         0,473         0,998         0,971         0,997         0,333         D           Randomérecas         —         NOTDE         0,7220         0,888         0,488         0,488         0,488         0,488         0,488         0,488         0,481         0,888         0,498         0,481         0,888         0,498         0,481         0,888         0,498         0,481         0,888         0,491         0,888         0,491         0,888         0,491         0,881         0,981         0,893         0,981         0,981         0,981         0,981         0,981         0,981         0,981         0,981         0,981         0,981	Model	Class Weight	Undersampling	Oversampling	Macro F1	AUC	$F1_0$	$F1_1$	Precision <sub>0</sub>	Precision <sub>1</sub>	Recall <sub>0</sub>	Recall <sub>1</sub>	Seed
-         -         0.7360         0.8380         0.4881         0.9810         0.8810         0.9810	RandomForest	I	I	I	0.7281	0.8424	0.9888	0.4674	0.9800	0.8095	0.9977	0.3285	A
-         -         0,7300         08550         0,9388         0,4714         0,9302         0,7738         0,9304         0,3333           -         -         -         -         0,7299         08560         0,9888         0,4710         0,9802         0,8733         0,9975         0,3333           -         -         SMOTTE         0,7299         08561         0,9887         0,4786         0,9802         0,8731         0,9976         0,3478           -         -         SMOTTE         0,7290         08581         0,9890         0,7112         0,9966         0,3478           -         -         SMOTTE         0,7320         0,8878         0,887         0,887         0,989         0,7112         0,996         0,3478           -         -         SMOTTE         0,732         0,888         0,888         0,888         0,898         0,987         0,7712         0,996         0,773           -         -         -         0,734         0,888         0,888         0,888         0,988         0,989         0,7712         0,996         0,734           -         -         0,742         0,885         0,888         0,487         0,989 <t< td=""><td>RandomForest</td><td>I</td><td>I</td><td>I</td><td>0.7360</td><td>0.8598</td><td>0.9890</td><td>0.4830</td><td>0.9805</td><td>0.8161</td><td>0.9977</td><td>0.3430</td><td>В</td></t<>	RandomForest	I	I	I	0.7360	0.8598	0.9890	0.4830	0.9805	0.8161	0.9977	0.3430	В
-         -         0,7299         0,8156         0,9888         0,4710         0,9802         0,9973         0,3333           -         -         -         -         0,7299         0,8111         0,9888         0,4710         0,9802         0,8973         0,9975         0,3333           -         -         SMOTH         0,7720         0,8843         0,9885         0,4784         0,9886         0,9871         0,7773         0,9968         0,3816         0,7734         0,9968         0,3816         0,7734         0,9968         0,3816         0,7734         0,9968         0,3816         0,7734         0,9968         0,3816         0,7734         0,9968         0,3816         0,7734         0,9968         0,4781         0,9888         0,4818         0,888         0,4818         0,888         0,4818         0,888         0,4818         0,888         0,4818         0,888         0,9818         0,8818         0,8818         0,8818         0,8818         0,8818         0,8818         0,8818         0,8818         0,9818         0,9818         0,7818         0,9918         0,9918         0,9918         0,9918         0,9918         0,9918         0,9918         0,9918         0,9918         0,9918         0,9918	RandomForest	I	I	I	0.7300	0.8591	9886.0	0.4714	0.9803	0.7778	0.9971	0.3382	C
-         -         -         -         0.7299         0.8511         0.9882         0.4710         0.9802         0.4313         0.9964         0.3534           -         -         -         SMOTE         0.7351         0.8843         0.4810         0.7374         0.9966         0.3478           -         -         SMOTE         0.7352         0.8843         0.4884         0.9809         0.7709         0.9966         0.3478           -         -         SMOTE         0.7326         0.8881         0.988         0.4884         0.9809         0.7708         0.9966         0.3478           -         -         SMOTE         0.7326         0.8881         0.988         0.4884         0.9809         0.7708         0.9966         0.3478           -         -         0.7480         0.8851         0.9888         0.488         0.980         0.7709         0.7429         0.9896         0.3478           -         0.7480         0.8852         0.9888         0.9886         0.9806         0.7573         0.9966         0.3478           -         0.7480         0.8452         0.9898         0.9886         0.9886         0.9886         0.9886         0.9886	RandomForest	I	I	I	0.7299	0.8566	0.9888	0.4710	0.9802	0.8023	0.9975	0.3333	О
-         -         SMOTTE         0.7361         0.8477         0.8847         0.8484         0.9807         0.7750         0.9808         0.3572           -         -         SMOTTE         0.7327         0.8460         0.5800         0.5812         0.9806         0.3478           -         -         SMOTTE         0.7327         0.8808         0.4806         0.7708         0.9906         0.3478           -         -         SMOTTE         0.7320         0.8808         0.4806         0.7708         0.9906         0.3478           -         -         0.7412         0.8789         0.4832         0.9808         0.7708         0.9906         0.3478           -         0.7423         0.8789         0.4832         0.9809         0.7709         0.9473         0.9909         0.3478           -         0.7424         0.8452         0.9888         0.4818         0.9809         0.7912         0.9476         0.9906         0.3478           -         0.7442         0.8452         0.9888         0.4818         0.9809         0.7912         0.9966         0.3478           -         0.7442         0.8482         0.9889         0.4848         0.9809	RandomForest	I	I	I	0.7299	0.8511	0.9888	0.4710	0.9802	0.8023	0.9975	0.3333	Щ
-         SMOTIE         0.7327         0.8543         0.9476         0.7476         0.966         0.1478         0.966         0.1478           -         -         SMOTIE         0.7422         0.8849         0.5411         0.9812         0.9866         0.3816           -         -         SMOTIE         0.7460         0.8890         0.5481         0.9896         0.5737         0.9968         0.3577           -         -         SMOTIE         0.7460         0.8859         0.4898         0.4896         0.7873         0.9966         0.3478           -         Tomack         -         0.7403         0.8819         0.9888         0.4898         0.9896         0.3791         0.9966         0.3478           -         Tomack         -         0.7403         0.8819         0.9888         0.4918         0.9806         0.3671           -         Tomack         SMOTIE         0.7441         0.8848         0.9893         0.4894         0.9810         0.9806         0.3478           -         Tomack         SMOTIE         0.7441         0.8848         0.8801         0.9806         0.9879         0.9966         0.3478           -         Tomack <t< td=""><td>RandomForest</td><td>I</td><td>I</td><td>SMOTE</td><td>0.7361</td><td>0.8477</td><td>0.9887</td><td>0.4834</td><td>0.9807</td><td>0.7684</td><td>0.9968</td><td>0.3527</td><td>A</td></t<>	RandomForest	I	I	SMOTE	0.7361	0.8477	0.9887	0.4834	0.9807	0.7684	0.9968	0.3527	A
-         SMOTE         0.7550         0.8608         0.55113         0.8516         0.7745         0.9966         0.3811           -         -         SMOTE         0.7445         0.8510         0.9800         0.5500         0.9712         0.9968         0.3571           -         -         SMOTE         0.7340         0.8859         0.9888         0.4812         0.7708         0.9972         0.4787           -         Tomick         -         0.7421         0.8519         0.9888         0.4818         0.9866         0.3573           -         Tomick         -         0.7421         0.8549         0.9888         0.4818         0.9866         0.3478           -         Tomick         -         0.7421         0.8542         0.9887         0.9810         0.9961         0.3478           -         Tomick         SMOTE         0.7442         0.8842         0.9809         0.9810         0.9975         0.3478           -         Tomick         SMOTE         0.7442         0.8842         0.8940         0.9810         0.9976         0.3478           -         Tomick         SMOTE         0.7442         0.8842         0.8940         0.8941         0	RandomForest	1	I	SMOTE	0.7327	0.8543	0.9885	0.4768	9086.0	0.7579	0.9966	0.3478	В
-         SMOTE         0.7445         0.8510         0.5000         0.5000         0.7782         0.9969         0.4571           -         -         SMOTE         0.7386         0.8510         0.9800         0.4800         0.77012         0.9969         0.4771           -         Tomack         -         0.7403         0.8519         0.9888         0.4481         0.8960         0.7712         0.9966         0.3727           -         Tomack         -         0.7403         0.8521         0.9888         0.4960         0.7712         0.9966         0.3727           -         Tomack         SMOTE         0.7421         0.8854         0.8983         0.4708         0.8960         0.3773         0.9966         0.3773           -         Tomack         SMOTE         0.7421         0.8848         0.8960         0.4961         0.9814         0.9814         0.9814         0.9814         0.3871         0.9961         0.3478           -         Tomack         SMOTE         0.7451         0.8840         0.8961         0.9814         0.9816         0.3971         0.3971         0.9961         0.3478           -         Tomack         SMOTE         0.7451         0.884	RandomForest	I	I	SMOTE	0.7502	0.8608	0.9890	0.5113	0.9816	0.7745	0.9966	0.3816	C
-         SMOTE         0.7386         0.88512         0.9888         0.4884         0.9800         0.7708         0.9968         0.3478           -         Tomek         -         0.7360         0.8859         0.9888         0.4980         0.7759         0.9966         0.3478           -         Tomek         -         0.7436         0.8851         0.9888         0.4918         0.7579         0.9966         0.3478           -         Tomek         -         0.7430         0.8854         0.9880         0.9800         0.7579         0.9966         0.3478           -         Tomek         SMOTE         0.7432         0.8854         0.9880         0.9814         0.7529         0.9966         0.3478           -         Tomek         SMOTE         0.7441         0.8848         0.8960         0.9817         0.9966         0.3478           -         Tomek         SMOTE         0.7441         0.8881         0.486         0.9817         0.9817         0.9966         0.3478           -         Tomek         SMOTE         0.7431         0.8860         0.888         0.4816         0.9810         0.9917         0.9961         0.3478           - <td< td=""><td>RandomForest</td><td>I</td><td>I</td><td>SMOTE</td><td>0.7445</td><td>0.8510</td><td>0.9890</td><td>0.5000</td><td>0.9812</td><td>0.7835</td><td>0.9969</td><td>0.3671</td><td>О</td></td<>	RandomForest	I	I	SMOTE	0.7445	0.8510	0.9890	0.5000	0.9812	0.7835	0.9969	0.3671	О
−         Tomek         −         (7736)         0.8888         0.4832         0.9806         (77912         0.9972         0.3478           −         Tomek         −         (7746)         0.8889         0.4882         0.9806         0.7912         0.9956         0.3428           −         Tomek         −         0.7480         0.8842         0.9880         0.9812         0.9966         0.3478           −         Tomek         SMOTE         0.7441         0.8848         0.9880         0.9806         0.7957         0.9965         0.3478           −         Tomek         SMOTE         0.7441         0.8848         0.9880         0.7961         0.9966         0.3478           −         Tomek         SMOTE         0.7441         0.8848         0.9880         0.4706         0.9806         0.7527         0.9965         0.3478           −         Tomek         SMOTE         0.7441         0.8843         0.9880         0.4816         0.9806         0.7527         0.9966         0.3478           −         Tomek         SMOTE         0.7441         0.8849         0.4841         0.8810         0.7816         0.9966         0.3478           − <td< td=""><td>RandomForest</td><td>I</td><td>I</td><td>SMOTE</td><td>0.7386</td><td>0.8512</td><td>0.9888</td><td>0.4884</td><td>0.9809</td><td>0.7708</td><td>0.9968</td><td>0.3575</td><td>田</td></td<>	RandomForest	I	I	SMOTE	0.7386	0.8512	0.9888	0.4884	0.9809	0.7708	0.9968	0.3575	田
−         Tomek         −         0.7443         0.8519         0.9888         0.4918         0.0810         0.7653         0.9966         0.3428           −         Tomek         −         0.7480         0.8852         0.9883         0.4916         0.9806         0.7573         0.9966         0.3478           −         Tomek         −         0.7480         0.8824         0.9893         0.6906         0.7573         0.9966         0.3478           −         Tomek         SMOTE         0.7442         0.8840         0.9881         0.9801         0.7527         0.9961         0.3478           −         Tomek         SMOTE         0.7244         0.8842         0.9881         0.4801         0.7526         0.9961         0.3478           −         Tomek         SMOTE         0.7344         0.8842         0.9881         0.4801         0.7526         0.9962         0.3478           −         Tomek         SMOTE         0.7346         0.8881         0.4811         0.8801         0.7315         0.881         0.4818         0.8906         0.7315         0.9961         0.3478           −         OSS         −         0.7350         0.8860         0.9881	RandomForest	I	Tomek	I	0.7360	0.8589	0.9888	0.4832	9086.0	0.7912	0.9972	0.3478	A
−         Tomek         −         (7327)         0.8852         0.7868         0.7478         0.9887         0.7479         0.9887         0.4768         0.9887         0.7579         0.9966         0.3478           −         Tomek         −         0.7448         0.8445         0.8983         0.4967         0.7579         0.9975         0.3575           −         Tomek         SMOTE         0.7442         0.8488         0.9887         0.4906         0.7573         0.9976         0.3575           −         Tomek         SMOTE         0.7442         0.8848         0.9887         0.4706         0.9806         0.7273         0.9961         0.3478           −         Tomek         SMOTE         0.7434         0.8846         0.9887         0.4907         0.7436         0.9886         0.4917         0.7437         0.9889         0.4848         0.9816         0.7437         0.9886         0.4914         0.7437         0.9886         0.4848         0.9816         0.7437         0.9886         0.4848         0.9816         0.7437         0.9886         0.4848         0.9816         0.7437         0.9889         0.4848         0.9816         0.7437         0.9886         0.9886         0.9816         <	RandomForest	I	Tomek	I	0.7403	0.8519	0.9888	0.4918	0.9810	0.7653	0.9966	0.3623	В
−         Tomek         −         0.7480         0.8452         0.9893         0.5077         0.8172         0.9757         0.9758         0.4841         0.8867         0.4864         0.8887         0.4864         0.8887         0.4864         0.8887         0.4864         0.8887         0.4864         0.8887         0.4884         0.8887         0.4884         0.8887         0.8887         0.8887         0.8887         0.8887         0.8887         0.8887         0.8887         0.8887         0.8887         0.8887         0.8887         0.8887         0.8887         0.8887         0.8887         0.8887	RandomForest	I	Tomek	I	0.7327	0.8552	0.9885	0.4768	9086.0	0.7579	0.9966	0.3478	C
−         Tomek         −         (7412         (88546)         (9890)         (97427)         (9972         (3375)           −         Tomek         SMOTE         (7744)         (8848         (9887)         (37000)         (9814)         (7742)         (9961)         (3378)           −         Tomek         SMOTE         (7744)         (8848)         (9780)         (9772)         (9961)         (3778)         (9961)         (3778)           −         Tomek         SMOTE         (7741)         (8844)         (9884)         (4804)         (9801)         (7752)         (9966)         (3371)           −         Tomek         SMOTE         (7451)         (8864)         (9884)         (9804)         (7752)         (9968)         (3371)           −         OSS         −         (7741)         (8860)         (9888)         (4814)         (9804)         (3971)         (3378)           −         OSS         −         (7731)         (8851)         (9888)         (4814)         (9804)         (3971)         (3378)           −         OSS         SMOTE         (7732)         (8840)         (8884)         (4848)         (9804)         (3741)         (3740) <td>RandomForest</td> <td>I</td> <td>Tomek</td> <td>I</td> <td>0.7480</td> <td>0.8452</td> <td>0.9893</td> <td>0.5067</td> <td>0.9812</td> <td>0.8172</td> <td>0.9975</td> <td>0.3671</td> <td>О</td>	RandomForest	I	Tomek	I	0.7480	0.8452	0.9893	0.5067	0.9812	0.8172	0.9975	0.3671	О
−         Tomek         SMOTTE         0.7443         0.8488         0.9887         0.5000         0.9814         0.7429         0.9961         0.3768           −         Tomek         SMOTTE         0.7244         0.8482         0.9887         0.8706         0.7526         0.9961         0.3788           −         Tomek         SMOTTE         0.7444         0.8842         0.8806         0.7752         0.9968         0.3517           −         Tomek         SMOTTE         0.7451         0.8860         0.9816         0.7752         0.9968         0.3817           −         Tomek         SMOTTE         0.7451         0.8860         0.8816         0.7317         0.9969         0.3418           −         OSS         −         0.7361         0.8860         0.9885         0.8866         0.9806         0.9975         0.3478           −         OSS         −         0.7361         0.8880         0.4848         0.9886         0.4814         0.9866         0.9966         0.9712         0.9478           −         OSS         SMOTE         0.7426         0.988         0.4816         0.9866         0.9966         0.9966         0.9476         0.9966         0.9476	RandomForest	I	Tomek	ı	0.7412	0.8546	0.6860	0.4933	0.9809	0.7957	0.9972	0.3575	田
−         Tomek         SMOTE         0.7294         0.8402         0.9883         0.4706         0.8906         0.7273         0.9961         0.3478           −         Tomek         SMOTE         0.7344         0.8843         0.4804         0.7856         0.9968         0.3478           −         Tomek         SMOTE         0.7436         0.8843         0.8811         0.7752         0.9968         0.3511           −         Tomek         SMOTE         0.7436         0.8881         0.4814         0.8816         0.7315         0.9968         0.3418           −         OSS         −         0.7351         0.8850         0.9886         0.8804         0.7912         0.9973         0.3418           −         OSS         −         0.7351         0.8850         0.9889         0.4814         0.8806         0.9974         0.3478           −         OSS         −         0.7351         0.8850         0.9880         0.4814         0.8806         0.9961         0.3478           −         OSS         SMOTE         0.7351         0.9881         0.4814         0.8806         0.9961         0.3478           −         OSS         SMOTE         0.7351	RandomForest	I	Tomek	SMOTE	0.7443	0.8488	0.9887	0.5000	0.9814	0.7429	0.9961	0.3768	A
−         Tomek         SMOTE         0.7344         0.8644         0.9885         0.4804         0.981         0.7326         0.9968         0.3571           −         Tomek         SMOTE         0.7451         0.8851         0.988         0.4984         0.9811         0.7315         0.9958         0.3671           −         Tomek         SMOTE         0.7451         0.8850         0.9888         0.4814         0.9806         0.7315         0.9958         0.3414           −         OSS         −         0.7360         0.8850         0.9888         0.4814         0.9806         0.9975         0.3478           −         OSS         −         0.7361         0.8850         0.9889         0.4814         0.9806         0.9974         0.3439           −         OSS         −         0.7351         0.8850         0.9889         0.4814         0.9806         0.9906         0.9478         0.3430           −         OSS         SMOTE         0.7352         0.8891         0.9881         0.4801         0.9813         0.7476         0.9968         0.3813           −         OSS         SMOTE         0.7379         0.8852         0.9881         0.4805         0	RandomForest	I	Tomek	SMOTE	0.7294	0.8402	0.9883	0.4706	9086.0	0.7273	0.9961	0.3478	В
−         Tomek         SMOTE         0.7436         0.8513         0.9884         0.9811         0.7755         0.9968         0.3671           −         Tomek         SMOTE         0.7451         0.8860         0.5016         0.9816         0.7315         0.9958         0.3816           −         OSS         −         0.7361         0.8860         0.9885         0.4812         0.9806         0.7315         0.9376           −         OSS         −         0.7361         0.8860         0.9885         0.4818         0.9806         0.7370         0.3430           −         OSS         −         0.7369         0.8850         0.9888         0.4848         0.9806         0.7370         0.9448           −         OSS         SMOTE         0.7427         0.887         0.4868         0.881         0.7875         0.9896         0.3816         0.3478           −         OSS         SMOTE         0.7427         0.887         0.4868         0.881         0.4816         0.787         0.9961         0.3478           −         OSS         SMOTE         0.7427         0.884         0.4805         0.981         0.7426         0.981         0.4816         0.781 <td>RandomForest</td> <td>ı</td> <td>Tomek</td> <td>SMOTE</td> <td>0.7344</td> <td>0.8644</td> <td>0.9885</td> <td>0.4803</td> <td>0.9807</td> <td>0.7526</td> <td>0.9965</td> <td>0.3527</td> <td>C</td>	RandomForest	ı	Tomek	SMOTE	0.7344	0.8644	0.9885	0.4803	0.9807	0.7526	0.9965	0.3527	C
-         Tomek         SMOTE         0.7451         0.8850         0.9886         0.5016         0.7315         0.9369         0.3316         0.9316	RandomForest	I	Tomek	SMOTE	0.7436	0.8513	0.9889	0.4984	0.9811	0.7755	0.9968	0.3671	О
−         OSS         −         07360         0.8860         0.4832         0.9806         0.7912         0.9975         0.3478           −         OSS         −         0.7351         0.8515         0.9889         0.4814         0.9806         0.7973         0.3430           −         OSS         −         0.7361         0.8515         0.9889         0.4718         0.9806         0.7953         0.9974         0.3430           −         OSS         NOTT         0.7352         0.8891         0.4848         0.9806         0.7850         0.9974         0.3478           −         OSS         SMOTH         0.7427         0.8803         0.4848         0.9810         0.7426         0.9969         0.3478         0.3478           −         OSS         SMOTH         0.7427         0.8873         0.4887         0.4860         0.9810         0.7426         0.9969         0.3478         0.3478           −         OSS         SMOTH         0.7319         0.8854         0.4861         0.9804         0.7426         0.9969         0.3730         0.9961         0.3527           −         OSS         SMOTH         0.7436         0.9884         0.4461         0.9806<	RandomForest	I	Tomek	SMOTE	0.7451	0.8502	0.9886	0.5016	0.9816	0.7315	0.9958	0.3816	田
-         OSS         -         0.7351         0.8515         0.9889         0.4814         0.9805         0.8068         0.9975         0.3430           -         OSS         -         0.7301         0.8600         0.9885         0.4718         0.9804         0.7553         0.9966         0.3430           -         OSS         -         0.7352         0.8949         0.4848         0.9806         0.7826         0.9974         0.3478           -         OSS         SMOTE         0.7352         0.8981         0.4816         0.9806         0.7826         0.9972         0.3478           -         OSS         SMOTE         0.7427         0.8853         0.9887         0.4868         0.9811         0.7476         0.9961         0.3782           -         OSS         SMOTE         0.7486         0.8859         0.9884         0.4805         0.9809         0.7327         0.9961         0.3527           -         OSS         SMOTE         0.7257         0.8844         0.4805         0.9809         0.7327         0.9966         0.3333           11:3         -         -         0.7257         0.8844         0.4817         0.9802         0.7999         0.7710 <td>RandomForest</td> <td>I</td> <td>OSS</td> <td>I</td> <td>0.7360</td> <td>0.8560</td> <td>0.9888</td> <td>0.4832</td> <td>9086.0</td> <td>0.7912</td> <td>0.9972</td> <td>0.3478</td> <td>A</td>	RandomForest	I	OSS	I	0.7360	0.8560	0.9888	0.4832	9086.0	0.7912	0.9972	0.3478	A
−         OSS         −         0.7301         0.8850         0.4718         0.9804         0.7553         0.9966         0.3430           −         OSS         −         0.7369         0.8550         0.9889         0.4818         0.9806         0.7850         0.9874         0.3478           −         OSS         SMOTE         0.7427         0.8850         0.9887         0.4968         0.7876         0.9870         0.7476         0.9870         0.7476         0.9870         0.7476         0.9870         0.7476         0.9870         0.7476         0.9870         0.7476         0.9870         0.7476         0.9870         0.7476         0.9967         0.7476         0.9971         0.3478           −         OSS         SMOTE         0.7319         0.8850         0.9880         0.4810         0.7800         0.9968         0.3450           1:3         −         OSS         SMOTE         0.7245         0.8840         0.4631         0.9800         0.7781         0.9968         0.3333           1:3         −         −         0.7221         0.8842         0.4805         0.9802         0.7781         0.9802         0.7781         0.9802         0.7781         0.9802         0.77	RandomForest	1	OSS	I	0.7351	0.8515	0.9889	0.4814	0.9805	0.8068	0.9975	0.3430	В
−         OSS         −         07369         0.8550         0.9889         0.4848         0.9806         0.8000         0.9974         0.378           −         OSS         −         0.7352         0.8491         0.9888         0.4816         0.9806         0.7826         0.9971         0.3478           −         OSS         SMOTE         0.7427         0.8803         0.9887         0.4816         0.9813         0.7476         0.9962         0.3720           −         OSS         SMOTE         0.7319         0.8849         0.9887         0.4810         0.7810         0.9961         0.3720           −         OSS         SMOTE         0.7319         0.8849         0.9881         0.4816         0.9809         0.7321         0.7321           1:3         −         OSS         SMOTE         0.7345         0.884         0.4631         0.9802         0.7321         0.9802         0.7321         0.984         0.4631         0.9802         0.7321         0.984         0.4678         0.9802         0.7321         0.994         0.3802         0.7321         0.984         0.4678         0.9802         0.7321         0.994         0.3802         0.7321         0.994         0.3333 <td>RandomForest</td> <td>I</td> <td>OSS</td> <td>I</td> <td>0.7301</td> <td>0.8600</td> <td>0.9885</td> <td>0.4718</td> <td>0.9804</td> <td>0.7553</td> <td>0.9966</td> <td>0.3430</td> <td>C</td>	RandomForest	I	OSS	I	0.7301	0.8600	0.9885	0.4718	0.9804	0.7553	0.9966	0.3430	C
−         OSS         −         0.7352         0.8491         0.9888         0.4816         0.9806         0.7826         0.9971         0.3478           −         OSS         SMOTE         0.7427         0.8503         0.9887         0.4968         0.9813         0.7476         0.9962         0.3720           −         OSS         SMOTE         0.7318         0.8549         0.9883         0.4876         0.9810         0.7426         0.9962         0.3720           −         OSS         SMOTE         0.7319         0.8552         0.9883         0.4756         0.9807         0.7300         0.9961         0.3527           −         OSS         SMOTE         0.7345         0.8894         0.4807         0.7800         0.9961         0.3578           1:3         −         OSS         SMOTE         0.7257         0.8844         0.4631         0.9802         0.7841         0.9962         0.3333           1:3         −         OS         SMOTE         0.7257         0.8844         0.4631         0.9802         0.7841         0.9962         0.3578           1:3         −         O         0.7257         0.8854         0.4631         0.4631         0.7011 </td <td>RandomForest</td> <td>I</td> <td>OSS</td> <td>I</td> <td>0.7369</td> <td>0.8550</td> <td>0.9889</td> <td>0.4848</td> <td>9086.0</td> <td>0.8000</td> <td>0.9974</td> <td>0.3478</td> <td>О</td>	RandomForest	I	OSS	I	0.7369	0.8550	0.9889	0.4848	9086.0	0.8000	0.9974	0.3478	О
-         OSS         SMOTE         0.7427         0.8850         0.9887         0.4968         0.9813         0.7476         0.9962         0.3720           -         OSS         SMOTE         0.7378         0.8849         0.9887         0.4870         0.9810         0.7426         0.9962         0.3623           -         OSS         SMOTE         0.7319         0.8562         0.9883         0.4756         0.9807         0.7426         0.9961         0.3527           -         OSS         SMOTE         0.7486         0.8890         0.5081         0.9804         0.7327         0.9961         0.3527           1:3         -         OSS         SMOTE         0.7486         0.8894         0.4805         0.9809         0.7327         0.9968         0.3333           1:3         -         -         0.7257         0.8844         0.4678         0.9802         0.7841         0.9968         0.3333           1:3         -         -         0.7227         0.8857         0.988         0.4678         0.9802         0.7911         0.9961         0.3333           1:3         -         -         0.7221         0.8857         0.988         0.4658         0.7919	RandomForest	I	OSS	I	0.7352	0.8491	0.9888	0.4816	9086.0	0.7826	0.9971	0.3478	田
<ul> <li>OSS SMOTE</li> <li>0.7378</li> <li>0.8549</li> <li>0.9885</li> <li>0.4870</li> <li>0.9810</li> <li>0.7426</li> <li>0.9962</li> <li>0.3623</li> <li>0.3527</li> <li>0.352</li> <li>0.352</li> <li>0.3852</li> <li>0.4850</li> <li>0.5881</li> <li>0.4980</li> <li>0.5081</li> <li>0.9814</li> <li>0.7300</li> <li>0.9961</li> <li>0.3527</li> <li>0.3527</li> <li>0.3527</li> <li>0.3527</li> <li>0.3528</li> <li>0.3859</li> <li>0.9890</li> <li>0.5081</li> <li>0.9814</li> <li>0.7800</li> <li>0.9969</li> <li>0.3768</li> <li>0.3768</li> <li>0.3854</li> <li>0.4850</li> <li>0.9809</li> <li>0.7327</li> <li>0.9969</li> <li>0.3758</li> <li>0.3758</li> <li>0.3854</li> <li>0.484</li> <li>0.4678</li> <li>0.9802</li> <li>0.7327</li> <li>0.9962</li> <li>0.3333</li> <li>0.3758</li> <li>0.378</li> <li>0.378</li> <li>0.378</li> <li>0.378</li> <li>0.378</li> <li>0.378</li> <li>0.378</li> <li>0.3854</li> <li>0.4678</li> <li>0.9802</li> <li>0.7841</li> <li>0.9904</li> <li>0.3333</li> <li>0.7221</li> <li>0.8871</li> <li>0.9884</li> <li>0.4678</li> <li>0.9805</li> <li>0.771</li> <li>0.9907</li> <li>0.3332</li> <li>0.3720</li> <li>0.3832</li> <li>0.3720</li> <li>0.3832</li> <li>0.3720</li> <li>0.3842</li> <li>0.4852</li> <li>0.9803</li> <li>0.771</li> <li>0.9904</li> <li>0.391</li> <li>0.391</li> <li>0.391</li> <li>0.392</li> <li>0.392</li></ul>	RandomForest	I	OSS	SMOTE	0.7427	0.8503	0.9887	0.4968	0.9813	0.7476	0.9962	0.3720	А
-         OSS         SMOTE         0.7319         0.8562         0.9883         0.4756         0.9807         0.7300         0.9961         0.3527           -         OSS         SMOTE         0.7486         0.8598         0.9890         0.5081         0.7800         0.9968         0.3768           -         OSS         SMOTE         0.7345         0.8592         0.9884         0.4805         0.7327         0.9961         0.3575           1:3         -         -         0.7257         0.8544         0.9884         0.4678         0.9802         0.7327         0.9968         0.3333           1:3         -         -         0.7222         0.8547         0.9884         0.4678         0.9802         0.7701         0.9974         0.3333           1:3         -         -         -         0.7221         0.8547         0.9884         0.4678         0.9802         0.7701         0.9974         0.3333           1:3         -         -         0.7221         0.8547         0.9884         0.4678         0.9802         0.7701         0.9974         0.3333           1:3         -         -         0.7243         0.8469         0.9889         0.4797	RandomForest	I	OSS	SMOTE	0.7378	0.8549	0.9885	0.4870	0.9810	0.7426	0.9962	0.3623	В
- OSS SMOTE 0.7486 0.8598 0.9890 0.5081 0.9814 0.7800 0.9968 0.3768 0.7327 0.854 0.4805 0.9809 0.7327 0.9961 0.3575 0.7328 0.7325 0.9884 0.4631 0.9802 0.7582 0.9968 0.3333 0.7282 0.8571 0.9884 0.4658 0.9802 0.77841 0.9972 0.3333 0.7281 0.7281 0.8871 0.9884 0.4658 0.9902 0.7701 0.9971 0.3237 0.7281 0.871 0.9884 0.4658 0.9909 0.7701 0.9971 0.3237 0.7701 0.9884 0.4694 0.9802 0.7978 0.9974 0.3333 0.7281 0.7281 0.8871 0.9884 0.4694 0.9802 0.7978 0.9974 0.3333 0.7281 0.7281 0.9881 0.4694 0.9802 0.7978 0.9974 0.3333 0.7281 0.7281 0.8881 0.4694 0.9802 0.7978 0.9974 0.3333 0.7281 0.7281 0.8881 0.4694 0.9803 0.7071 0.9958 0.3382 0.7281 0.7281 0.7281 0.9881 0.4697 0.9803 0.7071 0.9958 0.3382 0.7281 0.7281 0.7281 0.9881 0.4697 0.9803 0.7071 0.9958 0.3382 0.7281 0.7281 0.7281 0.9884 0.4872 0.9881 0.7700 0.9966 0.3720 0.7701 0.728	RandomForest	I	OSS	SMOTE	0.7319	0.8562	0.9883	0.4756	0.9807	0.7300	0.9961	0.3527	C
-         OSS         SMOTE         0.7345         0.8592         0.9884         0.4805         0.07327         0.9961         0.3575           1:3         -         -         0.7257         0.8544         0.9884         0.4678         0.9802         0.7582         0.9968         0.3333           1:3         -         -         -         0.7257         0.8544         0.9884         0.4678         0.9802         0.7581         0.9978         0.3333           1:3         -         -         -         -         0.7221         0.8571         0.9884         0.4578         0.9799         0.7701         0.9974         0.3333           1:3         -         -         -         0.7220         0.8452         0.9887         0.4694         0.9805         0.7971         0.9974         0.3333           1:3         -         -         0.7343         0.8469         0.9881         0.4605         0.9803         0.7716         0.9974         0.3332           1:3         -         SMOTE         0.7227         0.8495         0.9881         0.4675         0.9803         0.7071         0.9958         0.3671           1:3         -         SMOTE         0.7727 <td>RandomForest</td> <td>I</td> <td>OSS</td> <td>SMOTE</td> <td>0.7486</td> <td>0.8598</td> <td>0.9890</td> <td>0.5081</td> <td>0.9814</td> <td>0.7800</td> <td>0.9968</td> <td>0.3768</td> <td>О</td>	RandomForest	I	OSS	SMOTE	0.7486	0.8598	0.9890	0.5081	0.9814	0.7800	0.9968	0.3768	О
1:3       -       -       -       -       -       -       -       0.7257       0.8544       0.9884       0.4631       0.9802       0.7582       0.9968       0.3333         1:3       -       -       -       -       -       -       0.7221       0.8597       0.9886       0.4678       0.9802       0.7701       0.9971       0.3237         1:3       -       -       -       -       0.7221       0.8571       0.9884       0.4558       0.9799       0.7701       0.9971       0.3237         1:3       -       -       -       0.77221       0.8452       0.9887       0.4694       0.9802       0.7701       0.9974       0.3333         1:3       -       -       -       0.7343       0.8469       0.9881       0.4695       0.9803       0.7716       0.9958       0.3332         1:3       -       SMOTE       0.7227       0.8495       0.9880       0.4575       0.9803       0.7071       0.9958       0.3671         1:3       -       SMOTE       0.7453       0.8869       0.5016       0.9813       0.7700       0.9966       0.3720         1:3       -       SMOTE       0.7319	RandomForest	I	OSS	SMOTE	0.7345	0.8592	0.9884	0.4805	0.9809	0.7327	0.9961	0.3575	Щ
1:3       -       -       -       0.7282       0.88597       0.9886       0.4678       0.9802       0.7841       0.9972       0.3333         1:3       -       -       -       -       -       0.7221       0.8871       0.9884       0.4558       0.9799       0.7701       0.9971       0.3237         1:3       -       -       -       0.7229       0.8452       0.9887       0.4694       0.9802       0.7931       0.9974       0.3333         1:3       -       -       -       0.7343       0.8452       0.9887       0.4694       0.9805       0.7978       0.9974       0.3333         1:3       -       -       -       0.7743       0.8469       0.9881       0.4605       0.9803       0.7716       0.9961       0.3382         1:3       -       SMOTE       0.7277       0.8495       0.9880       0.4575       0.9803       0.7071       0.9958       0.3671         1:3       -       SMOTE       0.7453       0.8468       0.9889       0.5016       0.9813       0.7700       0.9966       0.3720         1:3       -       SMOTE       0.7319       0.9885       0.9475       0.9806       0.7500	RandomForest	1:3	1	I	0.7257	0.8544	0.9884	0.4631	0.9802	0.7582	0.9968	0.3333	A
1:3       -	RandomForest	1:3	I	I	0.7282	0.8597	0.9886	0.4678	0.9802	0.7841	0.9972	0.3333	В
1:3       -       -       -       0.7290       0.8452       0.9887       0.4694       0.9802       0.7931       0.9974       0.3333         1:3       -       -       -       -       0.7343       0.8361       0.9888       0.4797       0.9805       0.7978       0.9974       0.3430         1:3       -       SMOTE       0.7243       0.8469       0.9881       0.4605       0.9803       0.7216       0.9961       0.3382         1:3       -       SMOTE       0.7227       0.8495       0.9884       0.4872       0.9803       0.7071       0.9958       0.3671         1:3       -       SMOTE       0.7453       0.8468       0.9889       0.5016       0.9813       0.7700       0.9966       0.3720         1:3       -       SMOTE       0.7453       0.8850       0.9885       0.6715       0.9806       0.7500       0.9966       0.3720	RandomForest	1:3	I	I	0.7221	0.8571	0.9884	0.4558	0.9799	0.7701	0.9971	0.3237	C
1:3       -       -       -       -       -       0.7343       0.8361       0.9888       0.4797       0.9805       0.7978       0.9974       0.3330         1:3       -       SMOTE       0.7227       0.8469       0.9881       0.4605       0.9803       0.7071       0.9958       0.3382         1:3       -       SMOTE       0.7227       0.8495       0.9880       0.4575       0.9803       0.7071       0.9958       0.3382         1:3       -       SMOTE       0.7378       0.8560       0.9884       0.4872       0.9811       0.7238       0.9958       0.3671         1:3       -       SMOTE       0.7453       0.8868       0.9885       0.5016       0.9813       0.7700       0.9966       0.3720         1:3       -       SMOTE       0.7319       0.8508       0.9885       0.4752       0.9806       0.7500       0.9965       0.3478	RandomForest	1:3	I	I	0.7290	0.8452	0.9887	0.4694	0.9802	0.7931	0.9974	0.3333	О
1:3       -       SMOTE       0.7243       0.8469       0.9881       0.4605       0.9803       0.7216       0.9958       0.3382         1:3       -       SMOTE       0.727       0.8495       0.9884       0.4575       0.9803       0.7071       0.9958       0.3382         1:3       -       SMOTE       0.7378       0.8560       0.9884       0.4872       0.9811       0.7238       0.9958       0.3671         1:3       -       SMOTE       0.7453       0.8468       0.9889       0.5016       0.9813       0.7700       0.9966       0.3720         1:3       -       SMOTE       0.7319       0.8508       0.9885       0.4752       0.9806       0.7500       0.9965       0.3478	RandomForest	1:3	I	I	0.7343	0.8361	0.9888	0.4797	0.9805	0.7978	0.9974	0.3430	Щ
1:3       -       SMOTE       0.7227       0.8495       0.9880       0.4575       0.9803       0.7071       0.9958       0.3382         1:3       -       SMOTE       0.7453       0.8468       0.9884       0.4872       0.9811       0.7238       0.9958       0.3671       0         1:3       -       SMOTE       0.7453       0.8468       0.9889       0.5016       0.9813       0.7700       0.9966       0.3720       1         1:3       -       SMOTE       0.7319       0.8508       0.9885       0.4752       0.9806       0.7500       0.9965       0.3478	RandomForest	1:3	I	SMOTE	0.7243	0.8469	0.9881	0.4605	0.9803	0.7216	0.9961	0.3382	A
1:3       -       SMOTE       0.7378       0.8560       0.9884       0.4872       0.9811       0.7238       0.9958         1:3       -       SMOTE       0.7453       0.8468       0.9889       0.5016       0.9813       0.7700       0.9966         1:3       -       SMOTE       0.7319       0.8508       0.9885       0.4752       0.9806       0.7500       0.9965	RandomForest	1:3	I	SMOTE	0.7227	0.8495	0.9880	0.4575	0.9803	0.7071	0.9958	0.3382	В
1:3 – SMOTE 0.7453 0.8468 0.9889 0.5016 0.9813 0.7700 0.9966 1:3 – SMOTE 0.7319 0.8508 0.9885 0.4752 0.9806 0.7500 0.9965	RandomForest	1:3	I	SMOTE	0.7378	0.8560	0.9884	0.4872	0.9811	0.7238	0.9958	0.3671	C
1:3 - SMOTE   0.7319 0.8508 0.9885 0.4752 0.9806 0.7500 0.9965	RandomForest	1:3	I	SMOTE	0.7453	0.8468	0.9889	0.5016	0.9813	0.7700	0.9966	0.3720	О
	RandomForest	1:3	I	SMOTE	0.7319	0.8508	0.9885	0.4752	9086.0	0.7500	0.9965	0.3478	田

1:3   Tomek     1:4   Tomek     1:5   Tomek	SMOTE SMOTE SMOTE SMOTE SMOTE - - - - SMOTE	0.7207 0.7378 0.7378 0.7334 0.7241 0.7353 0.7353 0.7460	0.8561 0.8543 0.8570	0.9881	0.4533	0.9800	0.7312	0.9963	0.3285	A
11.3 Tomek 11.3 OSS 11.3 OSS 11.3 OSS 11.3 OSS 11.3 OSS 11.3 OSS 11.5 OSS 11.5	SMOTE SMOTE SMOTE SMOTE SMOTE - - - - SMOTE	0.7378 0.7378 0.7334 0.7241 0.7353 0.7353 0.7402 0.7460	0.8543	0.9888	0.4867	0.9807	0.7849	0.9971	70300	
11.3 Tomek 11.3 OSS 11.3 OSS 11.3 OSS 11.3 OSS 11.3 OSS 11.3 OSS 11.5	SMOTE SMOTE SMOTE SMOTE SMOTE - - - - - SMOTE	0.7378 0.7334 0.7241 0.7353 0.7345 0.7460 0.7460	0.8570	10000			\fo\.5	1 . / / . 0	0.3327	В
1:3 Tomek 1:3 OSS 1:3 OSS 1:3 OSS 1:3 OSS 1:3 OSS 1:3 OSS 1:5	SMOTE SMOTE SMOTE SMOTE SMOTE - - - SMOTE	0.7334 0.7241 0.7353 0.7345 0.7460 0.7460		0.988/	0.4868	0.9809	0.7629	0.9966	0.3575	C
1:3 Tomek 1:3 Tomek 1:3 Tomek 1:3 Tomek 1:3 Tomek 1:3 Tomek 1:3 OSS 1:3 OSS 1:3 OSS 1:3 OSS 1:3 OSS 1:3 OSS 1:5	SMOTE SMOTE SMOTE SMOTE SMOTE - - - - SMOTE	0.7241 0.7353 0.7345 0.7402 0.7460 0.7287	0.8558	0.9888	0.4781	0.9805	0.7889	0.9972	0.3430	D
1:3 Tomek 1:3 Tomek 1:3 Tomek 1:3 Tomek 1:3 Tomek 1:3 OSS 1:3 OSS 1:3 OSS 1:3 OSS 1:3 OSS 1:4 OSS 1:5	SMOTE SMOTE SMOTE SMOTE - - - - SMOTE SMOTE	0.7353 0.7345 0.7402 0.7460	0.8523	0.9883	0.4600	0.9802	0.7419	0.9965	0.3333	田
11.3 Tomek 11.3 Tomek 11.3 Tomek 11.3 Tomek 11.3 OSS 11.3 OSS 11.3 OSS 11.3 OSS 11.3 OSS 11.3 OSS 11.5 OSS 11.5	SMOTE SMOTE SMOTE - - - - SMOTE SMOTE	0.7345 0.7402 0.7460 0.7287	0.8398	0.9883	0.4823	0.9810	0.7212	0.9958	0.3623	Ą
1:3 Tomek 1:3 Tomek 1:3 OSS 1:5 OSS 1:	SMOTE SMOTE SMOTE - - - SMOTE SMOTE	0.7402 0.7460 0.7287	0.8493	0.9882	0.4808	0.9810	0.7143	0.9956	0.3623	В
11.3 Tomek 11.3 Tomek 11.3 OSS 11.5	SMOTE SMOTE SMOTE - SMOTE SMOTE	0.7460	0.8608	0.9885	0.4920	0.9813	0.7264	0.9958	0.3720	C
1:3 Tomek 1:3 OSS 1:5	SMOTE	0.7287	0.8442	0.9888	0.5032	0.9814	0.7573	0.9963	0.3768	D
11.3 OSS 11.5	- SMOTE SMOTE	1071.0	0.8497	0.9880	0.4695	0.9807	0.7019	0.9955	0.3527	田
11:3 OSS 11:3 OSS 11:3 OSS 11:3 OSS 11:3 OSS 11:3 OSS 11:5	- SMOTE SMOTE	0.7360	0.8514	0.9888	0.4832	0.9806	0.7912	0.9972	0.3478	Ą
1:3 OSS 1:3 OSS 1:3 OSS 1:3 OSS 1:3 OSS 1:3 OSS 1:5	- SMOTE SMOTE	0.7223	0.8529	0.9883	0.4564	0.9800	0.7473	9966.0	0.3285	В
1:3 OSS 1:3 OSS 1:3 OSS 1:3 OSS 1:3 OSS 1:3 OSS 1:5	- SMOTE SMOTE	0.7181	0.8478	0.9880	0.4482	0.9799	0.7283	0.9963	0.3237	C
1:3 OSS 1:3 OSS 1:3 OSS 1:3 OSS 1:3 OSS 1:5	SMOTE SMOTE	0.7335	0.8523	0.9886	0.4784	0.9806	0.7660	0.9968	0.3478	О
1:3 OSS 1:3 OSS 1:3 OSS 1:3 OSS 1:5 OSS 1:5	SMOTE	0.7344	0.8457	0.9885	0.4803	0.9807	0.7526	0.9965	0.3527	田
1:3 OSS 1:3 OSS 1:3 OSS 1:3 OSS 1:5	SMOTE	0.7361	0.8503	0.9884	0.4839	0.9810	0.7282	0.9959	0.3623	A
1:3 OSS 1:3 OSS 1:3 OSS 1:5		0.7255	0.8504	0.9879	0.4630	9086.0	0.6923	0.9953	0.3478	В
1:3 OSS 1:3 OSS 1:5 1:5 1:5 1:5 1:5 1:5 1:5 1:5 1:5 1:5 1:5 1:5 1:5 1:5 1:5 1:5 1:5 1:5 1:5	SMOTE	0.7410	0.8555	0.9884	0.4937	0.9814	0.7156	0.9955	0.3768	C
1:3 OSS 1:5 - 1:5	SMOTE	0.7361	0.8472	0.9885	0.4837	0.9809	0.7475	0.9963	0.3575	О
1:5 1:5 1:5 1:5 1:5 1:5 1:5 1:5 - 1:5 1:5 - 1:	SMOTE	0.7255	0.8511	0.9879	0.4630	0.9806	0.6923	0.9953	0.3478	田
1:5 1:5 1:5 1:5 1:5 1:5 1:5 1:5 - 1:5	ı	0.7162	0.8561	0.9880	0.4444	0.9797	0.7333	0.9965	0.3188	Ą
1:5 1:5 1:5 1:5 1:5 1:5 1:5 1:5 1:5 1:5 1:5 1:5	ı	0.7241	0.8520	0.9883	0.4600	0.9802	0.7419	0.9965	0.3333	В
1:5 - 1:5 -	ı	0.7101	0.8481	0.9878	0.4324	0.9794	0.7191	0.9963	0.3092	C
1:5 - 1:5 -	ı	0.7309	0.8574	0.9885	0.4733	0.9804	0.7634	0.9968	0.3430	О
1:5 1:5 1:5 1:5 1:5 Tomek	ı	0.7241	0.8558	0.9883	0.4600	0.9802	0.7419	0.9965	0.3333	Щ
1:5 - 1:5 - 1:5 - 1:5 - 1:5 Tomek	SMOTE	0.7295	0.8445	0.9881	0.4710	0.9807	0.7087	0.9956	0.3527	A
1:5 – 1:5 – 1:5 – 1:5 Tomek	SMOTE	0.7245	0.8459	0.9880	0.4610	0.9804	0.7030	0.9956	0.3430	В
1:5 – 1:5 – 1:5 Tomek 1:5 Tomek	SMOTE	0.7336	0.8539	0.9883	0.4790	0.9808	0.7255	0.9959	0.3575	C
1:5 – 1:5 Tomek 1:5 Tomek	SMOTE	0.7233	0.8533	0.9882	0.4585	0.9802	0.7340	0.9963	0.3333	О
1:5	SMOTE	0.7196	0.8529	0.9877	0.4516	0.9803	96290	0.9952	0.3382	Щ
1:5	ı	0.7199	0.8483	0.9880	0.4518	0.9800	0.7234	0.9962	0.3285	A
	ı	0.7303	0.8505	0.9882	0.4725	0.9807	0.7157	0.9958	0.3527	В
RandomForest 1:5 Tomek	ı	0.7197	0.8516	0.9882	0.4512	0.9799	0.7444	0.9966	0.3237	C
RandomForest 1:5 Tomek	ı	0.7394	0.8465	0.9887	0.4902	0.9810	0.7576	0.9965	0.3623	О
RandomForest 1:5 Tomek	ı	0.7217	0.8499	0.9880	0.4554	0.9801	0.7188	0.9961	0.3333	田
RandomForest 1:5 Tomek	SMOTE	0.7255	0.8512	0.9879	0.4630	0.9806	0.6923	0.9953	0.3478	A
RandomForest 1:5 Tomek	SMOTE	0.7296	0.8492	0.9880	0.4713	0.9808	0.6916	0.9952	0.3575	В
RandomForest 1:5 Tomek	SMOTE	0.7361	0.8604	0.9884	0.4839	0.9810	0.7282	0.9959	0.3623	C
RandomForest 1:5 Tomek	SMOTE	0.7319	0.8434	0.9883	0.4756	0.9807	0.7300	0.9961	0.3527	О
RandomForest 1:5 Tomek	SMOTE	0.7171	0.8535	0.9876	0.4466	0.9801	0.6765	0.9952	0.3333	Щ
									* "-" = Not Applied	Applied

Model	Class Weight	Undersampling	Oversampling	Macro F1	AUC	$F1_0$	$F1_1$	Precision <sub>0</sub>	Precision <sub>1</sub>	$Recall_0$	$Recall_1$	Seed
RandomForest	1:5	OSS	ı	0.7302	0.8522	0.9883	0.4721	9086.0	0.7347	0.9962	0.3478	A
RandomForest	1:5	SSO	1	0.7217	0.8528	0.9880	0.4554	0.9801	0.7188	0.9961	0.3333	В
RandomForest	1:5	SSO	1	0.7131	0.8504	0.9877	0.4385	0.9797	0.7021	0.9959	0.3188	C
RandomForest	1:5	SSO	1	0.7191	0.8495	0.9880	0.4503	0.9800	0.7158	0.9961	0.3285	О
RandomForest	1:5	OSS	I	0.7303	0.8608	0.9882	0.4725	0.9807	0.7157	0.9958	0.3527	田
RandomForest	1:5	OSS	SMOTE	0.7270	0.8562	0.9880	0.4660	9086.0	0.7059	0.9956	0.3478	А
RandomForest	1:5	SSO	SMOTE	0.7214	0.8521	0.9877	0.4551	0.9804	0.6762	0.9950	0.3430	В
RandomForest	1:5	SSO	SMOTE	0.7362	0.8661	0.9882	0.4841	0.9811	0.7103	0.9955	0.3671	C
RandomForest	1:5	OSS	SMOTE	0.7328	0.8474	0.9882	0.4774	0.9808	0.7184	0.9958	0.3575	О
RandomForest	1:5	OSS	SMOTE	0.7186	0.8577	0.9877	0.4495	0.9801	0.6900	0.9955	0.3333	田
RandomForest	1:Log	I	ı	0.7266	0.8655	0.9885	0.4646	0.9802	0.7667	0.9969	0.3333	A
RandomForest	1:Log	I	ı	0.7308	0.8582	0.9887	0.4730	0.9803	0.7865	0.9972	0.3382	В
RandomForest	1:Log	I	ı	0.7249	0.8455	0.9883	0.4615	0.9802	0.7500	0.9966	0.3333	C
RandomForest	1:Log	I	I	0.7352	0.8512	0.9888	0.4816	9086.0	0.7826	0.9971	0.3478	О
RandomForest	1:Log	ı	ı	0.7239	0.8531	0.9884	0.4595	0.9800	0.7640	0.9969	0.3285	田
RandomForest	1:Log	ı	SMOTE	0.7353	0.8537	0.9883	0.4823	0.9810	0.7212	0.9958	0.3623	A
RandomForest	1:Log	ı	SMOTE	0.7328	0.8481	0.9884	0.4771	0.9807	0.7374	0.9962	0.3527	В
RandomForest	1:Log	I	SMOTE	0.7403	0.8616	9886.0	0.4919	0.9811	0.7451	0.9962	0.3671	C
RandomForest	1:Log	I	SMOTE	0.7369	0.8427	9886.0	0.4852	0.9809	0.7551	0.9965	0.3575	О
RandomForest	1:Log	ı	SMOTE	0.7303	0.8529	0.9882	0.4725	0.9807	0.7157	0.9958	0.3527	田
RandomForest	1:Log	Tomek	I	0.7369	0.8506	9886.0	0.4852	0.9809	0.7551	0.9965	0.3575	Ą
RandomForest	1:Log	Tomek	I	0.7319	0.8543	0.9885	0.4752	9086.0	0.7500	0.9965	0.3478	В
RandomForest	1:Log	Tomek	ı	0.7215	0.8487	0.9882	0.4548	0.9800	0.7391	0.9965	0.3285	C
RandomForest	1:Log	Tomek	ı	0.7249	0.8446	0.9883	0.4615	0.9802	0.7500	0.9966	0.3333	О
RandomForest	1:Log	Tomek	ı	0.7293	0.8555	0.9884	0.4702	0.9804	0.7474	0.9965	0.3430	Щ
RandomForest	1:Log	Tomek	SMOTE	0.7427	0.8594	0.9885	0.4968	0.9814	0.7290	0.9958	0.3768	A
RandomForest	1:Log	Tomek	SMOTE	0.7262	0.8477	0.9880	0.4645	9086.0	0.6690	0.9955	0.3478	В
RandomForest	1:Log	Tomek	SMOTE	0.7336	0.8716	0.9883	0.4790	0.9808	0.7255	0.9959	0.3575	C
RandomForest	1:Log	Tomek	SMOTE	0.7344	0.8390	0.9885	0.4803	0.9807	0.7526	0.9965	0.3527	О
RandomForest	1:Log	Tomek	SMOTE	0.7264	0.8459	0.9878	0.4650	0.9807	0.6822	0.9950	0.3527	Щ
RandomForest	1:Log	OSS	ı	0.7403	0.8499	0.9889	0.4917	0.9809	0.7872	0.9971	0.3575	Ą
RandomForest	1:Log	OSS	ı	0.7369	0.8458	9886.0	0.4852	0.9809	0.7551	0.9965	0.3575	В
RandomForest	1:Log	OSS	ı	0.7277	0.8595	0.9883	0.4671	0.9804	0.7320	0.9962	0.3430	C
RandomForest	1:Log	OSS	ı	0.7335	0.8553	9886.0	0.4784	9086.0	0.7660	0.9968	0.3478	О
RandomForest	1:Log	OSS	ı	0.7241	0.8527	0.9883	0.4600	0.9802	0.7419	0.9965	0.3333	Щ
RandomForest	1:Log	SSO	SMOTE	0.7418	0.8501	0.9885	0.4952	0.9814	0.7222	0.9956	0.3768	Ą
RandomForest	1:Log	OSS	SMOTE	0.7171	0.8514	9286.0	0.4466	0.9801	0.6765	0.9952	0.3333	В
RandomForest	1:Log	OSS	SMOTE	0.7394	0.8724	0.9884	0.4904	0.9813	0.7196	0.9956	0.3720	C
RandomForest	1:Log	OSS	SMOTE	0.7328	0.8545	0.9882	0.4774	0.9808	0.7184	0.9958	0.3575	О
RandomForest	1:Log	SSO	SMOTE	0.7280	0.8504	0.9880	0.4679	0.9807	0.6952	0.9953	0.3527	田
											* "-" = Not Applied	t Applied

0.7737 0.8947 0.9904 0.5570 0.9822 0.9121 0.7731 0.8947 0.9904 0.5570 0.9822 0.9121 0.77810 0.8941 0.9904 0.5570 0.9822 0.9121 0.77810 0.8941 0.9904 0.5570 0.9822 0.9141 0.77810 0.8941 0.9904 0.5724 0.9822 0.9141 0.7781 0.8942 0.9903 0.5724 0.9822 0.9141 SMOTHE 0.7783 0.8943 0.9903 0.5723 0.9823 0.9100 SMOTHE 0.7783 0.8943 0.9903 0.5723 0.9823 0.9100 0.77810 0.8928 0.9903 0.5723 0.9823 0.9100 0.77810 0.8928 0.9903 0.5732 0.9923 0.9914 0.77810 0.8924 0.9903 0.5783 0.9822 0.9904 0.77810 0.8944 0.9908 0.5783 0.9825 0.9934 0.9904 0.5781 0.9822 0.9904 0.9908 0.5781 0.9822 0.9904 0.9908 0.5781 0.9822 0.9904 0.9908 0.5781 0.9822 0.9904 0.9908 0.5781 0.9822 0.9904 0.9908 0.5781 0.9822 0.9904 0.9908 0.5781 0.9822 0.9348 0.7780 0.8822 0.9904 0.9908 0.5781 0.9822 0.9348 0.7780 0.8822 0.9904 0.9908 0.5781 0.9822 0.9348 0.7780 0.8922 0.9904 0.5822 0.9822 0.9348 0.7780 0.8822 0.9904 0.5822 0.9822 0.9911 0.7422 0.8923 0.9904 0.5822 0.9822 0.9911 0.7422 0.8923 0.9822 0.9922 0.7780 0.8923 0.9904 0.5823 0.9822 0.9922 0.9904 0.5823 0.9822 0.9922 0.7781 0.9908 0.5831 0.9822 0.9922 0.7781 0.9908 0.5831 0.9822 0.9922 0.9904 0.5823 0.9822 0.9922 0.9904 0.5904 0.5823 0.9822 0.9922 0.9904 0.5904 0.5908 0.5823 0.9822 0.9922 0.9904 0.5904 0.5908 0.5823 0.9822 0.9922 0.9904 0.5908 0.5823 0.9822 0.9922 0.9904 0.5908 0.5823 0.9822 0.9922 0.9904 0.5908 0.5823 0.9822 0.9922 0.9904 0.5908 0.5908 0.9823 0.9823 0.9823 0.9823 0.9823 0.9924 0.9904 0.5908 0.9823 0	Model Class	Class weignt	Undersampling	Oversampinig	TATOCIO T. T		$F^{1}0$	$F \perp_1$	$Precision_0$	$Precision_1$	$\mathbf{Recall}_0$	$Recall_1$	Secu
-         -         -         0.7737         0.8947         0.9904         0.5570         0.9822         0.9149           -         -         -         -         0.7734         0.8947         0.9906         0.5774         0.9825         0.9144           -         -         -         -         0.7816         0.8997         0.9908         0.5774         0.9825         0.9149           -         -         -         -         0.7818         0.8943         0.9908         0.5926         0.9441           -         -         -         0.7818         0.8894         0.9908         0.5928         0.9910           -         -         -         0.7830         0.8928         0.9908         0.5932         0.9910           -         -         -         0.7830         0.8949         0.9908         0.5932         0.9931           -         -         -         0.7830         0.8944         0.9908         0.5932         0.9932           -         -         0.7845         0.8944         0.9908         0.5932         0.9344           -         0.7846         0.8944         0.9908         0.5948         0.9825         0.9941 <td>GBoost .</td> <td>ı</td> <td>I</td> <td>ı</td> <td>0.7737</td> <td>0.8947</td> <td>0.9904</td> <td>0.5570</td> <td>0.9822</td> <td>0.9121</td> <td>0.9988</td> <td>0.4010</td> <td>A</td>	GBoost .	ı	I	ı	0.7737	0.8947	0.9904	0.5570	0.9822	0.9121	0.9988	0.4010	A
-         -         -         0.7810         0.8961         0.5714         0.9835         0.9104           -         -         -         -         0.7737         0.8947         0.9904         0.5770         0.9822         0.9101           -         -         0.7762         0.8847         0.9904         0.5731         0.9832         0.9441           -         -         SMOTH         0.7781         0.8943         0.9908         0.5732         0.9833         0.9100           -         SMOTH         0.7781         0.8941         0.9908         0.5733         0.9832         0.9100           -         SMOTH         0.7783         0.8941         0.9908         0.5733         0.9832         0.9909           -         SMOTH         0.7783         0.8941         0.9908         0.5733         0.9832         0.9904           -         Tomek         -         0.7784         0.8941         0.9908         0.5731         0.9832         0.9944           -         Tomek         -         0.7784         0.8941         0.9908         0.5731         0.9832         0.9944         0.9948         0.9948         0.9948         0.9948         0.9948 <t< td=""><td>GBoost</td><td>ı</td><td>I</td><td>I</td><td>0.7737</td><td>0.8947</td><td>0.9904</td><td>0.5570</td><td>0.9822</td><td>0.9121</td><td>0.9988</td><td>0.4010</td><td>В</td></t<>	GBoost	ı	I	I	0.7737	0.8947	0.9904	0.5570	0.9822	0.9121	0.9988	0.4010	В
-         -         -         0.7737         0.8947         0.9940         0.5570         0.9825         0.9121           -         -         -         0.7816         0.8937         0.9903         0.5724         0.9825         0.9144           -         -         SMOTF         0.7818         0.8943         0.9903         0.5523         0.9825         0.9100           -         SMOTF         0.7819         0.8828         0.9908         0.5923         0.9933         0.9100           -         SMOTF         0.7819         0.8828         0.9908         0.9823         0.9908         0.9328           -         SMOTF         0.7830         0.8994         0.9908         0.5733         0.9826         0.9901           -         Tomek         -         0.7784         0.8994         0.9908         0.5733         0.9826         0.9901           -         Tomek         -         0.7784         0.8994         0.9908         0.9825         0.9901           -         Tomek         SMOTF         0.7742         0.8904         0.9908         0.5731         0.9325           -         Tomek         SMOTF         0.7742         0.8904         0.	GBoost .	ı	I	I	0.7810	0.8961	0.9906	0.5714	0.9826	0.9149	0.9988	0.4155	C
-         -         -         -         0.7816         0.8993         0.9908         0.57524         0.9825         0.9444           -         -         SMOTH         0.7752         0.8897         0.9903         0.5621         0.9826         0.8411           -         -         SMOTH         0.77818         0.8828         0.9903         0.5732         0.9982         0.9904           -         -         SMOTH         0.7783         0.8908         0.9908         0.5783         0.9908         0.5783         0.9908         0.9782         0.9091           -         -         SMOTH         0.7783         0.8904         0.9908         0.5783         0.9826         0.9903           -         Tomek         -         0.7783         0.8994         0.9908         0.5783         0.9826         0.9904           -         Tomek         SMOTH         0.7784         0.8917         0.9908         0.5781         0.9837           -         Tomek         SMOTH         0.7742         0.8916         0.9904         0.5821         0.9832         0.9917           -         Tomek         SMOTH         0.7742         0.8941         0.8904         0.9908	GBoost .	ı	I	I	0.7737	0.8947	0.9904	0.5570	0.9822	0.9121	0.9988	0.4010	О
-         SMOTE         0.7762         0.8897         0.9903         0.5722         0.9824         0.8841           -         -         SMOTE         0.7818         0.9908         0.5928         0.9909         0.8841         0.9100           -         -         SMOTE         0.7830         0.8928         0.9908         0.5732         0.9831         0.9100           -         -         SMOTE         0.7830         0.8994         0.9908         0.5732         0.9928         0.9348           -         Tomek         -         0.7830         0.8994         0.9908         0.5731         0.9826         0.9048           -         Tomek         -         0.7840         0.8994         0.9908         0.5731         0.9428         0.9344           -         Tomek         -         0.7840         0.9907         0.5763         0.9826         0.9348           -         Tomek         SMOTE         0.7742         0.8917         0.9907         0.5781         0.9827         0.9348           -         Tomek         SMOTE         0.7742         0.8917         0.9908         0.5811         0.8817           -         Tomek         SMOTE	GBoost	ı	I	I	0.7816	0.8993	0.9908	0.5724	0.9825	0.9444	0.9993	0.4106	山
-         SMOTE         0.7818         0.8943         0.9033         0.5732         0.8931         0.8100           -         -         SMOTE         0.7899         0.8828         0.9908         0.5753         0.9948           -         -         SMOTE         0.7830         0.8994         0.9908         0.5753         0.9926           -         Tomek         -         0.7830         0.8994         0.9908         0.5753         0.9926           -         Tomek         -         0.7830         0.8994         0.9908         0.5783         0.9926           -         Tomek         -         0.7844         0.8844         0.9908         0.5783         0.9926           -         Tomek         SMOTE         0.7844         0.8904         0.9908         0.5781         0.9825         0.9344           -         Tomek         SMOTE         0.7742         0.8904         0.9908         0.5781         0.9835         0.9904         0.5881         0.9836         0.9904         0.5881         0.9836         0.9904         0.5881         0.9836         0.9904         0.5881         0.9836         0.9836         0.9836         0.9836         0.9836         0.9836	GBoost	ı	I	SMOTE	0.7762	0.8897	0.9903	0.5621	0.9826	0.8687	0.9981	0.4155	A
-         SMOTE         0.7819         0.8828         0.9909         0.5928         0.9833         0.9100           -         SMOTE         0.7830         0.8928         0.9908         0.5753         0.9826         0.9348           -         Tomek         -         0.7830         0.8941         0.9908         0.5753         0.9826         0.9348           -         Tomek         -         0.7830         0.8994         0.9008         0.5781         0.9926         0.9348           -         Tomek         -         0.7830         0.8994         0.9008         0.5781         0.9826         0.9348           -         Tomek         -         0.7830         0.8994         0.9008         0.5781         0.9826         0.9344           -         Tomek         SMOTE         0.7806         0.9007         0.5791         0.9826         0.9344           -         Tomek         SMOTE         0.7742         0.8915         0.900         0.5821         0.8326           -         Tomek         SMOTE         0.7742         0.8916         0.990         0.982         0.9344           -         Tomek         SMOTE         0.7742         0.891	GBoost	ı	I	SMOTE	0.7818	0.8943	0.9903	0.5732	0.9831	0.8411	0.9975	0.4348	В
-         SMOTIE         0.7830         0.8928         0.9908         0.5753         0.9926         0.9348           -         Tomek         -         0.7836         0.8941         0.9908         0.5753         0.9926         0.9348           -         Tomek         -         0.7830         0.8944         0.9908         0.5753         0.9826         0.9348           -         Tomek         -         0.7830         0.8904         0.9908         0.5753         0.9826         0.9348           -         Tomek         -         0.7830         0.8904         0.9908         0.5753         0.9826         0.9348           -         Tomek         SMOTIE         0.7742         0.8916         0.9909         0.5917         0.9825         0.9341           -         Tomek         SMOTIE         0.7742         0.8916         0.9904         0.5821         0.8826         0.9917           -         Tomek         SMOTIE         0.7742         0.8916         0.9904         0.5821         0.8826         0.9922           -         Tomek         SMOTIE         0.7742         0.8963         0.9904         0.5821         0.8826         0.9904         0.9904 <td< td=""><td>GBoost</td><td>ı</td><td>I</td><td>SMOTE</td><td>0.7919</td><td>0.8828</td><td>0.9909</td><td>0.5928</td><td>0.9833</td><td>0.9100</td><td>0.9987</td><td>0.4396</td><td>C</td></td<>	GBoost	ı	I	SMOTE	0.7919	0.8828	0.9909	0.5928	0.9833	0.9100	0.9987	0.4396	C
-         SMOTHE         0.7895         0.8941         0.9906         0.5882         0.9826         0.9918           -         Tomek         -         0.7830         0.8994         0.9908         0.5753         0.9826         0.9348           -         Tomek         -         0.7830         0.8994         0.9908         0.5753         0.9826         0.9348           -         Tomek         -         0.7830         0.8994         0.9908         0.5751         0.9325         0.9348           -         Tomek         SMOTHE         0.7780         0.9907         0.5753         0.9826         0.9341           -         Tomek         SMOTHE         0.7742         0.8916         0.9907         0.5821         0.9826         0.9941         0.9908         0.581         0.9826         0.9941         0.9908         0.581         0.9826         0.9941         0.9908         0.9827         0.9908         0.9821         0.9941         0.9908         0.9821         0.9908         0.9821         0.9822         0.9822         0.9822         0.9822         0.9822         0.9822         0.9822         0.9822         0.9822         0.9822         0.9822         0.9822         0.9822         0.9822	GBoost	ı	I	SMOTE	0.7830	0.8928	0.9908	0.5753	0.9826	0.9348	0.9991	0.4155	О
-         Tomek         -         0.7830         0.8994         0.9908         0.5753         0.9826         0.9348           -         Tomek         -         0.7830         0.8994         0.9908         0.5781         0.9326         0.9348           -         Tomek         -         0.7830         0.8994         0.9908         0.5781         0.9326         0.9348           -         Tomek         -         0.7806         0.9026         0.9907         0.5781         0.9826         0.9348           -         Tomek         SMOTE         0.7790         0.8975         0.9903         0.581         0.9823         0.8344           -         Tomek         SMOTE         0.7790         0.8975         0.9903         0.581         0.9823         0.8934         0.9908         0.581         0.9823         0.8934         0.9908         0.581         0.9825         0.9908         0.8937         0.9922         0.9908         0.9922         0.9908         0.9837         0.9822         0.9908         0.9932         0.9908         0.9932         0.9837         0.9922         0.9908         0.9932         0.9932         0.9932         0.9932         0.9932         0.9932         0.9932 <t< td=""><td>GBoost</td><td>ı</td><td>I</td><td>SMOTE</td><td>0.7895</td><td>0.8941</td><td>0.9909</td><td>0.5882</td><td>0.9832</td><td>0.9091</td><td>0.9987</td><td>0.4348</td><td>Щ</td></t<>	GBoost	ı	I	SMOTE	0.7895	0.8941	0.9909	0.5882	0.9832	0.9091	0.9987	0.4348	Щ
−         Tomek         −         0.7830         0.8994         0.9008         0.5753         0.9326         0.9348           −         Tomek         −         0.7844         0.8944         0.9908         0.5751         0.9255           −         Tomek         −         0.7806         0.9904         0.5770         0.9325         0.9344           −         Tomek         SMOTE         0.7790         0.8975         0.9904         0.5581         0.9823         0.8341           −         Tomek         SMOTE         0.7742         0.8916         0.9904         0.5811         0.9823         0.8934           −         Tomek         SMOTE         0.7742         0.8963         0.9904         0.5881         0.9823         0.8934           −         Tomek         SMOTE         0.7742         0.8963         0.9904         0.5581         0.9823         0.8936           −         OSS         −         0.7742         0.8963         0.9904         0.5581         0.9822         0.8936           −         OSS         −         0.7742         0.8963         0.9904         0.5581         0.9822         0.8836           −         OSS         −<	GBoost	ı	Tomek	I	0.7830	0.8994	0.9908	0.5753	0.9826	0.9348	0.9991	0.4155	Ą
−         Tomek         −         0.7844         0.8844         0.9008         0.5781         0.9257         0.9253           −         Tomek         −         0.7830         0.8904         0.9008         0.5733         0.9826         0.9348           −         Tomek         SMOTE         0.7780         0.8907         0.9907         0.9829         0.8849         0.9341           −         Tomek         SMOTE         0.7742         0.8916         0.9904         0.5581         0.9829         0.8344           −         Tomek         SMOTE         0.7742         0.8907         0.9904         0.5581         0.9825         0.8936           −         Tomek         SMOTE         0.7742         0.8963         0.9904         0.5581         0.9836         0.8936           −         OSS         −         0.7774         0.8991         0.9904         0.5581         0.9837         0.9904         0.5581         0.9837         0.9904         0.5581         0.9822         0.8836         0.9904         0.5581         0.9822         0.8836         0.9904         0.5581         0.9822         0.9822         0.9822         0.9822         0.9822         0.9822         0.9822         0.9	GBoost	ı	Tomek	I	0.7830	0.8994	0.9908	0.5753	0.9826	0.9348	0.9991	0.4155	В
−         Tomek         −         0.7830         0.8994         0.9908         0.5753         0.9926         0.9348           −         Tomek         −         0.7806         0.9026         0.9077         0.5705         0.9825         0.9341           −         Tomek         SMOTE         0.7742         0.8916         0.9904         0.5573         0.9825         0.9341           −         Tomek         SMOTE         0.7742         0.8916         0.9904         0.5581         0.9825         0.8942           −         Tomek         SMOTE         0.7742         0.8903         0.9904         0.5881         0.9825         0.8936           −         Tomek         SMOTE         0.7742         0.8903         0.9904         0.5581         0.9825         0.9904           −         OSS         −         0.7743         0.8904         0.9904         0.5820         0.9825         0.9911           −         OSS         −         0.7747         0.8903         0.9904         0.5820         0.9904         0.9825         0.9911           −         OSS         SMOTE         0.7747         0.8918         0.9904         0.9804         0.9804         0.9812	GBoost	ı	Tomek	I	0.7844	0.8844	0.9908	0.5781	0.9827	0.9255	0.666.0	0.4203	C
−         Tomek         −         0.7806         0.9026         0.9907         0.5705         0.9825         0.9341           −         Tomek         SMOTE         0.7790         0.8975         0.9904         0.5571         0.9829         0.8544           −         Tomek         SMOTE         0.7742         0.8904         0.5581         0.9823         0.8936           −         Tomek         SMOTE         0.7742         0.8904         0.5581         0.9836         0.8936           −         Tomek         SMOTE         0.7742         0.8903         0.9004         0.5581         0.8936           −         OSS         −         0.7713         0.8901         0.9902         0.5515         0.8922         0.8937           −         OSS         −         0.7718         0.8901         0.9904         0.5522         0.9822         0.8916           −         OSS         −         0.7747         0.8938         0.9904         0.5589         0.9917         0.9922         0.8826           −         OSS         SMOTE         0.7784         0.8949         0.9904         0.9824         0.9917         0.9822         0.9824           − <td< td=""><td>GBoost</td><td>ı</td><td>Tomek</td><td>I</td><td>0.7830</td><td>0.8994</td><td>0.9908</td><td>0.5753</td><td>0.9826</td><td>0.9348</td><td>0.9991</td><td>0.4155</td><td>D</td></td<>	GBoost	ı	Tomek	I	0.7830	0.8994	0.9908	0.5753	0.9826	0.9348	0.9991	0.4155	D
-         Tomek         SMOTE         0.7790         0.8975         0.9903         0.55677         0.9829         0.8944           -         Tomek         SMOTE         0.7742         0.8916         0.9904         0.5881         0.9936         0.8936           -         Tomek         SMOTE         0.7742         0.8905         0.9909         0.5881         0.8936         0.8936           -         Tomek         SMOTE         0.7742         0.8903         0.5781         0.9827         0.8936           -         OSS         -         0.7742         0.8937         0.9904         0.5781         0.9827         0.8936           -         OSS         -         0.7774         0.8937         0.9902         0.5812         0.9837         0.9911           -         OSS         -         0.7774         0.8934         0.9902         0.9822         0.9837         0.9911           -         OSS         SMOTE         0.7784         0.8941         0.9903         0.5583         0.8912         0.9824           -         OSS         SMOTE         0.7886         0.8941         0.9906         0.5873         0.9824           -         OSS	GBoost	ı	Tomek	I	0.7806	0.9026	0.9907	0.5705	0.9825	0.9341	0.9991	0.4106	山
−         Tomek         SMOTE         0.7742         0.8916         0.9904         0.5581         0.9836         0.8936           −         Tomek         SMOTE         0.7945         0.8805         0.9909         0.5781         0.9836         0.8936           −         Tomek         SMOTE         0.7742         0.8902         0.5781         0.9823         0.9904           −         Tomek         SMOTE         0.7742         0.8902         0.5581         0.9823         0.8936           −         OSS         −         0.7713         0.8901         0.9904         0.5582         0.8919           −         OSS         −         0.7713         0.8991         0.9908         0.9820         0.9111           −         OSS         −         0.7718         0.9041         0.9003         0.5829         0.9111           −         OSS         SMOTE         0.7747         0.8938         0.9004         0.5829         0.9822           −         OSS         SMOTE         0.7784         0.8904         0.5809         0.9823         0.9822           −         OSS         SMOTE         0.7781         0.8904         0.5688         0.9822	GBoost	ı	Tomek	SMOTE	0.7790	0.8975	0.9903	0.5677	0.9829	0.8544	0.9978	0.4251	А
−         Tomek         SMOTE         0.7945         0.8805         0.9908         0.5981         0.9836         0.8942           −         Tomek         SMOTE         0.7742         0.8963         0.9908         0.5881         0.9827         0.9255           −         OSS         −         0.7742         0.8963         0.9904         0.5515         0.9823         0.8936           −         OSS         −         0.773         0.8991         0.9904         0.5515         0.9823         0.8936           −         OSS         −         0.7718         0.9041         0.9904         0.5829         0.9111           −         OSS         −         0.7718         0.9041         0.9903         0.5839         0.9111           −         OSS         SMOTE         0.7747         0.8931         0.9052         0.9042         0.9053         0.9222           −         OSS         SMOTE         0.7784         0.8945         0.9045         0.9823         0.9052         0.9042         0.9046         0.9046         0.9046         0.9046         0.9046         0.9046         0.9046         0.9046         0.9046         0.9046         0.9046         0.9046         0.9046	GBoost	ı	Tomek	SMOTE	0.7742	0.8916	0.9904	0.5581	0.9823	0.8936	0.9985	0.4058	В
−         Tomek         SMOTE         0.7844         0.8972         0.9908         0.5781         0.9827         0.9255           −         Tomek         SMOTE         0.7742         0.8963         0.9904         0.5515         0.9823         0.8936           −         OSS         −         0.7713         0.8937         0.9902         0.5515         0.8830         0.8936           −         OSS         −         0.7718         0.8991         0.9908         0.9820         0.9111           −         OSS         −         0.7718         0.9908         0.5809         0.9822         0.9111           −         OSS         SMOTE         0.7784         0.8904         0.5589         0.9822         0.9822           −         OSS         SMOTE         0.7784         0.8905         0.5788         0.9822         0.9822           −         OSS         SMOTE         0.7786         0.8907         0.9904         0.5688         0.8835           −         OSS         SMOTE         0.7789         0.8904         0.5883         0.8835           −         OSS         SMOTE         0.7789         0.9904         0.5688         0.8835 <tr< td=""><td>GBoost</td><td>ı</td><td>Tomek</td><td>SMOTE</td><td>0.7945</td><td>0.8805</td><td>0.9909</td><td>0.5981</td><td>0.9836</td><td>0.8942</td><td>0.9984</td><td>0.4493</td><td>C</td></tr<>	GBoost	ı	Tomek	SMOTE	0.7945	0.8805	0.9909	0.5981	0.9836	0.8942	0.9984	0.4493	C
−         Tomek         SMOTE         0.7742         0.8963         0.9904         0.5581         0.9822         0.8336           −         OSS         −         0.7709         0.8937         0.9902         0.5515         0.9822         0.8830           −         OSS         −         0.7713         0.8991         0.9904         0.5552         0.9820         0.9111           −         OSS         −         0.7713         0.8991         0.9908         0.5589         0.9911           −         OSS         −         0.7713         0.891         0.9908         0.5829         0.9111           −         OSS         SMOTE         0.7747         0.8938         0.9905         0.5589         0.9822         0.9167           −         OSS         SMOTE         0.7784         0.9907         0.5789         0.9824         0.9824         0.9824           −         OSS         SMOTE         0.7784         0.8947         0.9904         0.5689         0.9824         0.8834           −         OSS         SMOTE         0.7789         0.9044         0.9906         0.5612         0.9824         0.8839           1:3         −         −	GBoost .	1	Tomek	SMOTE	0.7844	0.8972	0.9908	0.5781	0.9827	0.9255	0.666.0	0.4203	О
-         OSS         -         0.7709         0.8937         0.9902         0.5515         0.9822         0.8330           -         OSS         -         0.7713         0.8991         0.9904         0.5522         0.9820         0.9111           -         OSS         -         0.7718         0.8991         0.9908         0.5839         0.9111           -         OSS         -         0.7718         0.9901         0.9903         0.5533         0.9825         0.9111           -         OSS         SMOTE         0.7747         0.8938         0.9905         0.5788         0.9825         0.9822         0.9222           -         OSS         SMOTE         0.7784         0.8941         0.9905         0.5788         0.8935         0.9821         0.9833         0.8835           -         OSS         SMOTE         0.7786         0.8826         0.9904         0.5658         0.9825         0.9824         0.9833         0.8835           -         OSS         SMOTE         0.7789         0.9044         0.9906         0.5612         0.9825         0.9825         0.9825         0.9826         0.8839           1:3         -         -         - <td>GBoost</td> <td>ı</td> <td>Tomek</td> <td>SMOTE</td> <td>0.7742</td> <td>0.8963</td> <td>0.9904</td> <td>0.5581</td> <td>0.9823</td> <td>0.8936</td> <td>0.9985</td> <td>0.4058</td> <td>田</td>	GBoost	ı	Tomek	SMOTE	0.7742	0.8963	0.9904	0.5581	0.9823	0.8936	0.9985	0.4058	田
- OSS - 0.7713 0.8991 0.9904 0.5522 0.9820 0.9111 - OSS - 0.7718 0.8919 0.9908 0.5809 0.9829 0.9167 - OSS - 0.7718 0.9041 0.9903 0.5533 0.9822 0.9925 - OSS SMOTE 0.7747 0.8938 0.9905 0.5589 0.9822 0.9222 - OSS SMOTE 0.7786 0.8941 0.9905 0.5788 0.9831 0.8654 - OSS SMOTE 0.7786 0.8826 0.9904 0.5668 0.9827 0.8809 - OSS SMOTE 0.7786 0.8826 0.9904 0.5688 0.9825 0.8866 - OSS SMOTE 0.7781 0.8925 0.9904 0.5688 0.9825 0.8889 - OSS SMOTE 0.7781 0.8925 0.9904 0.5688 0.9825 0.8889 - OSS SMOTE 0.7781 0.8925 0.9904 0.5688 0.9825 0.8889 - OSS SMOTE 0.7781 0.8925 0.9904 0.5688 0.9825 0.8889 - OSS SMOTE 0.7781 0.8925 0.9904 0.5688 0.9825 0.8889 - OSS SMOTE 0.7781 0.8925 0.9904 0.5688 0.9825 0.8889 - OSS SMOTE 0.7781 0.8925 0.9904 0.5688 0.9825 0.8889 - OSS SMOTE 0.7781 0.9905 0.6012 0.9843 0.8235 0.7959 0.9024 0.9906 0.6012 0.9843 0.8235 0.7959 0.9024 0.9906 0.6012 0.9843 0.8235 0.7959 0.9024 0.9906 0.6012 0.9843 0.8235 0.7959 0.9024 0.9906 0.6012 0.9843 0.7889 0.7889 0.7881 0.7881 0.7881 0.7881 0.7881 0.7881 0.7881 0.7881 0.7781 0.7781 0.8932 0.9894 0.9841 0.7886 0.7781 0.7781 0.7781 0.7781 0.8932 0.9894 0.9841 0.7781 0.7781 0.7781 0.7781 0.7781 0.9832 0.9894 0.9841 0.7781 0.	GBoost	ı	OSS	I	0.7709	0.8937	0.9902	0.5515	0.9822	0.8830	0.9984	0.4010	Ą
- OSS - 0.7788 0.8919 0.9908 0.5809 0.9829 0.9167 - OSS - 0.77718 0.9041 0.9903 0.5533 0.9822 0.9222 - OSS SMOTE 0.7747 0.8938 0.9905 0.5589 0.9822 0.9222 - OSS SMOTE 0.7786 0.8941 0.9905 0.5788 0.9831 0.8654 - OSS SMOTE 0.7786 0.8926 0.9904 0.5668 0.9827 0.8700 - OSS SMOTE 0.7786 0.8926 0.9904 0.5668 0.9827 0.8889 - OSS SMOTE 0.7781 0.8925 0.9904 0.5668 0.9827 0.8889 - OSS SMOTE 0.7781 0.8925 0.9904 0.5668 0.9827 0.8889 - OSS SMOTE 0.7781 0.8925 0.9904 0.5668 0.9827 0.8889 - OSS SMOTE 0.7781 0.8925 0.9904 0.5668 0.9827 0.8889 - OSS SMOTE 0.7781 0.8925 0.9904 0.5688 0.9826 0.8889 - OSS SMOTE 0.7781 0.8925 0.9904 0.5688 0.9826 0.8889 - OSS SMOTE 0.7781 0.8926 0.9044 0.9906 0.6012 0.9843 0.8235 - OSS SMOTE 0.7959 0.9024 0.9906 0.6012 0.9843 0.8235 - OSS SMOTE 0.7959 0.9024 0.9906 0.6012 0.9843 0.8235 - OSS SMOTE 0.7959 0.9024 0.9906 0.6012 0.9843 0.8235 - OSS SMOTE 0.7959 0.9024 0.9906 0.6012 0.9843 0.8235 - OSS SMOTE 0.7959 0.9024 0.9906 0.6012 0.9843 0.8235 - OSS SMOTE 0.7781 0.8932 0.9898 0.5783 0.9841 0.77886 - OSS SMOTE 0.7781 0.8932 0.5899 0.5778 0.9841 0.77886 - OSS SMOTE 0.7781 0.8939 0.5679 0.9841 0.77886 - OSS SMOTE 0.7781 0.8939 0.5690 0.9841 0.7789	GBoost	ı	SSO	I	0.7713	0.8991	0.9904	0.5522	0.9820	0.9111	0.9988	0.3961	В
- OSS - 0.7718 0.9041 0.9903 0.5533 0.9822 0.8925   - OSS SMOTE 0.7747 0.8938 0.9905 0.5589 0.9822 0.9222   - OSS SMOTE 0.7786 0.8941 0.9905 0.5788 0.9831 0.8654   - OSS SMOTE 0.7786 0.8926 0.9904 0.5668 0.9827 0.8700   - OSS SMOTE 0.7786 0.8926 0.9904 0.5668 0.9827 0.8866   - OSS SMOTE 0.7786 0.8926 0.9904 0.5668 0.9827 0.8866   - OSS SMOTE 0.7781 0.8925 0.9904 0.5658 0.9826 0.8889   - OSS SMOTE 0.7781 0.8925 0.9904 0.5658 0.9826 0.8889   - OSS SMOTE 0.7781 0.8925 0.9904 0.5658 0.9826 0.8889   - OSS SMOTE 0.7781 0.8925 0.9904 0.5658 0.9829 0.8889   - OSS SMOTE 0.7789 0.9024 0.9906 0.6012 0.9843 0.8235   - OSS 0.7782 0.9024 0.9906 0.6012 0.9843 0.8235   - OSS 0.7782 0.9024 0.9906 0.6012 0.9843 0.8235   - OSS 0.7782 0.9024 0.9906 0.6012 0.9843 0.8235   - OSS 0.7781 0.8932 0.9898 0.5748 0.9841 0.7789   - OSS 0.7781 0.8932 0.9898 0.5748 0.9841 0.7781   - OSS 0.7781 0.8932 0.9898 0.5748 0.9841 0.7781   - OSS 0.7781 0.8932 0.9901 0.5869 0.9841 0.7781   - OSS 0.7781 0.8932 0.9893 0.5689 0.9841 0.7781   - OSS 0.7781 0.8932 0.9893 0.5689 0.9841 0.7781   - OSS 0.7781 0.8932 0.9901 0.5879 0.9841 0.7781   - OSS 0.7781 0.8932 0.9893 0.5689 0.9841 0.7781   - OSS 0.7781 0.7781 0.8932 0.9893 0.5689 0.9841 0.7781   - OSS 0.7781 0.7781 0.8932 0.9893 0.5689 0.9841 0.7781   - OSS 0.7781 0.7781 0.8932 0.9893 0.5689 0.9841 0.7781   - OSS 0.7781 0.7781 0.8932 0.9893 0.5689 0.9841 0.7781   - OSS 0.7781 0.7781 0.8932 0.9893 0.5689 0.9841 0.7781   - OSS 0.7781 0.7781 0.7781 0.8932 0.9893 0.5689 0.9841 0.7781   - OSS 0.7781 0.7781 0.7781 0.7781 0.7781 0.7781 0.7781 0.7781   - OSS 0.7781 0.7781 0	GBoost	ı	OSS	I	0.7858	0.8919	0.9908	0.5809	0.9829	0.9167	0.9988	0.4251	C
-         OSS         -         0.7747         0.8938         0.9905         0.5589         0.9822         0.9222           -         OSS         SMOTE         0.7846         0.8941         0.9905         0.5788         0.9831         0.8654           -         OSS         SMOTE         0.7786         0.8975         0.9904         0.5668         0.9827         0.8700           -         OSS         SMOTE         0.7781         0.8925         0.9904         0.5668         0.9826         0.8826           -         OSS         SMOTE         0.7781         0.8925         0.9904         0.5668         0.9826         0.8889           11:3         -         -         -         0.7782         0.9024         0.9906         0.6012         0.9843         0.8235           11:3         -         -         -         0.7959         0.9024         0.9906         0.6012         0.9843         0.8235           11:3         -         -         -         0.7959         0.9024         0.9906         0.6012         0.9843         0.8235           11:3         -         -         -         0.7959         0.9024         0.9906         0.6012	GBoost	ı	OSS	I	0.7718	0.9041	0.9903	0.5533	0.9822	0.8925	0.9985	0.4010	О
- OSS SMOTE 0.7846 0.8941 0.9905 0.5788 0.9831 0.8654 - OSS SMOTE 0.7786 0.8975 0.9904 0.5668 0.9827 0.8700 - OSS SMOTE 0.7786 0.8926 0.9904 0.5668 0.9827 0.8700 - OSS SMOTE 0.7781 0.8925 0.9904 0.5668 0.9826 0.8889 - OSS SMOTE 0.7781 0.8925 0.9904 0.5668 0.9826 0.8889 - OSS OSMOTE 0.7781 0.8925 0.9904 0.5658 0.9826 0.8889 - OSS OSMOTE 0.77829 0.9024 0.9906 0.6012 0.9843 0.8235 0.7959 0.9024 0.9906 0.6012 0.9843 0.8235 0.7959 0.9024 0.9906 0.6012 0.9843 0.8235 0.7959 0.9024 0.9906 0.6012 0.9843 0.8235 0.7959 0.9024 0.9906 0.6012 0.9843 0.8235 0.7959 0.9024 0.9906 0.6012 0.9843 0.8235 0.7959 0.9024 0.9906 0.6012 0.9843 0.8235 0.7959 0.9024 0.9906 0.6012 0.9843 0.8235 0.7959 0.9024 0.9906 0.6012 0.9843 0.8235 0.7959 0.9024 0.9906 0.6012 0.9843 0.8235 0.7959 0.9024 0.9906 0.6012 0.9843 0.8235 0.7959 0.9024 0.9906 0.6012 0.9843 0.8235 0.7959 0.9024 0.9906 0.6012 0.9843 0.8235 0.7959 0.9024 0.9906 0.6012 0.9843 0.8235 0.7959 0.9024 0.9906 0.6012 0.9843 0.8235 0.7959 0.9024 0.9906 0.6012 0.9843 0.8235 0.7959 0.9024 0.9906 0.6012 0.9843 0.8235 0.7959 0.9024 0.9906 0.6012 0.9843 0.8235 0.7959 0.9024 0.9906 0.6012 0.9841 0.7886 0.7959 0.9901 0.5879 0.9841 0.7239 0.7753 0.8933 0.9893 0.5689 0.9841 0.7239	GBoost	ı	OSS	I	0.7747	0.8938	0.9905	0.5589	0.9822	0.9222	0.6660	0.4010	田
- OSS SMOTE 0.7889 0.8975 0.9907 0.5871 0.9833 0.8835 CORS SMOTE 0.7786 0.8826 0.9904 0.5668 0.9827 0.8700 CORS SMOTE 0.7781 0.8925 0.9904 0.5658 0.9826 0.8866 CORS SMOTE 0.7781 0.8925 0.9904 0.5658 0.9826 0.8866 CORS SMOTE 0.7781 0.9906 0.6012 0.9843 0.8839 CORS CORS CORS CORS CORS CORS CORS CORS	GBoost	ı	OSS	SMOTE	0.7846	0.8941	0.9905	0.5788	0.9831	0.8654	0.866.0	0.4348	A
- OSS SMOTE 0.7786 0.8826 0.9904 0.5668 0.9827 0.8700 0.7781 0.8925 0.9904 0.5658 0.9826 0.8866 0.8889 0.7781 0.8925 0.9904 0.5658 0.9826 0.8889 0.8889 0.7781 0.7829 0.9024 0.9906 0.6012 0.9843 0.8235 0.7959 0.9024 0.9906 0.6012 0.9843 0.8235 0.7959 0.9024 0.9906 0.6012 0.9843 0.8235 0.7957 0.8787 0.9906 0.6012 0.9843 0.8235 0.7959 0.9024 0.9906 0.6012 0.9843 0.8235 0.7959 0.9024 0.9906 0.6012 0.9843 0.8235 0.7959 0.9024 0.9906 0.6012 0.9843 0.8235 0.7959 0.9024 0.9906 0.6012 0.9843 0.8235 0.7881 0.7881 0.7821 0.8932 0.9898 0.5783 0.9840 0.7680 0.7781 0.8932 0.9898 0.5783 0.9841 0.7886 0.7781 0.8933 0.9893 0.5613 0.9841 0.7886 0.7781 0.8933 0.9893 0.5613 0.9841 0.7239 0.7231 0.72	GBoost	ı	OSS	SMOTE	0.7889	0.8975	0.9907	0.5871	0.9833	0.8835	0.9982	0.4396	В
- OSS SMOTE 0.7781 0.8925 0.9904 0.5658 0.9826 0.8866 - OSS SMOTE 0.7829 0.9044 0.9906 0.5752 0.9829 0.8889 1:3 0.7959 0.9024 0.9906 0.6012 0.9843 0.8235 1:3 0.7959 0.9024 0.9906 0.6012 0.9843 0.8235 1:3 0.7959 0.9024 0.9906 0.6012 0.9843 0.8235 1:3 0.7959 0.9024 0.9906 0.6012 0.9843 0.8235 1:3 0.7959 0.9024 0.9906 0.6012 0.9843 0.8235 1:3 0.7959 0.9024 0.9906 0.6012 0.9843 0.8235 1:3 0.7959 0.9024 0.9906 0.6012 0.9843 0.8235 1:3 - SMOTE 0.7821 0.8949 0.9895 0.5748 0.9840 0.7680 1:3 - SMOTE 0.7821 0.8949 0.9895 0.5748 0.9841 0.7886 1:3 - SMOTE 0.7890 0.8779 0.9991 0.5879 0.9841 0.7886 1:3 - SMOTE 0.7791 0.8933 0.9893 0.5699 0.9841 0.7239	GBoost	ı	OSS	SMOTE	0.7786	0.8826	0.9904	0.5668	0.9827	0.8700	0.9981	0.4203	C
- OSS SMOTE 0.7829 0.9044 0.9906 0.5752 0.9829 0.8889 1.3 0.7959 0.9024 0.9906 0.6012 0.9843 0.8235 1.3 0.7959 0.9024 0.9906 0.6012 0.9843 0.8235 1.3 0.7957 0.8787 0.9903 0.6012 0.9843 0.8235 1.3 0.7957 0.8787 0.9906 0.6012 0.9843 0.8235 1.3 0.7959 0.9024 0.9906 0.6012 0.9843 0.8235 1.3 - SMOTE 0.7821 0.8949 0.9895 0.5748 0.9842 0.7313 1.3 - SMOTE 0.7791 0.8933 0.9893 0.5689 0.9841 0.7886 1.3 - SMOTE 0.7791 0.8933 0.9893 0.5689 0.9841 0.7239 1.3 - SMOTE 0.7791 0.8933 0.9893 0.5689 0.9841 0.7239	GBoost	ı	OSS	SMOTE	0.7781	0.8925	0.9904	0.5658	0.9826	0.8866	0.9984	0.4155	О
1:3       -       -       0.7959       0.9024       0.9906       0.6012       0.9843       0.8235         1:3       -       -       -       0.7959       0.9024       0.9906       0.6012       0.9843       0.8235         1:3       -       -       -       0.7959       0.9024       0.9906       0.6012       0.9847       0.7829         1:3       -       -       -       0.7959       0.9024       0.9906       0.6012       0.9843       0.8235         1:3       -       -       0.7959       0.9024       0.9906       0.6012       0.9843       0.8235         1:3       -       -       0.7959       0.9024       0.9906       0.6012       0.9843       0.8235         1:3       -       SMOTE       0.7841       0.8932       0.9898       0.5783       0.9840       0.7313         1:3       -       SMOTE       0.7791       0.8933       0.9893       0.5619       0.9841       0.7239         1:3       -       SMOTE       0.7751       0.8033       0.9893       0.5619       0.9841       0.7244	GBoost	ı	OSS	SMOTE	0.7829	0.9044	0.9906	0.5752	0.9829	0.8889	0.9984	0.4251	闰
1:3       -       -       0.7959       0.9024       0.9906       0.6012       0.9843       0.8235         1:3       -       -       -       0.7957       0.8787       0.9906       0.6012       0.9847       0.7829         1:3       -       -       -       0.7959       0.9024       0.9906       0.6012       0.9843       0.8235         1:3       -       -       -       0.7959       0.9024       0.9906       0.6012       0.9843       0.8235         1:3       -       SMOTE       0.7841       0.8932       0.9898       0.5783       0.9840       0.7680         1:3       -       SMOTE       0.7821       0.8949       0.9895       0.5748       0.9841       0.7886         1:3       -       SMOTE       0.7791       0.8933       0.9893       0.5619       0.9841       0.7239         1:3       -       SMOTE       0.7751       0.8933       0.9893       0.5619       0.9841       0.7239	GBoost 1	:3	I	ı	0.7959	0.9024	0.9906	0.6012	0.9843	0.8235	0.9969	0.4734	Ą
1:3       -       -       0.7957       0.8787       0.9903       0.6012       0.9847       0.7829         1:3       -       -       -       0.7959       0.9024       0.9906       0.6012       0.9843       0.8235         1:3       -       -       0.7959       0.9024       0.9906       0.6012       0.9843       0.8235         1:3       -       SMOTE       0.7841       0.8932       0.9898       0.5783       0.9840       0.7680         1:3       -       SMOTE       0.7821       0.8949       0.9895       0.5748       0.9842       0.7313         1:3       -       SMOTE       0.7890       0.8779       0.9991       0.5879       0.9841       0.7886         1:3       -       SMOTE       0.7791       0.8933       0.9893       0.5619       0.9841       0.7239	GBoost 1	:3	1	I	0.7959	0.9024	0.9906	0.6012	0.9843	0.8235	0.9969	0.4734	В
1:3       -       -       -       0.7959       0.9024       0.9906       0.6012       0.9843       0.8235         1:3       -       -       -       0.7959       0.9024       0.9906       0.6012       0.9843       0.8235         1:3       -       SMOTE       0.7841       0.8932       0.9898       0.5783       0.9840       0.7680         1:3       -       SMOTE       0.7821       0.8949       0.9995       0.5748       0.9842       0.7313         1:3       -       SMOTE       0.7890       0.8779       0.9901       0.5879       0.9841       0.7886         1:3       -       SMOTE       0.7791       0.8933       0.9893       0.5612       0.9841       0.7239		33	I	I	0.7957	0.8787	0.9903	0.6012	0.9847	0.7829	0.9959	0.4879	C
1:3 — — — — — — — — — — — — — — — — — — —		:3	I	I	0.7959	0.9024	0.9906	0.6012	0.9843	0.8235	0.9969	0.4734	О
1:3 - SMOTE 0.7841 0.8932 0.9898 0.5783 0.9840 0.7680 0.7680 1:3 - SMOTE 0.7890 0.8779 0.9901 0.5879 0.9841 0.7313 1:3 - SMOTE 0.7791 0.8933 0.9893 0.5689 0.9841 0.7239 1:3 - SMOTE 0.7753 0.8078 0.8893 0.5689 0.9841 0.7239 1:3 - SMOTE 0.7753 0.8078 0.8893 0.5689 0.9841 0.7239 0.7544		:3	I	I	0.7959	0.9024	0.9906	0.6012	0.9843	0.8235	0.9969	0.4734	Щ
1:3 – SMOTE 0.7821 0.8949 0.9895 0.5748 0.9842 0.7313 1:3 – SMOTE 0.7890 0.8779 0.9901 0.5879 0.9841 0.7886 1:3 – SMOTE 0.7791 0.8933 0.9893 0.5689 0.9841 0.7239 1:3 – SMOTE 0.7791 0.8933 0.9893 0.5689 0.9841 0.7239		53	I	SMOTE	0.7841	0.8932	0.9898	0.5783	0.9840	0.7680	0.9958	0.4638	Ą
1:3 - SMOTE 0.7890 0.8779 0.9901 0.5879 0.9841 0.7886 1:3 - SMOTE 0.7791 0.8933 0.9893 0.5689 0.9841 0.7239 1:3 SMOTE 0.7753 0.8078 0.8033 0.9893 0.5413 0.7239	GBoost 1	:3	I	SMOTE	0.7821	0.8949	0.9895	0.5748	0.9842	0.7313	0.9947	0.4734	В
1:3 - SMOTE 0.7791 0.8933 0.9893 0.5689 0.9841 0.7239	GBoost 1	:3	I	SMOTE	0.7890	0.8779	0.9901	0.5879	0.9841	0.7886	0.9962	0.4686	C
1.3 CMOTE 0.7753 0.8078 0.0803 0.5612 0.0827 0.7344	GBoost 1	33	I	SMOTE	0.7791	0.8933	0.9893	0.5689	0.9841	0.7239	0.9946	0.4686	О
1.3 - SIMOLE 0.7733 0.8978 0.3633 0.3637 0.7344	XGBoost 1	:3	I	SMOTE	0.7753	0.8978	0.9893	0.5612	0.9837	0.7344	0.9950	0.4541	Щ

TABLE VIII
COMPLETE TEST SET CLASSIFICATION PERFORMANCE - PART 5

Model	Class Weight	Undersampling	Oversampling	Macro F1	AUC	$F1_0$	$F1_1$	Precision <sub>0</sub>	Precision <sub>1</sub>	Recall <sub>0</sub>	Recall <sub>1</sub>	Seed
XGBoost	1:3	Tomek	I	0.7920	0.8944	0.9900	0.5941	0.9847	0.7594	0.9953	0.4879	A
XGBoost	1:3	Tomek	I	0.7920	0.8944	0.9900	0.5941	0.9847	0.7594	0.9953	0.4879	В
XGBoost	1:3	Tomek	I	0.7974	0.8791	0.9901	0.6047	0.9851	0.7591	0.9952	0.5024	C
XGBoost	1:3	Tomek	I	0.7920	0.8944	0.9900	0.5941	0.9847	0.7594	0.9953	0.4879	D
XGBoost	1:3	Tomek	I	0.7920	0.8944	0.9900	0.5941	0.9847	0.7594	0.9953	0.4879	田
XGBoost	1:3	Tomek	SMOTE	0.7804	0.8881	0.9893	0.5714	0.9842	0.7206	0.9944	0.4734	А
XGBoost	1:3	Tomek	SMOTE	0.7837	0.8972	0.9894	0.5780	0.9845	0.7194	0.9943	0.4831	В
XGBoost	1:3	Tomek	SMOTE	0.7914	0.8759	0.9898	0.5930	0.9848	0.7445	0.9949	0.4928	C
XGBoost	1:3	Tomek	SMOTE	0.7727	0.8871	0.9891	0.5562	0.9837	0.7176	0.9946	0.4541	О
XGBoost	1:3	Tomek	SMOTE	0.7765	0.8876	0.9891	0.5640	0.9841	0.7080	0.9942	0.4686	田
XGBoost	1:3	OSS	I	0.7788	0.9022	0.9896	0.5680	0.9837	0.7581	0.9956	0.4541	A
XGBoost	1:3	OSS	I	0.7833	0.9033	0.9900	0.5767	0.9837	0.7899	0.9963	0.4541	В
XGBoost	1:3	OSS	I	0.7985	0.8853	0.9905	9909.0	0.9847	0.8016	0.9963	0.4879	C
XGBoost	1:3	OSS	I	0.7837	0.8968	0.9899	0.5775	0.9838	0.7787	0.9961	0.4589	О
XGBoost	1:3	OSS	I	0.7859	0.8933	0.9900	0.5818	0.9840	0.7805	0.9961	0.4638	田
XGBoost	1:3	SSO	SMOTE	0.7740	0.8885	0.9891	0.5588	0.9838	0.7143	0.9944	0.4589	A
XGBoost	1:3	OSS	SMOTE	0.7935	0.8899	0.9899	0.5971	0.9849	0.7464	0.9949	0.4976	В
XGBoost	1:3	OSS	SMOTE	0.7839	0.8786	0.9896	0.5782	0.9842	0.7424	0.9950	0.4734	C
XGBoost	1:3	OSS	SMOTE	0.7727	0.8911	0.9886	0.5568	0.9842	0.6759	0.9931	0.4734	О
XGBoost	1:3	OSS	SMOTE	0.7863	0.8930	0.9896	0.5831	0.9845	0.7353	0.9947	0.4831	Щ
XGBoost	1:5	I	I	0.7732	0.9000	0.9883	0.5580	0.9846	0.6516	0.9921	0.4879	A
XGBoost	1:5	I	I	0.7732	0.9000	0.9883	0.5580	0.9846	0.6516	0.9921	0.4879	В
XGBoost	1:5	I	I	0.7891	0.8746	0.9892	0.5889	0.9853	0.6928	0.9931	0.5121	C
XGBoost	1:5	I	I	0.7732	0.9000	0.9883	0.5580	0.9846	0.6516	0.9921	0.4879	О
XGBoost	1:5	I	I	0.7732	0.9000	0.9883	0.5580	0.9846	0.6516	0.9921	0.4879	田
XGBoost	1:5	I	SMOTE	0.7661	0.8840	0.9877	0.5445	0.9846	0.6159	0.9908	0.4879	Α
XGBoost	1:5	I	SMOTE	0.7570	0.8934	0.9872	0.5269	0.9842	0.5939	0.9902	0.4734	В
XGBoost	1:5	I	SMOTE	0.7927	0.8794	0.9891	0.5962	0.9859	0.6790	0.9924	0.5314	C
XGBoost	1:5	I	SMOTE	0.7716	0.8937	0.9880	0.5553	0.9849	0.6280	0.9911	0.4976	О
XGBoost	1:5	I	SMOTE	0.7682	0.9000	0.9875	0.5488	0.9850	0.6047	0.9901	0.5024	Щ
XGBoost	1:5	Tomek	I	0.7664	0.8952	0.9878	0.5450	0.9845	0.6250	0.9912	0.4831	Ą
XGBoost	1:5	Tomek	I	0.7664	0.8952	0.9878	0.5450	0.9845	0.6250	0.9912	0.4831	В
XGBoost	1:5	Tomek	I	0.7780	0.8812	0.9883	0.5676	0.9852	0.6442	0.9915	0.5072	C
XGBoost	1:5	Tomek	I	0.7664	0.8952	0.9878	0.5450	0.9845	0.6250	0.9912	0.4831	О
XGBoost	1:5	Tomek	I	0.7664	0.8952	0.9878	0.5450	0.9845	0.6250	0.9912	0.4831	Щ
XGBoost	1:5	Tomek	SMOTE	0.7662	0.8917	0.9875	0.5450	0.9849	0.6023	0.9901	0.4976	A
XGBoost	1:5	Tomek	SMOTE	0.7600	0.8887	0.9867	0.5333	0.9850	0.5683	0.9885	0.5024	В
XGBoost	1:5	Tomek	SMOTE	0.7833	0.8748	0.9884	0.5782	0.9857	0.6412	0.9911	0.5266	C
XGBoost	1:5	Tomek	SMOTE	0.7675	0.8821	0.9872	0.5478	0.9853	0.5889	0.9892	0.5121	О
XGBoost	1:5	Tomek	SMOTE	0.7744	0.8882	0.9881	0.5606	0.9850	0.6341	0.9912	0.5024	山
											* "-" = Not Applied	Applied

TABLE IX
COMPLETE TEST SET CLASSIFICATION PERFORMANCE - PART 6

Model	Class Weight	Undersampling	Oversampling	Macro F1	AUC	$F1_0$	$F1_1$	Precision <sub>0</sub>	Precision <sub>1</sub>	Recall <sub>0</sub>	Recall <sub>1</sub>	Seed
XGBoost	1:5	SSO	ı	0.7643	0.9003	0.9874	0.5411	0.9847	0.6000	0.9901	0.4928	A
XGBoost	1:5	OSS	I	0.7760	0.9001	0.9885	0.5635	0.9848	0.6581	0.9923	0.4928	В
XGBoost	1:5	OSS	I	0.7916	0.8855	0.9891	0.5940	0.9858	0.6813	0.9925	0.5266	C
XGBoost	1:5	OSS	I	0.7740	0.8955	0.9880	0.5600	0.9852	0.6250	0.9908	0.5072	О
XGBoost	1:5	OSS	I	0.7760	0.9074	0.9883	0.5637	0.9850	0.6420	0.9915	0.5024	田
XGBoost	1:5	OSS	SMOTE	0.7678	0.8903	0.9874	0.5483	0.9852	0.5966	9686.0	0.5072	Ą
XGBoost	1:5	SSO	SMOTE	0.7674	0.8854	0.9875	0.5474	0.9850	0.6012	0.9899	0.5024	В
XGBoost	1:5	OSS	SMOTE	0.7674	0.8728	0.9875	0.5474	0.9850	0.6012	0.9899	0.5024	C
XGBoost	1:5	OSS	SMOTE	0.7600	0.8823	0.9871	0.5330	0.9846	0.5872	9686.0	0.4879	О
XGBoost	1:5	OSS	SMOTE	0.7620	0.8975	0.9872	0.5368	0.9847	0.5896	9686.0	0.4928	田
XGBoost	1:Log	I	ı	0.7709	0.8979	0.9889	0.5529	0.9837	0.7068	0.9943	0.4541	Ą
XGBoost	1:Log	I	ı	0.7709	0.8979	0.9889	0.5529	0.9837	0.7068	0.9943	0.4541	В
XGBoost	1:Log	I	ı	0.7828	0.8828	0.9898	0.5758	0.9838	0.7724	0.9959	0.4589	C
XGBoost	1:Log	I	ı	0.7709	0.8979	0.9889	0.5529	0.9837	0.7068	0.9943	0.4541	О
XGBoost	1:Log	I	I	0.7709	0.8979	0.9889	0.5529	0.9837	0.7068	0.9943	0.4541	田
XGBoost	1:Log	I	SMOTE	0.7799	0.8940	0.9892	0.5706	0.9844	0.7071	0.9940	0.4783	A
XGBoost	1:Log	I	SMOTE	0.7774	0.8852	0.9892	0.5656	0.9841	0.7132	0.9943	0.4686	В
XGBoost	1:Log	I	SMOTE	0.7918	0.8742	0.9900	0.5935	0.9845	0.7692	0.9956	0.4831	C
XGBoost	1:Log	I	SMOTE	0.7719	0.8894	0.9888	0.5549	0.9839	9069.0	0.9937	0.4638	D
XGBoost	1:Log	I	SMOTE	0.7794	0.8927	0.9890	0.5698	0.9845	0.6944	0.9936	0.4831	Щ
XGBoost	1:Log	Tomek	ı	0.7787	0.8945	0.9894	0.5680	0.9840	0.7328	0.9949	0.4638	Ą
XGBoost	1:Log	Tomek	ı	0.7787	0.8945	0.9894	0.5680	0.9840	0.7328	0.9949	0.4638	В
XGBoost	1:Log	Tomek	ı	0.7872	0.8831	0.9897	0.5848	0.9845	0.7407	0.9949	0.4831	C
XGBoost	1:Log	Tomek	1	0.7787	0.8945	0.9894	0.5680	0.9840	0.7328	0.9949	0.4638	О
XGBoost	1:Log	Tomek	ı	0.7787	0.8945	0.9894	0.5680	0.9840	0.7328	0.9949	0.4638	田
XGBoost	1:Log	Tomek	SMOTE	0.7752	0.8933	0.9889	0.5616	0.9842	0.6901	0.9936	0.4734	A
XGBoost	1:Log	Tomek	SMOTE	0.7768	0.8876	0.9886	0.5651	0.9848	0.6623	0.9924	0.4928	В
XGBoost	1:Log	Tomek	SMOTE	0.7931	0.8772	0.9897	0.5966	0.9852	0.7241	0.9942	0.5072	C
XGBoost	1:Log	Tomek	SMOTE	0.7798	0.8884	0.9889	0.5706	0.9846	0.6871	0.9933	0.4879	О
XGBoost	1:Log	Tomek	SMOTE	0.7794	0.8951	0.9890	0.5698	0.9845	0.6944	0.9936	0.4831	Щ
XGBoost	1:Log	OSS	I	0.7796	0.9029	0.9895	0.5697	0.9840	0.7385	0.9950	0.4638	Ą
XGBoost	1:Log	SSO	ı	0.7896	0.8925	0.9900	0.5893	0.9844	0.7674	0.9956	0.4783	В
XGBoost	1:Log	OSS	ı	0.7978	0.8871	0.9900	0.6057	0.9854	0.7413	0.9946	0.5121	C
XGBoost	1:Log	OSS	ı	0.7835	0.8925	0.9897	0.5774	0.9841	0.7519	0.9953	0.4686	D
XGBoost	1:Log	OSS	ı	0.7796	0.8943	0.9895	0.5697	0.9840	0.7385	0.9950	0.4638	田
XGBoost	1:Log	OSS	SMOTE	0.7663	0.8877	0.9887	0.5439	0.9835	0.6889	0.9939	0.4493	Ą
XGBoost	1:Log	SSO	SMOTE	0.7844	0.8927	0.9892	0.5795	0.9848	0.7034	0.9937	0.4928	В
XGBoost	1:Log	SSO	SMOTE	0.7864	0.8806	0.9893	0.5836	0.9849	0.7055	0.9937	0.4976	C
XGBoost	1:Log	OSS	SMOTE	0.7773	0.8864	0.9889	0.5657	0.9844	0.6923	0.9936	0.4783	О
XGBoost	1:Log	SSO	SMOTE	0.7782	0.8884	0.9890	0.5673	0.9844	0.6972	0.9937	0.4783	田
											* "-" = Not Applied	t Applied

-         -         -         -         -         0.7757         0.8849         0.9906         0.5668         0.9922         0.9936           -         -         -         -         -         -         -         0.7791         0.8842         0.9950         0.9952         0.9950         0.9952         0.9950         0.9952         0.9950         0.9953         0.9958         0.9958         0.9958         0.9950         0.9952         0.9950         0.9952         0.9950         0.9950         0.9952         0.9950         0.9950         0.9952         0.9950         0.9950         0.9952         0.9960         0.9952         0.9950         0.9950         0.9952         0.9960         0.9952         0.9960         0.9950         0.9952         0.9960         0.9950         0.9952         0.9960         0.9950         0.9952         0.9960         0.9950         0.9952         0.9960         0.9950         0.9952         0.9960         0.9950         0.9950         0.9960         0.9950         0.9960         0.9950         0.9960         0.9950         0.9960         0.9950         0.9960         0.9950         0.9960         0.9960         0.9960         0.9960         0.9960         0.9960         0.9960	CatBoost												
-         -         -         0.7791         0.8962         0.9905         0.6877         0.8982         0.9905         0.6874         0.8983         0.9905         0.9994           -         -         -         -         -         0.7772         0.8861         0.9904         0.5597         0.9904         0.9994           -         -         -         -         -         0.7772         0.8863         0.9904         0.5391         0.9904         0.9918         0.9994           -         -         -         SMOTTE         0.7773         0.8887         0.9907         0.5873         0.9829         0.9907         0.9818         0.9907         0.9818         0.9907         0.9818         0.9908         0.9918         0.9908         0.9907         0.9818         0.9907         0.9818         0.9907         0.9818         0.9907         0.9818         0.9907         0.9818         0.9907         0.9818         0.9907         0.9818         0.9907         0.9818         0.9907         0.9818         0.9907         0.9818         0.9907         0.9818         0.9907         0.9818         0.9907         0.9818         0.9907         0.9818         0.9907         0.9818         0.9907         0.9818	CatBoost	ı	I	ı	0.7757	0.8849	0.9906	0.5608	0.9822	0.9326	0.9991	0.4010	A
-         -         -         0.7939         0.8811         0.901         0.5843         0.9086         0.9090           -         -         -         -         -         0.7772         0.8861         0.9901         0.5341         0.9819         0.9343         0.9909           -         -         -         -         0.7752         0.8861         0.9900         0.5347         0.9819         0.8438         0.9907           -         -         -         SMOTHE         0.7762         0.8891         0.9801         0.9815         0.9873         0.9901           -         -         -         SMOTHE         0.77820         0.8892         0.9901         0.8436         0.9982         0.8741         0.9872         0.9900         0.8837         0.9901         0.8872         0.9802         0.9901         0.8872         0.9802         0.9902         0.9832         0.9801         0.9842         0.9802         0.9902         0.9832         0.9901         0.8847         0.9982         0.9901         0.8847         0.9882         0.9910         0.8847         0.9982         0.9902         0.9842         0.9802         0.9842         0.9802         0.9842         0.9802         0.9842	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	I	I	1	0.7791	0.8962	0.9905	0.5677	0.9826	0.8958	0.9985	0.4155	В
-         -	CatBoost	I	I	ı	0.7939	0.8913	0.9911	0.5967	0.9833	0.9286	0.666.0	0.4396	C
-         -         -         0,7752         0,8863         0,9907         0,5359         0,9820         0,9978           -         -         -         SMOTE         0,7762         0,8920         0,5347         0,9815         0,8438         0,9978           -         -         SMOTE         0,7762         0,8927         0,5347         0,9815         0,8438         0,9987           -         -         SMOTE         0,7782         0,8878         0,9902         0,5373         0,8815         0,9981           -         -         SMOTE         0,7784         0,8924         0,8915         0,8815         0,9981           -         -         SMOTE         0,7784         0,8904         0,5773         0,8916         0,8816         0,8816         0,8816         0,8931         0,9981           -         Tomek         SMOTE         0,7737         0,8904         0,5757         0,8926         0,9901         0,4467         0,9981         0,9981           -         Tomek         SMOTE         0,7737         0,8904         0,5370         0,9816         0,9821         0,9816         0,9817         0,9918           -         Tomek         SMOTE <t< td=""><td>CatBoost</td><td>I</td><td>I</td><td>ı</td><td>0.7722</td><td>0.8912</td><td>0.9904</td><td>0.5541</td><td>0.9820</td><td>0.9213</td><td>0.6660</td><td>0.3961</td><td>О</td></t<>	CatBoost	I	I	ı	0.7722	0.8912	0.9904	0.5541	0.9820	0.9213	0.6660	0.3961	О
-         SNOTE         0.7622         0.8920         0.5347         0.0819         0.8438         0.9978           -         -         SMOTE         0.7723         0.8920         0.5345         0.9815         0.8966         0.9987           -         -         SMOTE         0.7732         0.8920         0.9815         0.8966         0.9997           -         -         SMOTE         0.7734         0.9907         0.5543         0.9826         0.9997           -         -         SMOTE         0.7734         0.9897         0.5817         0.9996         0.9918           -         Tomek         -         0.7734         0.8975         0.9907         0.5547         0.9816         0.9984           -         Tomek         -         0.7732         0.8940         0.9904         0.5820         0.9907         0.5559         0.9820         0.9904         0.9820         0.9904         0.9820         0.9904         0.9820         0.9904         0.9820         0.9904         0.9820         0.9904         0.9820         0.9904         0.9820         0.9904         0.9820         0.9904         0.9820         0.9904         0.9820         0.9904         0.9820         0.9904	CatBoost	I	1	1	0.7752	0.8863	0.9907	0.5597	0.9820	0.9535	0.9994	0.3961	田
-         SMOTE         0.7603         0.8957         0.9900         0.3815         0.8866         0.9982           -         -         SMOTE         0.7723         0.8879         0.9204         0.8815         0.8876         0.9982           -         -         SMOTE         0.7782         0.88929         0.9271         0.8815         0.9824         0.9982           -         -         SMOTE         0.7782         0.88929         0.2777         0.8815         0.9826         0.9881         0.9826         0.9882         0.9982           -         Tomek         -         0.7781         0.8895         0.9901         0.4467         0.9829         0.8271         0.9892           -         Tomek         -         0.7732         0.8940         0.9901         0.4467         0.9981           -         Tomek         SMOTE         0.7773         0.8994         0.5876         0.9820         0.9901         0.8444         0.9978           -         Tomek         SMOTE         0.7773         0.8990         0.5376         0.9824         0.9871         0.9871           -         Tomek         SMOTE         0.7771         0.8990         0.5371         0.9824	CatBoost	I	I	SMOTE	0.7622	0.8920	0.9898	0.5347	0.9819	0.8438	0.9978	0.3913	Ą
-         SMOTE         0.7723         0.8878         0.9907         0.5545         0.9820         0.8750         0.9990           -         -         SMOTE         0.7784         0.8902         0.5573         0.9826         0.9241         0.9990           -         Tomek         -         0.7784         0.8902         0.5877         0.9826         0.9944         0.9990           -         Tomek         -         0.7781         0.8892         0.9901         0.5877         0.9828         0.9988           -         Tomek         -         0.7731         0.8892         0.9904         0.5839         0.9829         0.9981         0.9981           -         Tomek         SMOTE         0.7732         0.8940         0.5857         0.9820         0.9818         0.9991           -         Tomek         SMOTE         0.7747         0.8940         0.9904         0.5837         0.9818         0.9998           -         Tomek         SMOTE         0.7773         0.8940         0.9901         0.5817         0.9984           -         Tomek         SMOTE         0.7772         0.8940         0.9901         0.5817         0.9982           -	CatBoost	I	1	SMOTE	0.7603	0.8957	0.9900	0.5306	0.9815	9968.0	0.9987	0.3768	В
-         SMOTE         0.7820         0.8929         0.9907         0.5733         0.9820         0.9924         0.9908           -         -         -         SMOTE         0.7784         0.9899         0.5270         0.9815         0.8764         0.9984           -         Tomek         -         0.7684         0.8895         0.9901         0.5467         0.9820         0.8817         0.9984           -         Tomek         -         0.7732         0.8894         0.9901         0.5467         0.9824         0.9984           -         Tomek         -         0.7732         0.8804         0.9904         0.5579         0.9824         0.9984           -         Tomek         SMOTE         0.7747         0.8849         0.9901         0.5302         0.911         0.9988           -         Tomek         SMOTE         0.7760         0.8871         0.9804         0.5807         0.9816         0.8441         0.9984           -         Tomek         SMOTE         0.7760         0.8871         0.9901         0.5302         0.911         0.9982           -         Tomek         SMOTE         0.7760         0.8901         0.5502         0.9124	CatBoost	I	I	SMOTE	0.7723	0.8878	0.9902	0.5545	0.9823	0.8750	0.9982	0.4058	C
-         SMOTE         0.7584         0.9042         0.8895         0.5577         0.8815         0.8764         0.9988           -         Tomek         -         0.7791         0.8975         0.9901         0.5677         0.8826         0.8958           -         Tomek         -         0.7791         0.8975         0.9901         0.5467         0.8826         0.9988           -         Tomek         -         0.7737         0.8840         0.9905         0.5559         0.9820         0.9918           -         Tomek         SMOTE         0.7737         0.8840         0.9904         0.5870         0.9820         0.9918           -         Tomek         SMOTE         0.7737         0.8849         0.9901         0.5871         0.8820         0.991           -         Tomek         SMOTE         0.7719         0.8901         0.581         0.8861         0.9988           -         Tomek         SMOTE         0.7719         0.8901         0.581         0.9812         0.9901         0.5817         0.9882         0.9901         0.5817         0.9984           -         OSS         -         0.7720         0.8910         0.9901         0.5821 <td>CatBoost</td> <td>I</td> <td>I</td> <td>SMOTE</td> <td>0.7820</td> <td>0.8929</td> <td>0.9907</td> <td>0.5733</td> <td>0.9826</td> <td>0.9247</td> <td>0.6660</td> <td>0.4155</td> <td>О</td>	CatBoost	I	I	SMOTE	0.7820	0.8929	0.9907	0.5733	0.9826	0.9247	0.6660	0.4155	О
−         Tomek         −         (0.7791         (0.8975         (0.9905         0.5677         (0.8826         (0.9838         (0.9984           −         Tomek         −         (0.7684         (0.8894)         (0.9901         0.5467         (0.8817         (0.9984           −         Tomek         −         (0.7732         (0.8940         (0.9908         0.5559         (0.9820         (0.9818         (0.9984           −         Tomek         SMOTE         (0.7732         (0.8940         (0.9908         0.5579         (0.9822         (0.9111         (0.9984           −         Tomek         SMOTE         (0.7719         (0.8904         0.5979         (0.8527         (0.9911         (0.9988           −         Tomek         SMOTE         (0.7719         (0.8904         0.5907         (0.8849         (0.9907         (0.9816         (0.9841         (0.9988         (0.9916         (0.9818         (0.9987         (0.9917         (0.9988         (0.9916         (0.9818         (0.9987         (0.9918         (0.9987         (0.9987         (0.9987         (0.9987         (0.9987         (0.9987         (0.9987         (0.9987         (0.9987         (0.9987         (0.9987         (0.9987         (0.9	CatBoost	I	I	SMOTE	0.7584	0.9042	0.9899	0.5270	0.9815	0.8764	0.9984	0.3768	田
-         Tomek         -         0.7684         0.8895         0.9901         0.3467         0.9820         0.8814         0.9982           -         Tomek         -         0.7712         0.8940         0.5516         0.9834         0.8846         0.9982           -         Tomek         -         0.7737         0.8840         0.9904         0.5516         0.9834         0.9918           -         Tomek         SMOTE         0.7737         0.8840         0.9804         0.5870         0.9816         0.9918           -         Tomek         SMOTE         0.7719         0.8849         0.9901         0.5837         0.9816         0.9978           -         Tomek         SMOTE         0.7753         0.8896         0.9901         0.5837         0.9816         0.9978           -         Tomek         SMOTE         0.7752         0.8970         0.9901         0.5837         0.9816         0.9983           -         Tomek         SMOTE         0.7762         0.8970         0.9902         0.9824         0.9816         0.9816         0.9984           -         OSS         -         0.7762         0.8870         0.9901         0.5816         0.9816<	CatBoost	I	Tomek	1	0.7791	0.8975	0.9905	0.5677	0.9826	0.8958	0.9985	0.4155	Ą
−         Tomek         −         (77912         (88952         (99081         (98344         (98846         (99981           −         Tomek         −         (7772         (88940         (99081         (55559         (99820         (99318         (99991)           −         Tomek         SMOTE         (7747         (88941         (99886         (55559         (99820         (991818         (99918)           −         Tomek         SMOTE         (7747         (88941         (9894)         (55392         (98200         (99788           −         Tomek         SMOTE         (7747         (8894)         (9991         (65392         (98816         (9988)           −         Tomek         SMOTE         (7772         (8897)         (9896         (52496         (98816         (9987)           −         OSS         −         (7772         (8897)         (9904         (5600         (9982)         (9981         (9988)           −         OSS         −         (7772         (8897)         (9904         (5600         (9982)         (9982)         (9982)         (9984)           −         OSS         SMOTE         (7784         (8898	CatBoost	I	Tomek	1	0.7684	0.8895	0.9901	0.5467	0.9820	0.8817	0.9984	0.3961	В
-         Tomek         -         0.7732         0.8940         0.5559         0.8820         0.9318         0.9998           -         Tomek         -         0.7737         0.8840         0.9904         0.5557         0.8822         0.9121         0.9988           -         Tomek         SMOTE         0.7447         0.8849         0.9801         0.5395         0.8454         0.9978           -         Tomek         SMOTE         0.7460         0.8771         0.9896         0.5395         0.8816         0.8464         0.9978           -         Tomek         SMOTE         0.7760         0.8871         0.9896         0.5302         0.9816         0.9978           -         Tomek         SMOTE         0.7752         0.8896         0.9906         0.5001         0.9823         0.9130         0.9988           -         OSS         -         0.7752         0.8872         0.9904         0.5823         0.9138         0.9909           -         OSS         -         0.7752         0.8882         0.9904         0.9816         0.9904         0.9816         0.9904         0.9904         0.9904         0.9904         0.9904         0.9904         0.9904         <	CatBoost	I	Tomek	1	0.7912	0.8952	0.9908	0.5916	0.9834	0.8846	0.9982	0.4444	C
−         Tomek         −         0.7737         0.8802         0.9904         0.5570         0.9822         0.9121         0.9988           −         Tomek         SMOTFE         0.7749         0.8849         0.9901         0.5395         0.9820         0.8454         0.9978           −         Tomek         SMOTFE         0.7719         0.8849         0.9901         0.5302         0.9816         0.8464         0.9978           −         Tomek         SMOTFE         0.7753         0.8896         0.5392         0.9816         0.8404         0.9978           −         Tomek         SMOTFE         0.7753         0.8890         0.5392         0.9816         0.9870         0.9978           −         OSS         −         0.7752         0.8970         0.9904         0.5820         0.9918         0.9902           −         OSS         −         0.7752         0.8970         0.9904         0.9820         0.9982         0.9901         0.9820         0.9902         0.9820         0.9902         0.9820         0.9904         0.9820         0.9982         0.9904         0.9820         0.9882         0.9904         0.9820         0.9982         0.9982         0.9982         0	CatBoost	I	Tomek	1	0.7732	0.8940	0.9905	0.5559	0.9820	0.9318	0.9991	0.3961	Ω
−         Tomek         SMOTE         0.7647         0.8941         0.9898         0.5395         0.9824         0.8944         0.9978           −         Tomek         SMOTE         0.7719         0.8849         0.9901         0.5337         0.9816         0.8404         0.9978           −         Tomek         SMOTE         0.7779         0.8896         0.5349         0.9816         0.8404         0.9978           −         Tomek         SMOTE         0.7772         0.8896         0.9901         0.5337         0.9824         0.8904         0.9901           −         Tomek         SMOTE         0.7762         0.8900         0.9901         0.5337         0.9924         0.8904         0.9903           −         OSS         −         0.7762         0.8904         0.5600         0.9823         0.9132         0.9988           −         OSS         −         0.7762         0.8904         0.5600         0.9823         0.9904         0.9823         0.9903         0.9823         0.9903         0.9823         0.9904         0.9823         0.9904         0.9823         0.9904         0.9823         0.9918         0.9904         0.9823         0.9823         0.9983         0	CatBoost	I	Tomek	1	0.7737	0.8802	0.9904	0.5570	0.9822	0.9121	0.9988	0.4010	田
−         Tomek         SMOTE         0.7719         0.8849         0.9901         0.5537         0.9824         0.8500         0.9978           −         Tomek         SMOTE         0.7560         0.8771         0.9899         0.5302         0.9816         0.8861         0.9978           −         Tomek         SMOTE         0.7762         0.8900         0.5619         0.9814         0.9814         0.9978           −         OSS         −         0.7762         0.8900         0.9901         0.5823         0.9130         0.9978           −         OSS         −         0.7752         0.8970         0.9904         0.5600         0.9823         0.9913         0.9987           −         OSS         −         0.7762         0.8971         0.9904         0.5602         0.9823         0.9988         0.9901         0.5467         0.9823         0.9987         0.9988         0.9901         0.5467         0.9823         0.9988         0.9901         0.5467         0.9823         0.9988         0.9901         0.5467         0.9823         0.9988         0.9901         0.5467         0.9889         0.9901         0.5467         0.9889         0.9988         0.9880         0.9881	CatBoost	I	Tomek	SMOTE	0.7647	0.8941	0.9898	0.5395	0.9820	0.8454	0.9978	0.3961	Ą
−         Tomek         SMOTE         0.7600         0.8771         0.9899         0.5302         0.9816         0.8681         0.9982           −         Tomek         SMOTE         0.7573         0.8896         0.9896         0.5249         0.9816         0.8404         0.9978           −         Tomek         SMOTE         0.7772         0.8900         0.9901         0.5324         0.8913         0.9978           −         OSS         −         0.7752         0.8970         0.9904         0.5601         0.9823         0.9130         0.9988           −         OSS         −         0.7752         0.8970         0.9904         0.5602         0.9816         0.9988         0.9916         0.9982         0.9816         0.9988           −         OSS         SMOTE         0.7647         0.8918         0.9901         0.5467         0.9820         0.9849         0.9884         0.9901         0.5467         0.9820         0.9984           −         OSS         SMOTE         0.7784         0.8884         0.9901         0.5467         0.9820         0.9984           −         OSS         SMOTE         0.7784         0.8840         0.9904         0.5554	CatBoost	I	Tomek	SMOTE	0.7719	0.8849	0.9901	0.5537	0.9824	0.8500	0.9978	0.4106	В
−         Tomek         SMOTE         0.7573         0.8896         0.5349         0.9816         0.8404         0.9978           −         Tomek         SMOTE         0.7719         0.8900         0.9901         0.5537         0.9824         0.8500         0.9978           −         OSS         −         0.7762         0.8920         0.9901         0.9823         0.9932         0.9988           −         OSS         −         0.7762         0.8970         0.9904         0.5600         0.9823         0.9988           −         OSS         −         0.7764         0.8918         0.9902         0.9829         0.9818         0.9908           −         OSS         SMOTE         0.7644         0.8828         0.9901         0.5467         0.9829         0.9829         0.9889         0.9909           −         OSS         SMOTE         0.7684         0.8828         0.9901         0.5467         0.9829         0.9884           −         OSS         SMOTE         0.7781         0.8881         0.9904         0.5515         0.9820         0.9884           −         OSS         SMOTE         0.7781         0.8881         0.9904         0.5542	CatBoost	I	Tomek	SMOTE	0.7600	0.8771	0.9899	0.5302	0.9816	0.8681	0.9982	0.3816	C
−         Tomek         SMOTE         0.7719         0.8900         0.9901         0.5537         0.9824         0.8500         0.9978           −         OSS         −         0.7762         0.8920         0.9905         0.5619         0.9823         0.9130         0.9988           −         OSS         −         0.7752         0.8870         0.9904         0.5600         0.9823         0.9130         0.9988           −         OSS         −         0.7752         0.8871         0.9904         0.5600         0.9823         0.9913         0.9988           −         OSS         SMOTE         0.7647         0.8918         0.9901         0.5467         0.9820         0.9884         0.9904           −         OSS         SMOTE         0.7684         0.8838         0.9901         0.5467         0.9820         0.9884           −         OSS         SMOTE         0.7784         0.8884         0.9901         0.5467         0.9820         0.9984           −         OSS         SMOTE         0.7781         0.8884         0.9901         0.5467         0.9820         0.9984           1:3         −         OSS         SMOTE         0.7784	CatBoost	I	Tomek	SMOTE	0.7573	0.8896	0.9896	0.5249	0.9816	0.8404	0.9978	0.3816	Ω
−         OSS         −         0.7762         0.8920         0.9905         0.5619         0.9823         0.9130         0.9988           −         OSS         −         0.7752         0.8970         0.9904         0.5600         0.9823         0.9130         0.9987           −         OSS         −         0.7752         0.8970         0.9902         0.5872         0.9816         0.9984         0.9908           −         OSS         −         0.7782         0.8964         0.9902         0.5322         0.9186         0.9984           −         OSS         SMOTE         0.7784         0.8838         0.9901         0.5472         0.9820         0.8884         0.9904           −         OSS         SMOTE         0.7784         0.8838         0.9904         0.5477         0.9820         0.8884         0.9904           −         OSS         SMOTE         0.7781         0.8884         0.9904         0.5568         0.9826         0.9884           −         OSS         SMOTE         0.7781         0.8883         0.9904         0.5671         0.9831         0.9984           1:3         −         −         0.7765         0.8824         0.9	CatBoost	I	Tomek	SMOTE	0.7719	0.8900	0.9901	0.5537	0.9824	0.8500	0.9978	0.4106	田
−         OSS         −         0.7752         0.8970         0.9904         0.5600         0.9823         0.9032         0.9987           −         OSS         −         0.7752         0.8882         0.9909         0.5902         0.9832         0.9184         0.9988           −         OSS         −         0.7764         0.8918         0.9906         0.5752         0.9816         0.9984         0.9909         0.5902         0.8889         0.9984           −         OSS         SMOTE         0.7764         0.8836         0.9901         0.5467         0.9820         0.8817         0.9984           −         OSS         SMOTE         0.7764         0.8836         0.9901         0.5467         0.9820         0.8817         0.9984           −         OSS         SMOTE         0.7764         0.8884         0.9904         0.5467         0.9820         0.8817         0.9984           −         OSS         SMOTE         0.7781         0.8884         0.9904         0.5467         0.9830         0.9841           1:3         −         0.8         0.9904         0.5467         0.9830         0.9841         0.7044         0.9954           1:3	CatBoost	I	OSS	1	0.7762	0.8920	0.9905	0.5619	0.9823	0.9130	0.9988	0.4058	Ą
-         OSS         -         0.7905         0.8882         0.9909         0.5902         0.9832         0.9184         0.9988           -         OSS         -         0.7747         0.8918         0.9902         0.5392         0.9816         0.9186         0.9990           -         OSS         SMOTE         0.77829         0.8964         0.9906         0.5752         0.9829         0.8889         0.9994           -         OSS         SMOTE         0.77684         0.8925         0.9901         0.5467         0.9820         0.8817         0.9984           -         OSS         SMOTE         0.77684         0.8838         0.9901         0.5467         0.9820         0.8817         0.9984           -         OSS         SMOTE         0.77684         0.8847         0.9902         0.5515         0.9820         0.8830         0.9904           -         OSS         SMOTE         0.7781         0.8884         0.9904         0.5753         0.9820         0.9840           1:3         -         -         0.7792         0.8823         0.9903         0.6643         0.9841         0.7704         0.9884         0.5754         0.9831         0.7704         0.	CatBoost	I	OSS	1	0.7752	0.8970	0.9904	0.5600	0.9823	0.9032	0.9987	0.4058	В
-         OSS         -         0.7647         0.8918         0.9902         0.5392         0.9816         0.9186         0.9904           -         OSS         -         0.7829         0.8964         0.9906         0.5752         0.9829         0.8889         0.9984           -         OSS         SMOTE         0.7684         0.8925         0.9901         0.5467         0.9820         0.8817         0.9984           -         OSS         SMOTE         0.7764         0.8847         0.9902         0.5457         0.9820         0.8817         0.9984           -         OSS         SMOTE         0.7769         0.8847         0.9902         0.5515         0.9820         0.8830         0.9984           -         OSS         SMOTE         0.7781         0.8840         0.9904         0.5558         0.9820         0.8830         0.9984           1:3         -         -         0.7781         0.8837         0.9904         0.5545         0.9830         0.9940           1:3         -         -         0.7784         0.8823         0.9903         0.6682         0.9840         0.7764         0.9954           1:3         -         -         - <td>CatBoost</td> <td>I</td> <td>OSS</td> <td>1</td> <td>0.7905</td> <td>0.8882</td> <td>0.9909</td> <td>0.5902</td> <td>0.9832</td> <td>0.9184</td> <td>0.9988</td> <td>0.4348</td> <td>C</td>	CatBoost	I	OSS	1	0.7905	0.8882	0.9909	0.5902	0.9832	0.9184	0.9988	0.4348	C
- OSS SMOTE	CatBoost	I	OSS	1	0.7647	0.8918	0.9902	0.5392	0.9816	0.9186	0.6660	0.3816	Ω
-         OSS         SMOTE         0.7684         0.8925         0.9901         0.5467         0.9820         0.8817         0.9984           -         OSS         SMOTE         0.7684         0.8838         0.9901         0.5467         0.9820         0.8817         0.9984           -         OSS         SMOTE         0.7709         0.8847         0.9902         0.5515         0.9820         0.8830         0.9984           -         OSS         SMOTE         0.7781         0.8860         0.9904         0.5753         0.9826         0.8858         0.9904           1:3         -         OSS         SMOTE         0.7781         0.8837         0.9896         0.5545         0.9826         0.9842           1:3         -         -         -         0.7765         0.8931         0.9891         0.5649         0.9841         0.7080         0.9942           1:3         -         -         -         0.7784         0.8826         0.9891         0.5671         0.9835         0.7686         0.9952           1:3         -         -         -         0.7784         0.8826         0.9898         0.5767         0.9838         0.7686         0.9940	CatBoost	I	OSS	ı	0.7829	0.8964	9066.0	0.5752	0.9829	0.8889	0.9984	0.4251	田
- OSS SMOTE 0.7709 0.8847 0.9902 0.5515 0.9820 0.8830 0.9984 - OSS SMOTE 0.7709 0.8847 0.9902 0.5515 0.9822 0.8830 0.9984 0.7709 0.8847 0.9904 0.5723 0.9830 0.8558 0.9978 0.7781 0.8856 0.9904 0.5723 0.9826 0.8856 0.9984 0.9781 0.8857 0.9896 0.5545 0.9826 0.8984 0.9984 0.5723 0.9826 0.8866 0.9984 0.9781 0.8837 0.9896 0.5545 0.9826 0.7807 0.9963 0.7721 0.8837 0.9896 0.5545 0.9830 0.7807 0.9963 0.7721 0.8837 0.9896 0.5545 0.9830 0.7807 0.9963 0.7721 0.8837 0.9899 0.5640 0.9841 0.7080 0.9955 0.7784 0.8826 0.9898 0.5766 0.9840 0.7094 0.9956 0.7784 0.8826 0.9898 0.5766 0.9840 0.7019 0.9956 0.7781 0.8840 0.9888 0.5523 0.9838 0.6934 0.9939 0.7704 0.9888 0.5523 0.9838 0.6934 0.9931 0.7704 0.9888 0.5706 0.9841 0.6736 0.9931 0.7708 0.8899 0.9888 0.5527 0.9841 0.6736 0.9931 0.7708 0.8878 0.9878 0.5878 0.9832 0.6344 0.9924 0.9878 0.5708 0.9887 0.5708 0.9832 0.6344 0.9924 0.7708 0.8878 0.9878 0.5709 0.9832 0.6344 0.9924 0.9931 0.7708 0.8878 0.9878 0.5878 0.9832 0.6344 0.9924 0.9931 0.7708 0.8878 0.9878 0.5878 0.6934 0.9924 0.9925 0.7708 0.7709 0.8878 0.9878 0.5878 0.9832 0.6554 0.9924 0.9925 0.7708 0.9878 0.5878 0.5878 0.5878 0.5878 0.9878 0.5574 0.9878 0.5574 0.9931 0.7708 0.8878 0.9878 0.5878 0.5878 0.9878 0.5878 0.9878 0.5878 0.9878 0.5878 0.9878 0.5878 0.9931 0.5574 0.9932 0.5574	CatBoost	I	OSS	SMOTE	0.7684	0.8925	0.9901	0.5467	0.9820	0.8817	0.9984	0.3961	A
- OSS SMOTE 0.7709 0.8847 0.9902 0.5515 0.9822 0.8830 0.9984 0.7813 0.8860 0.9904 0.5723 0.9830 0.8558 0.9978 0.7781 0.8869 0.9904 0.5723 0.9830 0.8558 0.9984 0.7781 0.8837 0.9896 0.5545 0.9820 0.7807 0.9963 0.7721 0.8837 0.9896 0.5545 0.9830 0.7780 0.9963 0.7721 0.8837 0.9896 0.5545 0.9830 0.7780 0.9963 0.7765 0.8923 0.9981 0.5640 0.9841 0.7704 0.9955 0.7784 0.8826 0.9897 0.5671 0.9835 0.7686 0.9956 0.9559 0.7784 0.8826 0.9898 0.5766 0.9840 0.7704 0.9956 0.7784 0.8826 0.9898 0.5766 0.9840 0.7704 0.9956 0.9881 0.7704 0.9835 0.7686 0.9940 0.7706 0.8840 0.9888 0.5523 0.9838 0.6934 0.9939 0.7706 0.8840 0.9888 0.5523 0.9838 0.6934 0.9931 0.7704 0.9835 0.7706 0.8878 0.9878 0.5200 0.9832 0.6364 0.9924 0.7706 0.8878 0.9878 0.5200 0.9832 0.6364 0.9924 0.9925 0.7706 0.8878 0.9878 0.5200 0.9832 0.6364 0.9925 0.7706 0.8878 0.9878 0.5200 0.9832 0.6364 0.9925 0.7706 0.8878 0.9878 0.5465 0.9841 0.6554 0.9925	CatBoost	I	OSS	SMOTE	0.7684	0.8838	0.9901	0.5467	0.9820	0.8817	0.9984	0.3961	В
- OSS SMOTE 0.7813 0.8860 0.9904 0.5723 0.9830 0.8558 0.9978 - OSS SMOTE 0.7781 0.8887 0.9904 0.5658 0.9826 0.8866 0.9984 11:3 OSS SMOTE 0.7721 0.8837 0.9896 0.5545 0.9830 0.7807 0.9963 11:3 O.7765 0.8931 0.9891 0.5640 0.9841 0.7080 0.9942 11:3 O.7795 0.8823 0.9903 0.6082 0.9851 0.7704 0.9955 11:3 O.7784 0.8826 0.9897 0.5671 0.9835 0.7686 0.9956 11:3 O.7784 0.8826 0.9889 0.5766 0.9840 0.7619 0.9956 11:3 SMOTE 0.7706 0.8840 0.9888 0.5523 0.9838 0.6934 0.9939 11:3 - SMOTE 0.7706 0.8890 0.9886 0.5527 0.9831 0.6934 0.9931 11:3 - SMOTE 0.7706 0.8890 0.9886 0.5527 0.9841 0.6736 0.9931 11:3 - SMOTE 0.7706 0.8890 0.9886 0.5527 0.9841 0.6736 0.9931 11:3 - SMOTE 0.7706 0.8890 0.9886 0.5527 0.9841 0.6736 0.9931	CatBoost	I	OSS	SMOTE	0.7709	0.8847	0.9902	0.5515	0.9822	0.8830	0.9984	0.4010	C
-         OSS         SMOTE         0.7781         0.8988         0.9904         0.5658         0.9826         0.8866         0.9984           1:3         -         -         0.7721         0.8837         0.9896         0.5545         0.9830         0.7807         0.9963           1:3         -         -         -         0.7765         0.8931         0.9891         0.5640         0.9841         0.7080         0.9963           1:3         -         -         -         0.7765         0.8826         0.9891         0.5641         0.7704         0.9955           1:3         -         -         -         -         0.7784         0.8826         0.9897         0.5671         0.9835         0.7686         0.9956           1:3         -         -         -         0.7783         0.8840         0.9888         0.5766         0.9838         0.6934         0.9936           1:3         -         -         SMOTE         0.7706         0.8840         0.9888         0.5497         0.9831         0.9931           1:3         -         SMOTE         0.7706         0.8890         0.9888         0.5497         0.9841         0.6734         0.9924 <td>CatBoost</td> <td>I</td> <td>OSS</td> <td>SMOTE</td> <td>0.7813</td> <td>0.8860</td> <td>0.9904</td> <td>0.5723</td> <td>0.9830</td> <td>0.8558</td> <td>0.9978</td> <td>0.4300</td> <td>Ω</td>	CatBoost	I	OSS	SMOTE	0.7813	0.8860	0.9904	0.5723	0.9830	0.8558	0.9978	0.4300	Ω
1:3       -       -       0.7721       0.8837       0.9896       0.5545       0.9830       0.7807       0.9963         1:3       -       -       -       -       0.7765       0.8931       0.9891       0.5640       0.9841       0.7080       0.9942         1:3       -       -       -       0.7792       0.8823       0.9903       0.6082       0.9851       0.7704       0.9955         1:3       -       -       -       0.7784       0.8826       0.9897       0.5671       0.9835       0.7686       0.9956         1:3       -       -       -       0.7784       0.8840       0.9898       0.5766       0.9840       0.7619       0.9956         1:3       -       SMOTE       0.7706       0.8840       0.9888       0.5523       0.9838       0.6943       0.9940         1:3       -       SMOTE       0.7706       0.8890       0.9886       0.5527       0.9841       0.6736       0.9924         1:3       -       SMOTE       0.7539       0.8878       0.9878       0.5200       0.9832       0.6354       0.9925         1:3       -       SMOTE       0.7674       0.8931       0.9832 <td>CatBoost</td> <td>I</td> <td>OSS</td> <td>SMOTE</td> <td>0.7781</td> <td>0.8988</td> <td>0.9904</td> <td>0.5658</td> <td>0.9826</td> <td>9988.0</td> <td>0.9984</td> <td>0.4155</td> <td>Ξ</td>	CatBoost	I	OSS	SMOTE	0.7781	0.8988	0.9904	0.5658	0.9826	9988.0	0.9984	0.4155	Ξ
1:3       -       -       0.7765       0.8931       0.9891       0.5640       0.9841       0.7080       0.9942         1:3       -       -       -       0.7792       0.8823       0.9903       0.6082       0.9851       0.7704       0.9955         1:3       -       -       -       0.7784       0.8826       0.9897       0.5671       0.9835       0.7686       0.9955         1:3       -       -       -       0.7784       0.8840       0.9898       0.5766       0.9836       0.7691       0.9956         1:3       -       SMOTE       0.7706       0.8840       0.9888       0.5523       0.9838       0.6940       0.9940         1:3       -       SMOTE       0.7706       0.8890       0.9886       0.5527       0.9841       0.6736       0.9931         1:3       -       SMOTE       0.7706       0.8878       0.9878       0.5200       0.9832       0.6354       0.9924         1:3       -       SMOTE       0.7674       0.8931       0.9832       0.6554       0.9925	CatBoost	1:3	1	ı	0.7721	0.8837	0.9896	0.5545	0.9830	0.7807	0.9963	0.4300	Ą
1:3       -       -       0.7992       0.8823       0.9903       0.6082       0.9851       0.7704       0.9955         1:3       -       -       -       0.7784       0.8826       0.9897       0.5671       0.9835       0.7686       0.9959         1:3       -       -       0.7784       0.8826       0.9898       0.5766       0.9840       0.7619       0.9956         1:3       -       SMOTE       0.7706       0.8840       0.9888       0.5523       0.9838       0.6934       0.9936         1:3       -       SMOTE       0.7706       0.8890       0.9886       0.5527       0.9841       0.6963       0.9940         1:3       -       SMOTE       0.7706       0.8878       0.9878       0.5200       0.9832       0.6364       0.9924         1:3       -       SMOTE       0.7674       0.8931       0.9832       0.6354       0.9925	CatBoost	1:3	I	1	0.7765	0.8931	0.9891	0.5640	0.9841	0.7080	0.9942	0.4686	В
1:3       -       -       0.7784       0.8826       0.9897       0.5671       0.9835       0.7686       0.9959         1:3       -       -       -       0.7732       0.8899       0.9888       0.5766       0.9840       0.7619       0.9956         1:3       -       SMOTE       0.7706       0.8840       0.9888       0.5523       0.9837       0.6934       0.9930         1:3       -       SMOTE       0.7706       0.8890       0.9886       0.5527       0.9841       0.6736       0.9931         1:3       -       SMOTE       0.7739       0.8878       0.9878       0.5200       0.9832       0.6364       0.9924         1:3       -       SMOTE       0.7674       0.8931       0.9883       0.5465       0.9841       0.6554       0.9925	CatBoost	1:3	I	1	0.7992	0.8823	0.9903	0.6082	0.9851	0.7704	0.9955	0.5024	C
1:3       -       -       0.7832       0.8899       0.9898       0.5766       0.9840       0.7619       0.9956         1:3       -       SMOTE       0.7706       0.8840       0.9888       0.5523       0.9838       0.6934       0.9939         1:3       -       SMOTE       0.7693       0.8754       0.9888       0.5497       0.9837       0.6963       0.9940         1:3       -       SMOTE       0.7706       0.8890       0.9886       0.5527       0.9841       0.6736       0.9931         1:3       -       SMOTE       0.7539       0.8878       0.9878       0.5200       0.9832       0.6364       0.9924         1:3       -       SMOTE       0.7674       0.8931       0.9883       0.5465       0.9841       0.6554       0.9925	CatBoost	1:3	I	ı	0.7784	0.8826	0.9897	0.5671	0.9835	0.7686	0.9959	0.4493	Ω
1:3       -       SMOTE       0.7706       0.8840       0.9888       0.5523       0.9838       0.6934       0.9939         1:3       -       SMOTE       0.7706       0.8890       0.9886       0.5527       0.9841       0.6953       0.9940         1:3       -       SMOTE       0.7736       0.8878       0.9878       0.5200       0.9832       0.6364       0.9924         1:3       -       SMOTE       0.7674       0.8931       0.9883       0.5465       0.9841       0.6554       0.9925	CatBoost	1:3	I	ı	0.7832	0.8899	0.9898	0.5766	0.9840	0.7619	0.9956	0.4638	田
1:3       -       SMOTE       0.7706       0.8890       0.9886       0.5527       0.9841       0.6736       0.9931         1:3       -       SMOTE       0.7706       0.8878       0.9878       0.5200       0.9832       0.6736       0.9931         1:3       -       SMOTE       0.7539       0.8878       0.9878       0.5200       0.9832       0.6354       0.9924         1:3       -       SMOTE       0.7674       0.8931       0.9883       0.5465       0.9841       0.6554       0.9925	CatBoost	1:3	I	SMOTE	0.7706	0.8840	0.9888	0.5523	0.9838	0.6934	0.9939	0.4589	Ą
1:3       -       SMOTE       0.7706       0.8890       0.9886       0.5527       0.9841       0.6736       0.9931         1:3       -       SMOTE       0.7539       0.8878       0.9878       0.5200       0.9832       0.6364       0.9924         1:3       -       SMOTE       0.7674       0.8931       0.9883       0.5465       0.9841       0.6554       0.9925	CatBoost	1:3	I	SMOTE	0.7693	0.8754	0.9888	0.5497	0.9837	0.6963	0.9940	0.4541	В
1:3 - SMOTE 0.7539 0.8878 0.9878 0.5200 0.9832 0.6364 0.9924 1:3 - SMOTE 0.7674 0.8931 0.9883 0.5465 0.9841 0.6554 0.9925	CatBoost	1:3	I	SMOTE	0.7706	0.8890	0.9886	0.5527	0.9841	0.6736	0.9931	0.4686	C
1:3 - SMOTE   0.7674 0.8931 0.9883 0.5465 0.9841 0.6554 0.9925	CatBoost	1:3	I	SMOTE	0.7539	0.8878	0.9878	0.5200	0.9832	0.6364	0.9924	0.4396	Ω
	CatBoost	1:3	I	SMOTE	0.7674	0.8931	0.9883	0.5465	0.9841	0.6554	0.9925	0.4686	Ξ

TABLE XI
COMPLETE TEST SET CLASSIFICATION PERFORMANCE - PART 8

Cultiboset         13         Tonnek         —         0.7806         0.8892         0.8714         0.8776         0.9895         0.4578         0.7405         0.8992         0.8714         0.8871         0.7806         0.8846         0.7816         0.8873         0.8878         0.7826         0.8878         0.8726         0.8879         0.8726         0.8879         0.8726         0.8879         0.8726         0.8879         0.8726         0.8879         0.8726         0.8879         0.8727         0.8981         0.8726         0.8879         0.8972         0.8879         0.8872         0.8981         0.8524         0.9479         0.4873         0.9984         0.8727         0.8981         0.8524         0.8493         0.9479         0.8479         0.9881         0.8981	CatBoost CatBoost CatBoost	1:3	Tomek		9082.0	0880	00000		0000	30220	0100		
1.3   Tomek	CatBoost CatBoost	1:3			000/.0	7.00.V	0.9898	0.5714	0.9837	CO/ /:O	0.9959	0.4541	Ą
133         Tonnek         –         0,7911         0,8781         0,9847         0,9454         0,9497         0,4948           133         Tonnek         –         0,7621         0,8788         0,9887         0,5454         0,9849         0,6499         0,9497         0,4487           133         Tonnek         SMOTTE         0,7764         0,8871         0,9846         0,9847         0,9848         0,9847         0,9848         0,9847         0,9848         0,9871         0,9849	CatBoost	;	Tomek	I	0.7951	0.8861	0.9901	0.6000	0.9848	0.7669	0.9955	0.4928	В
13.3         Tonnek         –         0,7671         0,878         0,845         0,945         0,404         0,404           13.3         Tonnek         –         0,7671         0,878         0,845         0,948         0,649         0,7410         0,947         0,447           13.3         Tonnek         SMOTTE         0,7764         0,878         0,549         0,7440         0,949         0,497         0,443           13.3         Tonnek         SMOTTE         0,776         0,884         0,588         0,849         0,746         0,879         0,989         0,984         0,694         0,694         0,443           13.3         Tonnek         SMOTTE         0,772         0,888         0,884         0,884         0,984         0,787         0,994		1:3	Tomek	ı	0.7911	0.8718	0.9899	0.5924	0.9847	0.7537	0.9952	0.4879	C
13         Tomek         —         0792b         08871         0.8980         0.5944         0.6940         0.0947         0.4970           13         Tomek         SMOTE         0.7764         0.871         0.9845         0.5845         0.9841         0.6489         0.9941         0.4879           13         Tomek         SMOTE         0.7764         0.8841         0.9842         0.6848         0.9842         0.9842         0.6879         0.9843         0.9842         0.875         0.9841         0.9849         0.9842         0.6769         0.9931         0.4489           13         Tomek         SMOTE         0.7727         0.8885         0.9886         0.5869         0.9842         0.9849         0.9844         0.9844         0.9844         0.9844         0.9844	CatBoost	1:3	Tomek	ı	0.7671	0.8788	0.9887	0.5455	0.9835	0.6940	0.9940	0.4493	О
13         Tomek         SMOTIE         0.7764         0.8711         0.9884         0.5642         0.0844         0.6369         0.9271         0.4871           1.3         Tomek         SMOTIE         0.7688         0.8861         0.5481         0.6486         0.9814         0.5484         0.0841         0.6786         0.9911         0.4131           1.3         Tomek         SMOTIE         0.7706         0.8885         0.5821         0.6849         0.9841         0.9846         0.5469         0.9941         0.9969         0.9941         0.9868         0.5841         0.9848         0.6789         0.9949         0.9949         0.9948         0.9949         0.9949         0.9949         0.9949         0.9949         0.9949         0.9949         0.9949         0.9949         0.9849	CatBoost	1:3	Tomek	ı	0.7926	0.8877	0.9898	0.5954	0.9849	0.7410	0.9947	0.4976	田
13         Tomek         SMOTIE         0.7688         0.8845         0.8945         0.8945         0.6546         0.9917         0.481           13         Tomek         SMOTIE         0.7781         0.8881         0.9896         0.8856         0.9897         0.9841         0.6736         0.9931         0.4734           13         Tomek         SMOTIE         0.7787         0.8882         0.9886         0.5586         0.9942         0.0993         0.4034           13         OSS         -         0.7780         0.8812         0.886         0.8741         0.9834         0.7776         0.9933         0.4038           13         OSS         -         0.7780         0.8812         0.8940         0.5971         0.9943         0.4038           13         OSS         -         0.7780         0.8810         0.8981         0.8751         0.9941         0.7757         0.9848         0.5977         0.9848         0.5770         0.9848         0.5770         0.9848         0.7757         0.9849         0.7770         0.9849         0.7770         0.9849         0.7770         0.9849         0.7770         0.9849         0.7770         0.9849         0.7770         0.9849         0.7770	CatBoost	1:3	Tomek	SMOTE	0.7764	0.8771	0.9886	0.5642	0.9846	0.6689	0.9927	0.4879	A
1.3         Tomek         SMOTE         0.7891         0.8863         0.8892         0.8893         0.9841         0.66736         0.9931         0.4718           1.3         Tomek         SMOTE         0.7776         0.8934         0.9864         0.5849         0.66739         0.9931         0.4734           1.3         OSS         -         0.7780         0.8990         0.900         0.7741         0.9843         0.7749         0.9946         0.4734           1.3         OSS         -         0.7780         0.8980         0.5876         0.9844         0.7757         0.9933         0.4743           1.3         OSS         -         0.7780         0.8910         0.900         0.5706         0.9848         0.7757         0.9848         0.7757         0.9848         0.7780         0.8910         0.990         0.993         0.4783         0.891         0.8910         0.993         0.4783         0.891         0.8910         0.993         0.9944         0.7576         0.9948         0.5780         0.8981         0.5780         0.8981         0.7570         0.9841         0.7576         0.9941         0.7474         0.881         0.8881         0.5888         0.8982         0.8882         0.888	CatBoost	1:3	Tomek	SMOTE	0.7688	0.8865	0.9881	0.5495	0.9845	0.6369	0.9917	0.4831	В
13         Tomek         SMOTE         0.7776         0.8894         0.886         0.5854         0.6754         0.6734         0.6734           13         Tomek         SMOTE         0.7727         0.8881         0.9886         0.5848         0.6736         0.9913         0.4433           13         OSS         -         0.7840         0.8904         0.9963         0.6778         0.9983         0.4935         0.4938         0.4938         0.7786         0.9938         0.4938         0.6784         0.7786         0.9938         0.4938         0.6789         0.9839         0.9844         0.7786         0.9938         0.4493         0.6788         0.8818         0.8981         0.8981         0.8981         0.9884         0.7787         0.9983         0.4783         0.8981         0.8981         0.8981         0.8981         0.8981         0.8981         0.8982         0.8981         0.8983         0.8881         0.8981         0.8983         0.8881         0.8881         0.8881         0.8881         0.8881         0.8881         0.8881         0.8881         0.8881         0.8881         0.8881         0.8881         0.8881         0.8881         0.8881         0.8881         0.8881         0.8881         0.8881	CatBoost	1:3	Tomek	SMOTE	0.7891	0.8683	0.9892	0.5889	0.9853	0.6928	0.9931	0.5121	C
13         Tomek         SMOTH         0.7272         0.8885         0.9886         0.5568         0.9842         0.6579         0.9931         0.4734           13         OSSS         -         0.77820         0.8816         0.9808         0.5744         0.9835         0.7949         0.9936         0.4938           13         OSSS         -         0.7789         0.8990         0.9808         0.8844         0.7376         0.9946         0.7969         0.4988           13         OSSS         -         0.7781         0.8891         0.8986         0.5706         0.9844         0.7376         0.9936         0.4589           13         OSSS         SMOTH         0.7781         0.8891         0.8986         0.5706         0.9846         0.7376         0.9938         0.4839           13         OSS         SMOTH         0.7781         0.8891         0.5786         0.9842         0.8848         0.9841         0.7476         0.9881         0.5456         0.9841         0.7476         0.9881         0.5466         0.9941         0.7478           13         OSS         SMOTH         0.7767         0.8881         0.5456         0.9841         0.6476         0.9841         0.	CatBoost	1:3	Tomek	SMOTE	0.7706	0.8934	0.9886	0.5527	0.9841	0.6736	0.9931	0.4686	О
13         OSS         -         0.7820         0.8812         0.9000         0.5741         0.9835         0.7949         0.9966         0.4493           13         OSS         -         0.7969         0.8990         0.8971         0.9848         0.7736         0.9938         0.4781           13         OSS         -         0.7787         0.8898         0.8787         0.9844         0.7736         0.9955         0.4788           13         OSS         SMOTE         0.7871         0.8891         0.8878         0.9844         0.7547         0.9955         0.4838           13         OSS         SMOTE         0.7871         0.8810         0.8871         0.9826         0.6042         0.9931         0.4879           13         OSS         SMOTE         0.7781         0.8871         0.8871         0.8872         0.9826         0.6642         0.9931         0.4734           13         OSS         SMOTE         0.7781         0.8870         0.8881         0.8842         0.8856         0.8842         0.8872         0.9842         0.6739         0.9931         0.4734           14         OSS         SMOTE         0.7781         0.8881         0.8842 <t< td=""><td>CatBoost</td><td>1:3</td><td>Tomek</td><td>SMOTE</td><td>0.7727</td><td>0.8885</td><td>0.9886</td><td>0.5568</td><td>0.9842</td><td>0.6759</td><td>0.9931</td><td>0.4734</td><td>田</td></t<>	CatBoost	1:3	Tomek	SMOTE	0.7727	0.8885	0.9886	0.5568	0.9842	0.6759	0.9931	0.4734	田
13         OSS         -         0.7989         0.8990         0.6903         0.7786         0.9938         0.4928           13         OSS         -         0.7989         0.8990         0.6941         0.7786         0.9948         0.7787         0.9938         0.8797         0.9838         0.7879         0.8981         0.8989         0.8787         0.9849         0.7879         0.8991         0.8981         0.7879         0.8981         0.8989         0.8786         0.9946         0.9956         0.9958         0.4788           13         OSS         SMOTE         0.7811         0.8811         0.8891         0.8942         0.6642         0.9953         0.4879         0.8942         0.6948         0.4789         0.4881         0.8941         0.7841         0.9871         0.8842         0.8942         0.6942         0.9951         0.4203           113         OSS         SMOTE         0.7767         0.8902         0.8881         0.8842         0.8842         0.8942         0.6447         0.9951         0.4734           115         -         -         0.7761         0.8801         0.5841         0.8842         0.8442         0.6447         0.9951         0.4734           115	CatBoost	1:3	OSS	ı	0.7820	0.8812	0.9900	0.5741	0.9835	0.7949	0.9965	0.4493	Ą
1.3         OSS         -         0,793R         0,884B         0,5877         0,984I         0,7376         0,994G         0,502A           1.3         OSS         -         0,787B         0,881B         0,888B         0,584H         0,7577         0,9953         0,488B           1.3         OSS         SMOTE         0,781B         0,880B         0,587B         0,984B         0,754D         0,995B         0,488B           1.3         OSS         SMOTE         0,781I         0,8891         0,897B         0,984B         0,692B         0,995B         0,487B           1.3         OSS         SMOTE         0,7781         0,887B         0,887B         0,9842         0,647B         0,997I         0,478B           1.3         OSS         SMOTE         0,7761         0,8881         0,5487         0,5842         0,647B         0,997I         0,478B           1.5         -         -         0,7761         0,8881         0,5486         0,5862         0,9842         0,647B         0,997I         0,478B           1.5         -         -         0,7761         0,8891         0,5486         0,5862         0,9942         0,647B         0,981B         0,984B <t< td=""><td>CatBoost</td><td>1:3</td><td>OSS</td><td>ı</td><td>0.7969</td><td>0.8990</td><td>0.9903</td><td>0.6036</td><td>0.9848</td><td>0.7786</td><td>0.9958</td><td>0.4928</td><td>В</td></t<>	CatBoost	1:3	OSS	ı	0.7969	0.8990	0.9903	0.6036	0.9848	0.7786	0.9958	0.4928	В
13         OSS         -         0.787B         0.881B         0.8888         0.5858         0.9844         0.7557         0.9955         0.4789           13         OSS         -         0.781         0.8891         0.5706         0.9838         0.7540         0.9955         0.4879           13         OSS         SMOTE         0.7815         0.8891         0.8796         0.9848         0.7540         0.9955         0.4879           13         OSS         SMOTE         0.7414         0.8841         0.8781         0.9853         0.6942         0.9917         0.4707           13         OSS         SMOTE         0.7767         0.8982         0.5886         0.5845         0.6942         0.6799         0.4942           15         -         -         -         0.7617         0.8886         0.9881         0.5456         0.9842         0.6739         0.4942           15         -         -         0.7617         0.8886         0.9881         0.5485         0.6467         0.9917         0.4734           15         -         -         0.7671         0.8889         0.5882         0.5452         0.6497         0.4734           15         - </td <td>CatBoost</td> <td>1:3</td> <td>SSO</td> <td>1</td> <td>0.7938</td> <td>0.8740</td> <td>0.9898</td> <td>0.5977</td> <td>0.9851</td> <td>0.7376</td> <td>0.9946</td> <td>0.5024</td> <td>C</td>	CatBoost	1:3	SSO	1	0.7938	0.8740	0.9898	0.5977	0.9851	0.7376	0.9946	0.5024	C
1:3         OSS         —         07801         0.8910         0.8796         0.77340         0.9938         0.7340         0.9936         0.4889           1:3         OSS         SMOTE         0.7815         0.8891         0.5739         0.9846         0.6696         0.9936         0.4879           1:3         OSS         SMOTE         0.7811         0.8871         0.9872         0.6846         0.6926         0.9936         0.4303           1:3         OSS         SMOTE         0.7891         0.8872         0.8889         0.9833         0.6928         0.4303         0.4913         0.4103           1:3         OSS         SMOTE         0.7661         0.8890         0.9842         0.6789         0.9843         0.6789         0.4783           1:5         -         -         0.7661         0.8890         0.8845         0.6867         0.991         0.4713           1:5         -         -         0.7661         0.8890         0.8845         0.8845         0.6789         0.9843         0.6789         0.4839         0.4849         0.4849         0.4849         0.4849         0.8849         0.8849         0.8849         0.8849         0.8849         0.8849         0.8849<	CatBoost	1:3	OSS	1	0.7878	0.8818	0.9898	0.5858	0.9844	0.7557	0.9953	0.4783	О
1:3         OSS         SMOTE         0.7815         0.8803         0.5739         0.5846         0.6966         0.9936         0.4879           1:3         OSS         SMOTE         0.7414         0.8841         0.9871         0.4957         0.8926         0.6928         0.6917         0.4971           1:3         OSS         SMOTE         0.7481         0.8841         0.9872         0.6842         0.6928         0.9931         0.4121           1:3         OSS         SMOTE         0.7727         0.8892         0.5887         0.9842         0.6746         0.9917         0.4731           1:5         -         -         -         -         0.7613         0.8886         0.9871         0.5845         0.6477         0.9931         0.4731           1:5         -         -         -         -         0.7670         0.8881         0.5847         0.6847         0.9891         0.4447         0.9911         0.4734           1:5         -         -         -         0.7670         0.8842         0.8842         0.6847         0.9891         0.4447         0.9911         0.4734           1:5         -         -         0.7671         0.8842         0.9	CatBoost	1:3	OSS	1	0.7801	0.8910	0.9896	0.5706	0.9838	0.7540	0.9955	0.4589	田
1:3         OSS         SMOTE         0.7414         0.8841         0.9871         0.4957         0.9826         0.6842         0.9917         0.4203           1:3         OSS         SMOTE         0.7781         0.8879         0.9882         0.5889         0.8835         0.6943         0.6346         0.9917         0.4783           1:3         OSS         SMOTE         0.7761         0.8880         0.9886         0.9842         0.6759         0.9931         0.4734           1:5         -         -         -         0.7613         0.8886         0.9881         0.5842         0.6369         0.9931         0.4734           1:5         -         -         -         0.7688         0.8872         0.9881         0.5842         0.6369         0.9942         0.4783         0.4743           1:5         -         -         -         0.7621         0.8899         0.8842         0.8842         0.9842         0.6447         0.9921         0.4734           1:5         -         -         -         0.7621         0.8899         0.8842         0.8442         0.8742         0.4447         0.9842         0.4447         0.9842         0.4442         0.8842         0.8842 <td>CatBoost</td> <td>1:3</td> <td>OSS</td> <td>SMOTE</td> <td>0.7815</td> <td>0.8803</td> <td>0.9891</td> <td>0.5739</td> <td>0.9846</td> <td>9969.0</td> <td>0.9936</td> <td>0.4879</td> <td>Ą</td>	CatBoost	1:3	OSS	SMOTE	0.7815	0.8803	0.9891	0.5739	0.9846	9969.0	0.9936	0.4879	Ą
1:3         OSS         SMOTE         0.7891         0.8759         0.9882         0.5883         0.9853         0.6928         0.9813         0.5121           1:3         OSS         SMOTE         0.7667         0.8902         0.5859         0.9843         0.6579         0.9931         0.4783           1:3         OSS         SMOTE         0.7667         0.8890         0.5845         0.9847         0.6580         0.9931         0.4783           1:5         -         -         -         0.7661         0.8880         0.9847         0.586         0.9947         0.4783         0.9473         0.4942         0.4931         0.4783           1:5         -         -         -         0.7661         0.8890         0.8842         0.9845         0.6677         0.9991         0.4783           1:5         -         -         0.7670         0.8890         0.9884         0.9865         0.5111         0.9873         0.5111         0.9873         0.5147         0.9845         0.5274         0.9893         0.4111         0.9873         0.5111         0.9873         0.5111         0.9873         0.5111         0.9873         0.5121         0.9845         0.5241         0.9873         0.5111<	CatBoost	1:3	OSS	SMOTE	0.7414	0.8841	0.9871	0.4957	0.9826	0.6042	0.9917	0.4203	В
1.3         OSS         SMOTE         0.7667         0.8902         0.9486         0.5458         0.9842         0.6739         0.9917         0.4783           1.3         OSS         SMOTE         0.7727         0.8786         0.9586         0.5568         0.9842         0.6759         0.9917         0.4734           1.5         -         -         -         0.7683         0.8886         0.9842         0.6759         0.9917         0.4734           1.5         -         -         -         0.7681         0.8886         0.9842         0.6759         0.9917         0.4734           1.5         -         -         -         0.7681         0.8881         0.5460         0.9842         0.6879         0.9917         0.4734           1.5         -         -         -         0.7670         0.8891         0.5460         0.9842         0.6667         0.9921         0.4734           1.5         -         -         0.7671         0.8809         0.9875         0.5364         0.9841         0.4734         0.9842         0.9842         0.9842         0.9842         0.9842         0.6667         0.9921         0.4734         0.7344         0.8842         0.9842	CatBoost	1:3	OSS	SMOTE	0.7891	0.8759	0.9892	0.5889	0.9853	0.6928	0.9931	0.5121	C
1:3         OSS         SMOTE         0.7727         0.8786         0.9886         0.9847         0.6759         0.9931         0.4734           1:5         -         -         0.7761         0.8886         0.9871         0.5354         0.6879         0.9931         0.4938           1:5         -         -         0.7688         0.8872         0.8847         0.6369         0.9917         0.4831           1:5         -         -         0.7670         0.8880         0.8871         0.5495         0.6447         0.9921         0.4331           1:5         -         -         0.7670         0.8800         0.8842         0.6447         0.9921         0.4734           1:5         -         -         0.7671         0.8800         0.8842         0.6447         0.9921         0.4734           1:5         -         0.7671         0.8800         0.9852         0.5111         0.9921         0.4734           1:5         -         0.7671         0.8802         0.9852         0.5111         0.9982         0.5111         0.9982         0.5111         0.9982         0.5111         0.9872         0.5112           1:5         -         0.7807 <td< td=""><td>CatBoost</td><td>1:3</td><td>OSS</td><td>SMOTE</td><td>0.7667</td><td>0.8902</td><td>0.9880</td><td>0.5455</td><td>0.9843</td><td>0.6346</td><td>0.9917</td><td>0.4783</td><td>О</td></td<>	CatBoost	1:3	OSS	SMOTE	0.7667	0.8902	0.9880	0.5455	0.9843	0.6346	0.9917	0.4783	О
1.5         —	CatBoost	1:3	SSO	SMOTE	0.7727	0.8798	0.9886	0.5568	0.9842	0.6759	0.9931	0.4734	田
1.5         —	CatBoost	1:5	ı	1	0.7613	0.8886	0.9871	0.5354	0.9847	0.5862	0.9895	0.4928	Ą
1:5         —         —         —         0.7871         0.8849         0.5854         0.9856         0.6667         0.9921         0.5217           1:5         —         —         —         —         0.7670         0.8900         0.9881         0.5460         0.9842         0.6447         0.9921         0.4734           1:5         —         SMOTE         0.7621         0.8809         0.8875         0.5346         0.9843         0.6111         0.9908         0.4783           1:5         —         SMOTE         0.7549         0.8860         0.9852         0.5121         0.9850         0.5121           1:5         —         SMOTE         0.7549         0.8860         0.5852         0.5121         0.9850         0.5121           1:5         —         SMOTE         0.7544         0.8986         0.581         0.5801         0.5801         0.5801         0.5801         0.5101           1:5         Tomek         —         0.7784         0.8788         0.9882         0.5801         0.5802         0.5801         0.5802         0.5101           1:5         Tomek         —         0.7794         0.8848         0.9876         0.5455         0.5872	CatBoost	1:5	I	1	0.7688	0.8772	0.9881	0.5495	0.9845	0.6369	0.9917	0.4831	В
1:5         —         SMOTE         0.7851         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121         0.9852	CatBoost	1:5	I	ı	0.7871	0.8746	0.9889	0.5854	0.9856	0.6667	0.9921	0.5217	C
1:5         —         —         —         0.7621         0.8849         0.9875         0.5366         0.9843         0.6111         0.9908         0.4783           1:5         —         SMOTE         0.7501         0.8842         0.9855         0.5147         0.9851         0.5224         0.9860         0.5072           1:5         —         SMOTE         0.7487         0.8806         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121           1:5         —         SMOTE         0.7643         0.8806         0.9863         0.5418         0.9854         0.5991         0.9822         0.5121           1:5         —         SMOTE         0.7544         0.8819         0.9863         0.5296         0.9862         0.5121         0.9852         0.5121           1:5         Tomek         —         0.7784         0.8819         0.9882         0.5802         0.5296         0.9862         0.5121           1:5         Tomek         —         0.7784         0.8844         0.9880         0.5707         0.9840         0.9862         0.5229         0.9909         0.4879           1:5         Tomek         SMOTE         0.7765 <td< td=""><td>CatBoost</td><td>1:5</td><td>I</td><td>ı</td><td>0.7670</td><td>0.8900</td><td>0.9881</td><td>0.5460</td><td>0.9842</td><td>0.6447</td><td>0.9921</td><td>0.4734</td><td>О</td></td<>	CatBoost	1:5	I	ı	0.7670	0.8900	0.9881	0.5460	0.9842	0.6447	0.9921	0.4734	О
1:5         —         SMOTE         0.7501         0.8842         0.9855         0.5147         0.9851         0.5224         0.9860         0.5072           1:5         —         SMOTE         0.7487         0.8806         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121         0.9852         0.5209         0.9873         0.9862         0.5209         0.9873         0.9862         0.5230         0.9873         0.5042         0.511           1:5         Tomek         —         0.7600         0.8748         0.9873         0.9862         0.6257         0.9902         0.4879         0.9873         0.5862         0.6257         0.9902         0.4879         0.9878         0.9872         0.5872         0.9879         0.9879         0.9879         0.9879         0.9879         0.9879         0.9872         0.9879         0.9879         <	CatBoost	1:5	I	ı	0.7621	0.8809	0.9875	0.5366	0.9843	0.6111	0.9908	0.4783	田
1:5         —         SMOTE         0.7487         0.8806         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121         0.9852         0.5129         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121         0.9852         0.5121         0.9863         0.5121         0.9862         0.5121         0.9863         0.5121         0.9862         0.5247         0.9862         0.5271         0.9862         0.5271         0.9862         0.5271         0.9862         0.5271         0.9862         0.5271         0.9862         0.5271         0.9862         0.5271         0.9862         0.5271         0.9862         0.5271         0.9862         0.5272         0.9862         0.5272         0.9862         0.5272	CatBoost	1:5	I	SMOTE	0.7501	0.8842	0.9855	0.5147	0.9851	0.5224	0.9860	0.5072	A
1:5         —         SMOTE         0.7643         0.8706         0.9868         0.5418         0.9854         0.5691         0.9882         0.5169           1:5         —         SMOTE         0.7544         0.8798         0.9861         0.5226         0.9850         0.5445         0.9873         0.5121           1:5         —         SMOTE         0.7533         0.8819         0.9882         0.5209         0.9852         0.5300         0.9863         0.5121           1:5         Tomek         —         0.77842         0.8838         0.9882         0.5309         0.9862         0.6257         0.9902         0.5411           1:5         Tomek         —         0.7760         0.8748         0.9871         0.5307         0.9846         0.5872         0.9906         0.4879           1:5         Tomek         —         0.7765         0.8823         0.9876         0.5757         0.9847         0.9905         0.4928           1:5         Tomek         SMOTE         0.7764         0.8843         0.9845         0.5725         0.9845         0.5121           1:5         Tomek         SMOTE         0.7764         0.8847         0.9867         0.5725         0.9855 <td>CatBoost</td> <td>1:5</td> <td>I</td> <td>SMOTE</td> <td>0.7487</td> <td>0.8806</td> <td>0.9852</td> <td>0.5121</td> <td>0.9852</td> <td>0.5121</td> <td>0.9852</td> <td>0.5121</td> <td>В</td>	CatBoost	1:5	I	SMOTE	0.7487	0.8806	0.9852	0.5121	0.9852	0.5121	0.9852	0.5121	В
1:5       —       SMOTE       0.7544       0.8798       0.9861       0.5226       0.9850       0.5445       0.9873       0.5024         1:5       —       SMOTE       0.7533       0.8819       0.9858       0.5209       0.9852       0.5300       0.9863       0.5121         1:5       Tomek       —       0.7842       0.8838       0.9882       0.5803       0.9846       0.6257       0.9902       0.5411         1:5       Tomek       —       0.7794       0.8844       0.9871       0.5330       0.9846       0.5872       0.9904       0.5266         1:5       Tomek       —       0.7794       0.8844       0.9870       0.5772       0.9845       0.6229       0.9904       0.5266         1:5       Tomek       SMOTE       0.7765       0.8823       0.9876       0.5752       0.9855       0.6108       0.9904       0.5169         1:5       Tomek       SMOTE       0.7466       0.8847       0.9863       0.5313       0.9853       0.5521       0.9856       0.5521         1:5       Tomek       SMOTE       0.7464       0.8847       0.9860       0.5429       0.9864       0.5352       0.9863       0.5521 <t< td=""><td>CatBoost</td><td>1:5</td><td>I</td><td>SMOTE</td><td>0.7643</td><td>0.8706</td><td>0.9868</td><td>0.5418</td><td>0.9854</td><td>0.5691</td><td>0.9882</td><td>0.5169</td><td>C</td></t<>	CatBoost	1:5	I	SMOTE	0.7643	0.8706	0.9868	0.5418	0.9854	0.5691	0.9882	0.5169	C
1:5       -       SMOTE       0.7533       0.8819       0.9858       0.5209       0.9852       0.5300       0.9863       0.5121         1:5       Tomek       -       0.7842       0.8838       0.9882       0.5803       0.9862       0.6257       0.9902       0.5411         1:5       Tomek       -       0.7600       0.8748       0.9871       0.5330       0.9846       0.5872       0.9896       0.4879         1:5       Tomek       -       0.7764       0.8684       0.9880       0.5707       0.9857       0.6229       0.9905       0.4879         1:5       Tomek       -       0.7765       0.8823       0.9876       0.5455       0.9845       0.6407       0.9905       0.4879         1:5       Tomek       SMOTE       0.7466       0.8916       0.9883       0.5722       0.9845       0.5288       0.9868       0.4879         1:5       Tomek       SMOTE       0.7466       0.8947       0.9863       0.5521       0.9853       0.5521       0.9853       0.5024         1:5       Tomek       SMOTE       0.7496       0.8848       0.9856       0.5136       0.9850       0.5084       0.5084       0.5852       0.9863	CatBoost	1:5	I	SMOTE	0.7544	0.8798	0.9861	0.5226	0.9850	0.5445	0.9873	0.5024	О
1:5         Tomek         -         0.7842         0.8838         0.9882         0.5803         0.0862         0.6257         0.9902         0.5411           1:5         Tomek         -         0.7600         0.8748         0.9871         0.5330         0.9846         0.5872         0.9896         0.4879           1:5         Tomek         -         0.7794         0.8684         0.9871         0.5370         0.9857         0.6229         0.9904         0.5266           1:5         Tomek         -         0.7765         0.8823         0.9876         0.5455         0.9847         0.6108         0.9905         0.4928           1:5         Tomek         SMOTE         0.7803         0.8879         0.9883         0.5722         0.9845         0.5288         0.9868         0.4879           1:5         Tomek         SMOTE         0.7746         0.8847         0.9863         0.5323         0.9857         0.5823         0.9857         0.5823         0.9859         0.5352         0.9857         0.5024           1:5         Tomek         SMOTE         0.7467         0.8848         0.9856         0.5136         0.9850         0.5253         0.9863         0.5024           <	CatBoost	1:5	I	SMOTE	0.7533	0.8819	0.9858	0.5209	0.9852	0.5300	0.9863	0.5121	田
1:5         Tomek         –         0.7600         0.8748         0.9871         0.5330         0.9846         0.5872         0.9896         0.4879           1:5         Tomek         –         0.7794         0.8684         0.9880         0.5707         0.9857         0.6229         0.9904         0.5266           1:5         Tomek         –         0.77665         0.8823         0.9876         0.5455         0.9847         0.6108         0.9905         0.4928           1:5         Tomek         SMOTE         0.77803         0.8798         0.9883         0.5722         0.9845         0.5288         0.9905         0.4979           1:5         Tomek         SMOTE         0.7466         0.8916         0.9857         0.5075         0.9853         0.5221         0.9879         0.5121           1:5         Tomek         SMOTE         0.7644         0.8715         0.9860         0.5429         0.9864         0.5352         0.9855         0.5507           1:5         Tomek         SMOTE         0.7467         0.8848         0.9856         0.5136         0.9850         0.5253         0.9863         0.5024           1:5         Tomek         SMOTE         0.7467	CatBoost	1:5	Tomek	ı	0.7842	0.8838	0.9882	0.5803	0.9862	0.6257	0.9902	0.5411	A
1:5         Tomek         -         0.7794         0.8684         0.9880         0.5707         0.9857         0.6229         0.9904         0.5266           1:5         Tomek         -         0.7665         0.8823         0.9876         0.5455         0.9847         0.6108         0.9905         0.4928           1:5         Tomek         SMOTE         0.7803         0.8798         0.9883         0.5722         0.9855         0.6407         0.9912         0.5169           1:5         Tomek         SMOTE         0.7466         0.8916         0.9857         0.5075         0.9845         0.5288         0.9868         0.4879           1:5         Tomek         SMOTE         0.7744         0.8847         0.9860         0.5429         0.9864         0.5352         0.9855         0.5507           1:5         Tomek         SMOTE         0.7446         0.8848         0.9856         0.5136         0.9850         0.5253         0.9863         0.5024           1:5         Tomek         SMOTE         0.7467         0.8875         0.9850         0.5084         0.9850         0.5088         0.5084         0.9848         0.9850         0.5084         0.9848         0.9850         0.5084 </td <td>CatBoost</td> <td>1:5</td> <td>Tomek</td> <td>ı</td> <td>0.7600</td> <td>0.8748</td> <td>0.9871</td> <td>0.5330</td> <td>0.9846</td> <td>0.5872</td> <td>9686.0</td> <td>0.4879</td> <td>В</td>	CatBoost	1:5	Tomek	ı	0.7600	0.8748	0.9871	0.5330	0.9846	0.5872	9686.0	0.4879	В
1:5       Tomek       -       0.7665       0.8823       0.9876       0.5455       0.9847       0.6108       0.9905       0.4928         1:5       Tomek       -       0.77803       0.8798       0.9883       0.5722       0.9855       0.6407       0.9912       0.5169         1:5       Tomek       SMOTE       0.7466       0.8916       0.9887       0.5075       0.9845       0.5288       0.9868       0.4879         1:5       Tomek       SMOTE       0.7588       0.8847       0.9860       0.5429       0.9864       0.5521       0.9874       0.5121         1:5       Tomek       SMOTE       0.7464       0.8715       0.9860       0.5429       0.9864       0.5352       0.9855       0.5507         1:5       Tomek       SMOTE       0.7496       0.8848       0.9856       0.5136       0.9850       0.5253       0.9863       0.5024         1:5       Tomek       SMOTE       0.7467       0.8875       0.9850       0.5084       0.9852       0.5048       0.9848       0.5121	CatBoost	1:5	Tomek	1	0.7794	0.8684	0.9880	0.5707	0.9857	0.6229	0.9904	0.5266	C
1:5         Tomek         –         0.7803         0.8798         0.9883         0.5722         0.9855         0.6407         0.9912         0.5169           1:5         Tomek         SMOTE         0.7466         0.8916         0.9857         0.5075         0.9845         0.5288         0.9868         0.4879           1:5         Tomek         SMOTE         0.7788         0.8847         0.9863         0.5313         0.9853         0.5521         0.9874         0.5121           1:5         Tomek         SMOTE         0.7644         0.8715         0.9860         0.5429         0.9864         0.5352         0.9855         0.5507           1:5         Tomek         SMOTE         0.7496         0.8848         0.9856         0.5136         0.9850         0.5253         0.9863         0.5024           1:5         Tomek         SMOTE         0.7467         0.8875         0.9850         0.5084         0.9848         0.9848         0.5084	CatBoost	1:5	Tomek	ı	0.7665	0.8823	0.9876	0.5455	0.9847	0.6108	0.9905	0.4928	О
1:5         Tomek         SMOTE         0.7466         0.8916         0.9857         0.5075         0.9845         0.5288         0.9868         0.4879           1:5         Tomek         SMOTE         0.7764         0.8847         0.9863         0.5313         0.9853         0.5521         0.9874         0.5121           1:5         Tomek         SMOTE         0.7496         0.8848         0.9856         0.5136         0.9850         0.5253         0.9863         0.5024           1:5         Tomek         SMOTE         0.7467         0.8875         0.9850         0.5084         0.9858         0.5084         0.9848         0.5024	CatBoost	1:5	Tomek	ı	0.7803	0.8798	0.9883	0.5722	0.9855	0.6407	0.9912	0.5169	田
1:5 Tomek SMOTE 0.7588 0.8847 0.9863 0.5313 0.9854 0.5521 0.9874 0.5121 0.5121 0.9874 0.5121	CatBoost	1:5	Tomek	SMOTE	0.7466	0.8916	0.9857	0.5075	0.9845	0.5288	0.9868	0.4879	Ą
1.5       Tomek       SMOTE       0.7644       0.8715       0.9860       0.5429       0.9864       0.5352       0.9855         1.5       Tomek       SMOTE       0.7496       0.8848       0.9856       0.5136       0.9850       0.5253       0.9863         1.5       Tomek       SMOTE       0.7467       0.8875       0.9850       0.5084       0.9852       0.5048       0.9848	CatBoost	1:5	Tomek	SMOTE	0.7588	0.8847	0.9863	0.5313	0.9853	0.5521	0.9874	0.5121	В
1:5 Tomek SMOTE 0.7496 0.8848 0.9856 0.5136 0.9850 0.5253 0.9863 1:5 Tomek SMOTE 0.7467 0.8875 0.9850 0.5084 0.9852 0.5048 0.9848	CatBoost	1:5	Tomek	SMOTE	0.7644	0.8715	0.9860	0.5429	0.9864	0.5352	0.9855	0.5507	C
1:5 Tomek SMOTE 0.7467 0.8875 0.9850 0.5084 0.9852 0.5048 0.9848	CatBoost	1:5	Tomek	SMOTE	0.7496	0.8848	0.9856	0.5136	0.9850	0.5253	0.9863	0.5024	О
	CatBoost	1:5	Tomek	SMOTE	0.7467	0.8875	0.9850	0.5084	0.9852	0.5048	0.9848	0.5121	田

TABLE XII
COMPLETE TEST SET CLASSIFICATION PERFORMANCE - PART 9

Culfboard         155         OSS         —         0.7564         0.8872         0.9871         0.5432         0.9871         0.5432         0.9872         0.9871         0.5432         0.9884         0.5432         0.8889         0.4734         B           Culfboard         1.55         0.085         —         0.7763         0.8871         0.9884         0.5612         0.9989         0.4774         0.8889         0.4774         0.8894         0.6618         0.9994         0.4776         0.9871         0.9889         0.4774         0.9894         0.6618         0.9994         0.4776         0.9894         0.6618         0.9994         0.4776         0.9894         0.6618         0.9994         0.4776         0.9894         0.6618         0.9994         0.4776         0.9894         0.6518         0.9894         0.6784         0.9894         0.6784         0.9894         0.6784         0.9894         0.6784         0.9894         0.6784         0.9894         0.6784         0.9894         0.6784         0.9894         0.6784         0.9894         0.6784         0.9884         0.6884         0.9884         0.8884         0.8884         0.9884         0.8884         0.9884         0.8884         0.9884         0.8884         0.9884		Class weignt	Undersampling	Oversampling	Macro F1	AUC	$F1_0$	$F1_1$	$Precision_0$	$Precision_1$	$\mathbf{Recall}_0$	$Recall_1$	Seed
1.5   OSS   -     O.7516   O.8811   O.886   O.8414   O.841   O.841   O.845   O.848   O.847   O.848	CatBoost	1:5	OSS	ı	0.7649	0.8825	0.9871	0.5426	0.9851	0.5833	0.9890	0.5072	A
1.5   OSS	CatBoost	1:5	OSS	ı	0.7505	0.8811	0.9865	0.5144	0.9841	0.5632	0.9889	0.4734	В
15   OSS	CatBoost	1:5	OSS	ı	0.7832	0.8629	0.9882	0.5781	0.9860	0.6271	0.9904	0.5362	C
1.5   OSS   SMOTE   0.7533   0.8732   0.8732   0.8734   0.9844   0.5534   0.9841   0.9851   0.5453   0.9871   0.4928   0.5731   0.9852   0.5731   0.9871   0.4928   0.5731   0.9852   0.5453   0.5732   0.9872   0.5453   0.5732   0.9872   0.5453   0.5732   0.9872   0.5453   0.5732   0.9872   0.5453   0.5732   0.9872   0.5732   0.9872   0.5453   0.5732   0.9872   0.5453   0.5732   0.9872   0.5453   0.5732   0.9872   0.5453   0.9872   0.5453   0.9872   0.5453   0.9872   0.5453   0.9872   0.5453   0.9872   0.5453   0.9872   0.5453   0.9872   0.5453   0.9872   0.5453   0.9872   0.5453   0.9872   0.5453   0.9872   0.5453   0.9872   0.5452   0.9872   0.5453   0.9872   0.5452   0.9872	CatBoost	1:5	OSS	ı	0.7693	0.8617	0.9878	0.5508	0.9849	0.6168	9066.0	0.4976	О
1.5   OSS   SMOTE   0.753   0.8730   0.8645   0.5244   0.9847   0.5224   0.9870   0.4593	CatBoost	1:5	SSO	ı	0.7603	0.8752	0.9872	0.5333	0.9844	0.5952	0.9901	0.4831	田
1.5   OSS   SMOTE   0.750   0.8918   0.9875   0.5147   0.9851   0.5274   0.9870   0.5072   0.9871   0.5362   0.9871   0.5362   0.9872   0.9872   0.5459   0.9872   0.5459   0.9872   0.9972	CatBoost	1:5	SSO	SMOTE	0.7533	0.8730	0.9863	0.5204	0.9847	0.5514	0.9879	0.4928	А
155   OSS   SMOTIE   0.7653   0.8666   0.9860   0.5407   0.9862   0.54525   0.9857   0.5459     155   OSS   SMOTIE   0.77656   0.8789   0.9866   0.5522   0.9866   0.5532   0.9877   0.5121     156   OSS   SMOTIE   0.77616   0.8814   0.9857   0.5342   0.9859   0.9866   0.5519   0.9867   0.5121     156   OSS   SMOTIE   0.77616   0.8814   0.9857   0.5349   0.9860   0.5799   0.9844   0.7793   0.9949   0.9494   0.4938     156   OSS   OSS   OSS   0.5889   0.9868   0.5879   0.9944   0.4938   0.9444   0.4938     156   OSS   OSS   OSS   OSS   0.9844   0.7286   0.9949   0.	CatBoost	1:5	OSS	SMOTE	0.7501	0.8918	0.9855	0.5147	0.9851	0.5224	09860	0.5072	В
155   OSS   SMOTE    O.7695   O.8799   O.8864   O.5552   O.5860   O.5692   O.8977   O.5362     1.5	CatBoost	1:5	OSS	SMOTE	0.7633	0.8666	0.9860	0.5407	0.9862	0.5355	0.9857	0.5459	C
1-5   OSS   SMOTE   0.7566   0.8878   0.9855   0.5545   0.9820   0.5196   0.9877   0.5101     1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-	CatBoost	1:5	OSS	SMOTE	0.7695	0.8799	0.9869	0.5522	0.9860	0.5692	0.9877	0.5362	О
H. Log	CatBoost	1:5	OSS	SMOTE	0.7506	0.8878	0.9855	0.5158	0.9852	0.5196	0.9857	0.5121	田
1.1.Log	CatBoost	1:Log	I	ı	0.7616	0.8814	0.9887	0.5345	0.9830	0.7063	0.9946	0.4300	A
H. Log	CatBoost	1:Log	1	ı	0.7842	0.8797	0.9895	0.5789	0.9844	0.7333	0.9947	0.4783	В
H. Log	CatBoost	1:Log	I	ı	0.7914	0.8748	0.9898	0.5930	0.9848	0.7445	0.9949	0.4928	C
H.o.g	CatBoost	1:Log	1	ı	0.7887	0.8816	9686.0	0.5879	0.9848	0.7286	0.9944	0.4928	О
H.Log         —         SMOTE         0.7777         0.8763         0.9884         0.5667         0.9948         0.6667         0.9925         0.4928           H.Log         —         SMOTE         0.7682         0.9884         0.5849         0.7042         0.9937         0.4981           H.Log         —         SMOTE         0.7881         0.7881         0.5889         0.5513         0.8945         0.7012         0.9937         0.4481           H.Log         —         SMOTE         0.7761         0.8891         0.5513         0.8845         0.7015         0.9937         0.4441           H.Log         Tomek         —         SMOTE         0.7762         0.9881         0.5559         0.8937         0.7015         0.9927         0.4441           H.Log         Tomek         —         0.7773         0.8872         0.9881         0.5573         0.8949         0.6483         0.4441           H.Log         Tomek         —         0.7763         0.8875         0.9889         0.5573         0.8949         0.4879         0.4441           H.Log         Tomek         SMOTE         0.7781         0.9881         0.5757         0.8945         0.9849         0.5569 <td< td=""><td>CatBoost</td><td>1:Log</td><td>I</td><td>ı</td><td>0.7881</td><td>0.8794</td><td>0.9897</td><td>0.5865</td><td>0.9845</td><td>0.7463</td><td>0.9950</td><td>0.4831</td><td>田</td></td<>	CatBoost	1:Log	I	ı	0.7881	0.8794	0.9897	0.5865	0.9845	0.7463	0.9950	0.4831	田
1.Log         -         SMOTE         0.7682         0.9884         0.5480         0.9841         0.6599         0.9927         0.4686           1.Log         -         SMOTE         0.7881         0.9884         0.5731         0.8845         0.7012         0.9924         0.4831           1.Log         -         SMOTE         0.7701         0.8867         0.9881         0.5767         0.7015         0.9924         0.4581           1.Log         Tomek         -         0.7709         0.8852         0.9881         0.5873         0.7068         0.9924         0.4581           1.Log         Tomek         -         0.7703         0.8852         0.9881         0.5864         0.9947         0.7068         0.9441           1.Log         Tomek         -         0.7733         0.8875         0.9886         0.5845         0.7833         0.9947         0.4444           1.Log         Tomek         -         0.7733         0.8876         0.9886         0.5849         0.5831         0.9849         0.4849         0.4849           1.Log         Tomek         SMOTE         0.7733         0.8876         0.9886         0.5849         0.6849         0.9484         0.4849	CatBoost	1:Log	ı	SMOTE	0.7777	0.8763	0.9886	0.5667	0.9848	0.6667	0.9925	0.4928	A
H. Log	CatBoost	1:Log	ı	SMOTE	0.7682	0.8868	0.9884	0.5480	0.9841	0.6599	0.9927	0.4686	В
1.Log         —         SMOTE         0.7701         0.8891         0.5513         0.9837         0.7015         0.9942         0.4541           1.Log         —         SMOTE         0.7624         0.8881         0.5867         0.9834         0.6463         0.9924         0.4589           1.Log         Tomek         —         0.7734         0.8852         0.9887         0.5839         0.9834         0.66815         0.9924         0.4589           1.Log         Tomek         —         0.7734         0.8875         0.9887         0.6815         0.9928         0.4444           1.Log         Tomek         —         0.7731         0.8875         0.9887         0.7846         0.8846         0.6733         0.9928         0.4444           1.Log         Tomek         SMOTE         0.7731         0.8817         0.9887         0.5849         0.5875         0.9841         0.6879         0.4837           1.Log         Tomek         SMOTE         0.7740         0.8816         0.5882         0.5645         0.9845         0.6845         0.6845         0.6845         0.6849         0.6738         0.9947         0.4841           1.Log         Tomek         SMOTE         0.7841	CatBoost	1:Log	ı	SMOTE	0.7811	0.8687	0.9892	0.5731	0.9845	0.7042	0.9939	0.4831	C
1.Log         —         SMOTE         0.7624         0.8929         0.9881         0.5367         0.9838         0.6463         0.9924         0.4589           1.Log         Tomek         —         0.7763         0.8782         0.9889         0.5329         0.9883         0.6463         0.9943         0.4581           1.Log         Tomek         —         0.7763         0.8762         0.9889         0.5380         0.9844         0.6073         0.9943         0.4449           1.Log         Tomek         —         0.7763         0.8776         0.9889         0.5384         0.6879         0.9943         0.4489           1.Log         Tomek         —         0.7781         0.8910         0.8881         0.5845         0.7363         0.9944         0.4889           1.Log         Tomek         SMOTE         0.7764         0.8915         0.9882         0.5459         0.9845         0.6649         0.9936         0.4881           1.Log         Tomek         SMOTE         0.7764         0.8942         0.5459         0.9844         0.6819         0.6644         0.9912         0.4881           1.Log         Tomek         SMOTE         0.7744         0.9886         0.5496	CatBoost	1:Log	I	SMOTE	0.7701	0.8691	0.9889	0.5513	0.9837	0.7015	0.9942	0.4541	D
Lilog         Tomek         –         0.7709         0.8852         0.9889         0.5529         0.9837         0.7068         0.9943         0.4541           Lilog         Tomek         –         0.7633         0.8852         0.9885         0.5580         0.9846         0.67815         0.9937         0.4444           Lilog         Tomek         –         0.7773         0.8773         0.9886         0.5578         0.9846         0.6733         0.9936         0.4444           Lilog         Tomek         –         0.7731         0.8715         0.9886         0.5575         0.9841         0.6539         0.9936         0.4486           Lilog         Tomek         SMOTE         0.7764         0.8831         0.9886         0.5575         0.9841         0.6581         0.9915         0.4948           Lilog         Tomek         SMOTE         0.7742         0.8845         0.5659         0.9849         0.6561         0.9915         0.4948           Lilog         Tomek         SMOTE         0.7741         0.8845         0.5452         0.9849         0.6541         0.9911         0.4948           Lilog         OSS         –         0.7740         0.8879         0.5458	CatBoost	1:Log	1	SMOTE	0.7624	0.8929	0.9881	0.5367	0.9838	0.6463	0.9924	0.4589	闰
1.Log         Tomek         -         0.7633         0.8762         0.9885         0.5380         0.9834         0.6815         0.9937         0.4444           1.Log         Tomek         -         0.7773         0.8773         0.9887         0.5568         0.9846         0.6733         0.9928         0.4879           1.Log         Tomek         -         0.7773         0.8816         0.5881         0.8845         0.6849         0.6879         0.9987         0.4887           1.Log         Tomek         SMOTE         0.7731         0.8916         0.9884         0.6849         0.6879         0.9936         0.4887           1.Log         Tomek         SMOTE         0.7772         0.8915         0.9849         0.6561         0.9912         0.4886           1.Log         Tomek         SMOTE         0.7764         0.8945         0.5849         0.6564         0.9912         0.4916           1.Log         Tomek         SMOTE         0.7764         0.8945         0.5465         0.9849         0.6511         0.9912         0.4916           1.Log         OSS         -         0.7764         0.8944         0.9845         0.6614         0.9912         0.4931	CatBoost	1:Log	Tomek	ı	0.7709	0.8852	0.9889	0.5529	0.9837	0.7068	0.9943	0.4541	Ą
1:Log         Tomek         –         0.7773         0.8773         0.9887         0.5658         0.9846         0.6733         0.9928         0.4879           1:Log         Tomek         –         0.7731         0.8765         0.9896         0.5831         0.9845         0.7333         0.9947         0.4819           1:Log         Tomek         SMOTE         0.7780         0.8931         0.9886         0.5575         0.9841         0.6879         0.9945         0.4831           1:Log         Tomek         SMOTE         0.7764         0.8835         0.5859         0.5849         0.5849         0.6561         0.9921         0.4831           1:Log         Tomek         SMOTE         0.7764         0.8845         0.5659         0.9849         0.6531         0.9943         0.4831           1:Log         Tomek         SMOTE         0.7764         0.8845         0.5849         0.5349         0.6531         0.9943         0.5772           1:Log         OSS         –         0.7764         0.8845         0.5849         0.5349         0.6531         0.9944         0.9941           1:Log         OSS         –         0.7764         0.8845         0.5496         0.6549	CatBoost	1:Log	Tomek	ı	0.7633	0.8762	0.9885	0.5380	0.9834	0.6815	0.9937	0.4444	В
1.Log         Tomek         –         0.7863         0.8965         0.5831         0.9845         0.7353         0.9947         0.4831           1.Log         Tomek         –         0.7731         0.8910         0.9888         0.5575         0.9841         0.6879         0.9936         0.4686           1.Log         Tomek         SMOTE         0.7781         0.8931         0.9885         0.5659         0.9845         0.6329         0.9915         0.4881           1.Log         Tomek         SMOTE         0.7774         0.8815         0.9882         0.5645         0.9849         0.6561         0.9921         0.4976           1.Log         Tomek         SMOTE         0.7744         0.8835         0.5645         0.9849         0.6564         0.9917         0.4931           1.Log         Tomek         SMOTE         0.7744         0.8845         0.5465         0.9845         0.6604         0.9921         0.5772           1.Log         OSS         –         0.7641         0.8744         0.9885         0.5465         0.9845         0.6604         0.9917         0.4831           1.Log         OSS         –         0.7760         0.8876         0.5486         0.9845	CatBoost	1:Log	Tomek	ı	0.7773	0.8773	0.9887	0.5658	0.9846	0.6733	0.9928	0.4879	C
1:Log         Tomek         –         0.7731         0.8910         0.9888         0.5575         0.9841         0.6879         0.9936         0.4686           1:Log         Tomek         SMOTE         0.7722         0.8915         0.9885         0.5559         0.9849         0.6561         0.9915         0.4831           1:Log         Tomek         SMOTE         0.7772         0.8815         0.9882         0.5645         0.9845         0.6604         0.9912         0.4976           1:Log         Tomek         SMOTE         0.7784         0.8835         0.886         0.5738         0.9845         0.6604         0.9912         0.5072           1:Log         OSS         -         0.7764         0.8744         0.9886         0.5738         0.9845         0.6043         0.6043         0.5072           1:Log         OSS         -         0.7785         0.8744         0.9886         0.6023         0.9844         0.6138         0.5943         0.4638           1:Log         OSS         -         0.7766         0.8779         0.9889         0.6239         0.9844         0.6938         0.9442         0.9944         0.9944           1:Log         OSS         SMOTE	CatBoost	1:Log	Tomek	ı	0.7863	0.8765	9686.0	0.5831	0.9845	0.7353	0.9947	0.4831	О
1.Log         Tomek         SMOTE         0.7680         0.8931         0.9880         0.5479         0.9845         0.6329         0.9915         0.4831           1.Log         Tomek         SMOTE         0.7772         0.8915         0.9885         0.5659         0.9849         0.6561         0.9912         0.4976           1.Log         Tomek         SMOTE         0.7774         0.8815         0.9885         0.5645         0.9852         0.6604         0.9912         0.5072           1.Log         Tomek         SMOTE         0.7764         0.8845         0.5465         0.9852         0.6604         0.9912         0.5072           1.Log         OSS         -         0.7641         0.8844         0.8876         0.5486         0.9845         0.6135         0.9903         0.4976           1.Log         OSS         -         0.7766         0.8779         0.9882         0.5598         0.6389         0.6398         0.6398         0.6398         0.6398         0.6398         0.6398         0.6398         0.6398         0.6398         0.6398         0.6398         0.6398         0.6398         0.6398         0.6398         0.6412         0.9913         0.4938         0.6398         0.6398	CatBoost	1:Log	Tomek	ı	0.7731	0.8910	0.9888	0.5575	0.9841	0.6879	0.9936	0.4686	田
1:Log         Tomek         SMOTE         0.7772         0.8915         0.5659         0.9849         0.6561         0.9921         0.4976           1:Log         Tomek         SMOTE         0.7764         0.8835         0.9862         0.6645         0.9852         0.6344         0.9912         0.5072           1:Log         Tomek         SMOTE         0.7764         0.8845         0.9865         0.6045         0.9852         0.6604         0.9912         0.5072           1:Log         Tomek         SMOTE         0.7641         0.8846         0.8745         0.9845         0.6044         0.9921         0.5072           1:Log         OSS         -         0.7685         0.8744         0.9885         0.6485         0.6039         0.6713         0.9931         0.4638           1:Log         OSS         -         0.7760         0.8779         0.9889         0.6525         0.9849         0.6398         0.9943         0.7310           1:Log         OSS         -         0.7740         0.8780         0.9889         0.5625         0.9844         0.6828         0.9943         0.4734           1:Log         OSS         SMOTE         0.7754         0.8849         0.5698	CatBoost	1:Log	Tomek	SMOTE	0.7680	0.8931	0.9880	0.5479	0.9845	0.6329	0.9915	0.4831	A
1:Log         Tomek         SMOTE         0.7764         0.8835         0.9882         0.5645         0.9852         0.6364         0.9912         0.5772           1:Log         Tomek         SMOTE         0.7812         0.8845         0.5886         0.5738         0.9852         0.6604         0.9921         0.5772           1:Log         Tomek         SMOTE         0.7641         0.8744         0.9876         0.5405         0.9845         0.6135         0.9908         0.4831           1:Log         OSS         -         0.7760         0.8779         0.9885         0.5286         0.9849         0.6713         0.9931         0.4638           1:Log         OSS         -         0.7740         0.8779         0.9882         0.5598         0.9844         0.6338         0.9943         0.4776           1:Log         OSS         -         0.7756         0.8879         0.9882         0.5598         0.9844         0.6828         0.9943         0.4784           1:Log         OSS         SMOTE         0.7754         0.8844         0.9874         0.6828         0.9944         0.9943         0.4784           1:Log         OSS         SMOTE         0.7780         0.8896	CatBoost	1:Log	Tomek	SMOTE	0.7772	0.8915	0.9885	0.5659	0.9849	0.6561	0.9921	0.4976	В
1:Log         Tomek         SMOTE         0.7812         0.8945         0.9886         0.5738         0.9852         0.6604         0.9921         0.5072           1:Log         Tomek         SMOTE         0.7641         0.8744         0.9876         0.5405         0.9845         0.6135         0.9908         0.4831           1:Log         OSS         -         0.7685         0.8744         0.9885         0.5486         0.9839         0.6713         0.9931         0.4638           1:Log         OSS         -         0.7960         0.8779         0.9889         0.6023         0.9849         0.6713         0.9943         0.5121           1:Log         OSS         -         0.7740         0.8780         0.9882         0.5598         0.9849         0.6398         0.9849         0.6828         0.9943         0.4786           1:Log         OSS         SMOTE         0.7754         0.8849         0.9892         0.5698         0.9842         0.7153         0.9943         0.4784           1:Log         OSS         SMOTE         0.7754         0.8844         0.9871         0.9845         0.9845         0.6289         0.9945         0.6289         0.9945         0.6289         0.9945 </td <td>CatBoost</td> <td>1:Log</td> <td>Tomek</td> <td>SMOTE</td> <td>0.7764</td> <td>0.8835</td> <td>0.9882</td> <td>0.5645</td> <td>0.9852</td> <td>0.6364</td> <td>0.9912</td> <td>0.5072</td> <td>C</td>	CatBoost	1:Log	Tomek	SMOTE	0.7764	0.8835	0.9882	0.5645	0.9852	0.6364	0.9912	0.5072	C
1.Log         Tomek         SMOTE         0.7641         0.8744         0.9876         0.5405         0.0845         0.6135         0.9908         0.4831           1.Log         OSS         -         0.7685         0.8744         0.9885         0.5486         0.9839         0.6713         0.9943         0.4638           1.Log         OSS         -         0.7740         0.8779         0.9888         0.6528         0.9849         0.6739         0.9943         0.5121           1.Log         OSS         -         0.7756         0.8870         0.9888         0.5625         0.9844         0.6828         0.9943         0.4734           1.Log         OSS         -         0.7756         0.8849         0.9892         0.5698         0.9842         0.7153         0.9943         0.4734           1.Log         OSS         SMOTE         0.7754         0.8844         0.9871         0.5177         0.9837         0.5938         0.9943         0.4734           1.Log         OSS         SMOTE         0.7754         0.8844         0.9845         0.6289         0.9945         0.6289         0.9945         0.6442         0.9845         0.6687         0.9915         0.5169	CatBoost	1:Log	Tomek	SMOTE	0.7812	0.8945	0.9886	0.5738	0.9852	0.6604	0.9921	0.5072	О
1:Log         OSS         -         0.7685         0.8744         0.9885         0.5486         0.9839         0.6713         0.9931         0.4638           1:Log         OSS         -         0.7960         0.8779         0.9889         0.6023         0.9849         0.6398         0.9943         0.5121           1:Log         OSS         -         0.7740         0.8780         0.9882         0.5598         0.9849         0.6398         0.9915         0.4976           1:Log         OSS         -         0.7775         0.8870         0.9882         0.5625         0.9844         0.6828         0.9915         0.4976           1:Log         OSS         SMOTE         0.7756         0.8849         0.9892         0.5698         0.9842         0.7153         0.9943         0.4734           1:Log         OSS         SMOTE         0.7754         0.8844         0.9871         0.5177         0.9845         0.6289         0.9945         0.6289         0.9942         0.7189         0.9943         0.4789           1:Log         OSS         SMOTE         0.7780         0.8890         0.9889         0.5845         0.9845         0.6442         0.9915         0.5169           <	CatBoost	1:Log	Tomek	SMOTE	0.7641	0.8744	0.9876	0.5405	0.9845	0.6135	0.9908	0.4831	田
1:Log         OSS         -         0.7960         0.8779         0.9898         0.6023         0.9854         0.7310         0.9943         0.5121           1:Log         OSS         -         0.7740         0.8780         0.9882         0.5598         0.9849         0.6398         0.9915         0.4976           1:Log         OSS         -         0.7756         0.8870         0.9888         0.5625         0.9844         0.6828         0.9915         0.4976           1:Log         OSS         SMOTE         0.7756         0.8849         0.9882         0.5628         0.9842         0.7153         0.9943         0.4734           1:Log         OSS         SMOTE         0.7754         0.8844         0.9871         0.5177         0.9845         0.6289         0.9943         0.4734           1:Log         OSS         SMOTE         0.7780         0.8860         0.9879         0.5444         0.9857         0.6687         0.9923         0.5169           1:Log         OSS         SMOTE         0.7780         0.8833         0.9883         0.5676         0.9845         0.6442         0.9915         0.5072           1:Log         OSS         SMOTE         0.77656         <	CatBoost	1:Log	OSS	I	0.7685	0.8744	0.9885	0.5486	0.9839	0.6713	0.9931	0.4638	A
1:Log         OSS         -         0.7740         0.8780         0.9882         0.5598         0.9849         0.6398         0.9915         0.4976           1:Log         OSS         -         0.7756         0.8870         0.9888         0.5625         0.9844         0.6828         0.9933         0.4783           1:Log         OSS         SMOTE         0.7754         0.8849         0.9892         0.5698         0.9842         0.7153         0.9943         0.4734           1:Log         OSS         SMOTE         0.7754         0.8844         0.9871         0.5177         0.9845         0.6289         0.9943         0.4734           1:Log         OSS         SMOTE         0.7762         0.8986         0.9879         0.5464         0.9845         0.6289         0.9914         0.4831           1:Log         OSS         SMOTE         0.7780         0.8833         0.9883         0.5676         0.9852         0.6442         0.9915         0.5072           1:Log         OSS         SMOTE         0.7756         0.8858         0.9878         0.5435         0.6211         0.9911         0.4831	CatBoost	1:Log	SSO	ı	0.7960	0.8779	0.9898	0.6023	0.9854	0.7310	0.9943	0.5121	В
1:Log         OSS         -         0.7756         0.8870         0.9888         0.5625         0.9844         0.6828         0.9933         0.4783           1:Log         OSS         -         0.7754         0.8849         0.9892         0.5698         0.9842         0.7153         0.9943         0.4734           1:Log         OSS         SMOTE         0.7754         0.8844         0.9871         0.5177         0.9837         0.5938         0.9905         0.4734           1:Log         OSS         SMOTE         0.7672         0.8986         0.9879         0.5464         0.9845         0.6289         0.9914         0.4831           1:Log         OSS         SMOTE         0.7780         0.8833         0.9883         0.5676         0.9852         0.6442         0.9915         0.5072           1:Log         OSS         SMOTE         0.7780         0.8833         0.9883         0.5676         0.9945         0.6241         0.9915         0.5072           1:Log         OSS         SMOTE         0.7656         0.8858         0.9845         0.6211         0.9911         0.4831	CatBoost	1:Log	SSO	ı	0.7740	0.8780	0.9882	0.5598	0.9849	0.6398	0.9915	0.4976	C
1:Log         OSS         —         0.7795         0.8849         0.9892         0.5698         0.9842         0.7153         0.9943         0.4734           1:Log         OSS         SMOTE         0.77524         0.8844         0.9871         0.5177         0.9837         0.5938         0.9905         0.4789           1:Log         OSS         SMOTE         0.77672         0.8986         0.9879         0.5464         0.9845         0.6289         0.9914         0.4831           1:Log         OSS         SMOTE         0.77860         0.8800         0.9889         0.5831         0.9855         0.6687         0.9913         0.5169           1:Log         OSS         SMOTE         0.7780         0.8833         0.9883         0.5676         0.9952         0.6442         0.9915         0.5072           1:Log         OSS         SMOTE         0.7656         0.8858         0.9878         0.5435         0.9845         0.6211         0.9911         0.4831	CatBoost	1:Log	OSS	ı	0.7756	0.8870	0.9888	0.5625	0.9844	0.6828	0.9933	0.4783	О
1:Log         OSS         SMOTE         0.7524         0.8844         0.9871         0.5177         0.9837         0.5938         0.9905         0.4589           1:Log         OSS         SMOTE         0.7672         0.8986         0.9879         0.5464         0.9845         0.6289         0.9914         0.4831           1:Log         OSS         SMOTE         0.7780         0.8833         0.9883         0.5676         0.9852         0.6442         0.9915         0.5072           1:Log         OSS         SMOTE         0.7656         0.8858         0.9878         0.5435         0.9845         0.6211         0.9911         0.4831	CatBoost	1:Log	OSS	ı	0.7795	0.8849	0.9892	0.5698	0.9842	0.7153	0.9943	0.4734	田
1:Log         OSS         SMOTE         0.7672         0.8986         0.9879         0.5464         0.9845         0.6289         0.9914         0.4831           1:Log         OSS         SMOTE         0.7780         0.8833         0.9883         0.5676         0.9852         0.6442         0.9915         0.5169           1:Log         OSS         SMOTE         0.7780         0.8833         0.9883         0.5676         0.9852         0.6442         0.9915         0.5072           1:Log         OSS         SMOTE         0.7656         0.8858         0.9878         0.5435         0.9845         0.6211         0.9911         0.4831	CatBoost	1:Log	OSS	SMOTE	0.7524	0.8844	0.9871	0.5177	0.9837	0.5938	0.9905	0.4589	A
1:Log         OSS         SMOTE         0.7860         0.8800         0.9889         0.5831         0.9855         0.6687         0.9923           1:Log         OSS         SMOTE         0.7780         0.8833         0.9883         0.5676         0.9852         0.6442         0.9915           1:Log         OSS         SMOTE         0.7656         0.8858         0.9878         0.5435         0.9845         0.6211         0.9911	CatBoost	1:Log	OSS	SMOTE	0.7672	0.8986	0.9879	0.5464	0.9845	0.6289	0.9914	0.4831	В
1:Log OSS SMOTE 0.7780 0.8833 0.9883 0.5676 0.9852 0.6442 0.9915 1:Log OSS SMOTE 0.7656 0.8858 0.9878 0.5435 0.9845 0.6211 0.9911	CatBoost	1:Log	OSS	SMOTE	0.7860	0.8800	0.9889	0.5831	0.9855	0.6687	0.9923	0.5169	C
1:Log OSS SMOTE   0.7656 0.8858 0.9878 0.5435 0.9845 0.6211 0.9911	CatBoost	1:Log	OSS	SMOTE	0.7780	0.8833	0.9883	0.5676	0.9852	0.6442	0.9915	0.5072	D
	CatBoost	1:Log	OSS	SMOTE	0.7656	0.8858	0.9878	0.5435	0.9845	0.6211	0.9911	0.4831	田

TABLE XIII
COMPLETE TEST SET CLASSIFICATION PERFORMANCE - PART 10

Model	Class Weight	Undersampling	Oversampling	Macro $F1$	AUC	$F1_0$	$F1_1$	$Precision_0$	$Precision_1$	$Recall_0$	$Recall_1$	Seed
LightGBM	I	ı	ı	0.7786	0.9004	9066.0	0.5667	0.9825	0.9140	0.9988	0.4106	A
LightGBM	I	ı	I	0.7786	0.9004	0.9906	0.5667	0.9825	0.9140	0.9988	0.4106	В
LightGBM	I	ı	I	0.7594	0.8949	0.9899	0.5288	0.9815	0.8864	0.9985	0.3768	C
LightGBM	I	I	I	0.7786	0.9004	0.9906	0.5667	0.9825	0.9140	0.9988	0.4106	О
LightGBM	I	I	I	0.7786	0.9004	0.9906	0.5667	0.9825	0.9140	0.9988	0.4106	田
LightGBM	I	ı	SMOTE	0.7727	0.8947	0.9906	0.5548	0.9819	0.9529	0.9994	0.3913	A
LightGBM	I	ı	SMOTE	0.7806	0.8958	0.9907	0.5705	0.9825	0.9341	0.9991	0.4106	В
LightGBM	I	ı	SMOTE	0.7806	0.8986	0.9907	0.5705	0.9825	0.9341	0.9991	0.4106	C
LightGBM	I	ı	SMOTE	0.7772	0.8935	0.9906	0.5638	0.9823	0.9231	0.666.0	0.4058	О
LightGBM	I	ı	SMOTE	0.7791	0.9011	0.9907	0.5676	0.9823	0.9438	0.9993	0.4058	田
LightGBM	I	Tomek	I	0.7801	0.9046	0.9906	0.5695	0.9826	0.9053	0.9987	0.4155	Ą
LightGBM	I	Tomek	I	0.7801	0.9046	0.9906	0.5695	0.9826	0.9053	0.9987	0.4155	В
LightGBM	I	Tomek	I	0.7709	0.8956	0.9902	0.5515	0.9822	0.8830	0.9984	0.4010	C
LightGBM	I	Tomek	I	0.7801	0.9046	0.9906	0.5695	0.9826	0.9053	0.9987	0.4155	О
LightGBM	I	Tomek	I	0.7801	0.9046	0.9906	0.5695	0.9826	0.9053	0.9987	0.4155	田
LightGBM	I	Tomek	SMOTE	0.7782	0.8930	0.9907	0.5657	0.9823	0.9333	0.9991	0.4058	A
LightGBM	I	Tomek	SMOTE	0.7752	0.8960	0.9904	0.5600	0.9823	0.9032	0.9987	0.4058	В
LightGBM	I	Tomek	SMOTE	0.7722	0.8938	0.9904	0.5541	0.9820	0.9213	0.666.0	0.3961	C
LightGBM	I	Tomek	SMOTE	0.7806	0.8953	0.9907	0.5705	0.9825	0.9341	0.9991	0.4106	D
LightGBM	I	Tomek	SMOTE	0.7698	0.8995	0.9904	0.5492	0.9819	0.9205	0.6660	0.3913	Щ
LightGBM	I	SSO	I	0.7767	0.9075	0.9904	0.5629	0.9825	0.8947	0.9985	0.4106	Ą
LightGBM	I	OSS	I	0.7776	0.9031	0.9905	0.5648	0.9825	0.9043	0.9987	0.4106	В
LightGBM	I	OSS	I	0.7619	0.8912	0.9900	0.5338	0.9816	0.8876	0.9985	0.3816	C
LightGBM	1	OSS	I	0.7728	0.9043	0.9904	0.5552	0.9822	0.9022	0.9987	0.4010	О
LightGBM	1	OSS	I	0.7757	0.9058	0.9904	0.5611	0.9824	0.8854	0.9984	0.4106	田
LightGBM	1	OSS	SMOTE	0.7698	0.8920	0.9904	0.5492	0.9819	0.9205	0.6660	0.3913	A
LightGBM	I	OSS	SMOTE	0.7707	0.8960	0.9904	0.5510	0.9819	0.9310	0.9991	0.3913	В
LightGBM	I	OSS	SMOTE	0.7854	0.8923	0.9909	0.5800	0.9827	0.9355	0.9991	0.4203	C
LightGBM	I	OSS	SMOTE	0.7820	0.8947	0.9907	0.5733	0.9826	0.9247	0.6660	0.4155	О
LightGBM	I	OSS	SMOTE	0.7796	0.9023	0.9906	0.5686	0.9825	0.9239	0.6660	0.4106	田
LightGBM	1:3	I	I	0.7890	0.9072	0.9904	0.5875	0.9837	0.8319	0.9972	0.4541	A
LightGBM	1:3	I	I	0.7890	0.9072	0.9904	0.5875	0.9837	0.8319	0.9972	0.4541	В
LightGBM	1:3	ı	I	0.7976	0.8983	0.9908	0.6044	0.9841	0.8509	0.9975	0.4686	C
LightGBM	1:3	I	I	0.7890	0.9072	0.9904	0.5875	0.9837	0.8319	0.9972	0.4541	О
LightGBM	1:3	ı	I	0.7890	0.9072	0.9904	0.5875	0.9837	0.8319	0.9972	0.4541	田
LightGBM	1:3	ı	SMOTE	0.7857	0.8978	0.9898	0.5816	0.9842	0.7538	0.9953	0.4734	Ą
LightGBM	1:3	ı	SMOTE	0.7805	0.8968	0.9895	0.5714	0.9840	0.7442	0.9952	0.4638	В
LightGBM	1:3	ı	SMOTE	0.7990	0.8941	0.9907	0.6074	0.9844	0.8319	0.9971	0.4783	C
LightGBM	1:3	ı	SMOTE	0.7832	0.8938	0.9898	0.5766	0.9840	0.7619	0.9956	0.4638	О
LightGBM	1:3	I	SMOTE	0.7833	0.8983	0.9900	0.5767	0.9837	0.7899	0.9963	0.4541	田
											* "-" = Not Applied	Applied

TABLE XIV
COMPLETE TEST SET CLASSIFICATION PERFORMANCE - PART 11

Model	Class Weight	Undersampling	Oversampling	Macro F1	AUC	$F1_0$	$F1_1$	Precision <sub>0</sub>	Precision <sub>1</sub>	Recall <sub>0</sub>	Recall <sub>1</sub>	Seed
LightGBM	1:3	Tomek	ı	0.7887	0.9083	0.9902	0.5872	0.9840	0.8000	0.9965	0.4638	A
LightGBM	1:3	Tomek	I	0.7887	0.9083	0.9902	0.5872	0.9840	0.8000	0.9965	0.4638	В
LightGBM	1:3	Tomek	ı	0.7971	0.8989	9066.0	0.6037	0.9844	0.8182	0.9968	0.4783	C
LightGBM	1:3	Tomek	ı	0.7887	0.9083	0.9902	0.5872	0.9840	0.8000	0.9965	0.4638	О
LightGBM	1:3	Tomek	ı	0.7887	0.9083	0.9902	0.5872	0.9840	0.8000	0.9965	0.4638	田
LightGBM	1:3	Tomek	SMOTE	0.7779	0.8947	0.9895	0.5663	0.9837	0.7520	0.9955	0.4541	Ą
LightGBM	1:3	Tomek	SMOTE	0.7795	0.8975	0.9892	0.5698	0.9842	0.7153	0.9943	0.4734	В
LightGBM	1:3	Tomek	SMOTE	0.7944	0.8929	0.9900	0.5988	0.9849	0.7518	0.9950	0.4976	C
LightGBM	1:3	Tomek	SMOTE	0.7890	0.8950	0.9901	0.5879	0.9841	0.7886	0.9962	0.4686	О
LightGBM	1:3	Tomek	SMOTE	0.7796	0.8986	0.9895	0.5697	0.9840	0.7385	0.9950	0.4638	田
LightGBM	1:3	OSS	I	0.7841	0.9057	0.9898	0.5783	0.9840	0.7680	0.9958	0.4638	A
LightGBM	1:3	OSS	I	0.7896	0.9063	0.9903	0.5890	0.9840	0.8067	9966.0	0.4638	В
LightGBM	1:3	OSS	I	0.7955	0.8990	0.9903	9009.0	0.9845	0.7937	0.9962	0.4831	C
LightGBM	1:3	OSS	I	0.7874	0.9042	0.9902	0.5846	0.9838	0.8051	0.9966	0.4589	О
LightGBM	1:3	OSS	I	0.7899	0.9043	0.9902	0.5897	0.9841	0.7951	0.9963	0.4686	田
LightGBM	1:3	OSS	SMOTE	0.7791	0.8915	0.9893	0.5689	0.9841	0.7239	0.9946	0.4686	Α
LightGBM	1:3	OSS	SMOTE	0.7857	0.8995	0.9898	0.5816	0.9842	0.7538	0.9953	0.4734	В
LightGBM	1:3	OSS	SMOTE	0.7933	0.8919	0.9903	0.5964	0.9844	0.7920	0.9962	0.4783	C
LightGBM	1:3	OSS	SMOTE	0.7832	0.8937	0.9898	0.5766	0.9840	0.7619	0.9956	0.4638	О
LightGBM	1:3	OSS	SMOTE	0.7824	0.8989	0.9899	0.5749	0.9837	0.7833	0.9962	0.4541	田
LightGBM	1:5	I	I	0.7882	0.9045	0.9892	0.5873	0.9853	0.6883	0.9930	0.5121	Ą
LightGBM	1:5	I	ı	0.7882	0.9045	0.9892	0.5873	0.9853	0.6883	0.9930	0.5121	В
LightGBM	1:5	I	ı	0.8012	0.8932	0.9900	0.6124	0.9858	0.7315	0.9942	0.5266	C
LightGBM	1:5	I	ı	0.7882	0.9045	0.9892	0.5873	0.9853	0.6883	0.9930	0.5121	О
LightGBM	1:5	I	I	0.7882	0.9045	0.9892	0.5873	0.9853	0.6883	0.9930	0.5121	田
LightGBM	1:5	I	SMOTE	0.7643	0.8921	0.9874	0.5411	0.9847	0.6000	0.9901	0.4928	A
LightGBM	1:5	I	SMOTE	0.7603	0.8953	0.9869	0.5337	0.9849	0.5754	0.9889	0.4976	В
LightGBM	1:5	I	SMOTE	0.7847	0.8935	0.9883	0.5812	0.9860	0.6343	9066.0	0.5362	C
LightGBM	1:5	I	SMOTE	0.7653	0.8940	0.9870	0.5436	0.9853	0.5792	0.9887	0.5121	О
LightGBM	1:5	I	SMOTE	0.7542	0.8970	0.9865	0.5220	0.9846	0.5611	0.9885	0.4879	ப
LightGBM	1:5	Tomek	ı	0.7862	0.9048	0.9891	0.5833	0.9852	0.6863	0.9930	0.5072	A
LightGBM	1:5	Tomek	I	0.7862	0.9048	0.9891	0.5833	0.9852	0.6863	0.9930	0.5072	В
LightGBM	1:5	Tomek	1	0.7913	0.9000	0.9892	0.5934	0.9856	0.6879	0.9928	0.5217	C
LightGBM	1:5	Tomek	I	0.7862	0.9048	0.9891	0.5833	0.9852	0.6863	0.9930	0.5072	О
LightGBM	1:5	Tomek	I	0.7862	0.9048	0.9891	0.5833	0.9852	0.6863	0.9930	0.5072	田
LightGBM	1:5	Tomek	SMOTE	0.7631	0.8954	0.9868	0.5394	0.9853	0.5699	0.9883	0.5121	A
LightGBM	1:5	Tomek	SMOTE	0.7480	0.8992	0.9858	0.5101	0.9845	0.5344	0.9871	0.4879	В
LightGBM	1:5	Tomek	SMOTE	0.7785	0.8928	0.9877	0.5692	09860	9909.0	0.9895	0.5362	C
LightGBM	1:5	Tomek	SMOTE	0.7619	0.8958	0.9868	0.5371	0.9851	0.5707	0.9885	0.5072	О
LightGBM	1:5	Tomek	SMOTE	0.7593	0.9001	0.9866	0.5320	0.9850	0.5652	0.9883	0.5024	田
											* "-" = Not Applied	Applied

TABLE XV
COMPLETE TEST SET CLASSIFICATION PERFORMANCE - PART 12

Model	Class Weight	Undersampling	Oversampling	Macro F1	AUC	$F1_0$	$F1_1$	Precision <sub>0</sub>	Precision <sub>1</sub>	Recall <sub>0</sub>	Recall <sub>1</sub>	Seed
LightGBM	1:5	SSO	ı	0.7813	0.9062	0.9889	0.5738	0.9849	0.6776	0.9928	0.4976	A
LightGBM	1:5	OSS	I	0.7837	0.9047	0.9889	0.5785	0.9852	0.6731	0.9925	0.5072	В
LightGBM	1:5	OSS	I	0.7877	0.9002	0.9890	0.5863	0.9855	0.6772	0.9925	0.5169	C
LightGBM	1:5	OSS	I	0.7850	0.9055	0.9891	0.5810	0.9851	0.6887	0.9931	0.5024	О
LightGBM	1:5	OSS	I	0.7850	0.9094	0.9891	0.5810	0.9851	0.6887	0.9931	0.5024	田
LightGBM	1:5	OSS	SMOTE	0.7591	0.8925	0.9869	0.5312	0.9847	0.5763	0.9890	0.4928	А
LightGBM	1:5	OSS	SMOTE	0.7530	0.8963	0.9860	0.5200	0.9850	0.5389	0.9870	0.5024	В
LightGBM	1:5	OSS	SMOTE	0.7781	0.8925	0.9878	0.5685	0.9859	0.6111	0.9898	0.5314	C
LightGBM	1:5	OSS	SMOTE	0.7691	0.8946	0.9872	0.5510	0.9856	0.5838	0.9887	0.5217	О
LightGBM	1:5	OSS	SMOTE	0.7660	0.8957	0.9871	0.5450	0.9853	0.5824	0.9889	0.5121	田
LightGBM	1:Log	ı	I	0.7902	0.9069	0.9901	0.5904	0.9843	0.7840	0.9961	0.4734	A
LightGBM	1:Log	ı	I	0.7902	0.9069	0.9901	0.5904	0.9843	0.7840	0.9961	0.4734	В
LightGBM	1:Log	ı	I	0.8078	0.8997	0.9909	0.6246	0.9851	0.8254	0.9968	0.5024	C
LightGBM	1:Log	I	I	0.7902	0.9069	0.9901	0.5904	0.9843	0.7840	0.9961	0.4734	О
LightGBM	1:Log	I	ı	0.7902	0.9069	0.9901	0.5904	0.9843	0.7840	0.9961	0.4734	田
LightGBM	1:Log	I	SMOTE	0.7727	0.8924	0.9889	0.5565	0.9839	0.6957	0.9939	0.4638	A
LightGBM	1:Log	I	SMOTE	0.7778	0.9017	0.9893	0.5664	0.9839	0.7273	0.9947	0.4638	В
LightGBM	1:Log	I	SMOTE	0.7914	0.8968	0.9898	0.5930	0.9848	0.7445	0.9949	0.4928	C
LightGBM	1:Log	I	SMOTE	0.7790	0.8925	0.9891	0.5690	0.9844	0.7021	0.9939	0.4783	О
LightGBM	1:Log	ı	SMOTE	0.7748	0.8989	0.9889	0.5607	0.9841	0.6978	0.9939	0.4686	田
LightGBM	1:Log	Tomek	I	0.7866	0.9030	0.9898	0.5833	0.9842	0.7597	0.9955	0.4734	A
LightGBM	1:Log	Tomek	I	0.7866	0.9030	0.9898	0.5833	0.9842	0.7597	0.9955	0.4734	В
LightGBM	1:Log	Tomek	I	0.7890	0.8983	0.9898	0.5882	0.9845	0.7519	0.9952	0.4831	C
LightGBM	1:Log	Tomek	I	0.7866	0.9030	0.9898	0.5833	0.9842	0.7597	0.9955	0.4734	О
LightGBM	1:Log	Tomek	I	0.7866	0.9030	0.9898	0.5833	0.9842	0.7597	0.9955	0.4734	田
LightGBM	1:Log	Tomek	SMOTE	0.7832	0.8903	0.9892	0.5771	0.9846	0.7063	0.9939	0.4879	А
LightGBM	1:Log	Tomek	SMOTE	0.7756	0.8959	0.9888	0.5625	0.9844	0.6828	0.9933	0.4783	В
LightGBM	1:Log	Tomek	SMOTE	0.7841	0.8947	0.9893	0.5788	0.9846	0.7113	0.9940	0.4879	C
LightGBM	1:Log	Tomek	SMOTE	0.7815	0.8936	0.9891	0.5739	0.9846	9969.0	0.9936	0.4879	О
LightGBM	1:Log	Tomek	SMOTE	0.7723	0.8943	0.9887	0.5559	0.9841	0.6831	0.9934	0.4686	山
LightGBM	1:Log	OSS	I	0.7884	0.9022	0.9900	0.5868	0.9842	0.7717	0.9958	0.4734	A
LightGBM	1:Log	OSS	I	0.7810	0.9063	0.9897	0.5723	0.9838	0.7600	0.9956	0.4589	В
LightGBM	1:Log	SSO	I	0.7911	0.8972	0.9899	0.5924	0.9847	0.7537	0.9952	0.4879	C
LightGBM	1:Log	OSS	I	0.7815	0.9051	0.9898	0.5732	0.9837	0.7769	0.9961	0.4541	О
LightGBM	1:Log	OSS	I	0.7866	0.9054	0.9898	0.5833	0.9842	0.7597	0.9955	0.4734	田
LightGBM	1:Log	OSS	SMOTE	0.7789	0.8959	0.9889	0.5690	0.9846	0.6824	0.9931	0.4879	A
LightGBM	1:Log	OSS	SMOTE	0.7702	0.8991	0.9887	0.5517	0.9839	0.6809	0.9934	0.4638	В
LightGBM	1:Log	OSS	SMOTE	0.7902	0.8971	0.9895	0.5909	0.9851	0.7172	0.9940	0.5024	C
LightGBM	1:Log	OSS	SMOTE	0.7810	0.8938	0.9889	0.5730	0.9848	0.6846	0.9931	0.4928	О
LightGBM	1:Log	SSO	SMOTE	0.7744	0.9008	0.9888	0.5600	0.9842	0.6853	0.9934	0.4734	田
											* "-" = Not Applied	t Applied

TABLE XVI COMPLETE TEST SET CLASSIFICATION PERFORMANCE - PART 13

Model	Class Weight	Undersampling	Oversampling	Macro F1	AUC	$F1_0$	$F1_1$	Precision <sub>0</sub>	Precision <sub>1</sub>	$\mathbf{Recall}_0$	$Recall_1$	Seed
LogisticRegression	ı	I	I	0.6329	0.7952	0.9869	0.2789	0.9754	0.7955	0.9987	0.1691	A
LogisticRegression	I	I	I	0.6188	0.7994	0.9866	0.2510	0.9749	0.7750	0.9987	0.1498	В
LogisticRegression	ı	1	I	0.6085	0.8012	0.9865	0.2305	0.9745	0.7778	0.9988	0.1353	C
LogisticRegression	I	I	I	0.5954	0.7918	0.9865	0.2043	0.9739	0.8571	0.9994	0.1159	О
LogisticRegression	I	I	I	0.6205	0.7953	0.9869	0.2541	0.9749	0.8378	0.9991	0.1498	田
LogisticRegression	I	I	SMOTE	0.6267	0.7741	0.9858	0.2677	0.9755	0.5806	0.9962	0.1739	Α
LogisticRegression	I	I	SMOTE	0.6366	0.7998	0.9863	0.2868	0.9758	0.6552	0.9971	0.1836	В
LogisticRegression	I	I	SMOTE	0.6055	0.7863	0.9847	0.2263	0.9748	0.4627	0.9947	0.1498	C
LogisticRegression	I	I	SMOTE	0.6146	0.7928	0.9861	0.2431	0.9749	0.6458	0.9975	0.1498	D
LogisticRegression	I	I	SMOTE	0.6141	0.7847	0.9860	0.2422	0.9748	0.6327	0.9974	0.1498	田
LogisticRegression	I	Tomek	I	0.6048	0.8003	0.9864	0.2231	0.9743	0.7714	0.9988	0.1304	A
LogisticRegression	I	Tomek	I	0.6218	0.8008	0.9866	0.2570	0.9750	0.7619	0.9985	0.1546	В
LogisticRegression	I	Tomek	I	0.6205	0.8070	0.9869	0.2541	0.9749	0.8378	0.9991	0.1498	C
LogisticRegression	I	Tomek	I	0.6283	0.8010	0.9867	0.2698	0.9753	0.7556	0.9984	0.1643	О
LogisticRegression	I	Tomek	I	0.6213	0.8008	0.9866	0.2560	0.9750	0.7442	0.9984	0.1546	田
LogisticRegression	I	Tomek	SMOTE	0.6170	0.7880	0.9860	0.2481	0.9750	0.6275	0.9972	0.1546	Α
LogisticRegression	I	Tomek	SMOTE	0.6245	0.7911	0.9858	0.2632	0.9754	0.5932	0.9965	0.1691	В
LogisticRegression	I	Tomek	SMOTE	0.6015	0.7873	0.9850	0.2180	0.9745	0.4915	0.9956	0.1401	C
LogisticRegression	I	Tomek	SMOTE	0.6153	0.7794	0.9853	0.2454	0.9751	0.5323	0.9958	0.1594	D
LogisticRegression	ı	Tomek	SMOTE	0.6178	0.7920	0.9857	0.2500	0.9751	0.5789	0.9965	0.1594	田
LogisticRegression	I	OSS	I	0.5973	0.7978	0.9863	0.2083	0.9741	0.7576	0.9988	0.1208	A
LogisticRegression	I	OSS	I	0.6142	0.7931	0.9864	0.2419	0.9747	0.7317	0.9984	0.1449	В
LogisticRegression	I	SSO	I	0.6194	0.8072	0.9867	0.2520	0.9749	0.7949	0.9988	0.1498	C
LogisticRegression	I	SSO	I	0.6147	0.7954	0.9865	0.2429	0.9747	0.7500	0.9985	0.1449	О
LogisticRegression	I	OSS	I	0.6306	0.7992	9986.0	0.2745	0.9754	0.7292	0.9981	0.1691	闰
LogisticRegression	I	SSO	SMOTE	0.6406	0.7779	0.9855	0.2958	0.9763	0.5455	0.9949	0.2029	A
LogisticRegression	I	SSO	SMOTE	0.6322	0.7917	0.9861	0.2782	0.9757	0.6271	0.9968	0.1787	В
LogisticRegression	Ι	SSO	SMOTE	0.6110	0.7889	0.9847	0.2374	0.9751	0.4648	0.9944	0.1594	C
LogisticRegression	I	SSO	SMOTE	0.6384	0.7853	0.9859	0.2909	0.9761	0.5882	0.9959	0.1932	D
LogisticRegression	I	OSS	SMOTE	0.6194	0.7877	0.9859	0.2529	0.9751	0.6111	0.9969	0.1594	Э
LogisticRegression	1:3	I	1	0.6820	0.8028	0.9861	0.3779	0.9786	0.5800	0.9939	0.2802	Ą
LogisticRegression	1:3	I	1	0.6650	0.8081	0.9856	0.3444	0.9777	0.5474	0.9937	0.2512	В
LogisticRegression	1:3	ı	I	0.6846	0.8099	0.9869	0.3823	0.9783	0.6512	0.9956	0.2705	C
LogisticRegression	1:3	I	1	0.6805	0.8103	0.9864	0.3746	0.9783	0.6087	0.9947	0.2705	D
LogisticRegression	1:3	I	I	0.6709	0.8142	0.9861	0.3557	0.9779	0.5824	0.9944	0.2560	Щ
LogisticRegression	1:3	I	SMOTE	0.6564	0.7989	0.9812	0.3316	0.9792	0.3575	0.9832	0.3092	A
LogisticRegression	1:3	I	SMOTE	0.6507	0.8120	0.9817	0.3198	0.9785	0.3642	0.9849	0.2850	В
LogisticRegression	1:3	I	SMOTE	0.6573	0.7990	0.9833	0.3314	0.9783	0.4161	0.9883	0.2754	C
LogisticRegression	1:3	1	SMOTE	0.6618	0.8164	0.9828	0.3408	0.9788	0.4040	0.9868	0.2947	О
LogisticRegression	1:3	I	SMOTE	0.6507	0.8214	0.9817	0.3198	0.9785	0.3642	0.9849	0.2850	Щ
											* "-" = Not Applied	t Applied

TABLE XVII
COMPLETE TEST SET CLASSIFICATION PERFORMANCE - PART 14

Model	Class Weight	Undersampling	Oversampling	Macro F1	AUC	$F1_0$	$F1_1$	Precision <sub>0</sub>	Precision <sub>1</sub>	$\mathbf{Recall}_0$	Recall <sub>1</sub>	Seed
LogisticRegression	1:3	Tomek	I	0.6694	0.8094	0.9867	0.3521	0.9775	0.6494	0.9961	0.2415	A
LogisticRegression	1:3	Tomek	I	0.6935	0.8095	0.9857	0.4012	0.9796	0.5410	0.9918	0.3188	В
LogisticRegression	1:3	Tomek	ı	0.6395	0.8177	0.9860	0.2930	0.9761	0.6061	0.9962	0.1932	C
LogisticRegression	1:3	Tomek	ı	0.6942	0.8127	0.9870	0.4013	0.9789	0.6522	0.9953	0.2899	D
LogisticRegression	1:3	Tomek	ı	0.6520	0.8102	0.9854	0.3186	0.9770	0.5341	0.9940	0.2271	ப
LogisticRegression	1:3	Tomek	SMOTE	0.6603	0.8132	0.9842	0.3364	0.9781	0.4583	0.9905	0.2657	Ą
LogisticRegression	1:3	Tomek	SMOTE	0.6547	0.8160	0.9826	0.3268	0.9784	0.3919	0.9868	0.2802	В
LogisticRegression	1:3	Tomek	SMOTE	0.6644	0.8109	0.9832	0.3456	0.9788	0.4178	0.9876	0.2947	C
LogisticRegression	1:3	Tomek	SMOTE	0.6656	0.8193	0.9821	0.3492	0.9795	0.3860	0.9846	0.3188	О
LogisticRegression	1:3	Tomek	SMOTE	0.6639	0.7956	0.9831	0.3446	0.9788	0.4150	0.9874	0.2947	田
LogisticRegression	1:3	OSS	I	0.6799	0.8100	0.9864	0.3733	0.9783	0.6022	0.9946	0.2705	A
LogisticRegression	1:3	OSS	I	0.6780	0.8124	0.9859	0.3701	0.9784	0.5644	0.9936	0.2754	В
LogisticRegression	1:3	OSS	I	0.7006	0.8175	0.9869	0.4142	0.9794	0.6275	0.9944	0.3092	C
LogisticRegression	1:3	OSS	ı	0.6894	0.8142	0.9867	0.3920	0.9787	0.6277	0.9949	0.2850	D
LogisticRegression	1:3	OSS	ı	0.6831	0.8091	0.9870	0.3793	0.9782	0.6627	0.9959	0.2657	田
LogisticRegression	1:3	OSS	SMOTE	0.6631	0.7988	0.9827	0.3435	0.9790	0.4026	0.9865	0.2995	Ą
LogisticRegression	1:3	OSS	SMOTE	0.6674	0.8018	0.9826	0.3523	0.9794	0.4012	0.9858	0.3140	В
LogisticRegression	1:3	OSS	SMOTE	0.6671	0.8027	0.9836	0.3506	0.9789	0.4326	0.9883	0.2947	C
LogisticRegression	1:3	SSO	SMOTE	0.6558	0.8082	0.9831	0.3285	0.9783	0.4071	0.9879	0.2754	D
LogisticRegression	1:3	OSS	SMOTE	0.6562	0.8186	0.9842	0.3282	0.9778	0.4569	0.9908	0.2560	ப
LogisticRegression	1:5	I	I	0.6780	0.8100	0.9831	0.3730	0.9800	0.4233	0.9863	0.3333	A
LogisticRegression	1:5	I	I	0.6975	0.8143	0.9835	0.4115	0.9814	0.4463	0.9857	0.3816	В
LogisticRegression	1:5	ı	I	9969.0	0.8266	0.9844	0.4088	0.9807	0.4774	0.9882	0.3575	C
LogisticRegression	1:5	ı	I	0.6928	0.8120	0.9835	0.4021	0.9809	0.4444	0.9861	0.3671	О
LogisticRegression	1:5	I	I	9669.0	0.8140	0.9842	0.4151	0.9811	0.4695	0.9873	0.3720	Щ
LogisticRegression	1:5	I	SMOTE	0.6563	0.8152	0.9765	0.3361	0.9814	0.2945	0.9716	0.3913	A
LogisticRegression	1:5	I	SMOTE	0.6570	0.8126	0.9777	0.3362	0.9809	0.3068	0.9746	0.3720	В
LogisticRegression	1:5	I	SMOTE	0.6525	0.8026	0.9774	0.3275	9086.0	0.2988	0.9743	0.3623	C
LogisticRegression	1:5	I	SMOTE	0.6431	0.7941	0.9761	0.3100	0.9802	0.2765	0.9721	0.3527	О
LogisticRegression	1:5	I	SMOTE	0.6588	0.8256	0.9772	0.3404	0.9813	0.3042	0.9732	0.3865	Э
LogisticRegression	1:5	Tomek	ı	0.6995	0.8182	0.9830	0.4160	0.9819	0.4323	0.9841	0.4010	Ą
LogisticRegression	1:5	Tomek	ı	0.6895	0.8110	0.9848	0.3942	0.9799	0.4928	0.9898	0.3285	В
LogisticRegression	1:5	Tomek	I	0.7010	0.8208	0.9840	0.4180	0.9814	0.4620	0.9865	0.3816	C
LogisticRegression	1:5	Tomek	I	0.6875	0.8162	0.9839	0.3912	0.9803	0.4551	0.9876	0.3430	О
LogisticRegression	1:5	Tomek	I	0.7009	0.8204	0.9834	0.4184	0.9818	0.4432	0.9849	0.3961	Щ
LogisticRegression	1:5	Tomek	SMOTE	0.6350	0.8059	0.9767	0.2933	0.9793	0.2716	0.9741	0.3188	Ą
LogisticRegression	1:5	Tomek	SMOTE	0.6535	0.8185	0.9782	0.3288	0.9803	0.3080	0.9760	0.3527	В
LogisticRegression	1:5	Tomek	SMOTE	0.6416	0.8053	0.9755	0.3077	0.9804	0.2701	0.9708	0.3575	C
LogisticRegression	1:5	Tomek	SMOTE	0.6615	6908.0	0.9780	0.3450	0.9812	0.3147	0.9749	0.3816	О
LogisticRegression	1:5	Tomek	SMOTE	0.6586	0.8231	0.9769	0.3403	0.9814	0.3011	0.9725	0.3913	Э
											* "-" = Not Applied	t Applied

TABLE XVIII
COMPLETE TEST SET CLASSIFICATION PERFORMANCE - PART 15

Model	Class Weight	Undersampling	Oversampling	Macro F1	AUC	$F1_0$	$F1_1$	Precision <sub>0</sub>	$Precision_1$	$\mathbf{Recall}_0$	$Recall_1$	Seed
LogisticRegression	1:5	OSS	I	0.7010	0.8156	0.9840	0.4180	0.9814	0.4620	0.9865	0.3816	A
LogisticRegression	1:5	SSO	I	0.7046	0.8162	0.9840	0.4252	0.9817	0.4655	0.9864	0.3913	В
LogisticRegression	1:5	SSO	I	0.6947	0.8205	0.9840	0.4054	0.9808	0.4601	0.9871	0.3623	C
LogisticRegression	1:5	OSS	I	0.6994	0.8167	0.9834	0.4154	0.9816	0.4426	0.9851	0.3913	О
LogisticRegression	1:5	OSS	I	0.6944	0.8236	0.9843	0.4044	9086.0	0.4740	0.9882	0.3527	田
LogisticRegression	1:5	OSS	SMOTE	0.6581	0.7997	0.9785	0.3378	9086.0	0.3165	0.9763	0.3623	А
LogisticRegression	1:5	OSS	SMOTE	0.6575	0.8265	0.9767	0.3382	0.9814	0.2978	0.9721	0.3913	В
LogisticRegression	1:5	OSS	SMOTE	0.6526	0.8133	0.9789	0.3263	0.9799	0.3153	0.9778	0.3382	C
LogisticRegression	1:5	OSS	SMOTE	0.6539	0.8162	0.9782	0.3296	0.9803	0.3093	0.9762	0.3527	D
LogisticRegression	1:5	SSO	SMOTE	0.6525	9908.0	0.9749	0.3301	0.9818	0.2781	0.9681	0.4058	田
LogisticRegression	1:Log	I	I	0.6814	0.8130	0.9859	0.3770	0.9787	0.5566	0.9931	0.2850	A
LogisticRegression	1:Log	I	I	0.6926	0.8090	0.9864	0.3987	0.9791	0.5962	0.9939	0.2995	В
LogisticRegression	1:Log	I	I	0.6783	0.8183	0.9867	0.3699	0.9780	0.6353	0.9955	0.2609	C
LogisticRegression	1:Log	1	I	0.6860	0.8054	0.9866	0.3854	0.9786	0.6170	0.9947	0.2802	D
LogisticRegression	1:Log	1	1	0.6975	0.8106	0.9855	0.4095	0.9800	0.5308	0.9911	0.3333	田
LogisticRegression	1:Log	1	SMOTE	0.6651	0.8143	0.9820	0.3483	0.9795	0.3837	0.9845	0.3188	A
LogisticRegression	1:Log	I	SMOTE	0.6489	0.8120	0.9823	0.3155	0.9781	0.3784	0.9865	0.2705	В
LogisticRegression	1:Log	I	SMOTE	0.6534	0.8002	0.9816	0.3253	0.9788	0.3631	0.9844	0.2947	C
LogisticRegression	1:Log	1	SMOTE	0.6464	0.8214	0.9825	0.3103	0.9778	0.3830	0.9873	0.2609	D
LogisticRegression	1:Log	I	SMOTE	0.6586	0.8114	0.9799	0.3373	0.9800	0.3365	0.9798	0.3382	田
LogisticRegression	1:Log	Tomek	I	0.6936	0.8133	0.9859	0.4012	0.9795	0.5556	0.9924	0.3140	А
LogisticRegression	1:Log	Tomek	I	0.6981	0.8163	0.9862	0.4099	0.9797	0.5739	0.9928	0.3188	В
LogisticRegression	1:Log	Tomek	I	0.6971	0.8178	0.9865	0.4076	0.9794	0.5981	0.9937	0.3092	C
LogisticRegression	1:Log	Tomek	I	0.6926	0.8113	0.9852	0.4000	0.9799	0.5113	0.9905	0.3285	О
LogisticRegression	1:Log	Tomek	I	0.6887	0.8113	0.9864	0.3909	0.9788	0.6000	0.9942	0.2899	闰
LogisticRegression	1:Log	Tomek	SMOTE	0.6651	0.7968	0.9815	0.3487	0.9797	0.3716	0.9832	0.3285	A
LogisticRegression	1:Log	Tomek	SMOTE	0.6539	0.8031	0.9816	0.3262	0.9788	0.3653	0.9845	0.2947	В
LogisticRegression	1:Log	Tomek	SMOTE	0.6526	0.7973	0.9803	0.3250	0.9793	0.3368	0.9813	0.3140	C
LogisticRegression	1:Log	Tomek	SMOTE	0.6668	0.7951	0.9820	0.3517	0.9796	0.3851	0.9844	0.3237	О
LogisticRegression	1:Log	Tomek	SMOTE	0.6675	0.7966	0.9831	0.3520	0.9791	0.4172	0.9871	0.3043	Э
LogisticRegression	1:Log	OSS	I	0989.0	0.8106	0.9866	0.3854	0.9786	0.6170	0.9947	0.2802	Ą
LogisticRegression	1:Log	OSS	I	0.6838	0.8105	0.9870	0.3806	0.9782	0.6707	0.9961	0.2657	В
LogisticRegression	1:Log	OSS	I	9069.0	0.8159	0.9864	0.3948	0.9790	0.5980	0.9940	0.2947	C
LogisticRegression	1:Log	OSS	I	0.6884	0.8108	0.9853	0.3916	0.9795	0.5200	0.9912	0.3140	D
LogisticRegression	1:Log	SSO	I	8689.0	0.8208	0.9857	0.3938	0.9794	0.5424	0.9921	0.3092	Щ
LogisticRegression	1:Log	OSS	SMOTE	0.6662	0.8128	0.9827	0.3497	0.9792	0.4025	0.9861	0.3092	A
LogisticRegression	1:Log	OSS	SMOTE	0.6566	0.8010	0.9807	0.3325	0.9794	0.3474	0.9819	0.3188	В
LogisticRegression	1:Log	OSS	SMOTE	0.6531	0.8010	0.9818	0.3243	0.9786	0.3681	0.9849	0.2899	C
LogisticRegression	1:Log	OSS	SMOTE	0.6715	0.8178	0.9817	0.3613	0.9802	0.3817	0.9832	0.3430	О
LogisticRegression	1:Log	OSS	SMOTE	0.6533	0.8216	0.9830	0.3237	0.9781	0.4029	0.9879	0.2705	Щ
											* "-" = Not Applied	t Applied