

**Table 1.** Descriptive statistics of sample results of data preprocessing techniques in binary class models from the perspective of evaluation metrics.

DESCRIPTIVE STATISTICS										
Metric	Technique	Count	Mean	S_Dev	Var	Min	Q1	Median	Q3	Max
Precision	LE	8	74,46%	29,80%	8,88%	37,45%	40,79%	88,50%	99,91%	99,94%
	GD	8	80,19%	25,68%	6,59%	39,80%	70,80%	89,89%	99,79%	99,92%
	LE_SS	8	83,72%	21,55%	4,64%	39,06%	77,84%	90,18%	99,92%	99,95%
	GD_SS	8	77,33%	26,81%	7,19%	38,29%	57,44%	88,14%	99,84%	99,93%
	LE_MM	8	79,86%	29,81%	8,89%	13,65%	76,45%	90,18%	99,89%	99,95%
	GD_MM	8	80,54%	25,35%	6,43%	39,63%	71,42%	90,19%	99,88%	99,93%
Recall	LE	8	97,80%	4,45%	0,20%	87,34%	98,38%	99,97%	99,99%	99,99%
	GD	8	97,87%	4,45%	0,20%	87,26%	98,61%	99,96%	99,99%	99,99%
	LE_SS	8	99,46%	1,20%	0,01%	96,52%	99,67%	99,97%	99,99%	99,99%
	GD_SS	8	99,45%	1,22%	0,01%	96,47%	99,68%	99,96%	99,99%	99,99%
	LE_MM	8	99,43%	1,32%	0,02%	96,20%	99,72%	99,97%	99,99%	99,99%
	GD_MM	8	98,53%	3,86%	0,15%	88,97%	99,73%	99,96%	99,99%	99,99%
F1-Score	LE	8	81,59%	21,58%	4,66%	52,42%	57,94%	92,67%	99,42%	99,96%
	GD	8	86,15%	18,65%	3,48%	56,72%	81,09%	93,63%	99,47%	99,95%
	LE_SS	8	89,33%	14,94%	2,23%	56,18%	87,43%	93,69%	99,83%	99,96%
	GD_SS	8	84,46%	18,75%	3,51%	55,38%	72,49%	92,39%	99,81%	99,95%
	LE_MM	8	84,81%	25,72%	6,62%	24,02%	86,44%	93,59%	99,86%	99,96%
	GD_MM	8	86,26%	17,47%	3,05%	56,76%	82,19%	91,67%	99,83%	99,95%
FAR	LE	8	8,45%	10,55%	1,11%	0,01%	0,02%	2,16%	21,02%	21,14%
	GD	8	5,83%	8,75%	0,77%	0,02%	0,05%	1,84%	7,01%	21,90%
	LE_SS	8	4,48%	7,67%	0,59%	0,01%	0,02%	1,77%	4,18%	22,59%
	GD_SS	8	7,08%	9,57%	0,92%	0,02%	0,04%	2,25%	11,49%	23,34%
	LE_MM	8	13,33%	31,76%	10,09%	0,01%	0,03%	1,77%	4,62%	91,63%
	GD_MM	8	5,93%	8,98%	0,81%	0,02%	0,03%	1,77%	7,19%	22,07%

**Table 2.** Descriptive statistics of sample results of data preprocessing techniques in multiclass models of **specific attacks in Group 1** from the perspective of evaluation metrics.

DESCRIPTIVE STATISTICS										
Metric	Technique	Count	Mean	S_Dev	Var	Min	Q1	Median	Q3	Max
Precision	LE	8	73,93%	36,17%	13,08%	0,34%	57,17%	92,30%	99,90%	99,99%
	GD	8	79,20%	23,82%	5,67%	46,32%	59,98%	87,79%	99,90%	99,99%
	LE_SS	8	75,53%	34,80%	12,11%	0,00%	67,93%	89,39%	99,99%	99,99%
	GD_SS	8	82,91%	18,42%	3,39%	54,93%	66,12%	88,66%	99,99%	99,99%
	LE_MM	8	85,69%	13,30%	1,77%	64,47%	77,74%	83,56%	99,99%	99,99%
	GD_MM	8	80,83%	19,40%	3,76%	49,02%	67,56%	82,47%	99,99%	99,99%
Recall	LE	8	61,96%	37,60%	14,14%	0,07%	32,84%	65,83%	99,47%	99,99%
	GD	8	73,79%	30,70%	9,42%	26,56%	57,39%	82,92%	99,40%	99,99%
	LE_SS	8	70,12%	33,08%	10,94%	0,00%	63,90%	67,30%	99,50%	99,99%
	GD_SS	8	76,52%	24,18%	5,84%	35,45%	61,56%	77,73%	99,41%	99,99%
	LE_MM	8	73,55%	26,70%	7,13%	21,04%	66,56%	67,96%	99,41%	99,99%
	GD_MM	8	78,64%	22,38%	5,01%	53,91%	57,92%	81,33%	99,41%	99,99%
F1-Score	LE	8	66,64%	36,57%	13,38%	0,11%	40,77%	76,73%	99,72%	99,99%
	GD	8	75,95%	28,01%	7,84%	34,13%	58,24%	85,20%	99,68%	99,99%
	LE_SS	8	72,22%	33,26%	11,06%	0,00%	67,12%	75,06%	99,75%	99,99%
	GD_SS	8	78,90%	21,54%	4,64%	45,70%	64,14%	80,78%	99,70%	99,99%
	LE_MM	8	77,17%	22,87%	5,23%	33,46%	70,08%	73,82%	99,70%	99,99%
	GD_MM	8	79,30%	20,58%	4,23%	53,61%	62,49%	78,73%	99,70%	99,99%
FAR	LE	8	0,29%	0,45%	0,00%	0,00%	0,01%	0,08%	0,35%	1,23%
	GD	8	0,10%	0,09%	0,00%	0,00%	0,01%	63,54%	0,17%	0,21%
	LE_SS	8	0,13%	0,19%	0,00%	0,00%	0,00%	64,48%	0,18%	0,50%
	GD_SS	8	0,13%	0,15%	0,00%	0,00%	0,00%	0,09%	0,21%	0,39%
	LE_MM	8	0,10%	0,10%	0,00%	0,00%	0,00%	0,08%	0,14%	0,28%
	GD_MM	8	0,19%	0,25%	0,00%	0,00%	0,00%	0,12%	0,24%	0,73%

**Table 3.** Descriptive statistics of sample results of data preprocessing techniques in multiclass models of **specific attacks in Group 2** from the perspective of evaluation metrics.

DESCRIPTIVE STATISTICS										
Metric	Technique	Count	Mean	S_Dev	Var	Min	Q1	Median	Q3	Max
Precision	LE	12	58,72%	43,54%	18,96%	5,44%	19,52%	66,28%	99,86%	99,99%
	GD	12	72,83%	38,85%	15,09%	4,56%	33,84%	98,32%	99,68%	99,99%
	LE_SS	12	64,31%	44,73%	20,00%	3,83%	19,22%	99,85%	99,94%	99,99%
	GD_SS	12	70,14%	39,60%	15,68%	4,09%	32,75%	93,35%	99,87%	99,99%
	LE_MM	12	67,66%	39,69%	15,76%	3,41%	31,84%	89,14%	99,88%	99,99%
	GD_MM	12	71,40%	39,85%	15,88%	4,20%	31,12%	96,69%	99,87%	99,99%
Recall	LE	12	58,82%	45,07%	20,31%	1,54%	3,81%	78,02%	99,17%	99,99%
	GD	12	74,43%	38,53%	14,85%	0,29%	58,22%	96,28%	99,49%	99,99%
	LE_SS	12	60,74%	45,39%	20,60%	0,00%	6,06%	86,16%	99,82%	99,99%
	GD_SS	12	72,74%	37,02%	13,70%	2,03%	58,02%	88,72%	99,84%	99,99%
	LE_MM	12	69,81%	36,23%	13,13%	1,50%	53,62%	84,34%	99,82%	99,99%
	GD_MM	12	75,23%	37,03%	13,72%	1,96%	63,12%	94,15%	99,82%	99,99%
F1-Score	LE	12	56,79%	45,37%	20,58%	2,40%	5,99%	66,38%	99,20%	99,99%
	GD	12	70,85%	41,54%	17,25%	0,58%	30,76%	97,45%	99,30%	99,99%
	LE_SS	12	57,23%	45,89%	21,05%	0,00%	5,69%	71,69%	99,88%	99,99%
	GD_SS	12	70,85%	38,56%	14,87%	2,71%	41,84%	90,86%	99,86%	99,99%
	LE_MM	12	67,61%	37,91%	14,37%	2,09%	43,14%	81,05%	99,85%	99,99%
	GD_MM	12	72,39%	38,85%	15,10%	2,67%	41,68%	95,34%	99,85%	99,99%
FAR	LE	12	0,41%	0,41%	0,00%	0,00%	0,01%	0,34%	0,58%	1,28%
	GD	12	0,31%	0,50%	0,00%	0,00%	0,01%	5,84%	0,37%	1,54%
	LE_SS	12	0,70%	1,51%	0,02%	0,00%	0,00%	83,38%	0,82%	5,31%
	GD_SS	12	0,37%	0,51%	0,00%	0,00%	0,01%	0,17%	0,62%	1,71%
	LE_MM	12	0,60%	0,89%	0,01%	0,00%	0,01%	0,15%	0,80%	2,98%
	GD_MM	12	0,31%	0,39%	0,00%	0,00%	0,01%	0,16%	0,45%	0,95%