

## Introduction

In this assignment; CatBoost, LightGBM, Random Forest and PyTorch based LSTM were preferred as models. As for stocks, all stocks in BIST30 were preferred. The reason why i chose BIST30 was that they were high-scale stocks and would give solid and stable results. For the future price prediction, the forecast was made from 3 November to 10 November. There were only some errors in the ASTOR stock and the LightGBM algorithm. ASTOR stock was removed. Errors in the LightGBM algorithm were ignored.

## Results

	PyTorch - LSTM	Random Forest	LightGBM	CatBoost
AKBNK	17.22%	0.66%	0.00%	1.76%
ALARK	2.62%	3.62%	6.77%	3.71%
ARCLK	0.90%	-2.85%	-5.91%	-3.18%
ASELS	17.94%	10.69%	2.09%	3.12%
BIMAS	5.22%	0.57%	0.38%	3.12%
EKGYO	-0.05%	-2.62%	-2.66%	-0.66%
ENKAI	4.17%	-1.23%	5.05%	0.15%
EREGL	-4.39%	-4.25%	-4.92%	-2.98%
FROTO	-2.66%	0.00%	0.00%	-0.41%
GARAN	10.41%	0.00%	0.00%	0.66%
GUBRF	2.87%	1.49%	-8.51%	6.06%
HEKTS	-0.51%	-2.39%	0.04%	-0.37%
ISCTR	1.22%	0.24%	-1.17%	-0.19%
KCHOL	1.65%	-0.02%	0.00%	0.38%
KONTR	5.16%	6.19%	11.96%	10.84%
KOZAL	0.84%	-4.78%	-6.67%	-3.35%
KRDMD	-10.67%	-9.37%	3.07%	-6.37%
ODAS	-4.86%	-6.47%	-1.73%	-2.36%
OYAKC	5.53%	-5.59%	-4.67%	-5.79%
PETKM	1.22%	-0.50%	-5.19%	-0.96%
PGSUS	4.65%	0.28%	0.00%	-0.19%
SAHOL	9.87%	0.16%	0.71%	-1.21%
SASA	5.16%	2.33%	-0.07%	3.48%
SISE	5.37%	2.78%	-1.65%	0.60%
TCELL	7.10%	-0.35%	-3.58%	-5.23%
THYAO	-1.12%	0.38%	0.08%	0.43%
TOASO	-4.20%	-1.54%	0.00%	-2.13%
TUPRS	-0.77%	-6.40%	-2.09%	-9.81%
YKBNK	1.96%	0.65%	0.00%	0.88%

## Conclusion

As seen in the table, the results given by the algorithms are close to each other. I have more trust in the LSTM algorithm, with which I spend the most time. If I had to choose a stock, I would choose ASELS based on its successful results in all algorithms and my personal observations.