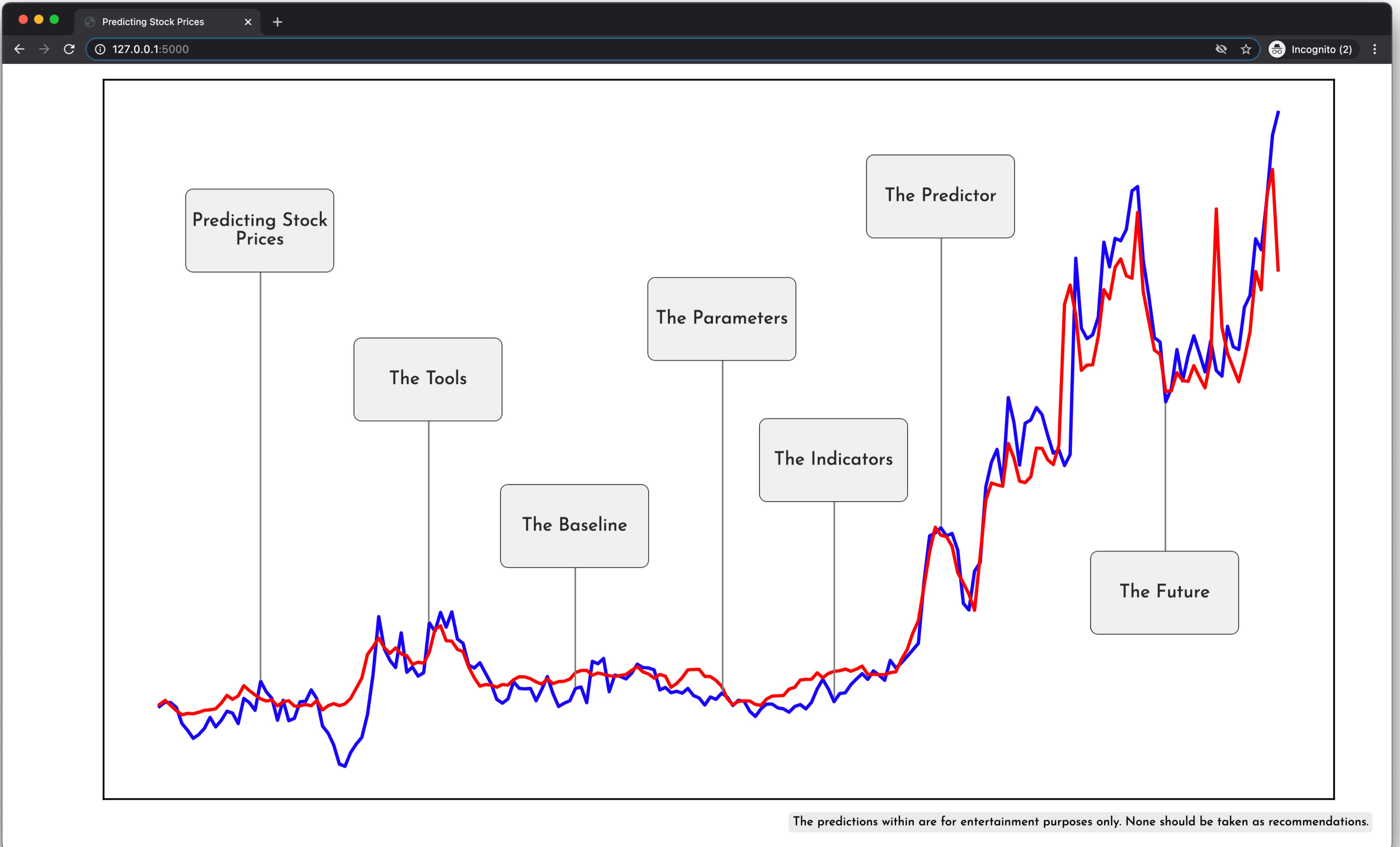


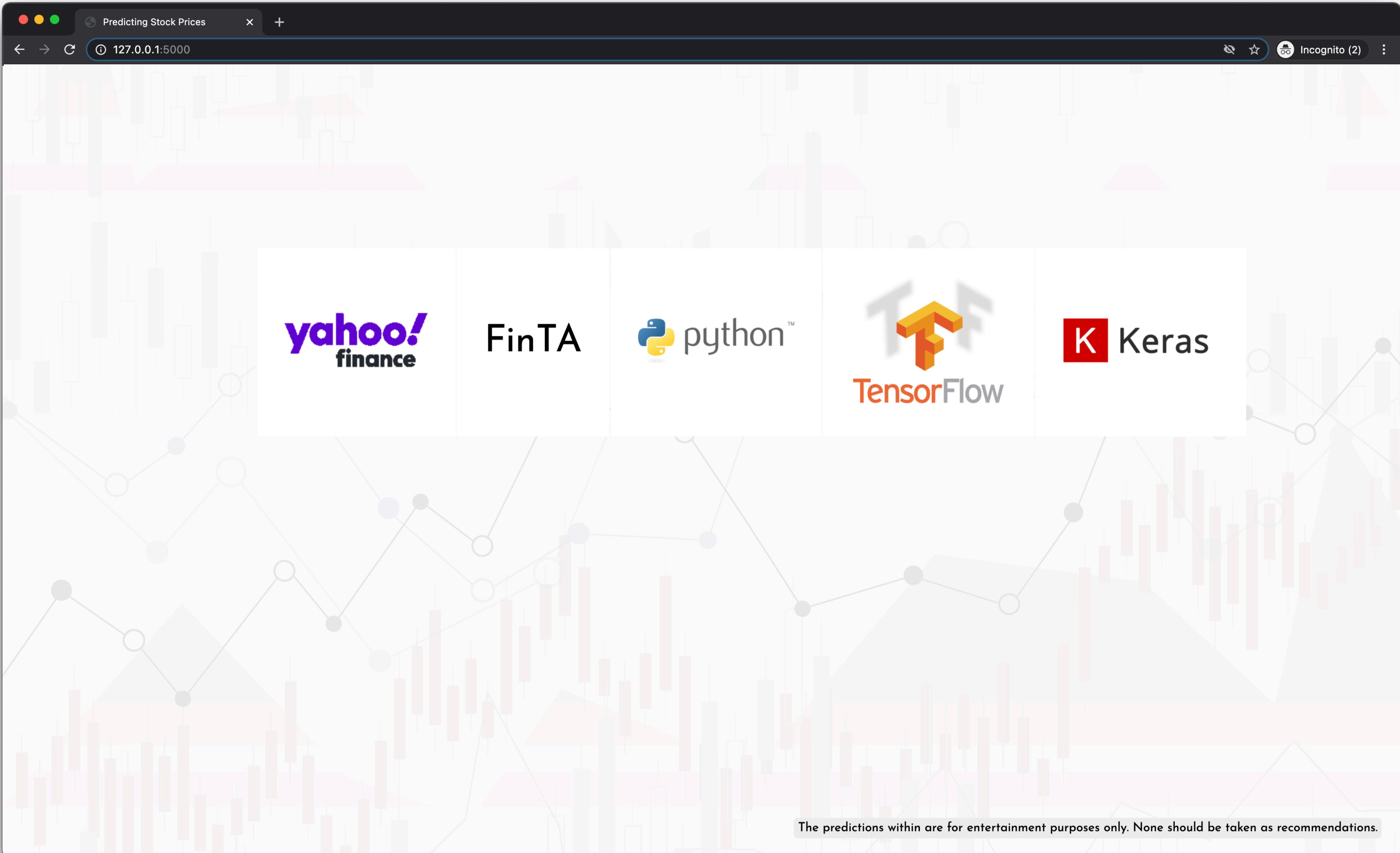
Bull or Bear? Predicting Stock-Market Prices

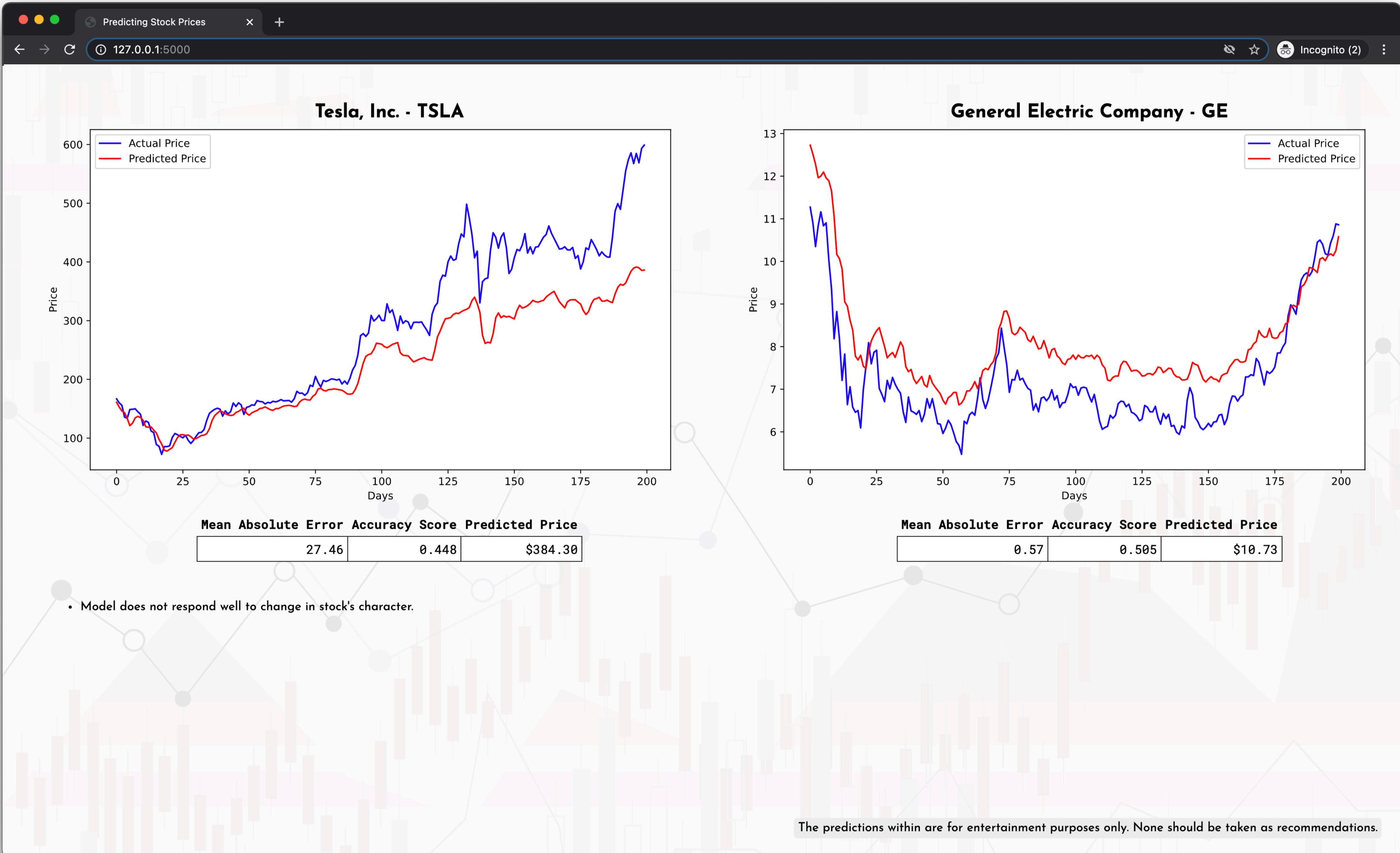
Using machine learning to predict stock prices.

by Albert Lee
Metis - winter 2020

The predictions within are for entertainment purposes only. None should be taken as recommendations.







Predicting Stock Prices

127.0.0.1:5000

Incognito (2)

Adjusting the training window size.

Training Window Size	Mean Absolute Error	Accuracy Score	Predicted Price
70	27.46	0.448	\$384.30
40	23.83	0.456	\$413.43
35	19.95	0.467	\$429.03
30	22.87	0.460	\$427.37
25	20.51	0.451	\$441.23
20	16.40	0.478	\$473.08
15	16.61	0.482	\$476.45
10	20.05	0.449	\$457.88

Setting bi-directional to true.

Bi-directional	Mean Absolute Error	Accuracy Score	Predicted Price
false	16.61	0.482	\$476.45
true	28.28	0.465	\$372.12

Increasing the number of layers.

N_LAYERS	Mean Absolute Error	Accuracy Score	Predicted Price
3	16.61	0.482	\$476.45
4	24.29	0.461	\$436.74
5	25.88	0.462	\$426.30

Increasing the drop-out rate.

DROPOUT	Mean Absolute Error	Accuracy Score	Predicted Price
0.4	16.61	0.482	\$476.45
0.5	17.23	0.469	\$470.12
0.6	18.64	0.460	\$458.53

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Predicting Stock Prices

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Incognito (2)

Indicators - technical traders uses these to determine when to buy or sell a stock

- 50-day moving average - the average of the closing prices of the past 50 days.
- 200-day moving average - the average of the closing prices of the past 200 days.
- Relative strength indicator - the position of the most recent closing price relative to the last n closing prices.

What impact do indicators have on prediction?

MA50	MA200	RSI	Mean Absolute Error	Accuracy Score	Predicted Price
X			16.58	0.472	\$490.41
	X		17.05	0.444	\$490.24
		X	69.45	0.484	\$156.27
X	X		34.64	0.464	\$371.38
X		X	48.49	0.458	\$272.02
	X	X	61.41	0.450	\$200.23
X	X	X	55.27	0.450	\$269.62

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Predicting Stock Prices

127.0.0.1:5000

Incognito (2)

aapl

Indicators:

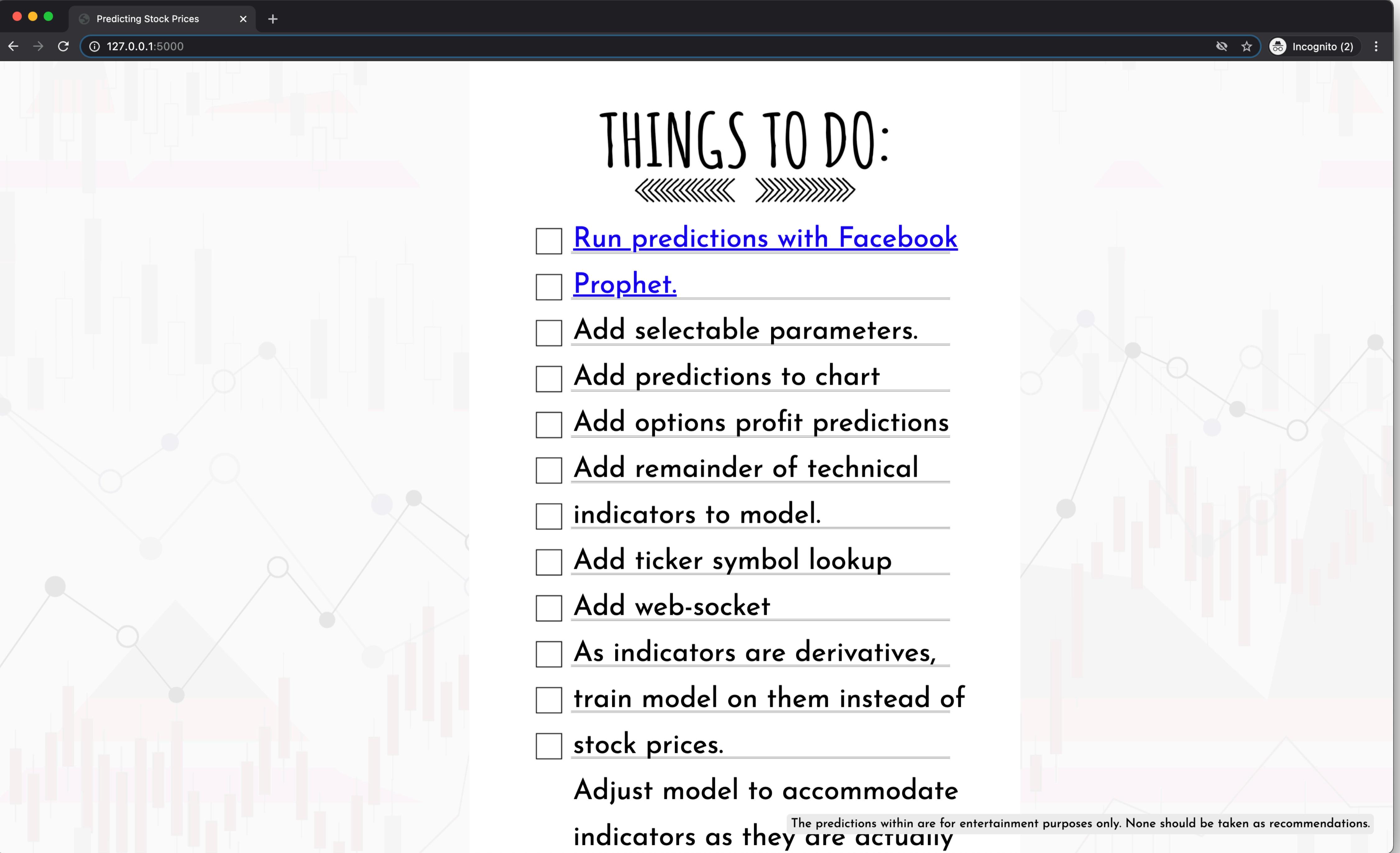
- 50-day moving average
- 200-day moving average
- Simple moving median
- Smoothed simple moving average
- Exponential weighted moving average
- Double exponential moving average
- Triple exponential moving average
- Triangular moving average
- d/dx triple exponential moving average
- Linear weighted moving average
- Volume adjusted moving average
- Variable index dynamic average
- Kaufman Efficiency
- Kaufman's adaptive moving average
- Zero-lag exponential moving average
- Weighted moving average
- Hull moving average
- elastic volume weighted moving average
- Volume weighted average price
- Smoothed moving average
- Arnaud Legoux moving average
- MESA adaptive moving average
- Fractal adaptive moving average
- Moving average convergence-divergence
- Percent price oscillator
- Volume-weighted MACD
- Elastic volume weighted MACD
- Market momentum
- Rate-of-change indicator
- Volatility-based-momentum indicator
- Relative-strength index
- Inverse Fisher Transform of RSI
- Sine-wave indicator
- Dynamic momentum index
- True range
- Average true range
- Stop and reverse
- Parabolic SAR

Go!

Apple Inc.

Days	Mean absolute error	Accuracy	Price
10	3.203	0.574	\$134.28

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THINGS TO DO:

« « « « « » » » » »

- [Run predictions with Facebook](#)
- [Prophet.](#)
- [Add selectable parameters.](#)
- [Add predictions to chart](#)
- [Add options profit predictions](#)
- [Add remainder of technical](#)
- [indicators to model.](#)
- [Add ticker symbol lookup](#)
- [Add web-socket](#)
- [As indicators are derivatives,](#)
- [train model on them instead of](#)
- [stock prices.](#)

Adjust model to accommodate
indicators as they are actually

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