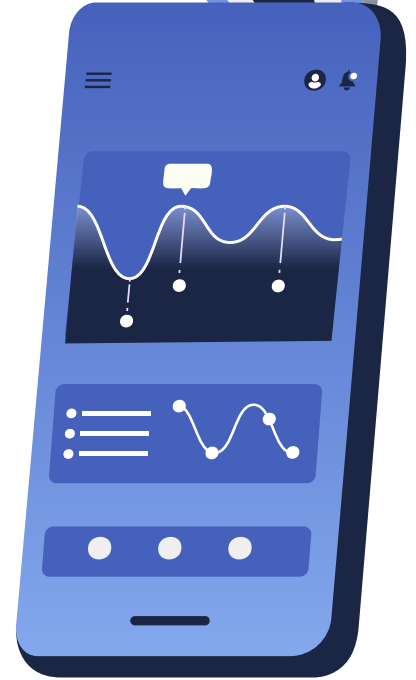


Stock Price Prediction

Aug 24, 2023



Agenda

01

Introduction

02

**Business
Problem**

03

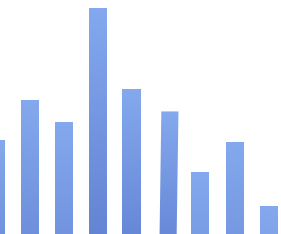
**Data Overview
and Analysis**

04

Modeling

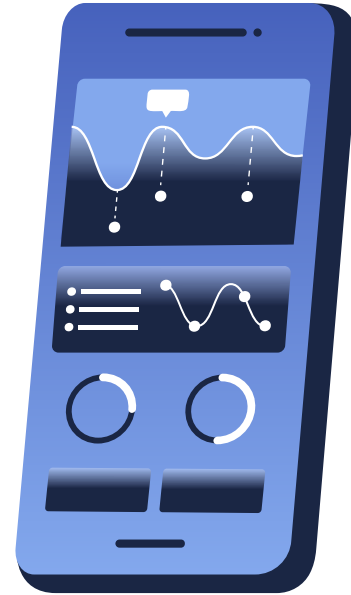
05

Recommendations



Business Problem

- EquiWealth Financial Solutions is looking to improve portfolio management
- Build a reliable model to maximize returns and minimize risk





124.56 %

Performance improvement of Long Short-Term
Memory model over Simple Moving Average model





Why is this Important?

Year to date Returns:

- Apple - 37.4%
 - Amazon - 64.8%
 - Taiwan Semiconductor Manufacturing Co - 24.7%
- 
- 





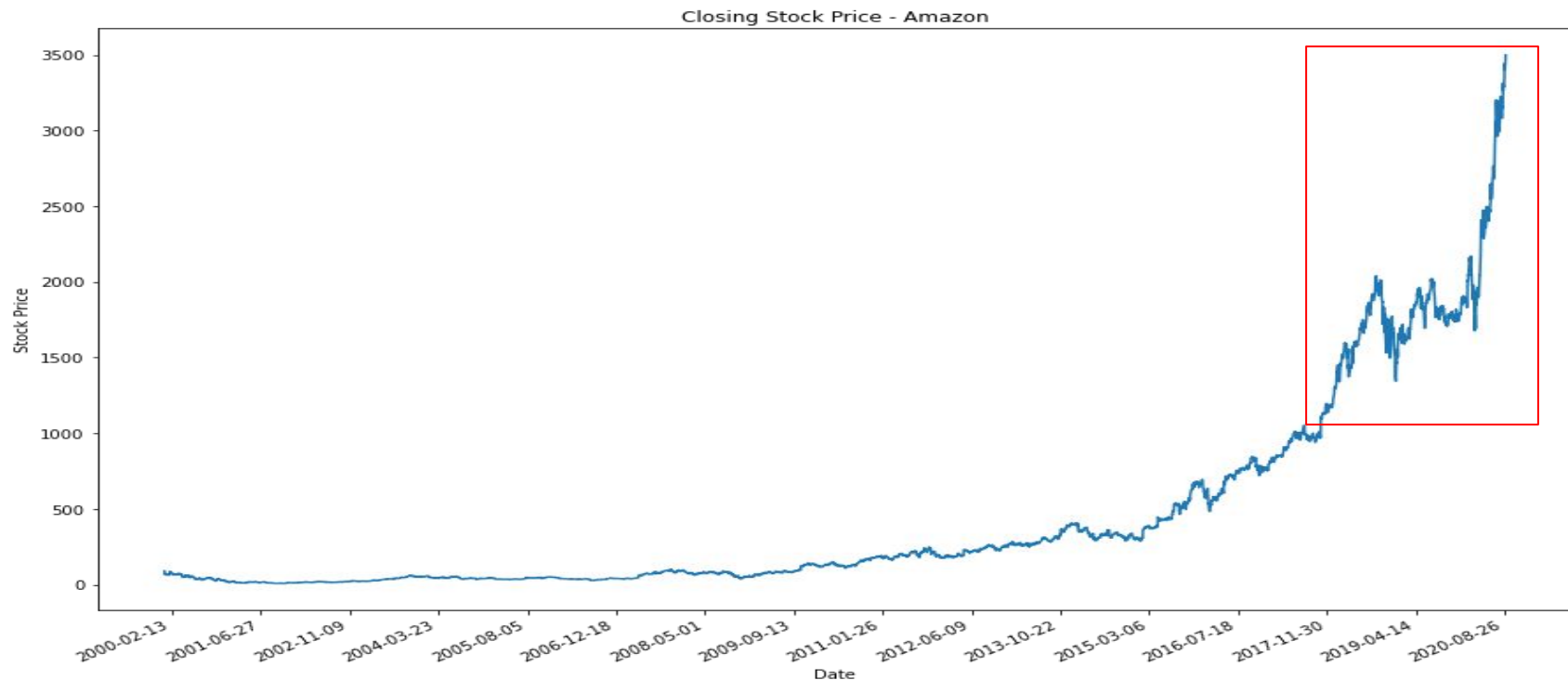
Data Overview and Analysis

Data Overview

- Daily Amazon stock prices from 2000 - 2020
- 5200 data points
- Did not include market sentiment, economic indicators, or global events



Can We Model the Fluctuations?



The image features a central target graphic with three concentric circles. The word "Modeling" is written in a bold, dark blue font in the center of the target. Surrounding the target are various financial-themed elements: a blue line graph with an upward-pointing arrow in the top-left and bottom-right corners; a bar chart with blue and white bars in the top-left and bottom-left corners; and three 3D coins with dollar signs (\$) in the top-right, bottom-left, and middle-right areas. The background is a light gray gradient.

Modeling

SMA- Smooth but Inaccurate



Initial LSTM - Unfashionably Late

Actual Price vs Predicted with Batch Size of 1



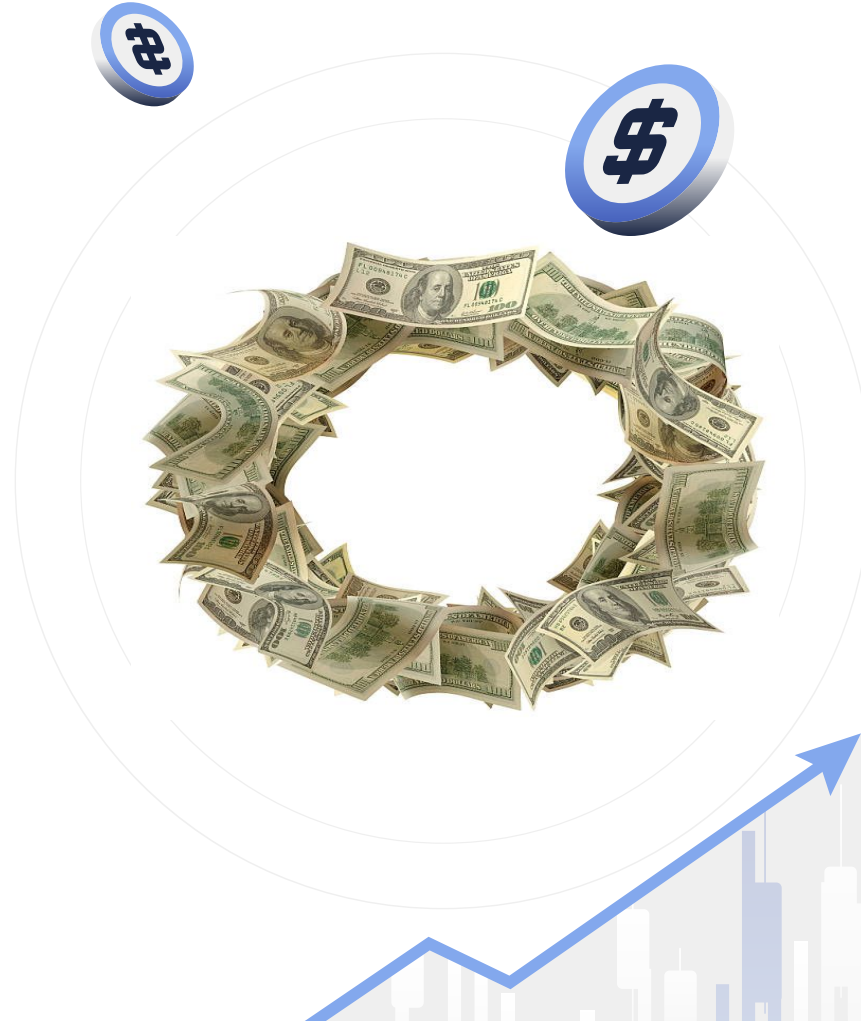
Final LSTM Model - Right on Time

Actual Price vs Predicted with Batch Size of 10



The SIMs are Real

- Buy when pct change > 3%
- Sell when pct change < 3%
- ROI - 67%



Recommendations




- Look at the trend, not price
- LSTM for short term investments
- SMA for long term investments



Future Steps



- **Get recent stock price data**
 - **Apply to other stocks such as Apple and Disney**
 - **Echo State Networks for more volatile stocks**
- 



Thanks!

Do you have any questions?



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