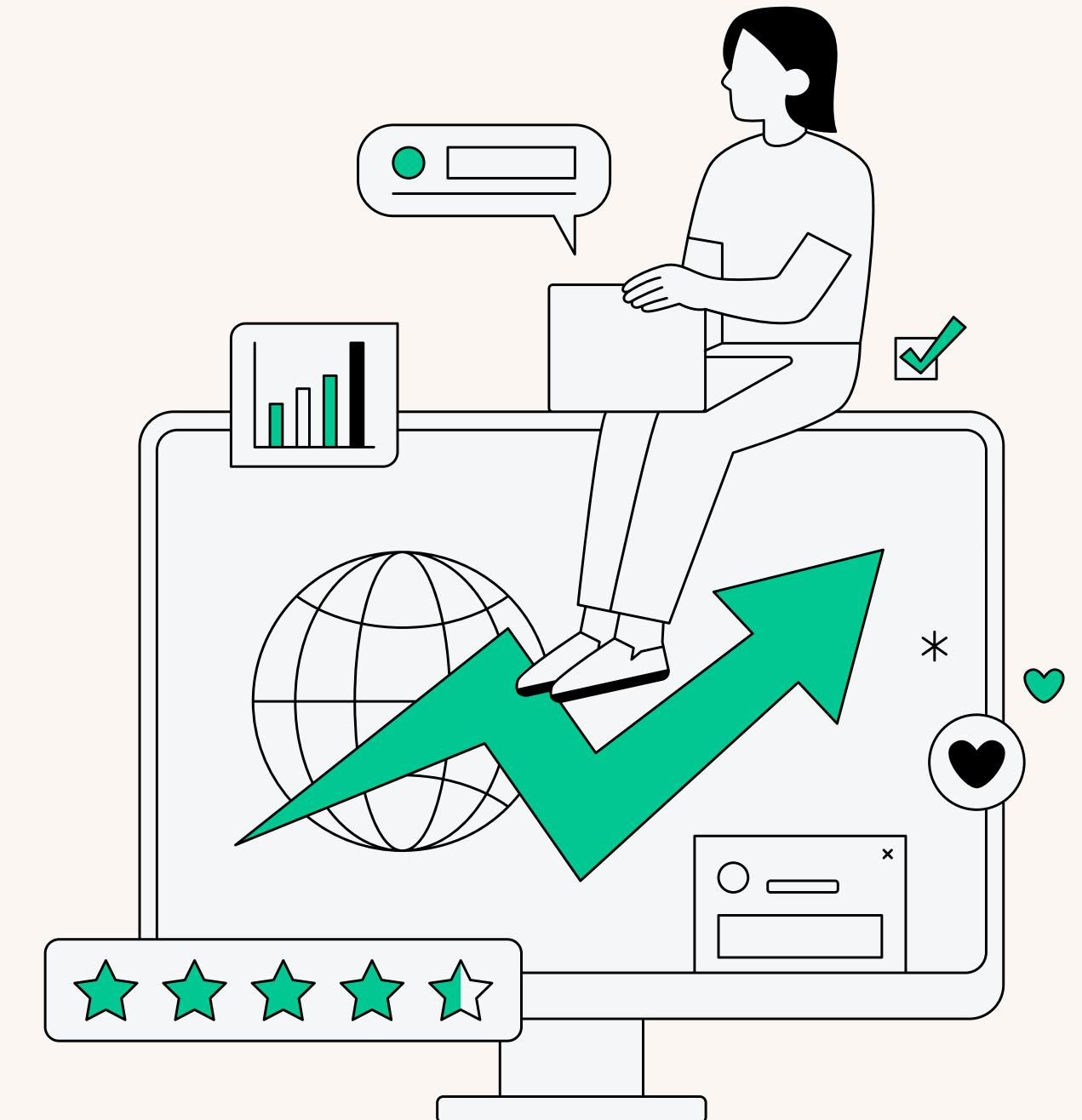


Presented by Aditi Deodhar

Stock Whisperer

Navigating Stock Market Prediction
Complexity with Deep Learning

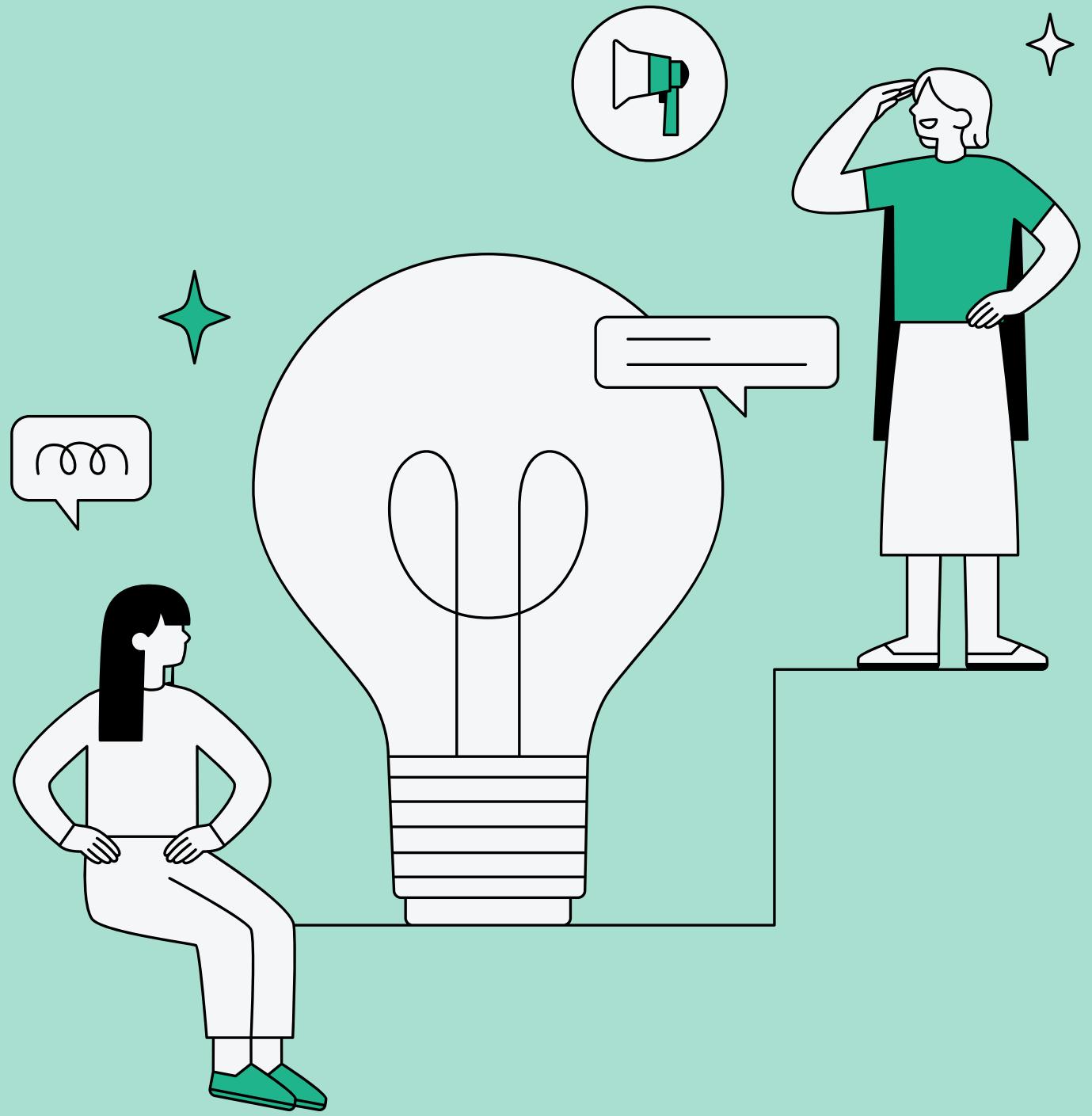


Introduction

In today's dynamic investment landscape, predicting stock market movements poses significant challenges due to the multitude of influencing factors ranging from company fundamentals to market sentiments and geopolitical events.

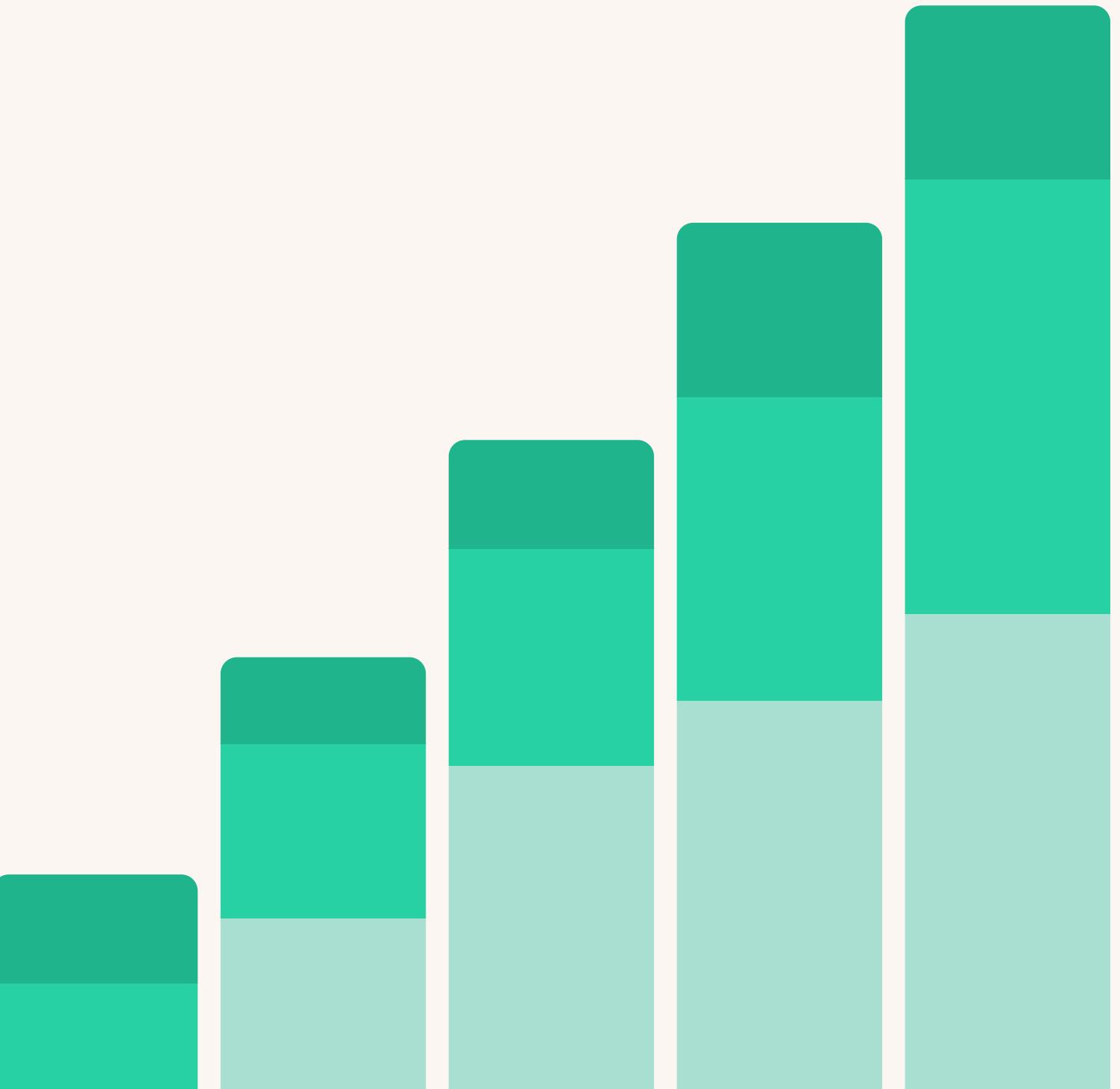
To address these challenges, we present a pioneering deep learning-based model designed to forecast stock prices for the upcoming quarter.

By leveraging fundamental financial data and advanced neural network architectures, our model aims to provide actionable insights amidst market uncertainties.



Problem that I am trying to solve...

Can we predict the next quarter price
based on historical fundamental financial
data with sufficient accuracy to screen for
profitable investment prospects?



Dataset Preparation

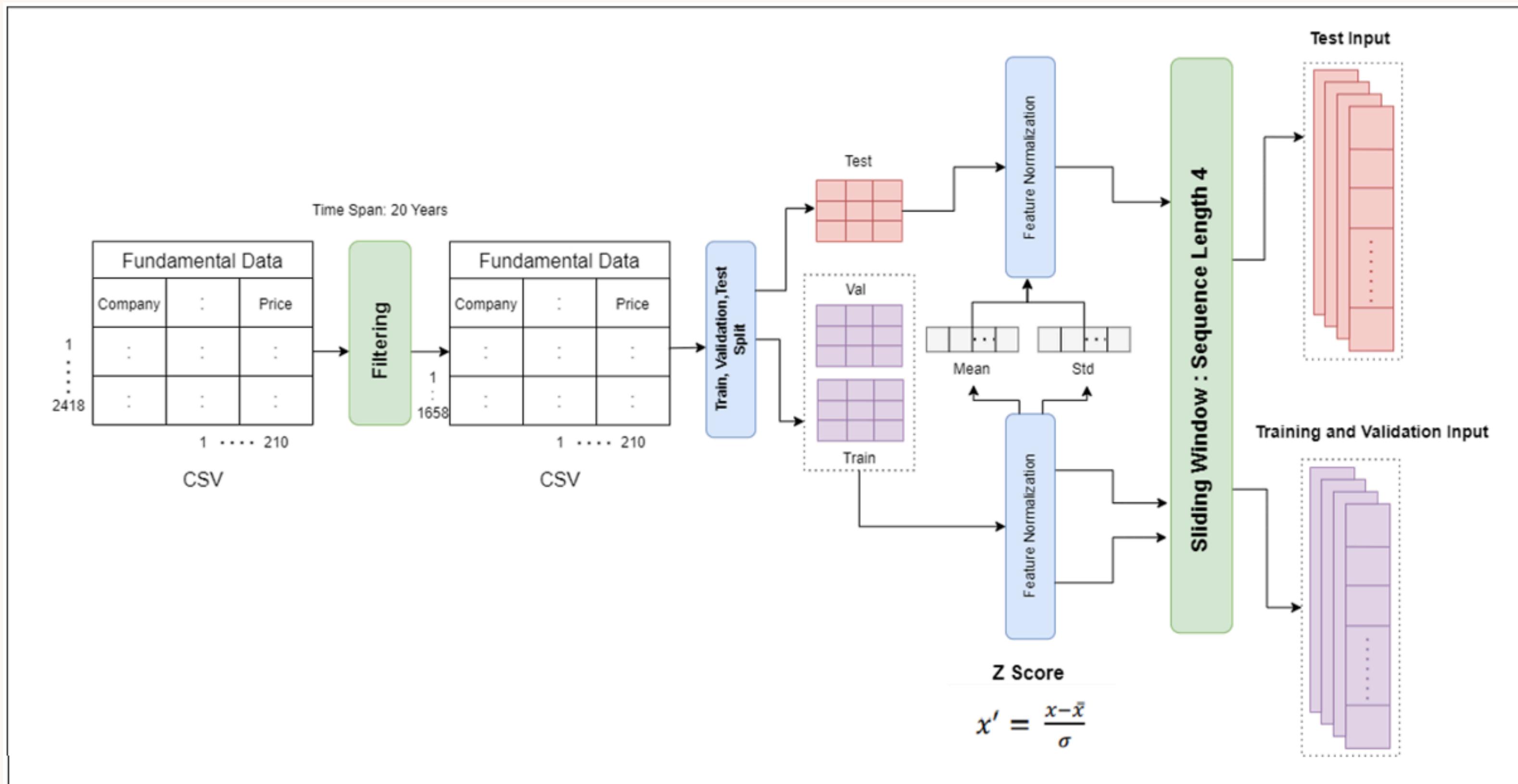
Searched on open-source platforms like Kaggle, GitHub, and DoltHub for a suitable fundamental financial dataset but found none that included consolidated fundamental financial indicators such as revenue, earnings, profit margin and debt-to-equity ratio which are crucial for assessing a company's or financial asset's health and performance in the long term.

The majority of open-source datasets focused on technical indicators, containing features such as open prices, close prices, volume, 52-week highs, and 52-week lows.

Thus, created my own dataset using QuickFs API.
Details in the adjoint table.

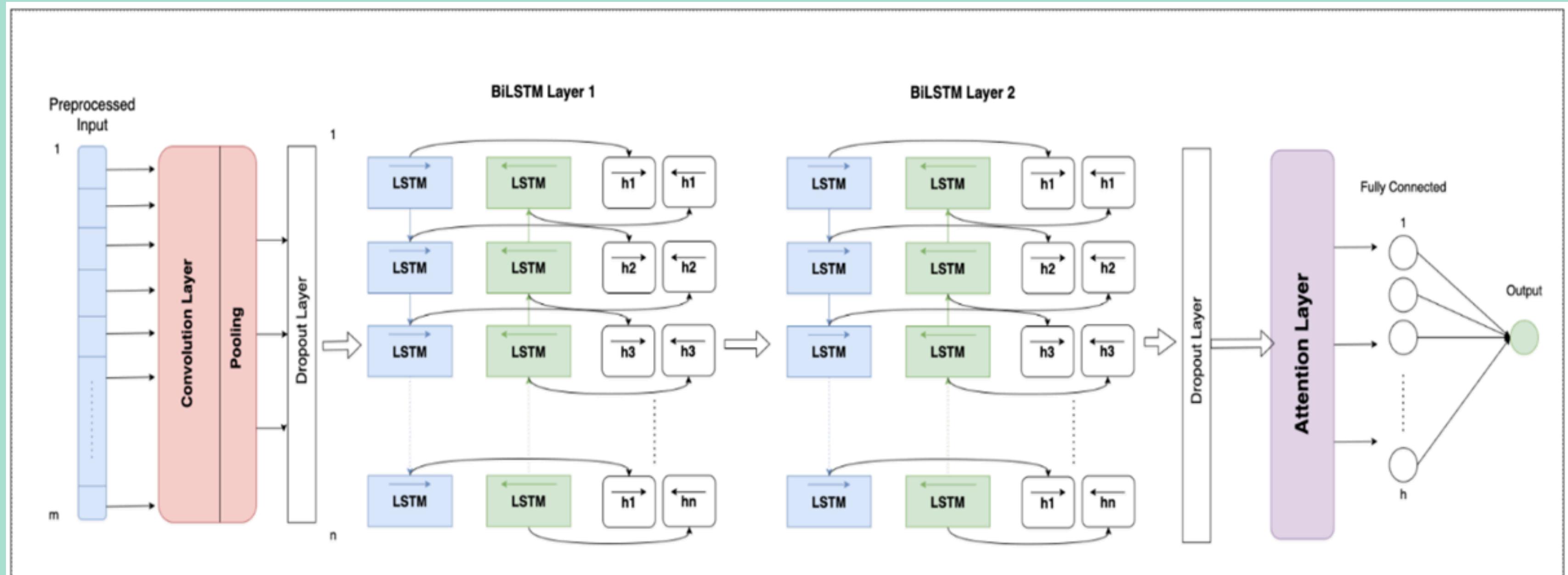
Dataset Source	https://quickfs.net/
Stocks Exchange	NYSE and NASDAQ
Total Companies	2418
Total Sectors	12
Total Features	210
Filtered Companies	1658
Selected Features	108
Span	20 years (2001 - 2021) : 80 Quarters
GPU	NVIDIA RTX 4080, 16GB VRAM

Data preprocessing



Methodology

CNN-BiLSTM-AM Model



19.54

RMSE (in \$)

Model Performance Evaluation

Streamlit Application

<https://stockwhisperer.streamlit.app/>

Demo ->



Conclusion

- Generalized model for market trend prediction on a quarterly basis
- CNN-BiLSTM-AM model performs best based on RMSE

Pros:

- Generalizability (overall RMSE: \$19.54)
- Long-term dependencies + AM + CNN

Cons:

- Computationally intensive
- Memory usage vs. Performance

Presented by Aditi Deodhar

Thank you very much!

