Sample for My Idea

Google Stock Price Prediction with LSTM

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1 Dataset Explained

- **Open :** Opening price is the price at which a security first trades upon the opening of an exchange on a trading day.
- **Close :** Closing price is the raw price or cash value of the last transacted price in a security before the market officially closes for normal trading.
- **Adj Close :** Number of shares of stock traded during a particular time period.
- **High :** Maximum rate of exchange for either the entire market, for a particular sector of the market, for a particular index, or for a particular stock.
- **Low :** Opposite of the high.The low is the lowest price of the market, the stock, the sector, the index, etc.It can be for any length of time.
- **Volume :** The amount of an asset or security that changes hands over some period of time, often over the course of a day.

2 Libraries

- **Numpy :** Library for Python, adding support for large, multi-dimensional arrays and matrices, along with a large collection of high-level mathematical functions to operate on these arrays.
- **Pandas :** Powerful, flexible and easy to use open source data analysis and manipulation tool, built on top of the Python.
- **Matplotlib :** Plotting library for the Python and its numerical mathematics extension NumPy.
- **Plotly :** Enables Python users to create beautiful interactive web-based visualizations that can be displayed in Jupyter notebooks.
- **Scikit-learn :** Most useful and robust library for machine learning in Python. It provides a selection of efficient tools for machine learning and statistical modeling including classification, regression, clustering and dimensionality reduction via a consistence interface in Python.
- **Keras :** Library that provides a Python interface for artificial neural networks. Keras acts as an interface for the TensorFlow library.

3 Explain model

3.1 Preproccesing

- **Feature scaling** is a family of statistical techniques that, as it name says, scales the features of our data so that they all have a similar range.
- **fit() :** used for generating learning model parameters from training data.
- **transform() :** parameters generated from fit() method,applied upon model to generate transformed data set.
- **fit_transform() :** combination of fit() and transform() api on same data set.

3.2 Stock Market Predictions with LSTM

- Use a time-series model known as Long Short-Term Memory. LSTM models are powerful, especially for retaining a long-term memory. Why ??

  You would like to model stock prices correctly, so as a stock buyer you can reasonably decide when to buy stocks and when to sell them to make a profit. This is where time series modelling comes in. You need good machine learning models that can look at the history of a sequence of data and correctly predict what the future elements of the sequence are going to be.

- Stock prices come in several different flavors. They are,
  - Open: Opening stock price of the day
  - Close: Closing stock price of the day
  - High: Highest stock price of the data
  - Low: Lowest stock price of the day
- `https://www.datacamp.com/community/tutorials/lstm-python-stock-market`