Stock Price Prediction with LSTM

Overview

This document provides an overview of a Python script for stock price prediction using a Long Short-Term Memory (LSTM) neural network. The script downloads historical stock price data, preprocesses it, builds and trains an LSTM model, makes predictions, and visualizes the results.

Prerequisites

Before running the code, ensure that you have the necessary libraries installed in your Python environment:

- **numpy**
- **pandas**
- **matplotlib**
- **yfinance**
- **scikit-learn**
- **tensorflow**

You can install these libraries using **pip**.

Usage

To use this script for stock price prediction, follow these steps:

1. **Configuration**: Open the script and set the following parameters:
    - **stock_symbol**: The stock symbol you want to predict (e.g., "AAPL" for Apple Inc.).
    - **start_date** and **end_date**: The date range for historical data retrieval.

2. **Running the Script**: Execute the code in a Jupyter Notebook or Python environment.
3. **Interpreting Results**: The script will provide predictions for the specified stock symbol based on the historical data. The results will include training and testing RMSE (Root Mean Square Error) values and a plot showing actual vs. predicted stock prices.