STOCK PRICE PREDICTION

Data Science – PHASE – 2

INNOVATIVE DESIGN

♦ Introduction:

Stock price prediction is a challenging task in the field of data science and finance. In this documentation, we will explore advanced data science techniques for predicting Microsoft's stock prices using the Microsoft Lifetime Stocks Dataset from Kaggle.

♦ Dataset Overview:

- Source: Kaggle (Dataset Link: Microsoft Lifetime Stocks Dataset)
- Features: Historical stock prices, volume, and other financial indicators.
- Objective: Predict Microsoft stock prices using advanced deep learning techniques.

♦ Data cleaning:

- Handle missing values.
- Remove outliers.

♦ Data splitting:

Split the data into training, validation, and test sets.

♦ Linear regression model:

Implementation and evaluation using a simple linear regression model.

♦ Decision tree and random forest:

- Implement decision tree and random forest models.
- Analyze feature importance.

♦ **LSTM (Long-short term memory)**

- Implement an LSTM-based model for stock price prediction.
- Tune hyperparameters and evaluate model performance.

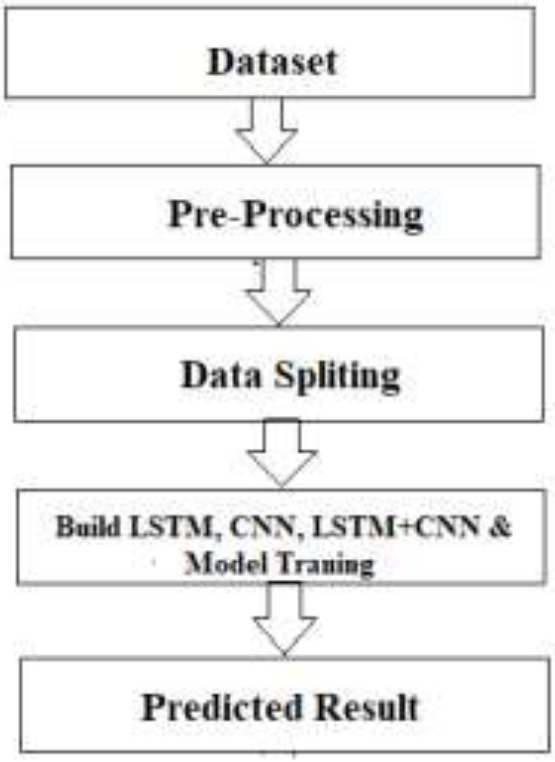
♦ **CNN-LSTM hybrid model:**

- Combine Convolutional Neural Networks (CNN) and LSTM for enhanced prediction.
- Explaining the architecture and evaluating the results.

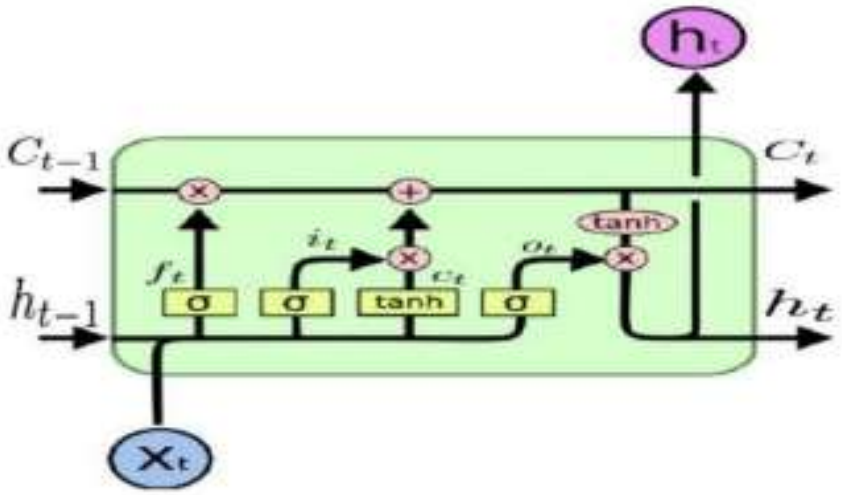
TOOLS and TECHNOLOGIES

i. **Python**
ii. **NumPy**
iii. **Scikit learn**
iv. **TensorFlow**
v. **Keras**

FLOW CHART OF PLAUSIBLE MODEL



LSTM MODEL:



CNN MODEL: