Stock Price Prediction Using AI ML.

In this project I will be making a Stock Market Prediction about a particular stock by reviewing its previous stocks trends.It will involve using historical stock data (e.g., opening price, closing price, volume, high, low) to forecast future prices.Aim is to analyse patterns in stock prices and develop models to predict future trends. This project will demonstrate time series forecasting, which can be valuable for investors and traders.

The inspiration for this project is because I am interested in Learning about Stock Market and this will be helpful to invest in correct stock.This will influence the purchase of the stocks and I will be trying to add more predictions to this project .

* **Description**: Predict stock prices using historical data (time series forecasting).
* **Key Techniques**: LSTM, ARIMA, Linear Regression.

**Project Structure:**

**Data Collection**: Using Yahoo Finance to download stock price data.

**Data Preprocessing**: Scaling, splitting data, and preparing sequences for training.

**Model Building**: Using LSTM (Long Short-Term Memory) neural network for time series prediction.

**Model Training**: Training the LSTM model on historical stock data.

**Model Evaluation**: Testing the model and comparing predictions to actual stock prices.

**Visualisation**: Plotting predicted vs. actual prices.

EDIT: UPDATION WITH TIME AND KEEP ON TRAINING, TAKE NEWS INFLUENCE ,TAKE INFLUENCE OF NEWS, MAKE OTHERS PRO YOURS

### **Customer Segmentation**

This will involve dividing a company's customer base into distinct groups (segments) that share similar characteristics. This helps businesses tailor their marketing, product offerings, and customer service strategies to each segment, ultimately improving customer satisfaction and revenue. In this project, I will use clustering techniques to group customers based on their behaviours, demographics, or preferences.

The inspiration for this project idea is to help Retails stores gain more profits by letting them know about their customers and their purchasing habits. As many a times retails stores don’t have propers variety of clothes of a particular type even though the demand for that particular type of clothes is more.

**Project Structure:**

* **Description**: Segment customers into different groups based on their purchasing behaviours using clustering techniques (e.g., from a retail or e-commerce dataset).
* **Key Techniques**: k-Means Clustering, DBSCAN.
* **Data Collection**: Obtain customer data (e.g., age, income, purchase history).
* **Data Preprocessing**: Clean, normalise, and encode data for analysis.
* **Exploratory Data Analysis (EDA)**: Visualise relationships between variables to understand patterns.
* **Clustering Algorithms**: Apply methods like *k-Means*, *Hierarchical Clustering*, or *DBSCAN* to group customers.
* **Evaluation**: Use metrics like the *Silhouette Score* and the *Elbow Method* to assess cluster quality.
* **Customer Profiling**: Create profiles for each segment (e.g., high spenders, budget shoppers).
* **Business Insights**: Provide actionable insights for targeted marketing and customer retention.

**Python libraries:**  *Pandas*, *Scikit-learn*, *Matplotlib*, *NumPy*.

**I will be doing the project on any of the above topics,depending upon the time required and learning from it. Though I am more inclined in doing Stock Market Prediction.**

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