Project Proposal: **Prediction of Dow jones stock market using time series analysis in python**

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**Background:**

*"If you don't think about the future, you cannot have one."* ~ John Galsworthy ([Nobel Prize in Literature](http://en.wikipedia.org/wiki/Nobel_Prize_in_Literature)‎)

Future is always fascinating and from the very past to till date, numerous attempts made to predicts it. Forecasting is essential for planning and budgeting. For that exact prediction of future events is vital importance in all fields. Either it will be Science or Social science, Business and finance world or politics, industry or government, economics or environmental studies. For economic stability and growth many peoples & financial institutes attracted towards prediction of the stock markets. Like any other financial entity prediction, Stock market forecasting is always difficult and complex due to its volatile nature. So right technique and approach play important role in stock market analysis and prediction to have better investment opportunities.

**Objective:**

**Prediction of Dow jones stock market using time series analysis in python** is our course project in which we will use present and last five-year Dow Jones stock index data for analyzing and prediction of its future values to give risk free and better yield opportunities to the investors by using auto regression and ARIMA methods.

**Data Source:**

We are using Yahoo finance site data for Dow Jones from below link:

* [Dow Jones Industrial Average (^DJI) Historical Data - Yahoo Finance](https://finance.yahoo.com/quote/%5EDJI/history?p=%5EDJI)

We already downloaded data manually, trying to figure out for API approach also to download this data automatically. Data contains numerical open, high and low peak values along with that it has close, adjusted close and volume values.

We are using XCEL and Python to clean and pre-processing to avoid any missed or abnormal values which can affect outcomes.

Methods:

1. Project problem identification: To frame how this project code and data will be collect, clean, analysis, evaluate and used by all stack-holders
2. Data collection and cleaning: API & Manual approach to get data from the given link and clean it before analysing.
3. Data analysing and model selection: Using time series analysis models like Auto-regressive (AR) and Auto-regressive integrated Moving average(ARIMA) to analysis and predict the future values of Dow jones.
4. Evaluation of outcomes and model performance: We will try comparative methods with real stock market values using tables and graphs to evaluate the final outcomes and model performance.

Expected Outcomes:

Outcomes from this project should able to compute and predict future values of Dow jones index and evaluate its own performance for model accuracy.

Potential Benefits:

1. Understanding the trends and patterns in the stock market over time.
2. Developing a deeper understanding of the methods and techniques used in time series analysis.
3. Gaining practical experience in working with financial data.

4. Exploring the challenges and limitations of using time series analysis for predicting financial markets.

5. Moreover, by building on existing work and improving upon it, you can contribute to the ongoing research and development in the field of finance and data science.