Features:
series.csv:
1. series_id: Alphanumeric value representing each series.
2. name: Name of series
3. frequency: Rate at which data is collected. Usually daily, weekly, or monthly.
4. units: The units in which the corresponding value is measured.
5. seasonal_adjustment: Binary value which corresponds to whether or not the series is being adjusted over time to account for seasonal differences. Usually this is no.
6. description: Simple description of the series

Observations.csv (test/train):
1. Series_id: Alphanumeric value representing each series.
2. Date: Date on which the data was collected
3. Value: Numerical value of the series on corresponding date.

Prompt:
In the stock market, the most important factor is not whether it goes green or red that day, but rather how predictable the movement was. For years, traders have tried to make predictive models in order to best invest their money. Using the dataset above, attempt to predict the S/P 500 (SPY) Index for various time frames. How well can you do for 1 week out? 1 month? 1 year?

1. Since this is real-world data, it may not be entirely clean and may require preprocessing for extraction of trends and patterns. Clean and pre-process the data in a way you find fit.
2. Extract trends and patterns from the data using data visualization tools. Create an infographic with no less than three charts (that can help you better understand the data).
3. Compare and contrast prices between different series based on a day, a week, and a month (you may use any other similar factors if relevant). Consider restructuring the data on the basis of some of these factors.
4. Create a model most appropriate for forecasting values over all three time frames:
    a. One week
    b. One month
    c. One year
5. Which model (and time-frame) from the previous step performs best on the train data? Which features (one or two) were the best predictors? Propose and test a hypothesis explaining why those features perform better than others.
    NOTE: You may create a validation set and answer these questions on the same.
6. Prepare a report containing your results from the analysis. It should contain the following: introduction to the dataset, data cleaning/pre-processing, visualizations, analysis and modeling, proposal and experimental testing, and conclusion.