Automated Reporting: DJIA

Joshua Boyer
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Background & Purpose
  Many businesses and institutions produce data in a reliable format quarterly, monthly, weekly, etc. This data usually must first be analyzed to create human-readable documents, which in turn provide actionable insight. Thankfully, much of this documentation and analysis can be automated in order to save time and produce uniformly styled documents. As a proof of concept, this project utilizes data on Dow Jones closing values to generate text and visuals that convey information about a user-specified period. By simply inputing a start date and an end date that are captured by the dataset, the user generates a clear snapshot-view of the market behavior in that time period. This concept could easily be applied to quarterly reports, expenditures, or earnings data.

  I am not a financial expert, and no information presented should this be construed as financial advice. This is simply a proof of concept work to display the potential of markdown language to automate documentation and figure generation processes.

Key Features Include:
- **Data Import and Cleaning** - the data file made available by the Federal Reserve of St. Louis has data encoded as text strings, thus it must be converted to the appropriate date and number formats and have non-trading days removed.

- **Customized Error Messages** - should the user input a start or end date that is not captured by the data set (either from being a holiday/weekend, or being outside the bounds of the dataset) they will receive a clear message explaining the error.

- **Dynamic Text** - sentences describing the overall performance of the market are responsive to the data analysis (e.g., describing the market as being "up" or "down").

- **Tables and Figures** - also generated dynamically, displaying summary statistics about the period, value, absolute change in value, percentage change in value, and the total number of positive and negative trading days for the specified period.

Data Source
S&P Dow Jones Indices LLC, Dow Jones Industrial Average [DJIA], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/DJIA, February 21, 2022