NARRATIVE VISUALIZATION

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CS 416 Data Visualization

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About the Visualization

This Narrative Visualization is an interactive slide show that aims to take the user through a story about the performance of NIFTY-50 Market Index during the COVID-19 Pandemic in India.

The datasets required for this analysis and visualization have been obtained from the following sources:

1. Nifty 50 Stocks
2. Nifty-50 Index (20200101-20210730)
3. Nifty-50 Stock Market Data (2000 - 2001)
4. COVID-19 in India

The datasets have been imported into a PostgreSQL database and the views appropriate for each scene have been derived and exported to CSV / JSON wherever appropriate.

The following sections expand on the concepts of Narrative Visualization applied in this project.

Messaging

Through this story, I attempted to analyze the implications of COVID-19 pandemic on one of the important Market Indices in India, NIFTY-50 Index. The story visualizes various aspects of a Market Index in the backdrop of the pandemic and documents the observations.

Narrative Structure

I have used an interactive slide show narrative structure to

- introduce the index
- define various aspects relevant to the analysis of a Market Index
- visualize the impact of the Pandemic on these aspects
- finally leave the user to explore / drill-down further

Visual Structure

Each scene defines the aspect being visualized, its importance from the point of view of an investor or trader. The annotations in the chart highlight important events to draw user's focus to the aspect being analyzed, during the event. The observations of the author have been documented for the viewers to relate further. The navigation links on the top of the charting area help the user navigate between scenes.

Scenes

There are five scenes in this story.

1. The first scene defines the NIFTY-50 Index, the stocks and industries they belong to, to drive the importance of this analysis.
2. The second scene defines Volatility in general and analysis the volatility of the index during the pandemic.
3. The third scene defines Performance of an index and it's importance to investors. This is followed by analysis of the performance of NIFTY-50 Index, around major events during the pandemic.
4. The fourth scene analyzes the performance of NIFTY-50 Index at an Industry level, around major events during the pandemic.
5. The fifth scene provides the user with a form to further drill-down the performance of various stocks in the Index.

The scenes are ordered such that the user is introduced to the Index and the key aspects of an Index that are of importance to investors and traders. The scenes analyze and provide observations in second, third and fourth scenes. By the time user reaches the last scene, the background has already been established to further explore the claims in the story.

Annotations

Annotations are used to mark major events during the pandemic to draw the attention of the viewer to the behavior of the aspect under observation, in each scene where the aspects are analyzed.

Annotations are also used in the first scene to display the stocks that belong to a particular industry.

Parameters

The following parameters drive the narrative visualization:

- Scenes 2, 3, & 5 track the values of the measures (or aspects) as parameters to be displayed, at regular intervals on the plots.
- Scene 5 that allows the user to explore the dataset, accepts the Industry and the Stock Symbol as parameters to render the price movements of that stock.

Triggers

The following triggers prompt the user to perform an action to either change the state of the visualization or enhance a particular scene:

- The navigation links on the top help the user to navigate between scenes. The note above the links, the color choice of links in various states (blue when enabled, grey when disabled) communicate with the user appropriately
- The small circles on the plots prompt the user for a mouse action to enhance the view by invoking the tooltips and get relevant information.
- The select boxes in Scene 5 lists all the industries, and stocks for a selected industry. This prompts the user to make selections. Upon selecting an industry or a stock, the plot is updated with the data relevant to the selection. Here too, the small circles on the plot prompt the user to perform a mouse action to get additional information.