

Project 2: Narrative Visualization

CS-416 Data Visualization (Summer 2022) - Prof. Hart

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Dataset:

The public data set used for the visualization is bitcoin price collated from Yahoo and other related websites. The data is then subsequently cleaned, queried to identify drawdowns. Using the watermark a cycle is determined and then marked as such. The data was cleaned / formatted in python and excel.

Messaging:

The narrative visualization aims to communicate the **various boom-bust cycles that bitcoin has experienced to date**. To date, bitcoin has **sold off more than 50% about 5 times** but excepting for the most recent sell off which is still underway, **it has managed to recover and push past beyond its all-time highs**. It has experienced a dramatic growth since its inception in 2009.

Each of **these drawdown cycles start at a price point** and bitcoin experiences a **dramatic sell off** with different time frames **before staging a comeback**. The price action and time frame of the cycle can be explored more by clicking to drill down further.

These cycles are labelled for visual ease and to guide the user.

Narrative Structure:

The visualization follows a drill down story. There is a high-level overview in the first chart - bitcoin cycles and an option for the user to learn more about each of these cycles and price action by clicking into the line chart which then opens a second chart. (price action)

Visual Structure:

Visual structure is used for each scene

The visual structure used for each scene is **user driven**. The main chart consists of a listing of the various sell off cycles bitcoin has experienced. The scenes are **labelled in ascending order** to **guide the user** in terms of order / time in which each of these cycles occurred. They are only a visual guide.

Once a user clicks into a specific scene the user can **see more details** of price moves being articulated and text explanation with a second chart. The visualization maintains **a consistent visual platform**, changing only **the content within each panel while leaving the general layout of the visual elements intact**.

Ensuring the viewer can understand the data and navigate the scene:

The first chart explains percentage of price moves by number of days but the **drill down chart** is a similar plot with **price vs. date-time**. The text accompanying these charts also change when navigating scenes. The **general layout such as color schemes and shapes of the charts are consistent**.

Each **new scene alters the shape of the supplementary chart with a transition**. There is **also text with the second chart** which articulates the details of price moves.

The message is communicated through the interaction with chart with the annotations and graphic elements in the bottom panel and accompanying text, each enriching the narrative **through multi-messaging**.

Urge the viewer to focus on the important parts of the data:

Although the charts are all starting with the same color, when the user draws closer to a point the scene being looked at is highlighted and brought to the front **with a tool tip**. There is also an **annotation highlighting main events**.

Transition to other scenes, to understand how the data connects to the data in other scenes:

When user clicks / drills down into a scene in the first chart, the second uses **d3 transitions as an animation** to help user understand the **state change and data being changed in each scene**. There is also accompanying text that also highlights the selection of the user.

Scenes:

There are 6 scenes being depicted in the visualization. **The first scene is the entire overview of all boom-bust cycles**. There are **5 other scenes** for an user to be able to **seek further information** on each of these cycles by means of a drill down.

In the first chart, the drill down scenes are **labelled from A to E in ascending order** to be able to guide the user the time of occurrence of each of these events or in other words they are **sorted chronologically**.

Annotations:

The main annotations in the scene are to describe the scenes themselves also the recovery of bitcoin to its all-time high. There is also an annotation to highlight its current level in terms of cycle.

The annotations follow a consistent template with a bubble to call out the event and then a legend accompanied by further details.

These annotations do not change within a single scene.

Parameters:

Parameter: Each scene the parameter for narrative visualization is the identifier for the bitcoin boom-bust cycle. This cycle or specific line is the scene identifier variable.

States: When a particular scene is selected, the date range and prices used to graph the second chart i.e price versus date (“price action”) is narrowed down for plotting. When the reset button is hit then data (state) is expanded to entire possible range.

Usage of Parameters: When no drill down is chosen the entire data set is used to visualize the data. When a particular cycle is chosen, then the dates and prices (entire data) is filtered to represent the data in the second drill down chart.

Triggers:

On click for change in state: When the user clicks on the first chart(“bitcoin cycles”) the data being selected for a visualization is the filtered data set.

Affordances: In the “bitcoin cycles” chart, when **the pointer moves near a cycle the nearest cycle highlighted as a hint**, which changes its color to black and is brought to the front. Also, there is a red round tool tip that pop up the price.

The option to click is mentioned in the chart. There is also a hint to reset data filter in the second chart the state to entire data set.