

VISUALIZING NOMINAL SEQUENTIAL DATA

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PROBLEM

As we collect more and more data and create Big Data of nominal type we have to develop new ways of visualizing these types of data in a condensed and interpretable format that allows to see sequences and patterns over time. Visualization research has largely ignored these types of data. This project is a visualization interface that allows for the representation of aggregated discrete dimensional categories in sequence. The visualization will enable researchers to identify patterns in very complex data.

MOTIVATION

As Big Data grows we need new ways of aggregating data, and thereby turning the individual continuous data streams into combined interpreted nominal data streams for further analysis. However, we are limited by a lack of screen space to show all the information comprehensively. Our web tool enables researchers to boil down their data to small representations of complex data that is colorcoded in sequence and thereby allows for the identification of patterns such as: Are there continuous blocks of a certain category, or Are the categories interspersed?

APPROACH

Our web tool is programmed using Javascript, CSS, HTML, and D3.js. The tool enables direct interaction with the data through the interactive display and multiple adjustable parameters in the display. The data, furthermore, can be filtered and highlighted to lay focus on individual categories.

FUTURE WORK

In further steps we want to enable the web tool to also visualize ordinal and continuous data in a qualitative overview. We furthermore want to enable the visualization of multiple columns in direct parallel displays of data sequences that allows visual comparison. The next implementation of this tool should contain a save visualization function, as well as a share function. Thereby researchers can share their visualizations and receive feedback on them.

RESULTS

The FrickViz! web visualization tool allows the user to learn about the developers, explore existing data sets, or visualize their own data.

Users can specify the size of the rectangles, as well as their frequency, and frequential separation.

Additional interactions allow to hover over the rectangles and receive additional information, or click on the legend to highlight specific classes in the data set.

