ProtoDocs: Supporting Collaborative Information Visualization

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Problem

The current state of information visualization tools is that they are complex and difficult to master. Information visualization is still a relatively new field and further work needs to be done to simplify the process of producing visualizations.

Collaboration within the creation of information visualizations is also a relatively new area that needs to be addressed. Many projects deal primarily with collaborative analysis of information visualization.
Related Work

- Protovis: A Graphical Toolkit for Visualization (Heer and Bostock)
- Voyagers and Voyeurs: Supporting Asynchronous Collaborative Information Visualization (Heer, Viegas and Wattenberg)
- Many Eyes (Viegas, Wattenberg, et al)
- A Spreadsheet Approach to Information Visualization (Chi, Barry, et al)
ProtoDocs

Protovis

A powerful open-source graphical toolkit

Google Docs

Basic spreadsheet functionality, with the capability to extend the UI through Gadgets

As a web application, one of its key features is to support collaboration
Implementation

- Data composition
  - Collaborative production of data sets
  - Import of raw data from external sources
  - Script to convert JSON data formats from Protovis to CSV
Implementation
Implementation

UI for Viewing and Editing Visualization
Implementation

UI for Viewing and Editing Visualization
Results

- Converted a corpus of Protovis example data into Google Spreadsheet implementations
- Able to modify both the data and the source code for the visualization dynamically
- Use of our implementation is roughly equivalent to that of other tools available, but also more customizable
Discussion / Future Work

ProtoDocs

- Useful in collaboration process for creating visualizations
- Allows for use in conjunction with existing information visualization tools

Future work

- Investigate use with other toolkits (i.e., The JavaScript InfoVis Toolkit, flare)
- Refine UI and explore direct manipulation