Visualization Software

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CS 294-10: Visualization
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Assignment 2: Visualization Design

Assignment 2: Creating Visualizations

Use existing software to formulate & answer questions

First steps
- Step 1: Pick a domain
- Step 2: Pose questions
- Step 3: Find data
- Iterate

Create visualizations
- Interact with data
- Question will evolve
- Tableau

Make wiki notebook
- Keep record of all steps you took to answer the questions

Due before class on Feb 22, 2010

Brushing and Linking

Due before class on Feb 22, 2010
Focus user attention on a subset of the data within one graph [from Wills 95]

What are the factors that affect tipping behavior?

Tips received: 1 waiter, 1 restaurant, few months
- tip in dollars,
- bill in dollars,
- sex of the bill payer,
- smokers in the party,
- day of the week,
- time of day,
- size of the party

244 total tips

http://www.ggobi.org/
Cellphones

http://www.myrateplan.com/cellphones/

Zipdecode [from Fry 04]

http://acg.media.mit.edu/people/fry/zipdecode/

Attribute explorer [Spence and Tweedie 98]

TimeSearcher [Hochheiser & Schneiderman 02]

Based on Wattenberg's [2001] idea for sketch-based queries of time-series data.
Pros and cons

Pros
- Controls useful for both novices and experts
- Quick way to explore data

Cons
- Simple queries
- Lots of controls
- Amount of data shown limited by screen space

Who would use these kinds of tools?
<table>
<thead>
<tr>
<th>Year</th>
<th>Month</th>
<th>Occupancy</th>
<th>Active and Slow Periods</th>
<th>Discovery Factors</th>
<th>Recovery Factors</th>
<th>Winter-Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td>2023</td>
<td>Jan</td>
<td>High</td>
<td>Conferences&lt;br&gt;Businessmen&lt;br&gt;AIR CREWS&lt;br&gt;Clients under 20 years&lt;br&gt;Air Travelling</td>
<td>Year-round&lt;br&gt;ICE&lt;br&gt;Clients from 30-55 year</td>
<td>10&lt;br&gt;4&lt;br&gt;15&lt;br&gt;20&lt;br&gt;6</td>
<td>Winter</td>
</tr>
</tbody>
</table>
Rivet: Interactive reordering

Performance Analysis and Visualization of Parallel Systems Using SimOS and Rivet: A Case Study (Bosch et al. 00)

Panel variables
- type, yield

Condition variables
- location, year

Trellis
- Becker, Cleveland, and Shyu 96

Trellis
- Becker, Cleveland, and Shyu 96
Summary

Most visualizations are interactive
- Even passive media elicit interactions

Good visualizations are task dependant
- Choose the right space
- Pick the right interaction technique

Human factors are important
- Leverage human strengths
- Assist to get past human limitations
Tableau demo

The dataset:
- Federal Elections Commission Receipts
- Every Congressional Candidate from 1996 to 2002
- 4 Election Cycles
- 9216 Candidacies

Data Set Schema
- Year (Qi)
- Candidate Code (N)
- Candidate Name (N)
- Incumbent / Challenger / Open-Seat (N)
- Party Code (N) [1=Dem, 2=Rep, 3=Other]
- Party Name (N)
- Total Receipts (Qr)
- State (N)
- District (N)

This is a subset of the larger data set available from the FEC, but should be sufficient for the demo
Hypotheses?

What might we learn from this data?
Correlation between receipts and whether elected?
Do receipts increase over time?
Which states spend the most?
Which party spends the most?
Margin of victory vs. amount spent?
Amount spent between competitors?

Hypotheses?

What might we learn from this data?
- Has spending increased over time?
- Do democrats or republicans spend more money?
- Candidates from which state spend the most money?