Lecture 2: Visualization Design Exercise

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https://github.ubc.ca/ubc-mds-2016/DSCI_531_viz-1_students
Today: In-class Design Exercise

• Five time-series data scenarios
  – A: every 5 min, duration 1 year, 1 thing: building occupancy rates
  – B: every 5 min, 1 year, 2 things: currency values (exchange rate)
  – C: several years and several things: 5 years, 10 currencies
  – D: 1 year, many things: 1000 machines (CPU load)
  – E: 1 year, several parameters, many things: 1 year, 10 params, 1000 machines

• Small-group exercise: 15-20 min
  – one group per table (4-5 people/group), 5 groups total
  – discuss/sketch possible visual encodings appropriate for your group’s data

• Reportback: 20-30 min
  – 4-5 min from each group

• Design space examples/discussion: 15-20 min
Case A: 3D Approach (Not Recommended)

- extruded curves: detailed comparisons impossible

[Cluster and Calendar based Visualization of Time Series Data. van Wijk and van Selow, Proc. InfoVis 99.]
Case A: Cluster-Calendar Solution

- derived data: cluster hierarchy
- juxtapose multiple views: calendar, superimposed 2D curves

[Cluster and Calendar based Visualization of Time Series Data. van Wijk and van Selow, Proc. InfoVis 99.]
Case B: Stack Zooming

Case C: ChronoLenses


https://youtu.be/k7pl8ikczqk
Case D: RankExplorer


https://youtu.be/rdgnlqcZ2A4
Case E: LiveRAC video

http://youtu.be/ld0c3H0VSkw

Case E: LiveRAC data abstraction

- multidimensional table: time series data
  - key attributes
    - time
      - 50,000: 5-minute intervals over 6 months
      - multiscale levels of interest
    - devices
      - 4000
    - parameters
      - 20
      - ex: CPU usage, memory load, network traffic, alarms, ...
  - value attributes
    - parameter value for device at time point
      - quantitative
    - device groups
      - categorical

Tables
- Attributes (columns)
- Items (rows)
- Cell containing value

Multidimensional Table
- Key 1
- Key 2
- Attributes
- Value in cell

Attribute Types
- Categorical
- Ordered
- Quantitative