LabVis: Interactive Visualization of Medical Laboratory Results

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CPSC 533 Project Update
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Motivating Scenario

- You're a new medical intern
- A patient complains of fatigue, headaches, and muscle pain
- Need to analyze the laboratory results to aid in your diagnosis

"Dammit, Adam! I'm a doctor, not a computer scientist!"
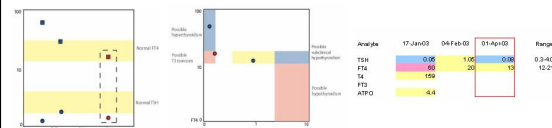

Motivating Scenario

Project Goals

- To develop an effective visualization for displaying and interacting with medical laboratory results

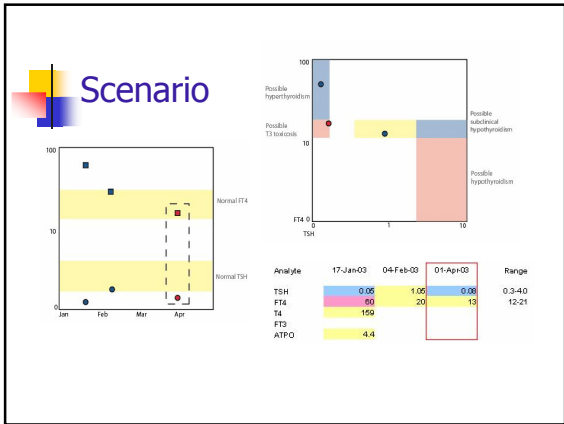- Evaluate the visualizations using real medical interns

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Background

- For medical interns, the challenge of interpreting appropriate laboratory tests can be enormous (Schreiber, 2004)
- Target dataset is a time-series of approximately 1500 thyroid function tests
  - Common analytes reported are FT4 and TSH
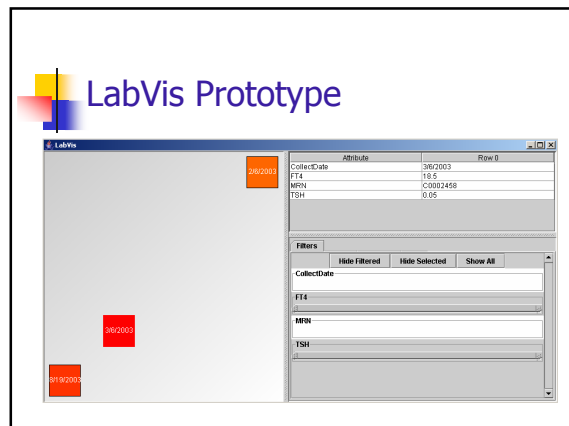

InfoVis Solution

- Provide the intern with an overview of patient tests over time, while supporting details-on-demand interaction

Scenario

Technical Solution

- Programming: Java/Swing
- Visualization: InfoVis toolkit
  - Scatterplot, time series drawing facilities
  - Rich interaction API
- Data source: CSV files
  - For easy export from Excel

Current Status

- Dr. Schreiber's feedback
  - Linked visualization effective
  - Remove extraneous colour-coding
  - Need consistent highlighting of normal/abnormal ranges
- Built prototype using InfoVis Toolkit

LabVis Prototype

Summary

- LabVis: rapid, effective visualization and interpretation of medical laboratory test results