Today’s lecture

Questions on P1?
Expectations for the Test
Design for multiple variables
Appropriate uses of 3D
Discussion
• Escaping Flatland
Feedback on homework

Hope you have your books

Next Lecture: Again, bring your Tufte book

P1 Due Friday, 1:30
Website with teams, project, data
Present at start of lab
Spend lab analyzing data
Website Link: Project Document

Questions?

Expectations for the Test

Handed out Friday at Lab
Take-home, open book
Do it on your own
Hand-in to drop-box Tuesday

Test components
• Scenarios
• Graphs to redesign
• Find the design flaws

Few Exercises

Multivariate

Multivariate: multiple variables
Relational: Relationship between variables

3 variables:
Marketing
Profit
Product type
How can you display additional variables?

One common scale

Multiple plots, one graph

Multiple scales, one graph

You can display many graphs within a single eyespan.

Vary nothing but a single variable

Arrange graphs in a logical sequence

Especially time series

Tufte: Small multiples

Growth in Security Incidents

2D layers
Not all good Vis is obvious

Few
- Data, message, audience
- Make your message clear

Tufte
- Admires richness, complexity
- "The illustrations repay careful study"
- "...complex, witty, rich with meaning"

Sunspot Observations

Time series (train schedule)

(9) Arrival & departure times, time at stop, number of trains, direction, relative speeds, name & number of stops, crossings

Flow lines, or flow maps

Interactive Stacked Graph
Effectively Visualizing Multi-Valued Flow Data Using Color and Texture

7 variables, including flow lines
Positive vorticity (red), Negative vorticity (blue)
Strongly negative Reynolds shear stress (green)
High swirl strength (orange or magenta, depending on direction)

6 Variables
Values a & l
4 categories

3rd dimension
L vs. b
L vs. a
Can dynamically filter

CIELAB Space

Not all 3D is bad
If data is inherently 3D
- Map to a 3D shape
- Map to a 3D volume

If data is 2D+ height
- Perspective maps
- Surface plots (x,y, height)

Often used in Scientific Visualization

From "After the Storm," Baker and Bushel
What is the purpose of a Vis?

Few
- Analysis
- Monitoring
- Planning
- Communication

Tufte
- Description
- Exploration
- Tabulation
- Decoration

Other
- Education
- Aid to thinking
- Aid to reasoning
- Problem solving
- Enhance cognition
- Insight
- Entertainment?

...and who is the audience?

Discussion Questions

What does “escaping flatland” mean?
What examples did you find confusing?
What examples did you especially like?