Mentimeter

IN5140

Smart Processes and Agile Methods in Software Engineering

Group Session 11

Software visualization

1

Mentimeter

Revision

Software Visualization

Mentimeter

Q1: What are the four main areas of visualization?

Mentimeter

Q1: What are the four main areas of visualization?

- Volume Visualization
- Flow Visualization
- Information Visualization
- Visual Analytics

Mentimeter

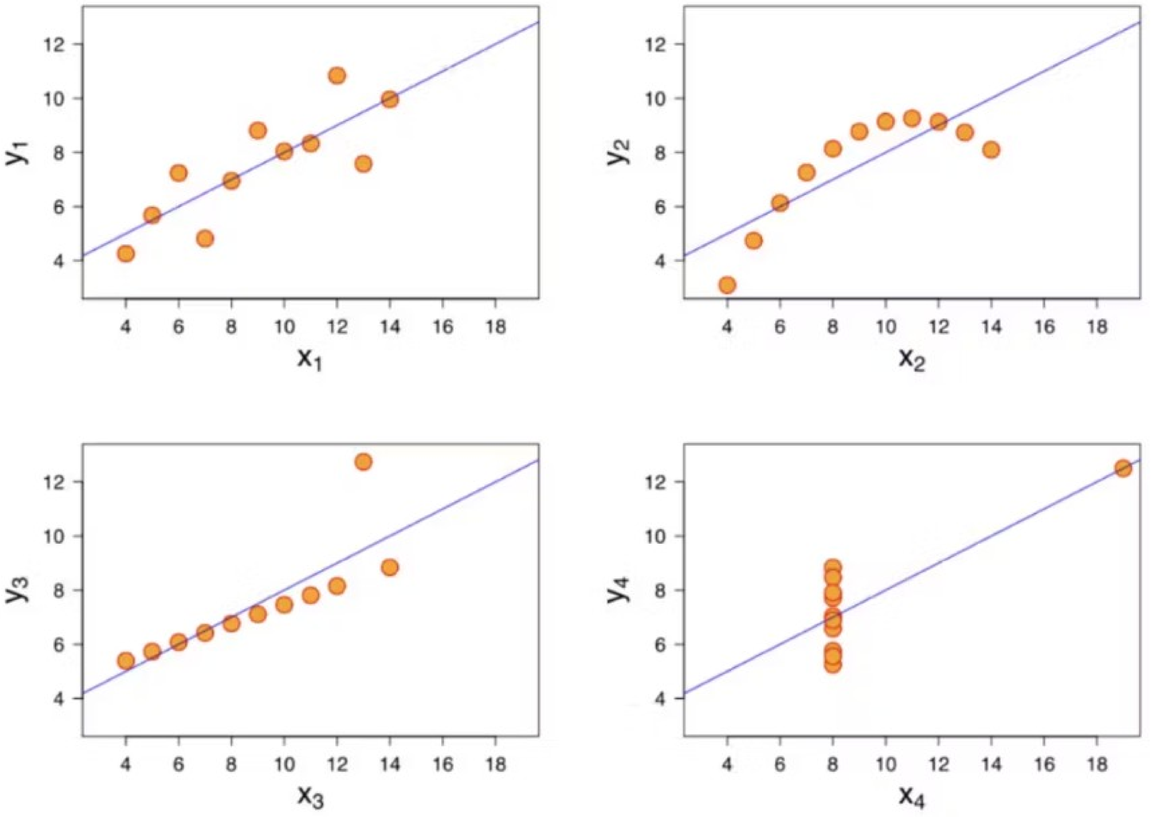
Q2: What are the three main reasons for visualizing data?

Q2: What are the three main reasons for visualizing data?

Visualizations:

- leverage human perception for pattern detection
- have high potential for compressing information
- accelerate and facilitate knowledge gain

Q3: What is the core principle shown by Anscombe's quartet?



Q3: What is the core principle shown by Anscombe's quartet?

Key Point: It shows that summary statistics alone can be misleading — you must visualize your data to truly understand its patterns and relationships.

In depth: When graphed, datasets with nearly identical mean, variance, correlation, and linear regression line reveal strikingly different patterns, showing how graphs are essential for proper data interpretation.

Mentimeter

Q4: What is a "mark" in a visualization?

Mentimeter

Q4: What is a "mark" in a visualization?

A basic geometric element in a visualization, such as a point, line, or area, that represents a link or an item.

Mentimeter

Q5: What is a "channel" in a visualization?

Mentimeter

Q5: What is a "channel" in a visualization?

A visual property of a mark, such as position, color, tilt, size, or shape, that is used to express an attribute of the data.

Mentimeter

Q6: How do Node/Link Diagrams and Matrices differ in how they visually represent items and relationships?

Q6: How do Node/Link Diagrams and Matrices differ in how they visually represent items and relationships?

Node/Link Diagrams have nodes (points) joined by links (lines), these respectively represent items and their relationships.

Matrices have rows and columns to represent different items and the cells represent the relationships.

Mentimeter

Q7: What differentiates a Node/Link Tree from a Node/Link Network? Why would you chose one over the other?

Q7: What differentiates a Node/Link Tree from a Node/Link Network? Why would you chose one over the other?

The types of relationships between your items determines what the best way to visualize the data is. Trees represent hierarchal relationships while networks are highly interconnected structures.

Mentimeter

Q8: What are the four layers in Problem-Driven Visualization Design?

Mentimeter

Q8: What are the four layers in Problem-Driven Visualization Design?

Domain Problem Characterization: A clear understanding of the domain and what questions need to be answered through visualization.

Data and Task Abstraction: A conceptual model of *what* data is being shown and *what* users will do with it

Visual Encoding and Interaction Techniques: A designed visualization that maps abstract data and tasks into concrete visual and interactive forms.

Algorithm: A working, performant system that realizes the visual and interaction design.

Mentimeter

15 minute break

Mentimeter

Previous Exam Case

Mentimeter

Case Description 2 - Exam 2017

A software company in Norway (Company X) is developing an administrative system for the Norwegian public sector (the customer). The current development process is as follows: Company X receives a fixed list of requirements from the customer. Company X then first rewrites the requirements into user stories and then groups them into a set of deliverables. For example, requirements that deal with profile administration are grouped into a deliverable entitled “User Profile”. After defining a deliverable, Company X sends it to the customer representatives for approval. Once the customer approves the deliverable, Company X sends the deliverable to a development team in Ireland that is owned by company X. The Irish team codes the requested functionality and sends back a demo to Company X. Company X and the customer assess in collaboration the work of the Irish development team. If the deliverable (demo) is accepted by the customer, Company X starts to plan a new deliverable. However, if the deliverable (demo) is rejected, Company X must ensure the necessary changes, including fixing bugs, performed by the Irish development team. After implementation, they return a new demo for approval. This cycle is repeated until the customer finally approves the deliverable.

Mentimeter

[Exam 2017]

Exam Case Questions:

1. Document the process described above in a process model using **BPMN**.
2. **Propose improvements** to the process described in the case description.
3. Describe three **measures (variables)** that the project could use to evaluate the effects of the changes in the development process that you proposed in (b).

Mentimeter

Next Week

DevOps & Process in Practice