

Test Exam questions

These are example questions the real exam will have more questions than the ones shown here.

Name:

Student id:

This is an exam where short answers questions and multiple choice questions are combined . In the multiple choice question just one answer is correct per question.

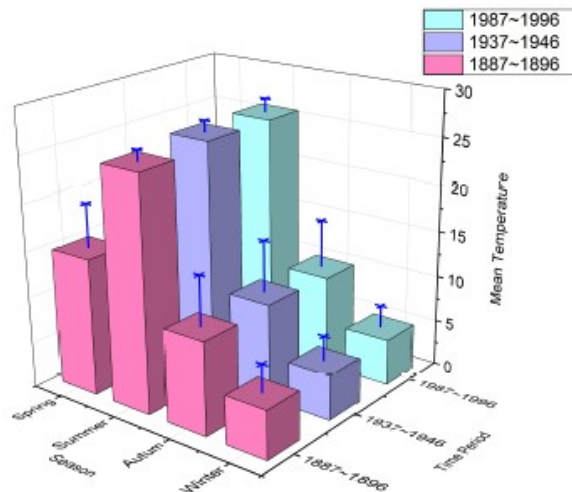
In the multiple choice questions one point is added for each correct answer; half a point is subtracted for each wrong answer. Nothing is added or subtracted if no answer is given. In short: Guessing can have a negative impact!

Please mark your answers directly below the exercise or next to it (but always before next question).

Make clear what is your answer; for ambiguous answers there will be half-point subtracted.

Good Luck!!

1. The visualization below summarizes the temperature of a country in the last 20 years.



We discussed this question extensively in class. There are multiple options possible, important you justify your choices based on what we have given in class. Principles, guidelines, ...

- a. (1 point) Assuming this is tabular data, how many attributes are encoded in this visualization? Which data types are they (categorical, ordinal, or quantitative)?

IMPORTANT: Use the terminology we introduced in class (Tamara Munzner), otherwise we are not sure what you mean.

Year period: ordered - quantitative or ordinal (it depends on how you look at it both answers would be correct) – sequential

Seasons: ordered – ordinal

Mean Temperature: Average temperature: Ordered - quantitative – sequential or divergent (it depends on how you look at it both answers would be correct)

- a. (1 point) Name two elements on the visual encoding choices (marks/visual channels) that can be considered wrong or inadequate ? Motivate each choice in one sentence.

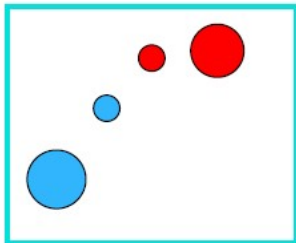
There are various aspects we have discussed this specific question in class.

For example, one would be the use of 3D is not justified, 3D suffers from clutter and generates problems to evaluate sizes and lengths.

- b. (1 point) Which visual encoding would you use? Motivate each choice in one sentence.



Multiple answers are possible make sure you justify them based on the material shown in class. (you should justify it as we have shown during the lectures Good-Bad visualization and when we reviewed the exam)

2. Which of the following statements is true regarding the dimensionality of the visual channels in the illustration above? **b**



- a. The visualization encodes 3 dimensions. There is no interference between the different visual-channel encodings. The channels are separable.
- b. The visualization encodes 4 dimensions. There is interference between two of the visual-channel encodings.
- c. The visualization encodes 4 dimensions. There is interference between all of the visual-channel encodings.
- d. The visualization encodes 3 dimensions. There is interference between all of the visual-channel encodings.

5. Which of the following color coding would be the most adequate for categorical data? **b**

- a. 
- b. 



6. (1 point) Which visualization would be the best choice to visualize the average height of male and female?



Motivate (1 point)

The bar chart does not indicate any continuity or trend between Male and Female as line chart indicates. Furthermore, 3D is not justified, it adds unnecessary complexity to the interpretation and evaluation visualization.

7. Visualization has three types of high-level goals
- a. Reasoning, designing, encoding
 - b. Explore, analyze, present
 - c. Consume, produce, search
 - d. Identify, compare, summarize
8. Data is typically described with domain language. For example, a company organogram, the folder structure on a filesystem, a class hierarchy of a software product. These descriptions are an example of the abstract data type:
- a. Multi-dimensional table data
 - b. Field data
 - c. Tree data

9. Consider the following situation. A data scientist describes her task with the following sentence:
“I am developing machine learning classification models and I need to convince the executive board that my time is well spent because the performance of my model keeps getting better.”

a. What (action, target) pair is a good task abstraction?

(Present, trend)

b. Motivate your choice.

Present: I want to communicate data that I am fully aware of.

Trend: through time performance of the model indicates showing an up trend

10. Temperature (in Centigrade degrees) as an attribute is an example of **c**

a. Quantitative cyclic data

b. Categorical data

c. **Ordered diverging data**

d. None of the above