Visual Analytics Exam
Bachelor Students Spring 2024

Case:

You are a data analyst working for the Norwegian National Olympic Sports Organization (Olympiatoppen), and have been tasked with creating a **data dashboard.** Your dashboard should track the historical performance of the Norwegian olympic athletes, and compare them to the rest of the world. The dashboard will be displayed by the main entrance to Olympiatoppen to motivate the athletes and coaches before they begin their training.

In addition to the dashboard you have been asked to make some recommendations to Olympiatoppen. Which types of athletes and events should Norway invest in for the next Winter and Summer Olympics? You should summarize your findings in a **1-page explanatory data visualization** that will be included in a written report.

Dataset(s):

Sourced from Kaggle.com

athelete_events.csv – Dataset with every athlete in every Olympic game since 1896
noc_regions.csv – Codes linking Olympic regions to country names

Student Exam Submission:

Part A) **Interactive dashboard implemented in Tableau**

Part B) **4-page Report** with the following format.

- Page 1: Static data visualisation
- Page 2-3: Explanatory Text
- Page 4: Bibliography and member contributions

Further details regarding Parts A and B are listed on the next page.

Detailed Submission Instructions:

Part A) Interactive Data Exploration Dashboard in Tableau

Submit an interactive dashboard that addresses the case.

Specifications:

1. The dashboard should be named "*Norwegian_Olympics_Dashboard*"
2. The Tableau file containing the dashboard should be in .twbx format.
3. The dashboard should contain at least one time-series, and one spatial map.
4. Your dashboard should be useable by anyone with basic computer skills.
5. You should provide a short guide to help the audience understand how to read and use your dashboard.
6. The dashboard should have some interactive features to allow the audience to explore the data.

Part B) 4-page Report

Report Page 1: Static Explanatory Data Visualisation

Create a static data visualisation that addresses the case.

The visualisation should comprise of 2-4 data charts from Tableau, as well as helpful annotations that highlight the features of the data that you think are important for your audience to know about. It should be clear how your visuals relate to the dashboard, but you do not need to present the data in exactly the same way. You can create more specialized visuals to present your findings if you wish.

You can use graphic editing software (e.g. Inkscape or power-point) to perform postprocessing and editing to create a single unified static data visualization to include in your report.

Report Page 2-3: Explanatory Text

Part a: Data Preperation

Explain how you prepared the data in order to analyse it in Tableau. What issues did you notice in the data? How did you address them?

Part b: Relevance to the case

Explain in your own words how your static data visualisation and interactive dashboard address the case.

In your answer it should be clear: who is your audience? What information do

you provide for your audience? How can the information you provide be used by your audience?

Part c: Explanation of Design Choices

Explain the reasoning behind your design choices using the course textbooks “Data Visualisation”, “Storytelling with Data” and “Visualization analysis and design”. Your references should specify particular chapters and page numbers in the texts, and use the American Psychological Association (APA) citation style https://pitt.libguides.com/citationhelp/apa7.

You should describe your choices using the 5 layers of data visualisation framework of Andy Kirk (Composition, Color, Annotation, Interactivity, Data Representation).

Report Page 4: Bibliography and Member Contributions

Explain each group member’s contribution to the submission. This may be used to assign individual exam results if there are large discrepancies in group member contributions.

You should also include a bibliography.
These two books must be included and cited at least twice each.

Mandatory Bibliography Entries

Knaflic, C. N. (2015). Storytelling with data: A data visualization guide for business professionals. John Wiley & Sons.

Kirk, A. (2019). Data visualisation: A handbook for data driven design. Data Visualisation, 1-328.

This book is was only used in one lecture and is optional. You can include or excluded this book if you wish, and citing it is optional.

Optional Bibliography Entry

Munzner, T. (2014). *Visualization analysis and design*. CRC press.

Evaluation

Part A) Interactive Dashboard (2 pts total)

User Friendliness and Design

Is the dashboard easy to use? Can the user get the information they want? Is the design visually appealing? Does the dashboard meet the specifications?

The Tableau file should be in .twbx format (including data). If it is not in this format than -0.5 points will be deducted for user unfriendliness.

Part B) Static Data Visualisation (2 pts total)

Design and Storytelling

Is the visualized information easy to understand? Is there a clear point to the visualisation? Is it telling a story?

Part C) Explanatory Text (6 pts total)

Data Preparation (2 pts)

Have data preparation issues been noticed and adequately addressed?

Relevance to the case (2 pts)

Has the case been addressed? Does the story make sense? Have the data been interpreted correctly?

Design Theory (2 pts)

Have relevant data visualisation design principles and theories been appropriately applied and referenced?
Have the course textbooks (Knaflic and Kirk) been cited as least two times each?
Have all 5 layers of data visualisation been addressed?

Marking Scheme for each 2-point section

2 = Excellent
1 = Some mistakes
0 = Unsatisfactory

Total Score (out of 10)
Pass threshold = 6 or more