Module

PGR110, Visual Analytics

Due date for submission

Check wiseflow for exact date and time.

Module Leader and e-mail

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Learning outcomes

On successful completion of this course the candidate:

Knowledge:

- is able to explain the key theoretical principles in visual analytics.
- can describe the key technologies, tools, and platforms for visual analytics such as Excel, Tableau, Power BI, etc.
- can discuss important constraints related to the design and development of management information dashboards.

Skills:

- is able to analyze the different visual analytics principles and techniques such as chart building, overview + detail, pan and zoom, etc.
- can select and apply the appropriate principles, methods, tools, and techniques for a given dataset in order to create a meaningful and actionable information dashboard.
- is able to conduct proof-of-concept design, development and documentation of an information dashboard from a dataset.

General competence:

- can discuss research issues and practical challenges in visual analytics.
- can identify and choose the appropriate principles, methods, tools, and techniques for a given dataset to order to create a meaningful and actionable information dashboard.
- is able to communicate the role of visual analytics in data-driven decision-making.
- knows communication and working in technical (non) group setting

Grading and Exam Specification

This assignment is worth 100% of the grade of the course and is graded as Pass/Fail.

Groups of 2 to 5 students. Apply for exception to submit individually.

Please address the following in your submission.

You are given two datasets namely “Dataset-1” and “Dataset-2” in Excel (.xls) format. The Excel files hold both the data and the description. You are required to develop working dashboards using these two datasets.

Dataset -1: Every autumn, NOKUT conducts a national student survey (studiebarometeret) on study quality on behalf of the Ministry of Education and Research. The survey covers almost all Norwegian universities and colleges and ask students to evaluate various quality dimensions such as teaching, supervision, learning environment, commitment, motivation and so on. Dataset-1 is a subset of this survey from 2021 and you can find the description of all quality dimensions or variables in the Excel sheet as well (Description-1). You are required to use this dataset and design and develop dashboard(s) for the Kristiania Higher Management to help them

(a) assess how Kristiania is doing as compared to other universities and colleges on the various quality dimensions, (b) identify their best performing and worst performing study programs.

Dataset -2: Visual Analytics is a course offered at Kristiania to multiple study programs. The course deploys pre-recorded lecture videos and makes the video recordings of all live lectures and exercises. Dataset -2 contains the anonymized video viewing data for the course from 3rd Feb to 13th April 2022. You are required to use this dataset and design and develop dashboard(s) for the course manager and teachers delivering this course to help them

(a) assess performance of lectures and exercise sessions, (b) compare different study programs, (c) analyze the viewing patterns across the weeks, days, and time of day.

Note: Please feel free to go beyond the requirements/questions listed.

What is required from the submission?

The submission should have the following items.

1. **Dashboard:** Working Dashboard(s). It can be one or more dashboard(s) per dataset. Examiner should be able to open your Dashboard. E.g., save your dashboard as Tableau Packaged Workbook (.twbx) with the data included as extracts.
2. **Screen Recording:** Video recording (screen recording with voice) to demonstrate your dashboard/visualizations. Voice should be clear/audible. MP4 format is preferred.
3. **Project Report:** Length of the report is approximately 7 to 10 pages (excluding title page and references). It should be submitted as a PDF. Referencing can be Harvard style or any other, but please be consistent.

Submit it as one zipped file or upload the dashboard(s) and screen recording as an appendix.

How could the report be structured?

The following is an example to structure your project report. Please feel free to add more sections.

Dataset Description

Describe the dataset given in your own words.

- Data Type.
- Transformations if any.

Dashboard: Design

- Rationale for selected visualizations i.e., why have you made this choice. Support your rationale with readings from the course.
- Discuss how your design has evolved from your first idea to your final design. Use sketching to showcase your ideas and iterations.

Dashboard: Development

- Short description of how it was developed. If using a tool like Tableau, briefly describe the steps, challenges faced and your reflections.
- If coding project, then include key code snippets and discuss them.

Ten meaningful insights

If you are a group, list ten meaningful insights (five per dataset) that your dashboard(s) provide and specify the sequence to find them. If an individual submission, list six meaningful insights. Discuss actionable insights generated from your dashboard and visualizations in detail i.e., how can your audience benefit from your insights.

Remember:

Keep in mind that there are no perfectly “correct” (or incorrect) visualizations, but that your solution should be well-defended at every step of the process and follow visual best practices.