Project – Information Visualization

Type: Team (2-3 members) work   **Weightage: 30%**

This document describes the semester project for the course. Students should work on a project in teams of 2-3 people. The objective of the project is to use the knowledge and background that you are learning about Information Visualization, in a new, creative effort.

I. Key tasks

You will have following key tasks for the project:
1. Form your team.
2. Find a topic and a dataset for a clearly identified user.
   Write a 1-2 page proposal (**Initial project description). **Submit by **Monday 15 Feb, 2pm.**
3. Meet Teaching team as per schedule during **15-28 March** for a review of work-in-progress. A schedule will be prepared, one week in advance, based on the availability of the student team and teaching team.
4. Submit a report by **Monday 19 Apr, 2pm.**
5. Submit a poster (softcopy) by **Monday 19 Apr, 2pm.**
6. Make a presentation of your work as per schedule during **19-24 April.**

II. Details of the project tasks:

1. **Form Team**: Sign up for a Team at LumiNUS under projects. If you are unable to form a team, the tutor will allocate you, by early Feb, to a team which has vacancies.

2. **Proposal (3%):**
   It is extremely important to select an interesting problem with data that some group of people will care deeply about. Find some topics that almost everyone cares about (e.g., health, education, films) or that some subset of people cares about (e.g., sports data, environment). Consider combining different data sets to produce a new composite data set of special interests. Such a fusion of data often creates a data set that people want to learn. Select a topic that you think "user" wants to know more! You will explicitly need to identify an intended "user" as well. Select a data set(s) that the user you have in mind will find interesting and intriguing. No matter what topic you choose, aim to deliver a high-quality project, showcasing unobvious insights. You are encouraged to explore Spatial aspects (involving map visualization), Quantitative aspects, Statistical aspects (e.g., correlation, clusters), Temporal aspects in your selected dataset(s). You are free to choose any software and graphics/visualization support library that you want to help build your system. ***Consider developing a system that is web-deployable so that it can be presented to everyone in the world!***

Where do you get your data? Part of your responsibility for the project is to come up with the data needed to drive your visualization. It is a crucial and vital initial step! Ideally, it would be best if you start with a problem or domain, find someone who knows more about it, and then look for data from there or find data from public datasets. Be creative! You may have to blend multiple different data sources.

Your proposal should list **project members** and **describe the topic to be addressed** and **data sources/formats.**

You could consider following questions to prepare your proposal *(DO NOT cut & paste the following questions in the proposal document you submit. These questions are to guide you in writing your proposal)*
  - What is the problem being addressed?
  - What is the data source and format? Where is the data coming from, and what are its characteristics?
  - Who would be interested in understanding this data better?
  - What would these people want to know about the data?

See Proposal submission instructions below in Section III point 1 below.

3. Work in progress (3%)
Each team is to meet with the teaching team at least once for a review of their project progress during **15-28 March**. A schedule will be prepared, one week in advance, based on the availability of the student team and teaching team. All members will need to attend the meeting. The review has no specific format or presentation requirements. It is to show your team's progress. This also serves as a very valuable opportunity for you to get feedback about your design and implementation. Of course, you can meet with the lecturer or tutors at other times too, for feedback on your work.

4. **Report (~15%)**: You should produce a document that provides more details about

   a. Team information and the division of the work among team members.
   b. The purpose of the visualizations you designed, who the users will be, and what datasets you used to find insights for the users.
   c. Describe the data attributes in detail. Provide a list of analytic questions and queries that the user would answer using the visualizations.
   d. Show different design ideas you considered, leveraging the work that you finally did for the poster session.
   e. Briefly explain the process you followed for data processing and visualization
   f. For each visualization, provide visual encoding and an image.
   g. Provide a stepwise process of creating the visualizations (provide for at least four visualizations).
   h. Chart choice justifications/ Reflections/ references/ any other information you want to add.

See Report submission instruction below in Section III point 2.

5. **Poster:** Create an A1 or A0 size poster. Your poster should have a title, names of team members, and module code CS5346 S2 AY2020/21. It should show the insights, typically through the selected visualizations. This is an opportunity for your team to be creative. You do not need to print the poster. Submit a softcopy of the poster. There is no separate mark allocation for the poster. *3 marks will be deducted from total project marks on non-submission of the poster. 1 mark will be deducted if the poster does not follow the above description.*
   See Poster submission instruction below in Section III point 3.

6. **Demonstrate your work (~9%):**
   a. Each team will demo to lecturer/TA describing what they have done.
   b. All members of the team have to attend the demo.
   c. You will need to bring **at least three copies** of a short project overview document to the demo session. The document should be 1-3 pages and include the following items: team member names, problem description, dataset description (a snapshot of dataset or a link to dataset can be added), screenshot(s) of the visualizations (choose important ones if you have many), description of any aspect of the dataset/interface/visualization that you feel needs explanation, and a link to your work (if it is deployed).
   d. You will use your laptop for the demonstration. The room will have a projector.
   e. You can consider creating an optional video (5 minutes or less) that explains your visualizations. *A Team could earn up to 2 marks as a bonus for a video submission.*
   See Demo and Video submission instruction below in Section III point 4.

III Submission

1. Submit project proposal **Monday 15 Feb, 2pm** in Luminus– Project Proposal folder. *File name should be Team<Number>_Proposal.pdf*

2. Submit project report by **Monday 19 Apr, 2pm** in Luminus– Project Report folder. *Filename should be Team<Number>_Report.pdf*

3. Submit Poster by **Monday 19 Apr, 2pm** in Luminus– Project Poster folder. *Filename should be Team<Number>_Poster.pdf*

4. Demo: bring at least three copies of a short project overview document to the demo session **during 19-24 April**. Actual demo slot will be known about 1 week before the demo.

5. *Video:* If you choose to prepare a video for your work, upload it to any public channel e.g. youtube, and **include a link in the poster (just below the title of the poster)**.

6. *Code or any other information:* If more information is needed from any of the teams, a separate instruction will be issued to them for the submission of code/vis files. Submission date will be after their demo date.

IV Criteria for marking

We will evaluate the overall quality of your project, including all milestones and components to determine your mark for the project. Following will be considered during that evaluation process of report and demo:

- Is the visualization an effective representation of the data?
- Does the visualization support different analytical questions about the data?
- Is the visualization creative, and does it illustrate some new/interesting insights?
- Does the work present an interactive visualization of the data?
- Was your demonstration an effective presentation and illustration of your project and work?
- Does your demo /video illustrate its use well?
- Does it explain the problem and solution well enough so that a person unfamiliar with the project can appreciate your contribution?

It is each member's responsibility to make a significant contribution in whatever way that best matches his or her abilities. The grade earned for the project will be a team grade; that is, all team members will receive the same score for the project. However, the evaluator(s) reserves the right to adjust individual team member's scores either upward or downward to support especially strong or weak performance and contributions to the group effort, as much as he can objectively determine.

Report template

Team information (*Names and matric numbers as per Luminus record*):

Name:
Matric Number:

Name:
Matric Number: …

URL: of published visualizations

Readme: if code is submitted or any other information which evaluator should take note of

Organize rest of your report based on the point 4 in section II above.