FIT5147 Data Exploration and Visualisation Project (70%)

In this unit long project you yet a chance to analyse and explore some data of your choice (subject to tutor approval).

It is an individual assignment and worth 70% of your total mark for FIT5147.

Relevant learning outcomes for FIT5147:
1. Perform exploratory data analysis using a range of visualisation tools;
5. Choose an appropriate data visualisation;
6. Implement interactive data visualisations using python, R and other tools.

Details of task:

- **Stage 1**: Identify project (Purpose and data source)
  Get approval from tutor [Week 1]
- **Stage 2:** Collect data and wrangle it into a suitable form for analysis using whatever tools you like
- **Stage 3:** Explore the data to find something interesting using Tableau or R and decide what you wish to communicate; Exploration should use appropriate visualization and statistical tests.
  Interim Project Presentation to the tutorial class [Week 8]
- **Stage 4**: Design a narrative visualisation to communicate your findings to the intended audience. It should allow some viewer interaction and be designed using the five sheet design methodology.
- **Stage 5**: Implement your visualisation in R or D3 as a web-based presentation
- **Stage 6**:
  Final Project Presentation to the tutorial class [Week 12]
  Submit final report and source code for visualisation [Start Exams]

Report & Final Product: At the start of the Exam Period you need to submit (through Moodle) a directory containing the implementation code for your narrative visualization together with a written report of no more than 25 pages that contains

1. Problem description and motivation
2. Description of the data wrangling process and what cleaning/transformations you needed to do.
3. Description of the data exploration process with details of the statistical tests and visualisations you used and what you discovered.
4. Precise description of what message you wanted your narrative visualisation to convey and who the intended audience is.
5. Description of the visualization design process including the 5 design sheets detailing the alternatives you considered and the reasons for choosing your final design.
6. Description of the implementation and reasons for the implementation decisions for your narrative visualisation.
7. Instructions for viewing and exploring the narrative visualisation using a standard web browser.

8. A conclusion summarising what you achieved and a reflection on what you learnt in this project and what in hindsight you might have done differently
9. Appropriate references and bibliography

Your report should contain images of visualisations used for exploration, alternative designs for the narrative visualisation as well as the final design.

Marking Rubric (70%)

Overview

- Data collection and wrangling [5%]
- Data exploration [20%]
- Interim project presentation (oral) [5%]
- Interactive narrative visualisation (communicating results) [25%]
- Final project presentation (oral) [5%]
- Written report [10%]

More detailed breakdown

Data collection and wrangling [5%]
/2 Appropriate checking for errors in data
/1 Managed to get data into R or Tableau
/2 Difficulty (e.g. non-tabular data, significant wrangling/cleaning required, large dataset, multiple data sets)

Data exploration [20%]
/5 Completeness/thoroughness
/5 Use of appropriate visualisations and/or statistical measures
/5 identification of trends or patterns etc and clearly articulated message for interactive narrative visualisation
/5 Difficulty

Interim project presentation (oral) [5%]
/1 Quality of oral presentation (confidence, speed, voice)
/1 Quality of slides (legibility, design, images etc)
/1 Logical structure
/2 Choice of content (completeness, appropriate level, motivation, exploration, clear message for visualisation)

Interactive narrative visualisation (communicating results) [25%]
/5 Appropriate use of five design sheet methodology
/10 Quality of design, clear signposting of messages, provision of appropriate context for reader, references to data sources and appropriateness for intended audience
/5 Quality of implementation, robustness, comments and code quality
/5 Difficulty

Final project presentation (oral) [5%]
/1 Quality of oral presentation (confidence, speed, voice)
/1 Quality of slides (legibility, design, images etc)
/1 Logical structure

/2 Choice of content (completeness, appropriate level, discussion of design and implementation alternatives)

Written report [10%]
/4 Quality of writing, referencing, images, logical structure
/6 Completeness

- Problem description and motivation
- Description of the data wrangling process and what cleaning/transformations you needed to do.
- Description of the data exploration process with details of the tests and visualisations you used and what you discovered.
- Precise description of the message you wanted your narrative visualisation to convey and who the intended audience is.
- Description of the visualization design process including the 5 design sheets detailing the alternatives you considered and the reasons for choosing your final design.
- Description of the implementation and reasons for the implementation decisions for your narrative visualisation.
- Instructions for viewing and exploring the narrative visualisation using a standard web browser.
- A conclusion summarising what you achieved and also a reflection what you learnt in this project and what in hindsight you might have done differently

Due dates:
Interim oral presentation in Week 8;
Final oral presentation in Week 12;
Project report and visualization due 12/6/17