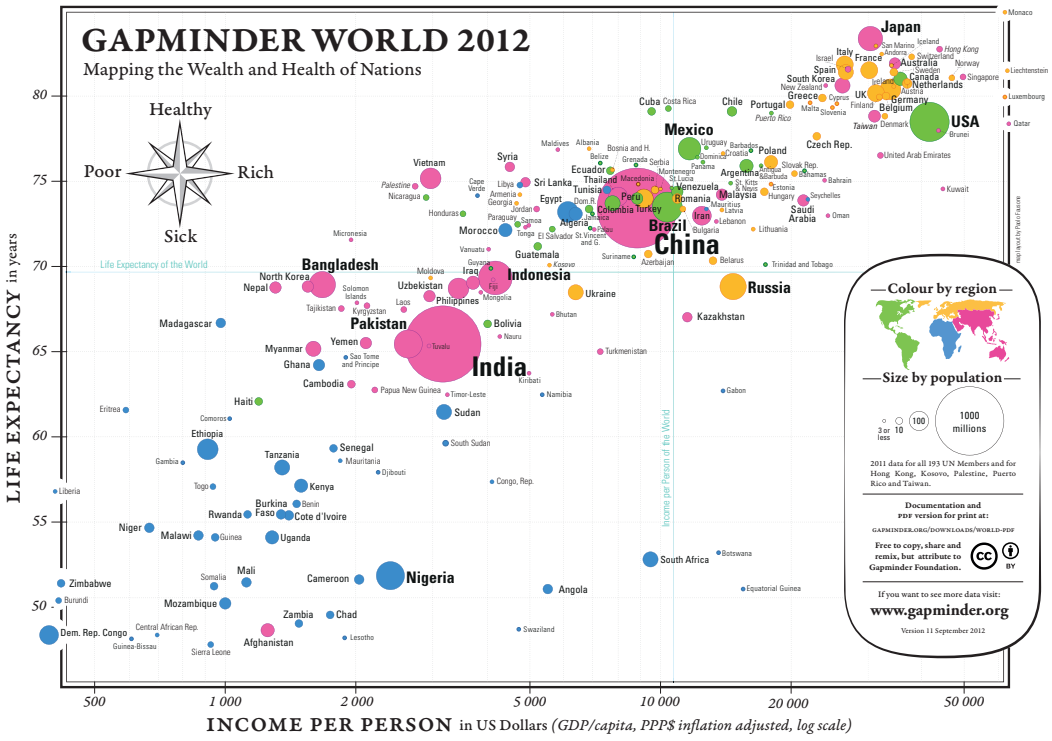
COMP40610 Information Visualisation Assignment:
Channelling Hans!

Semester 1 2018-2019

Description

Hans Rosling is a data visualisation legend. His 2006 TED talk, The Best Stats You've Ever Seen, is one of the most viewed videos on the TED website (http://bit.ly/2doLzAY). An updated interactive version of the GapMinder World visualisation used in that demo is available at www.gapminder.org/tools. A poster of the visualisation is reproduced below. In this assignment we will create an information visualisations that is an homage to Hans Rosling.



Source: http://www.gapminder.org/GapminderMedia/wp-uploads/Gapminder-World-2012.pdf

Part 1 – Channelling Hans

In this assignment you must create the a visualisation similar to the GapMinder World visualisation using d3.js. Your visualisation should be based on the World Economic Forum Global Competitiveness Report (http://reports.weforum.org/global-competitiveness-index-2017-2018/).

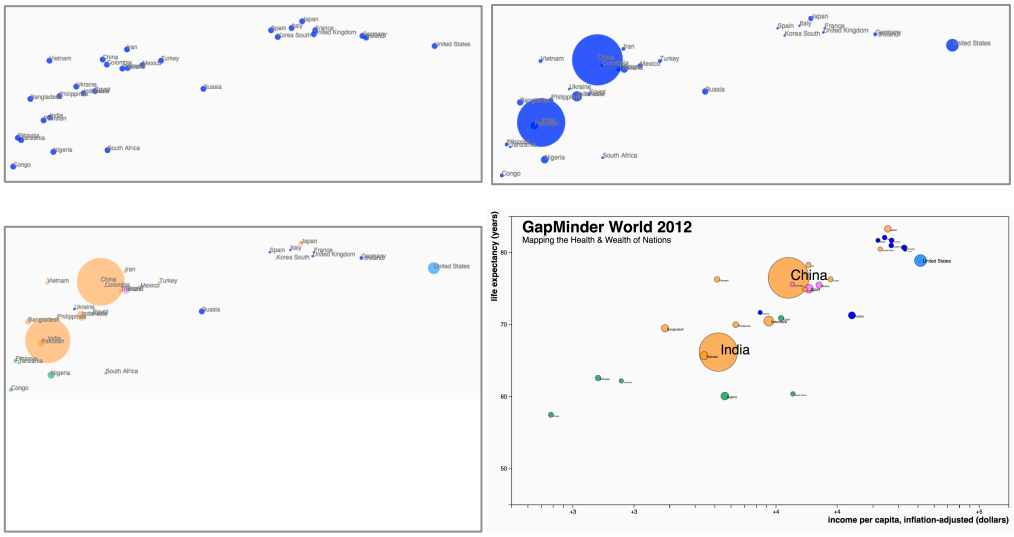
Your visualisation does not need to be an exact replica of the GapMinder version but should include the following:

- A bubble plot representing the countries of the world
    - Countries of the world described by GDP and Global Competitive Index mapped to x and y axis position
    - The population of each country mapped to bubble area
- Appropriate labels and axes
- Appropriate use of colour
- Country name labels
- Ability to view data for a particular year
- Ability to animate the change in country statistics from year to year (2008 – 2017)

The data required to drive this visualisation is available in the file **GCI_CompleteData2.csv**. The fields in this file are as follows:

- Country: The country name
- Year: The year for this data observation
- Population: The population of the country in this year
- GDP: Average GDP in inflation adjusted dollars
- 1st_pillar_Institutions
- 2nd_pillar_Infrastructure
- 3rd_pillar_Macroeconomic_environment
- 4th_pillar_Health_and_primary_education
- 5th_pillar_Higher_education_and_training
- 6th_pillar_Goods_market_efficiency
- 7th_pillar_Labor_market_efficiency
- 8th_pillar_Financial_market_development
- 9th_pillar_Technological_readiness
- 10th_pillar_Market_size
- 11th_pillar_Business_sophistication
- 12th_pillar_Innovation
- Global_Competitiveness_Index
- Income group: IMF defined ecnomoic group
- Region: The region in which the country belongs (similar to continent)
- Forum classification: Another region grouping

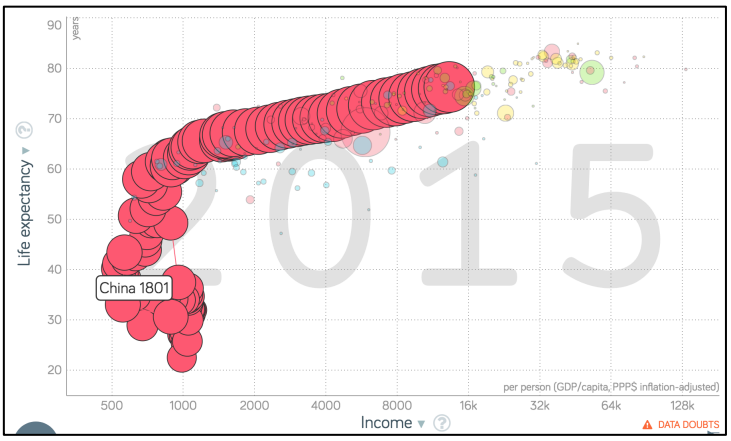
Hint: It is recommended that you build your final visualisation in a series of simple steps, for example those shown below. Consider making a simp;lified version of the dataset with just a few countries and a few years that may be useful for testing.



Part 2 – Extending Hans

In this assignment you must add three extra features to the GapMinder Visualisation created in Part 1.

- Add a control which allows the journey of a country to be seen as a trace of positions in the scatter plot in a static visualisation rather than animated. The screenshot below shows what this might look like for China.
  Hint: Think about using transparency to achieve this and the most appropriate control to use.



- Add an extra connected visualisation that shows the individual pillars of the Global Competitiveness Index for a selected country. You need to design an appropriate solution to the challenge of making this multi-variate visualisation. This visualisation should update as the year is changed.
  Hint: Think about using an extra SVG canvases rather than trying to include all visualisations on a single canvas.

- Modify the solution designed for the previous part so that the individual components of the competitiveness index for two selected countries can be compared.

Submission

Submission details:

- **Submission date:** Wednesday 5th December 2018 before 23:59
- **Submission method:** Submissions should be made through the module Moodle site
- **Teams:** This assignment can be performed individually or in a team of at most 3 people.
- **Submission format:** Submissions should include
  - The html files and data files required to run your visualisation or a link to a live working version of your visualisation
  - A short .txt file that explains the key features of the visualisation and the design rationale for the multi-variate visualisation. This document should not be more than 500 words.
- **Late submissions:** Late submissions will be penalised at 5% per day.

Marking

This assignment can be completed by students on their own, or in a group of no more than three. Students in groups will receive the same mark, however, proof that both students in a group worked on the project may be sought.

- **Part 1 (60% of assignment)** will be marked as follows:

20%	A bubble plot representing the countries of the world
10%	Appropriate labels and axes
10%	Appropriate use of colour
5%	Country name labels
20%	Ability to view data for a selected year (2007 – 2017)
20%	Ability to start and stop a continuous animation of the change in country statistics from year to year (2007 – 2017)
10%	Well designed transitions
5%	Readable, well commented, quality code

- **Part 2 (40% of assignment)** will be marked using the following categories:

30%	Well implemented trails control
40%	Well designed and implemented multi-variate visualisation solution
30%	Well designed and implemented comparison of two countries