Information Visualisation *Channelling Hans!*

Michael McNulty

Romain Ducarrouge

**Task 1**

**Objective**

The objective of the visualization is to provide the end user with a clean representation of how countries key metrics have evolved in the past 115 years. The visualisation presents the following information to the user:

* + **Countries**, represented as a circle
  + **Region**, encoded to a specific colour for each circle.
  + **Life Expectancy**, encoded to the y Axis of the graph.
  + **GDP** per capita, encoded to the x Axis for our graph.
  + **Population**, represented at the area of the circles.
  + **Years** are also represented on the visualisation in the background.

The user can also see the evolution of country’s situation throughout the years by selecting the country simply by hovering over the data circle with their mouse. When selecting a specific country, additional information about the country is provided such as the flag, value for GDP and Life Expectancy

**Considerations**

With regards to the dataset, we initially identified several potential issues with the appearance and disappearances of countries throughout the year. This means that during the visualisation some data points would appear later (e.g. Taiwan in 1950).

While getting to know the data we also identified the minimum and maximum values for the Life Expectancy, GDP per Capita and Population in order to understand the range of these values to generate the proper scale for axis and circumference for our bubbles.

We also made sure to include the code populating the Year in the background of the SVG element before populating the bubbles to place the text in the background.

Regarding the display of the selecting country (bubble), the approach chosen was to reduce the opacity of all the other bubbles to ‘highlight’ the selected element on mouseover events, then reverting the process when the mouseover event is over.

Another element that required some attention and discussion was regarding the size and colour of the bubble to have a palette of colour that would be aesthetically pleasing while not being too aggressive. With the same objective in mind we also analysed various combinations for the transition timer in order to modify the speed of changes between years. We determined that the current settings (and combinations of *transition()*, *ease()* and *duration()*) allows to clearly identify the situation of a country at any given year but also visualise the transition to the next year.

**Challenges**

Identifying the change in data format for the year’s values. The years start in 1900 and increase by 10 until 1950 and then we get yearly data.

Choosing between using the version 3 or 4 of D3. We decided to use the version 3 based on the examples viewed in the practical sessions and started implementing our code for the project.

As we also decided to implement a display of the country flag when selected by the user, we decided to implement a third-party API call to populate the flag. Unfortunately, our data does include the new country South Sudan (code: SS) which is not recognized by the API. This was handled by having an SVG copy of the South Sudan flag in our folder and populating the flag from the local folder when the country was selected rather than querying the API for the .*png* image.

As part of an additional layer of information we decided to add a side legend which reflects the area represented by each colour. Here we had to use the same colour scheme as for the bubbles. This meant we had to find a font colour that would be visible on all background colours for the rectangles in the legend. After some trials and errors using the following attributes: font-size, fill, paint-order, stroke, stroke-width, we realized that using these only would not allow us to have a clear legend. To fix this, we decided to use a black colour for the text and modify the opacity of the background for the one purple rectangle to deliver a clearer visual.

# What Is the Purpose of Your Visualisation? (150 words)

# What Similar Visualisations Exist? (150 words)

# Why Is Your Visualisation A Good Solution? (150 words)

# What Data Manipulation Was Required To Create Your Solution? (150 words – it is acceptable not to have required any data manipulation)

# What d3 Resources Did You Use To Create Your Visualisation? (150 words)