# Information Visualization

# CHECKPOINT IV: First Prototype

G22 - A

**1. Layout**

A screenshot of a cell phone

Description automatically generatedIn this interface we have 2 idioms and 2 sliders mechanisms. There a 2 yet to be implemented. And the blue spaces on the image on the left represent where they will be located.

The image represents the state where the project is during the 4th checkpoint.

The idioms we have implemented are the star plot and a set of scatter plot small multiples. For the slicing mechanisms we have a slider with the years, and a list with the potential health influencers. The remaining unimplemented idioms are the choropleth map, and a set of violin plot small multiples.

The data being shown is all connected so a move in one of the slicers will change the data in all the idioms, implemented and yet to be implemented as well.

From this interface we implemented only 2 idioms. The **scatter plot** and the **star plot**. In addition to the implemented idioms, we also implemented the **time slider**, a slicing mechanism and the potential **health influencer slider**.

**2. Implemented Idioms**

There are 2 idioms implemented.

1. **Scatter Plot**

**Description**:

There is 1 scatter plot per each variable of health being analysed. On the x axis we have the health factor and on the y axis we have the habit selected on the list slicer.

A picture containing screenshot

Description automatically generated A picture containing screenshot

Description automatically generated

**Interactivity**:

The scales change dynamically as we change the potential influencers. And as we mouse over any of the circles on the scatterplot, all the remaining items of the same country “light up”. This happens using a channel change in the colour to red and it gets a little bigger as well).

By using a mouse over mechanism on the circles of the scatterplot, we have a tooltip that help us understand the data on each scatterplot (as they are too small to read accurately), showing the actual values and the corresponding units.

A close up of text on a white background

Description automatically generated A screenshot of a cell phone

Description automatically generated

Changing the year slider and the health influencer slider seen in also changes the data being shown in the scatter plots.

A line representing the regression of the scatterplots will be added later on. In order to connect the two idioms, the regression line will light up as we mouse over the corresponding circle on the star plot. This is important to show the strength of the correlation, while we show the actual data.

1. **Star Plot**

**Description**:

In this plot we’ll have the correlation coefficient between each health variable and the variable selected on the factors list slider.

**Interactivity**:

By moving the year slider, this idiom changes the data shown according to the year being analysed. With the mouse over on the correlation dots we have the actual number of the correlations being displayed. This is important as it helps us get a better estimation of the relationship between variables.

A picture containing text, map

Description automatically generatedA picture containing text, map

Description automatically generated

**3. Implementation of Linking Mechanism**

We have implemented 2 views that link with the regression line. In the final version we’ll have 4 views, each of them will be influenced by the 2 sliders. All the views change according to the year and potential health influencer selected by the user. The remaining Idioms are:

The violin plots will show the distributions of each health variable and the selected variable on the slider. This is useful to understand how the distributions change along time (as the changes are animated).

And the choropleth, that has built in a zoom mechanism and shows the value of the selected factor by means of the intensity of the colour (as explained in the previous report). This is useful to understand the link between geographic location and the factors being analysed. It also makes more sense as we have a much higher number of countries in the datasets collected.

**For linking the Idioms**:

As mention previously, the linking mechanism between the scatterplot and the star plot is the regression line being highlighted when a mouse over one of the dots on the star plot is done, and vice versa.

The user can select or hover over a circle in one of the scatterplots or each section of the violin plot. This will result in the highlight of this country on the scatterplots and the choropleth map.

By selecting the country on the choropleth, every circle on the scatterplot corresponding to the selected country will be highlighted as well as thin bar on the violin plots on the place of the value of the corresponding value of the violin plot.

The Violin charts will be integrated by showing a line where the country selected is on each variable. This line will appear each time we select either the country on the choropleth or a circle on any scatterplot. This is quite important to answer questions about not only the positioning of the country on the distribution, but how it is its relationship to the remaining variables with accordance to other countries. For instance, does this country have more occurrences of cancer? If so, is that in accordance with the relationship between the average hours worked?

So, the choropleth interacts with violin plots and the scatterplots, and vice versa. The scatterplots interact with the star plot, and vice versa. The star plot does not interact directly with the violin plots nor the choropleth because its importance is to define the strength of the correlations on the scatterplot. Nevertheless, **we can start the analysis with any of the idioms**. Indirectly, al the idioms interact together as they show selected bits of information that is dynamic and completes one another.

The violin plots are not yet implemented, but a digital sketch of the visualization of the thin bar described earlier would be using a tool-tipping mechanism.

By using a mouse over mechanism, this tooltip would appear and would trigger the choropleth to highlight the location selected and the scatterplot, all the points relative to that location. Causing these 3 Idioms to be linked to each other. The 4th Idiom, the star plot, will also be linked but only with the scatterplot. As follows in this digital sketch:

