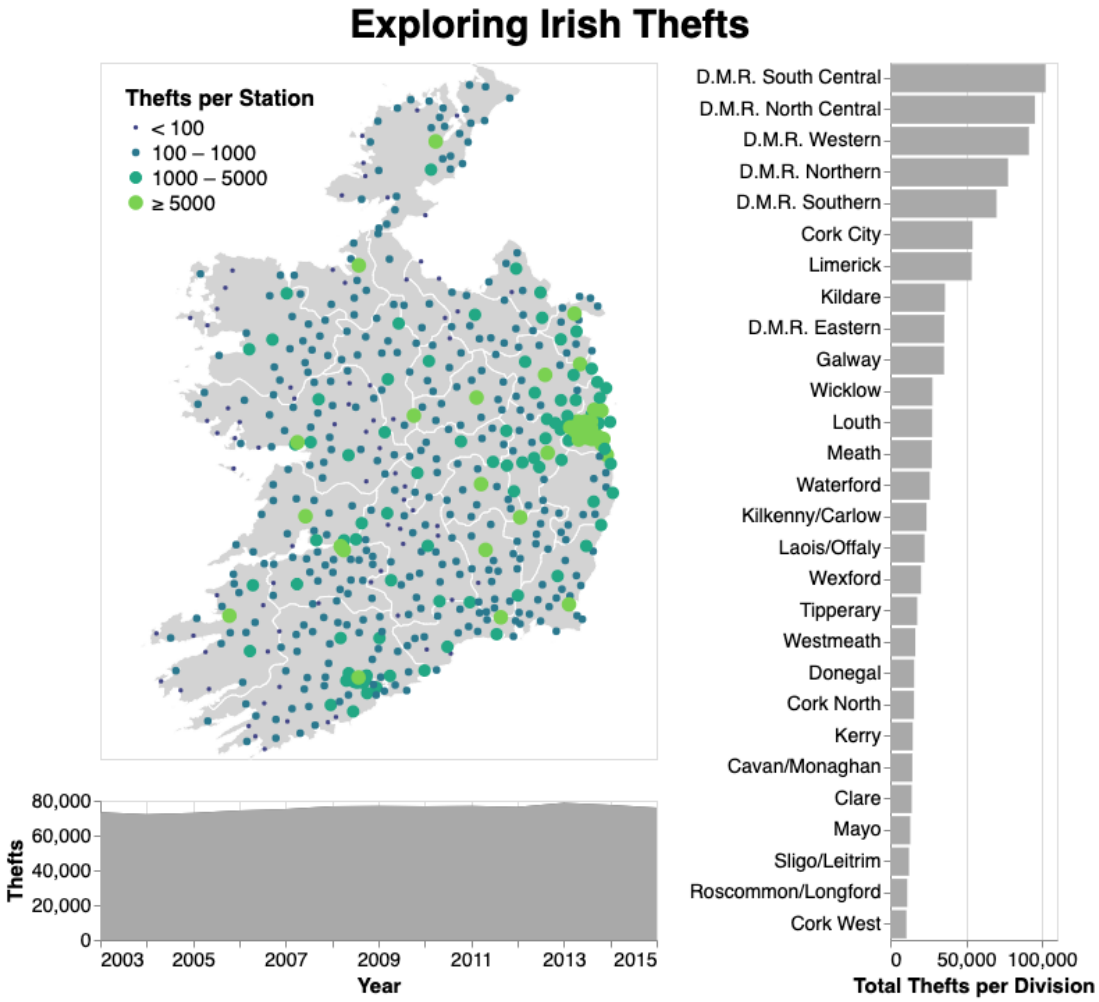
Information Visualisation

Maps & Interaction Assignment (20% of grade)

The goal of this assignment is to create an interactive 'dashboard' style visualisation to enable analysis and exploration of thefts recorded at different Garda stations in Ireland between 2003 and 2015.

The end result should look like the below:

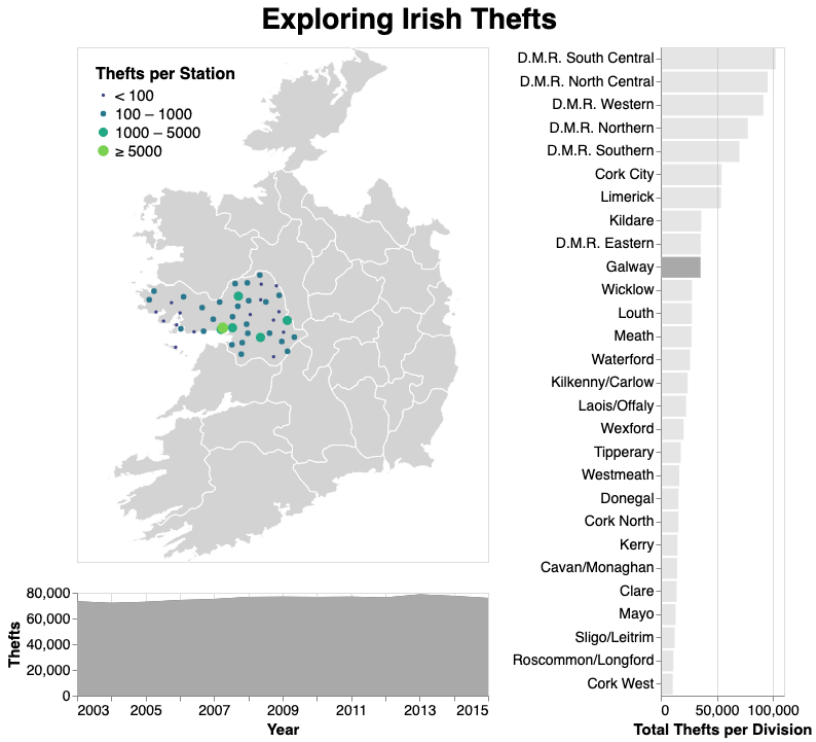


This visualisation contains three linked charts that interact with each other.

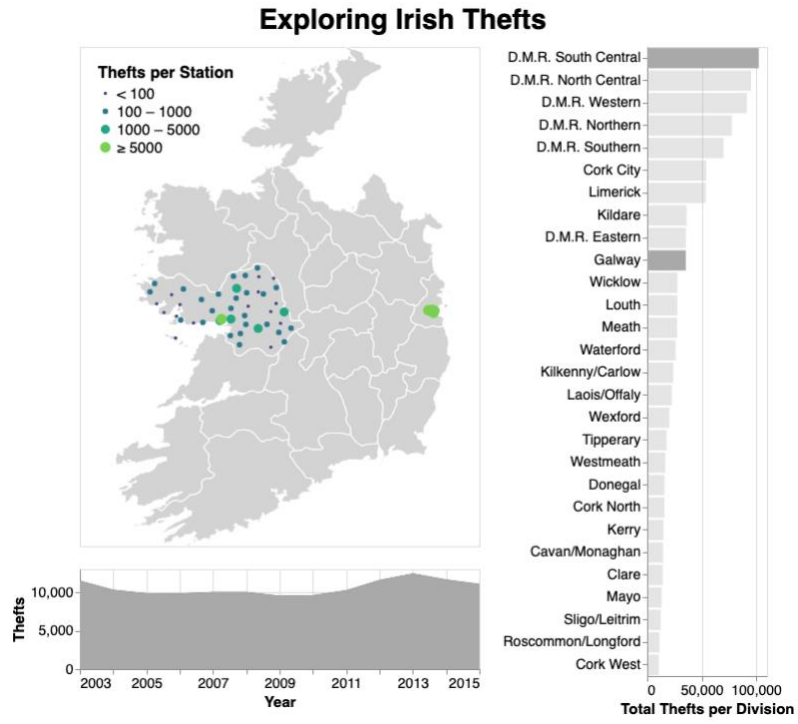
The point map shows the location of all Ireland's Garda Stations. Each point is scaled and coloured according to the total number of thefts recorded at that Garda Station. Hovering over an individual station should provide a tooltip containing the station name and the number of thefts recorded at that station.

The bar chart on the right shows the number of thefts recorded in each Division. Each Division contains multiple Garda stations. They represent geographic areas but do not map

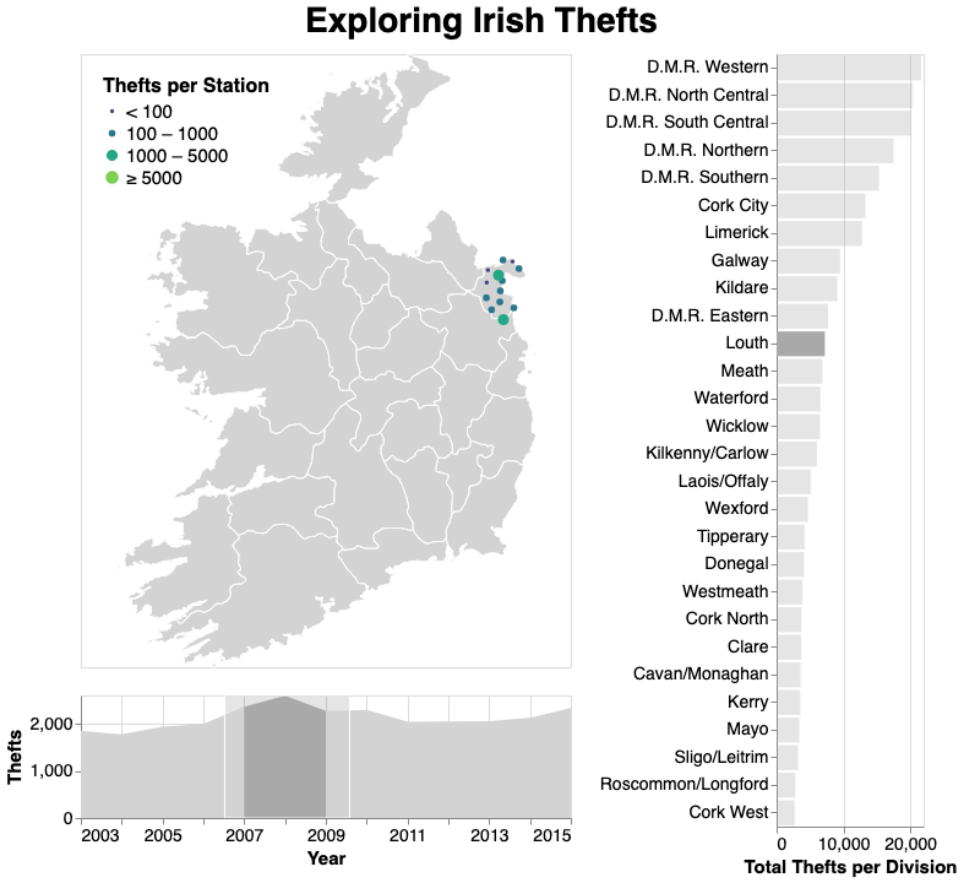
perfectly to counties – e.g. Roscommon and Longford are aggregated into one Division (Roscommon/Longford) while Dublin is split into multiple Divisions (e.g. D.M.R. Southern). Clicking on a Division on the bar chart should filter the map on the left so that only the Garda Stations from that Division are shown. This should also update the chart on the bottom of the image, e.g. selecting Galway in the bar chart should update the visualisation as below:



It should be possible to select multiple Divisions using the bar chart as below:



The chart at the bottom of the image is an area chart that shows the frequency of thefts across different years. This should allow a brush selection so that it is possible to select thefts recorded within a specific time range (e.g. between 2007 and 2009)



Selecting on this chart should also update the other two charts – e.g. adjusting the colour/scale of the points on the map according to the frequency of thefts recorded within the selected time range, adjusting the data used to generate the bar chart.

It should be possible to use both interactions together – e.g. to select only Thefts recorded in stations in Louth between 2007 and 2009 (as above).

A video demonstrating all of the interactive features is available on Brightspace.

This visualisation uses the topoJSON Irish county map file we used in Lab 4 and a dataset on Ireland's Garda Stations made available by the All Ireland Research Observatory. The visualisation is designed to use much of the Vega-Lite functionality we have learned in class including view composition (e.g. hconcate, layer), interactions and selections, and geographic data visualisation.

Marks will be given for correct implementation of each individual chart (the map, area chart and bar chart) along with the correct coordinated interaction between them. Mark breakdown is as follows:

Map 30%
Barchart 20%
Area Chart 20%
Interaction & Coordination 30%

Please submit a single json file containing your Vega-Lite specification.

The filename should include your name and student number – e.g. ColmRyan_1234_garda_thefts.vl.json

Should you need to wish to add a text explanation of any limitations please do so in the specification using the ‘description’ property.