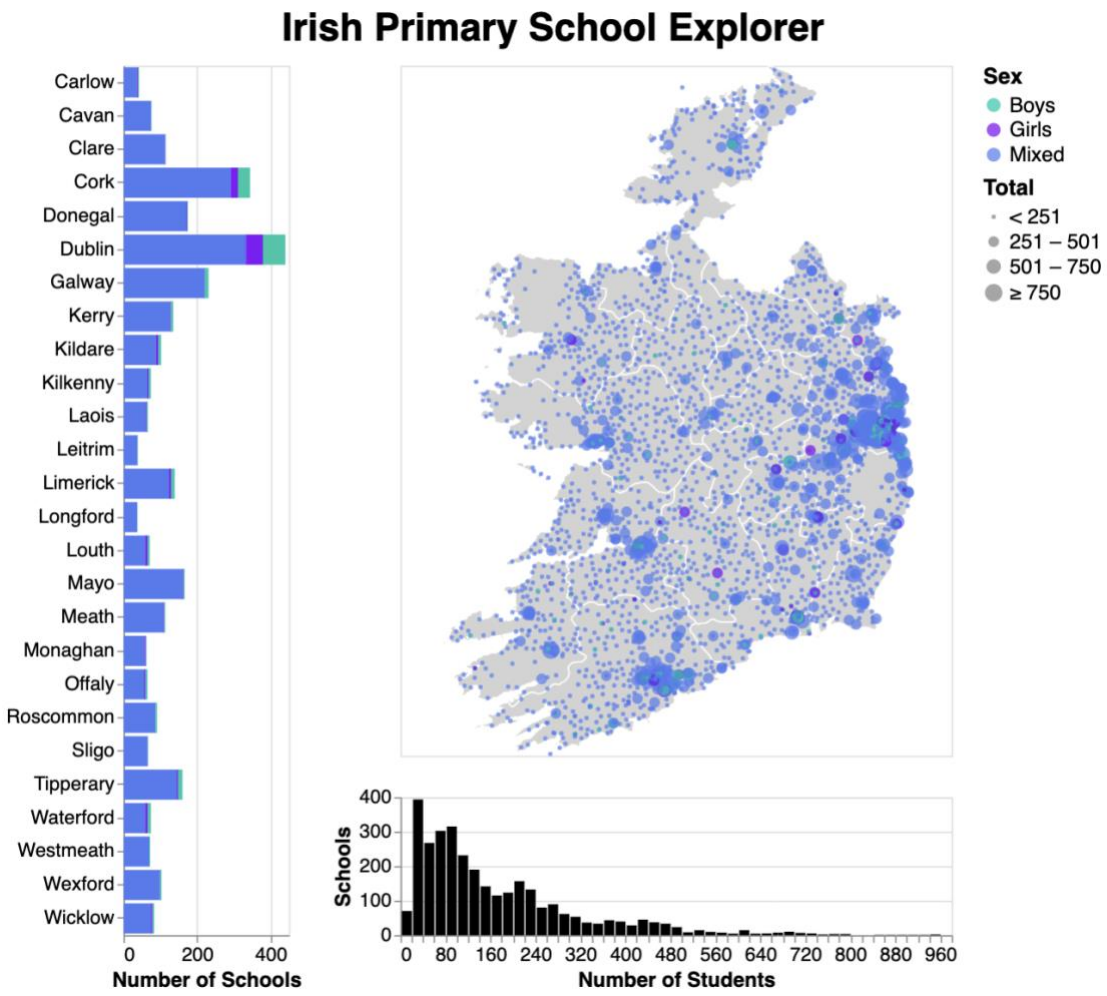
Information Visualisation

Maps & Interaction Assignment (25% of grade)

The goal of this assignment is to create an interactive 'dashboard' style visualisation to enable analysis and exploration of Ireland's primary schools.

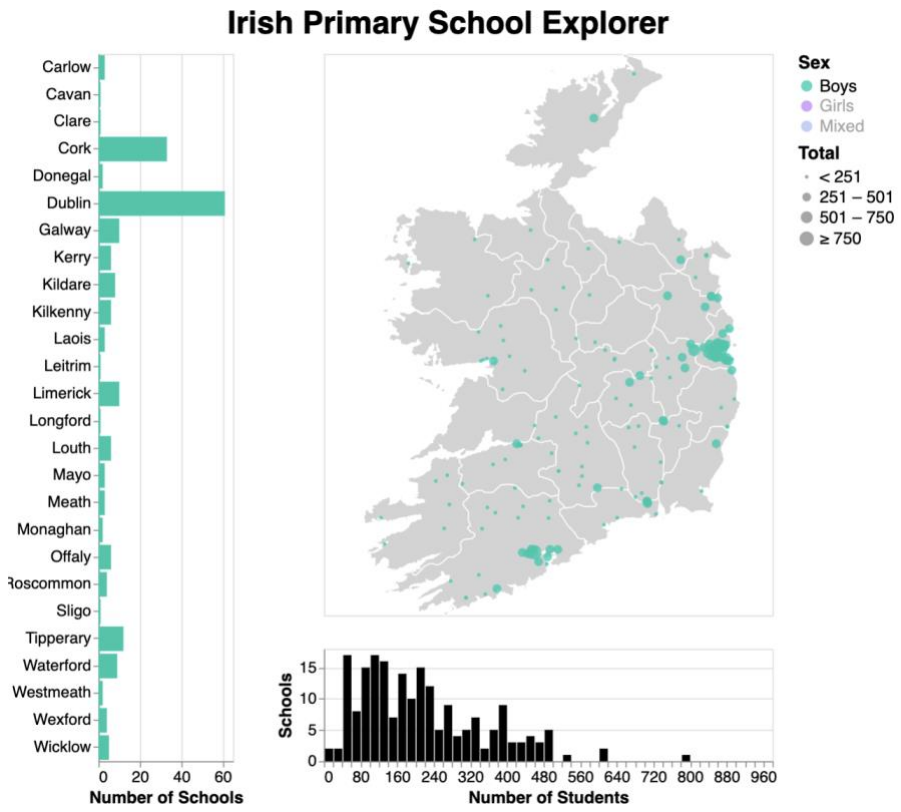
The end result should look like the below:



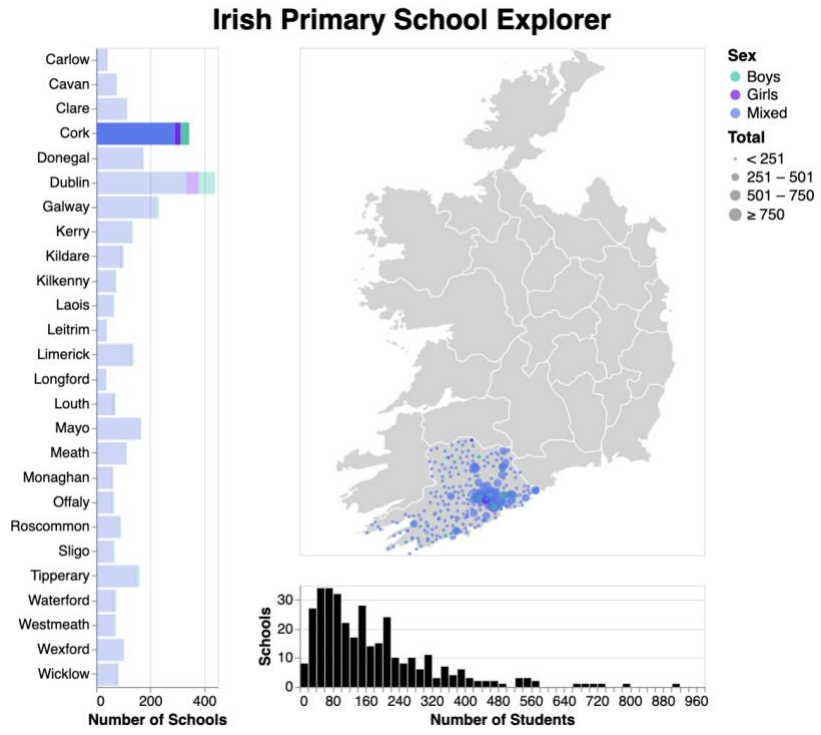
This visualisation contains three linked charts that all interact with each other.

The point map shows the location of all Ireland's primary schools. Each point is scaled according to the total number of students in the school and coloured according to the sex of the school (all boys, all girls, mixed).

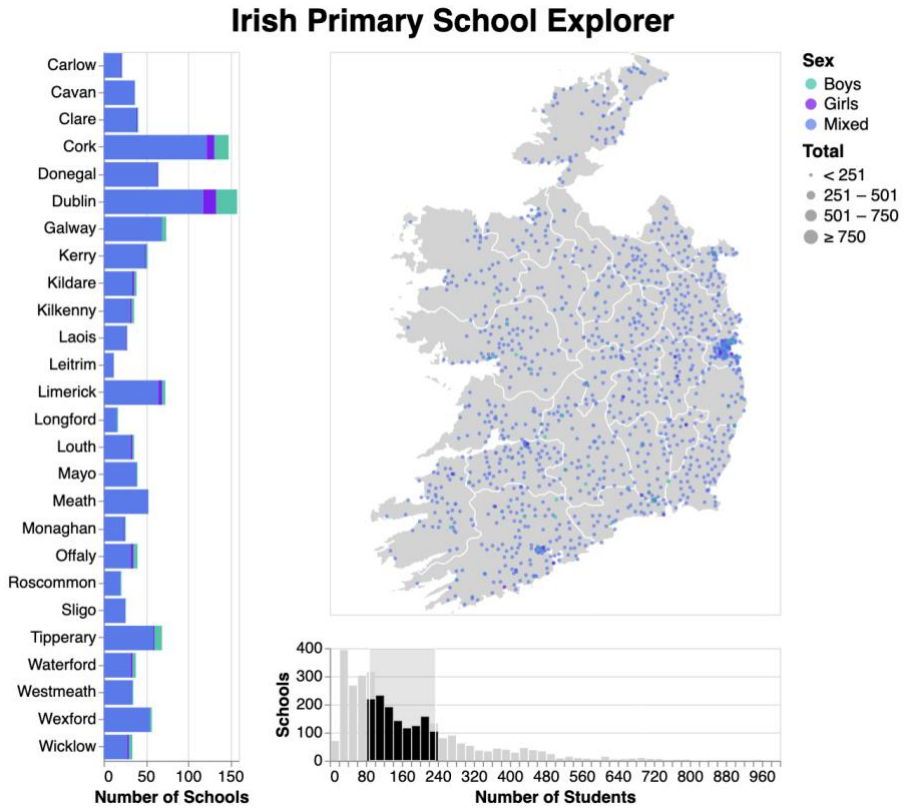
Clicking on the legend allows filtering to show only one type of school (e.g. boys' schools only). This is reflected both on the map and the two other charts, as in the below:



The bar chart on the left shows the number of schools in each county. This is a stacked bar chart using the same color scheme as the map to indicate the sex of the school. Clicking on a county on the bar chart should filter the map on the right so that only schools from that county are shown. This should also update the chart on the bottom of the image. E.g. selecting Cork in the bar chart should update the visualisation as below:

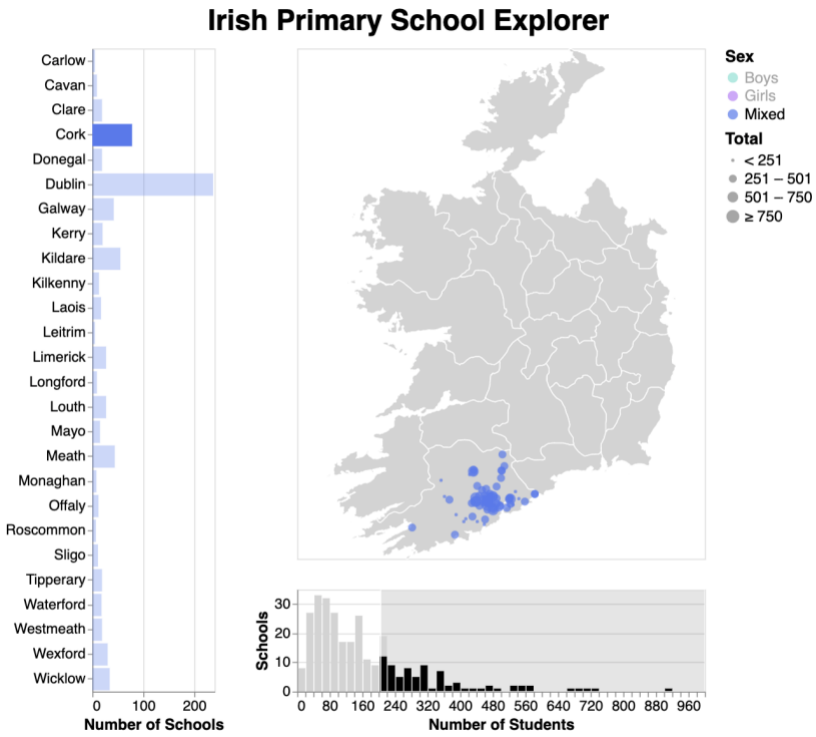


The chart at the bottom of the image is a histogram that shows the distribution of school sizes (in terms of student numbers). This should allow a brush selection so that it is possible to select schools with a certain enrolment range (e.g. between 80-240 students as below) :



Selecting on this chart should also update the other two charts – e.g. hiding the points on the map corresponding to schools with an enrolment outside the selected range and adjusting the data used to generate the bar chart.

It should be possible to use all interactions together – e.g. to select only mixed schools in Cork with more than 200 students as below:



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 primary schools 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, histogram and bar chart) along with the correct coordinated interaction between them. Mark breakdown is as follows:

Map 30%
Barchart 15%
Histogram 25%
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_primaryschools.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.