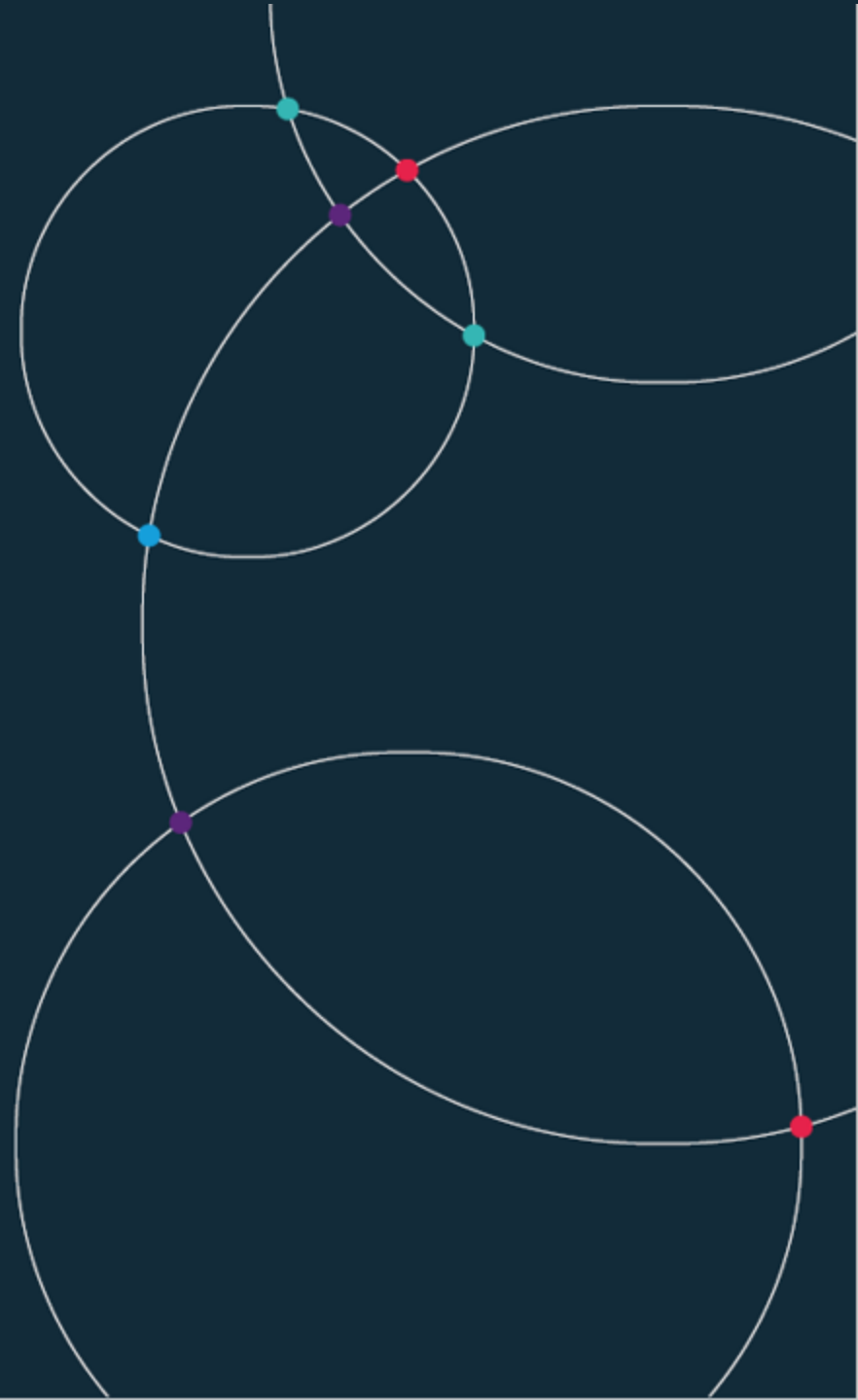


Automated Data Visual for Policymaking.

Session 9
Seminar



Resources.

Places to find, and share

Resource 1: my site:

www.richarddavies.io/data-science

Resource 2: chart library.

www.richarddavies.io/library

Resource 3: course Google sheet.

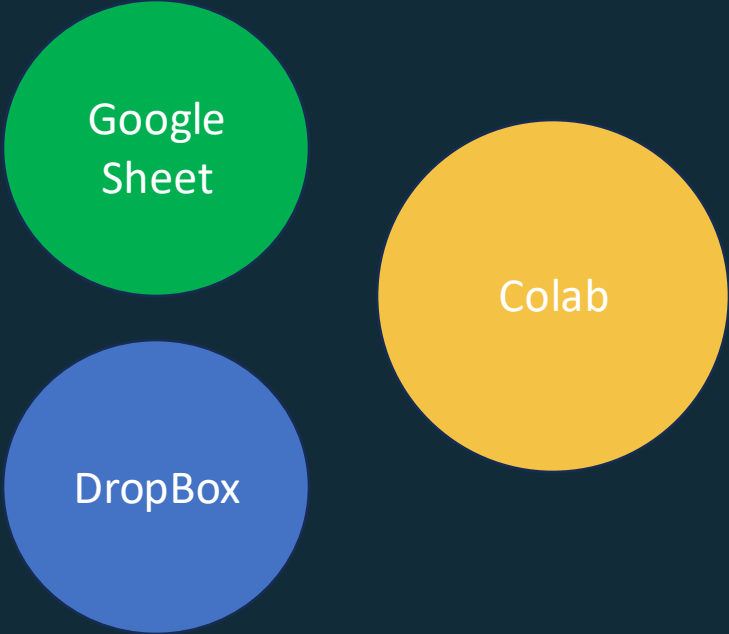
Google sheet. [Link](#).

Resource 4: course DropBox.

DropBox. [Link](#).

Resource 5: Playfair Prize

www.playfairprize.com



Google
Sheet

Colab

DropBox

Another recap session

Last week's loops session is now on Dropbox.

What would be useful to cover?

Resources.

Places to find, and share

Attendance



Google
Sheet

Week 9. Reminders

Reminder: Office hours.

- Richard: Thursday, 14:10-15:00 (CBG 5.02 - book on Student Hub)
- Josh: Monday, 15:00-16:00 (CBG 5.30 – drop in)
- Finn: Tuesday, 10:30-11:30 (CBG 5.30 – drop in)
- Hannah: Wednesday, 15:00-16:00 (CBG 5.30 – drop in)

Reminder: Portfolio tasks

These are set each week and make up 20% of your grade. They can be found in the course DropBox. The file is [here](#)

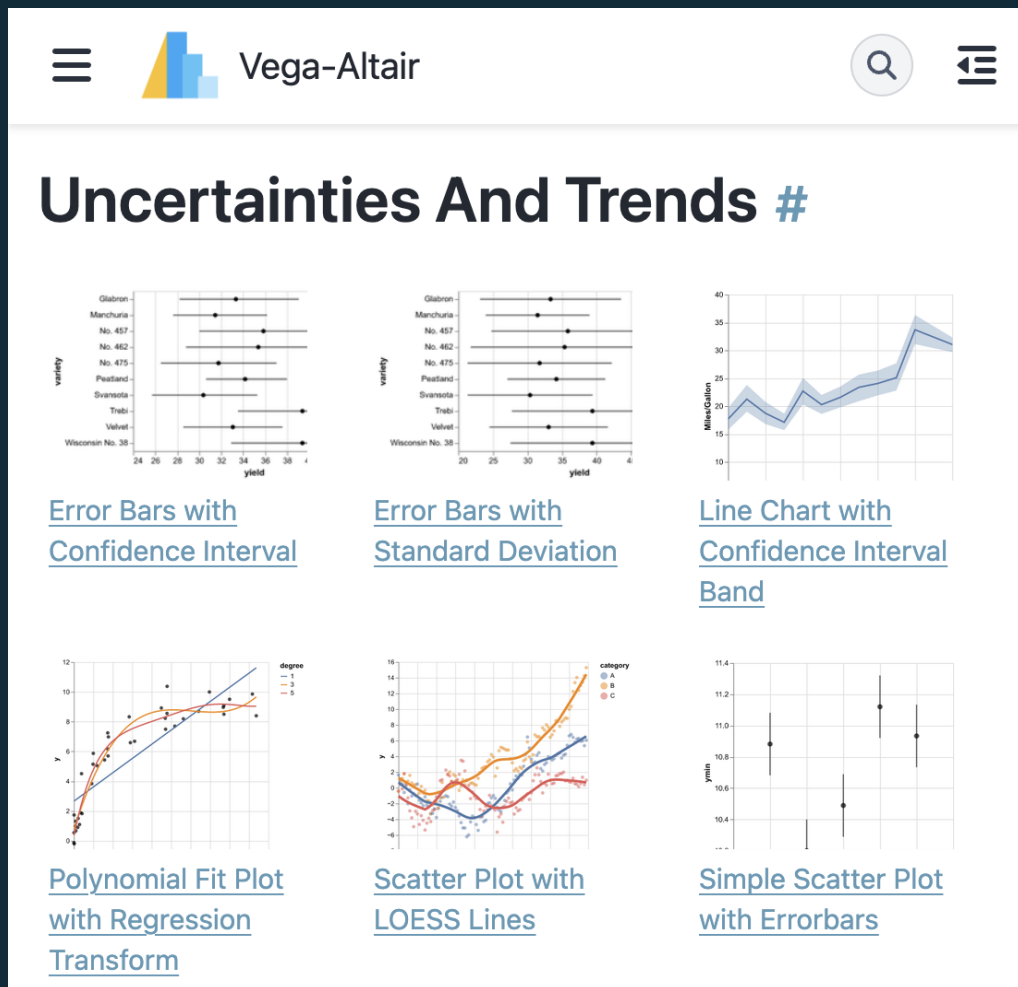
Portfolio Task – CC9

Produce **two charts** that include interactivity.

The simplest interactivity we discussed—tooltip, and simple colour selection—do not count.

It could be a slider, drop-down box, clickable legend. Or any other form of interactivity that allows the user to better understand your data.

Uncertainty.



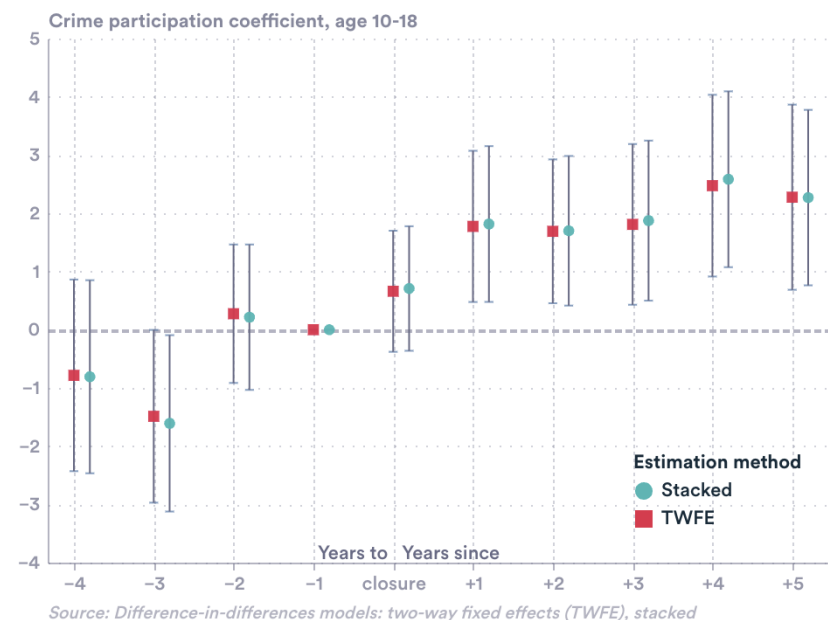
Remember to check the [Vega-Lite](#) and [Altair](#) documentation for guides and examples

Examples: [Altair](#)

Uncertainty.

Error bands: using layers

Figure 1: Youth offending rates before and after closures



Source: Data on youth clubs created from Freedom of Information (FOI) data, crime records from the London Metropolitan Police.

Note: Event study of youth offending rates, defined as the proportion of minors aged 10-18 who commit crimes over total resident minors in years before and after youth club closures (from [Villa, 2024](#)). The bars show confidence intervals at the 95% confidence level from MSOA-level clustered standard errors.

What are the effects of youth club closures in the UK?

The widespread closing of youth clubs during the 2010s, driven by government austerity measures, led to falling educational performance and increasing rates of youth offending. The long-term financial implications – through reduced lifetime earnings and higher crime-related costs – are also stark.

Economics Observatory ([Dec 2024](#))

DiD study estimating effects of youth club closures on crime participation, using two methods.

- Compares residents in areas affected by closures with those from unaffected areas.
- Treated blocks are those where nearby youth clubs closed, while control blocks are those where nearby clubs remained open.

Uncertainty.

Error bands: using layers

Figure 1: Youth offending rates before and after closures



Year	Beta	CI95_upper	CI95_lower	Estimates
-4	-0.807979	0.849902	-2.465859	Stacked
-3	-1.608411	-0.093823	-3.123000	Stacked
-2	0.214727	1.463273	-1.033818	Stacked
-1	0.000000	0.000000	0.000000	Stacked
0	0.707191	1.776431	-0.362048	Stacked
1	1.814843	3.152645	0.477041	Stacked
2	1.698955	2.983380	0.414529	Stacked
3	1.873205	3.247401	0.499009	Stacked
4	2.583881	4.094070	1.073692	Stacked
5	2.268752	3.775415	0.762088	Stacked

Table of results with measures of uncertainty (e.g. 95% confidence intervals) in separate columns

How to chart the results?

1. Point layer showing central estimate (coefficient) y encoding "Beta"
2. Error bar layer with y and y2 encoding for lower and upper CI band.
3. (If we want to show both estimation methods, we can use a xOffset encoding)

Uncertainty.

Vega-Lite's built-in aggregation

- Data can be aggregated to a summary statistic:
 - Mean
 - Sum
 - Median
- Error bands are calculated in a second layer
 - Specify the uncertainty calculation:
 - Confidence interval
 - Standard error
 - Interquartile range
 - Specify how the uncertainty is displayed:
 - Error bars
 - Box plot
 - Area

Name	Miles_per_Gallon	Cylinders	Displacement	Horsepower	Weight_in_lbs	Acceleration	Year	Origin	year_Year	year_Year_end
"chevrolet chevelle malibu"	18	8	307	130	3504	12	0	"USA"	Wed, 31 Dec 1969 23:00:00 GMT	Thu, 31 Dec 1970 23:00:00 GMT
"buick skylark 320"	15	8	350	165	3693	11.5	0	"USA"	Wed, 31 Dec 1969 23:00:00 GMT	Thu, 31 Dec 1970 23:00:00 GMT
"plymouth satellite"	18	8	318	150	3436	11	0	"USA"	Wed, 31 Dec 1969 23:00:00 GMT	Thu, 31 Dec 1970 23:00:00 GMT

