

# Exercise 4: UK Car Accidents

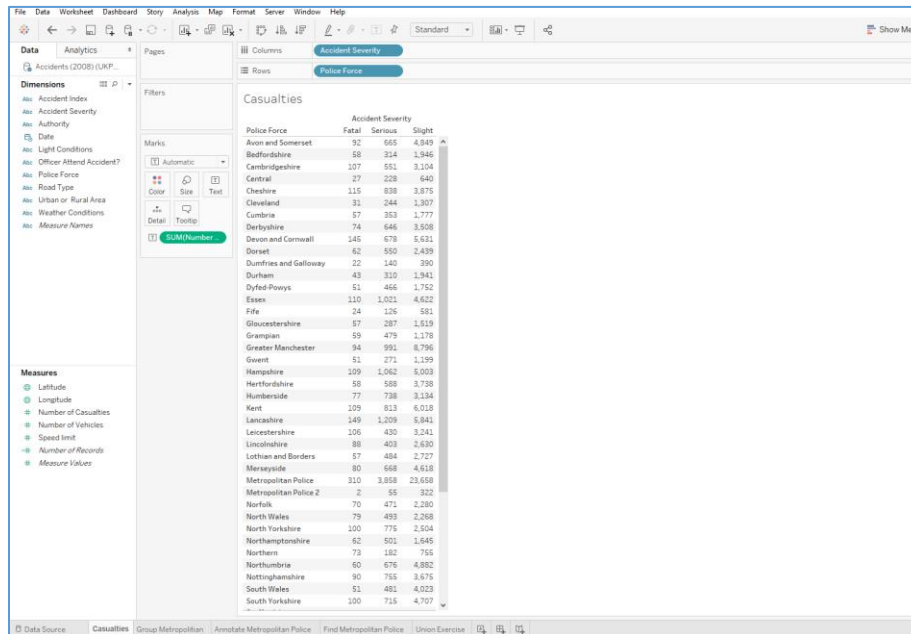
## Data Manipulation

### Objectives

1. Perform a simple sort
2. Create an easy group
3. Create a custom annotation
4. Perform a Union (Extra Credit)

### Simple Sort

1. Open the Tableau starter workbook called **Exercise 4 UK Car Accidents** in the Exercise Starter Workbooks folder. Let's create a table that shows the number of casualties per accident severity in each Police Force district.
2. Drag **Police Force** from the Dimensions Pane to the Rows shelf and **Accident Severity** to the Columns Shelf. Double-click on **Number of Casualties** from the Measures Pane to populate the table.



The screenshot shows the Tableau interface with a pivot table titled 'Casualties'. The table displays the number of casualties for each Police Force district, categorized by Accident Severity (Fatal, Serious, Slight).

Police Force	Fatal	Serious	Slight
Avon and Somerset	32	465	4,949
Bedfordshire	58	314	1,946
Cambridgeshire	107	551	3,104
Central	27	228	640
Cheshire	115	838	3,875
Cleveland	31	244	1,307
Cumbria	57	353	1,777
Derbyshire	74	646	3,508
Devon and Cornwall	145	678	5,521
Dorset	42	550	2,439
Dumfries and Galloway	22	140	390
Durham	43	310	1,941
Dyfed-Powys	51	466	1,752
Essex	110	1,021	4,622
Fife	24	126	581
Gloucestershire	57	287	1,519
Greater London	59	479	1,178
Greater Manchester	94	991	8,796
Gwent	51	271	1,199
Hampshire	109	1,062	5,003
Hertfordshire	58	558	3,738
Humber	77	738	3,134
Kent	109	813	6,018
Lancashire	149	1,209	5,841
Leicestershire	106	430	3,241
Lincolnshire	88	603	2,920
Lothian and Borders	57	484	2,727
Merseyside	80	668	4,618
Metropolitan Police	310	3,858	23,658
Metropolitan Police 2	2	56	322
Norfolk	70	471	2,280
North Wales	79	493	2,268
North Yorkshire	100	775	2,504
Northamptonshire	42	501	1,645
Northants	73	182	755
Northumbria	60	676	4,882
Nottinghamshire	90	755	3,675
South Wales	51	482	4,023
South Yorkshire	100	715	4,707



Notice that Tableau automatically sorts the data in alphabetical order by Police Force. How might adding a color palette make this table more readable?

- Click on the Text icon next to SUM(Number of Records) and select **Color** to apply a color spectrum palette.
- Perform a quick sort on the **Slight** column by clicking the sort icon in the menu bar to order the Police Force field in descending order.

Police Force	Fatal	Serious	Slight
Metropolitan Police	310	3,859	23,558
West Midlands	92	1,217	9,482
Greater Manchester	94	991	9,796
West Yorkshire	116	1,377	7,935
Thames Valley	173	1,128	7,202
Lancashire	149	1,209	5,941
Kent	109	813	6,028
Devon and Cornwall	145	678	5,631
Sussex	142	1,256	4,851
Strathclyde	142	1,225	4,878
Hampshire	109	1,462	5,003
Surrey	92	652	5,195
Essex	110	1,021	4,622
Northumbria	60	676	4,882
Avon and Somerset	92	665	4,989
South Yorkshire	100	715	4,707
Merseyside	80	668	4,628
Cheshire	115	838	3,876
South Wales	51	481	4,023
Nottinghamshire	90	755	3,675
Staffordshire	148	365	3,986
Hertfordshire	58	588	3,738
West Mercia	129	619	3,544
Derbyshire	74	646	3,508
Humberstone	77	738	3,134
Leicestershire	106	430	3,241
Cambridgeshire	107	551	3,104
North Yorkshire	100	775	2,504
Lothian and Borders	57	484	2,727
Lincolnshire	88	403	2,630
Dorset	62	550	2,439
North Wales	79	493	2,268
Norfolk	70	471	2,280
Suffolk	53	464	2,293
Warwickshire	70	456	1,910
Bedfordshire	58	314	1,946
Durham	43	310	1,941
Dyfed-Powys	51	466	1,752
Wiltshire	70	429	1,711

**Question 1:** Which police force has the greatest number of casualties in each Accident Severity category? \_\_\_\_\_

Does the color palette make this obvious to us or is there a better way to display the data?

### Easy Group

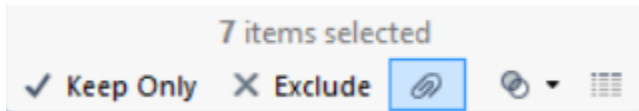
Groups combine related entries into one. Look at the visualization you just created. Are there any entries in the Police Force column that could represent the same district but may have been assigned a



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different name in the dataset? If so, perform an easy group to combine the data in those Police Force entries into a single observation.

1. In the same worksheet, select the Police Force rows in your visualization that you intend to group together (you can hold down the CTRL key to select multiple rows).
2. In the small dialogue box that appears when you hover over your selection, click on the paper-clip icon to group the entries.



Notice that Tableau has automatically added a new Dimension in the Dimensions Pane called Police Force (group).

**Question 5:** After grouping, how many Police Force districts are ranked in this visualization? \_\_\_\_\_

### Custom Annotation

1. Create a new worksheet and plot the **Number of Records** by **Police Force (group)** and change the Mark type from Automatic to **Circle**.
2. Apply a color spectrum palette to the visualization for the average speed limit per police force by dragging **Speed Limit** from the Measures Pane to the Colors shelf and changing the aggregation function to **Average**
3. Add a custom annotation by right-clicking on a mark in the visualization and selecting **Annotate** --> **Mark** in the drop-down menu.
4. Format the annotation to match the following:

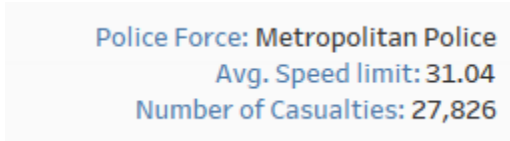
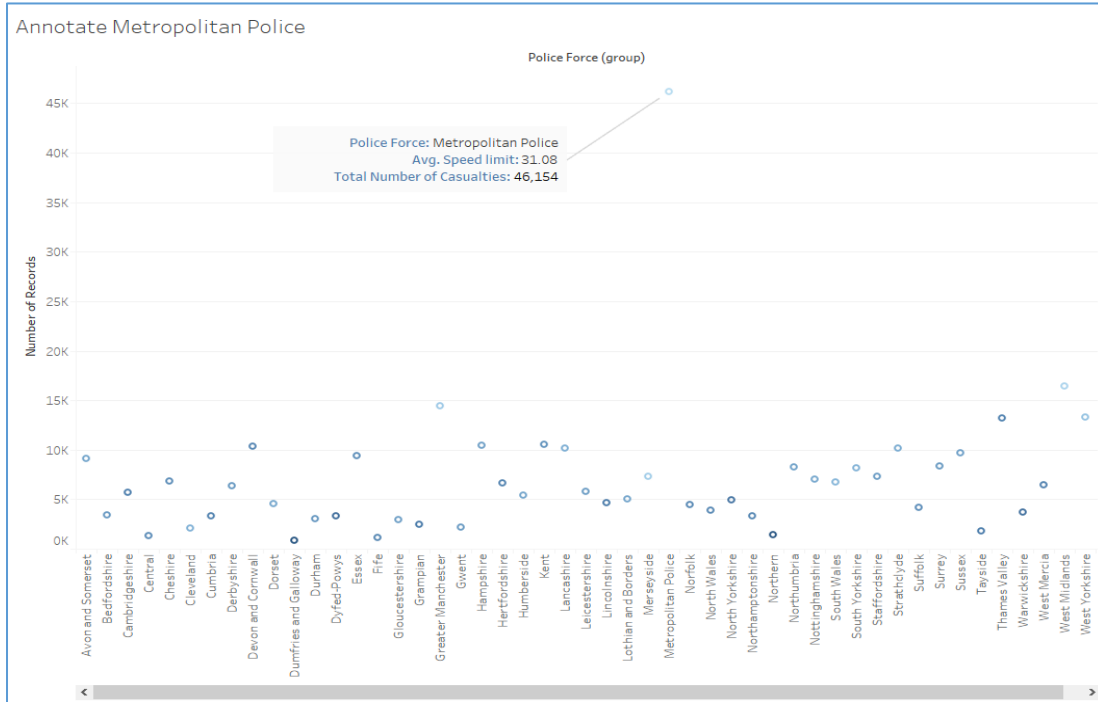


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**Question 6:** What is the average speed limit for accidents that occur in the Metropolitan Police Force?

**Question 7:** Based on this visualization what can we conclude about the reason the number of casualties in the Metropolitan Police district is so much greater than in the other districts?

## Data Unions

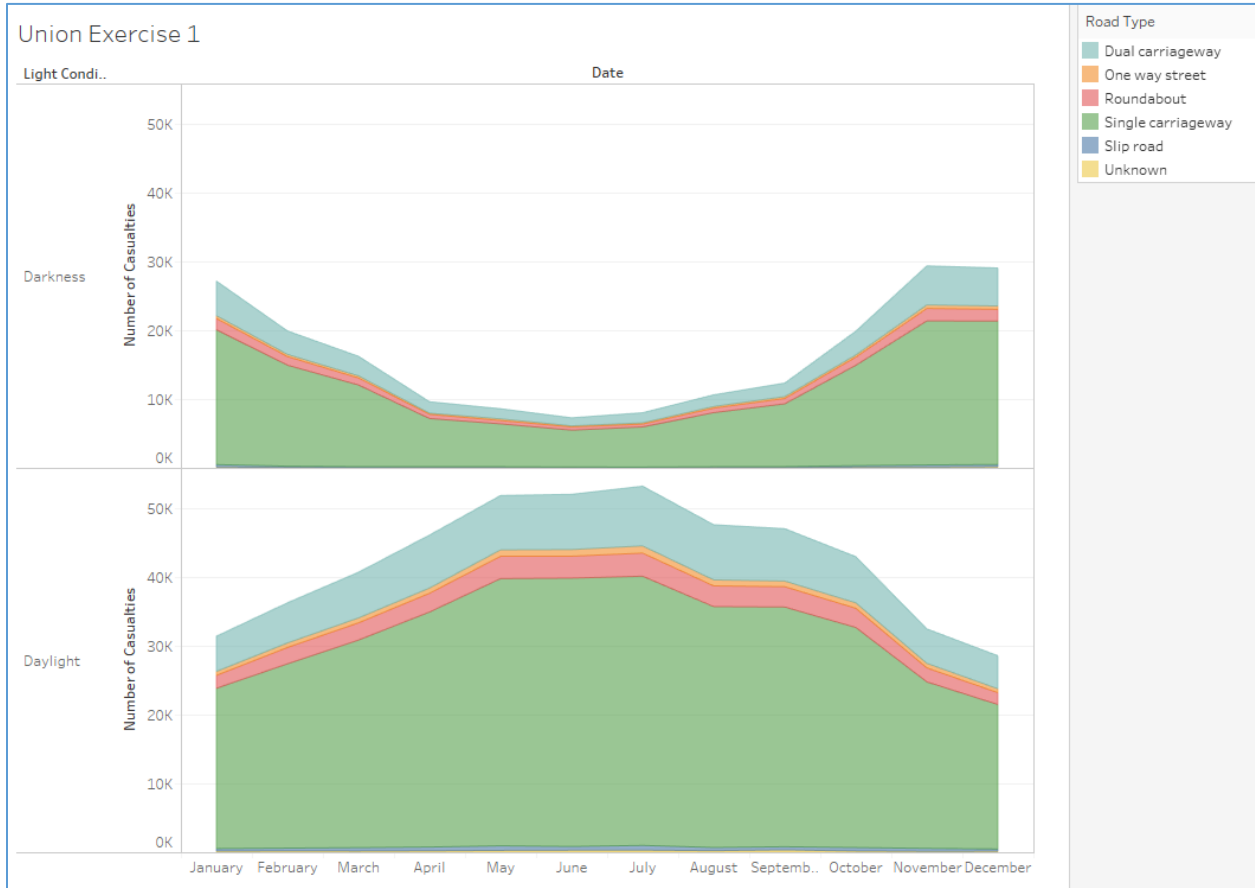
Recall that a union is the process of combining like data tables in a stacking method. Rows are appended from one table to another. Tables must come from the same connection.

1. Open a new worksheet to create an area graph that shows the Number of Casualties that occurred per month



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2. Drag **Date** from the Dimensions Pane on the Columns Shelf and drill down to **MONTH(Date)**
3. Drag **Number of Casualties** from the Measures Pane to the Rows Shelf and change the Mark Type to **Area**
4. Now add **Light Conditions** from the Dimensions Pane to the Rows Shelf to see how light conditions affect the number of casualties throughout the course of the year.
5. Drag **Road Type** from the Dimensions Pane to the Colors Shelf to compare number of casualties by road type.

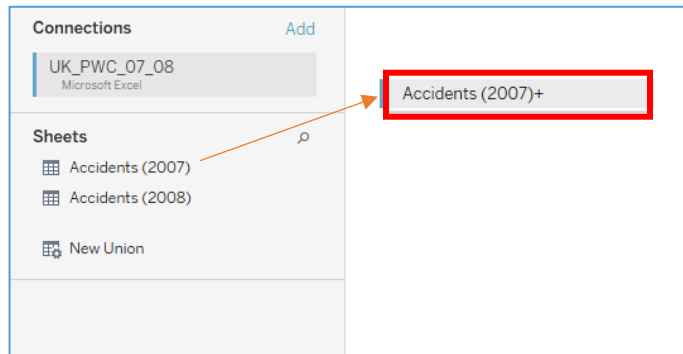


So far, we can only see the data for 2007. If we want to compare 2007 to 2008 we must perform a Union to combine the 2007 and 2008 datasets. Think about what will happen to this viz when we union the 2008 dataset.

6. Navigate to the Data Source tab to perform the Union. Simply drag the Accidents (2008) dataset and drop it underneath Accidents (2007) in the data field.



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Notice how Tableau automatically updates your viz when you perform a Union.

**Question 8:** What conclusions can you draw about the effect that Light Condition has on the Number of Casualties throughout a given year? Why? \_\_\_\_\_

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**Question 9:** What conclusions can you draw about the Number of Casualties in 2007 verses 2008? \_\_\_\_\_

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**Question 10:** What conclusions can you draw about the effect that Road Type has on the Number of Casualties? \_\_\_\_\_

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