Visualising Data

in PowerBI

Lesson Handout

# Resources

Lynda Course – *Power BI for Desktop*

<https://www.lynda.com/Power-BI-Desktop-tutorials/Learning-Microsoft-Power-BI-Desktop/688535-2.html>

## Workshop Outline

1. PowerBI in context; a data visualisation tool of ‘medium’ difficulty (Follow on with presentation).
2. Connecting to a dataset and cleaning it
3. Creating Visualisations
4. Transforming a dataset for Power BI

## About the Demonstration Data Set

The demonstration example provided with this OER is a transformed work developed from a dataset provided by the State Library of Queensland, available on a Creative Commons Attribution 3.0 Australia license, which allows others to transform and adapt it.

The original dataset:

<https://data.gov.au/dataset/slq-queensland-mining-accidents-1882-1945>

The Creative Commons Attribution 3.0 Australia license:

<https://creativecommons.org/licenses/by/3.0/au/>

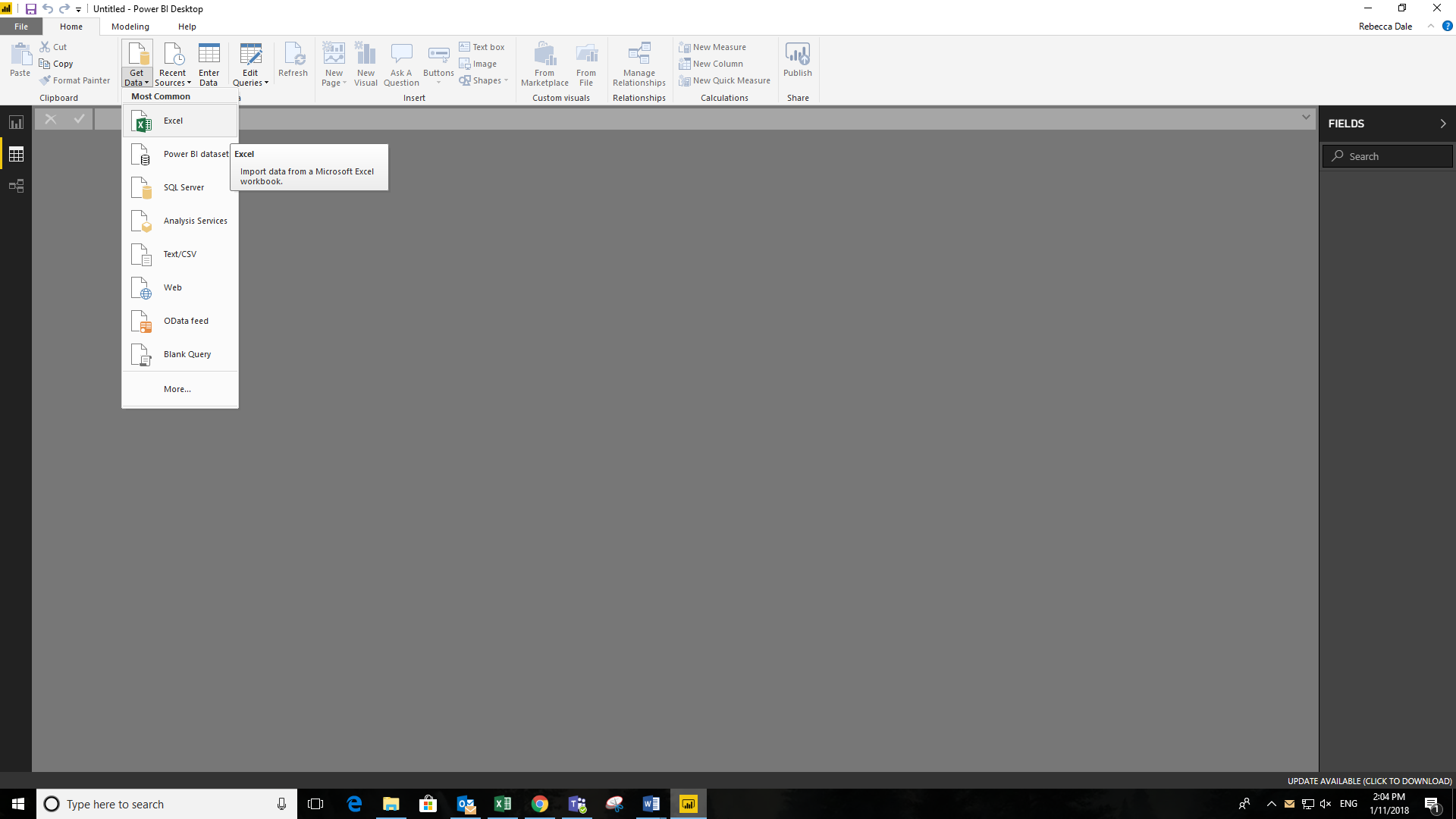
Changes made to the dataset made were as follows:

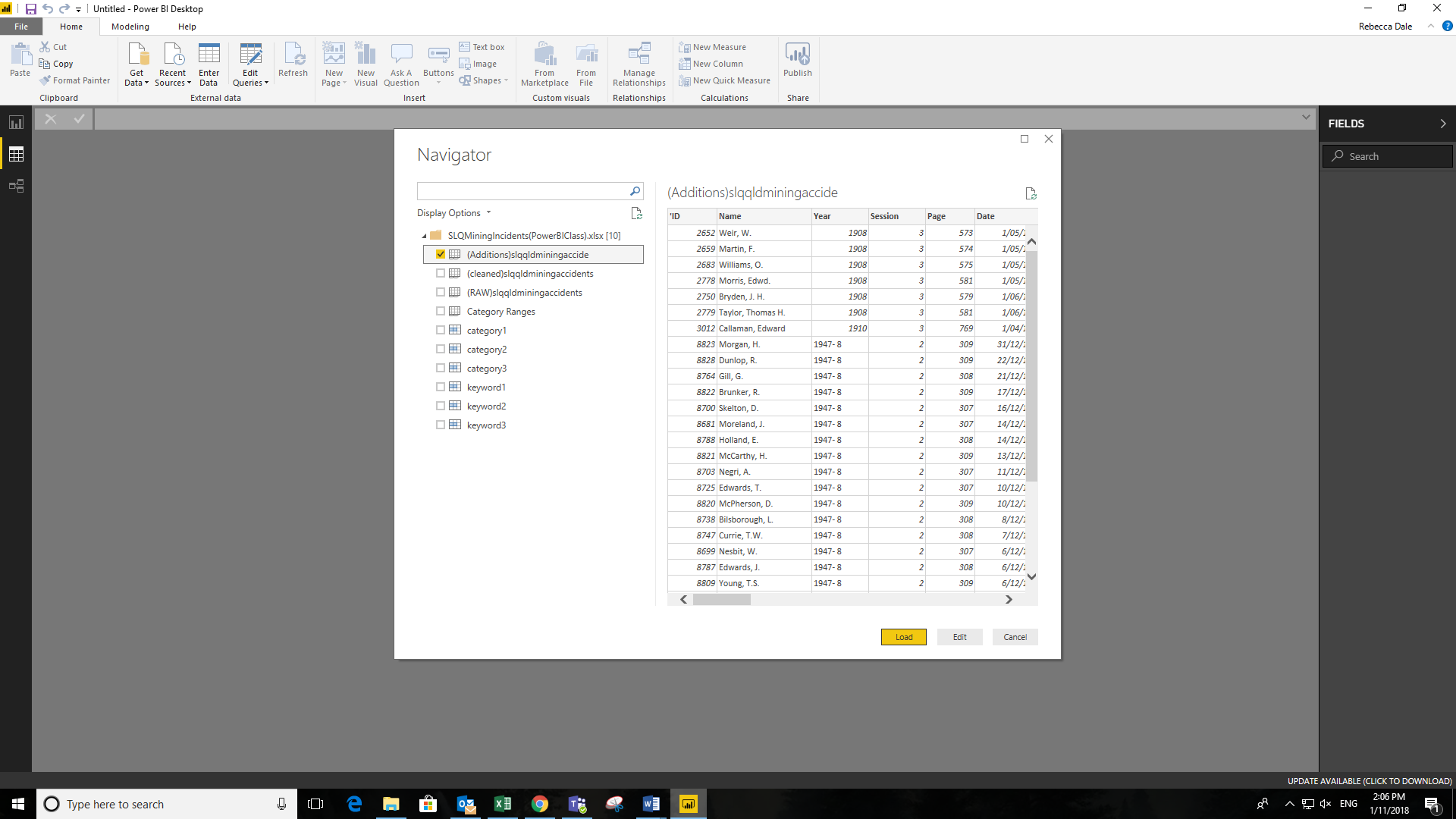
* Multiple worksheets included to show progression from original dataset to final version
* Data types altered
* Some columns removed
* Rows with blank latitude and longitude pairs removed
* Some columns concenated
* Array function used to product three new columns; Injured or Dead, Accident Type, Injury Type
* 3 named ranges included as additional worksheet

## Connecting to a dataset in Power BI

Get Data

1. Click *Get Data.*
2. Choose the source (e.g. Excel).
3. A dialog box appears. Find the file on your computer to open it. This will create another dialog box that displays all the sheets available in the excel file. Check the box next to the data you want to import. In this case, select the set with (Added Categories) in the title.
4. Click Load.

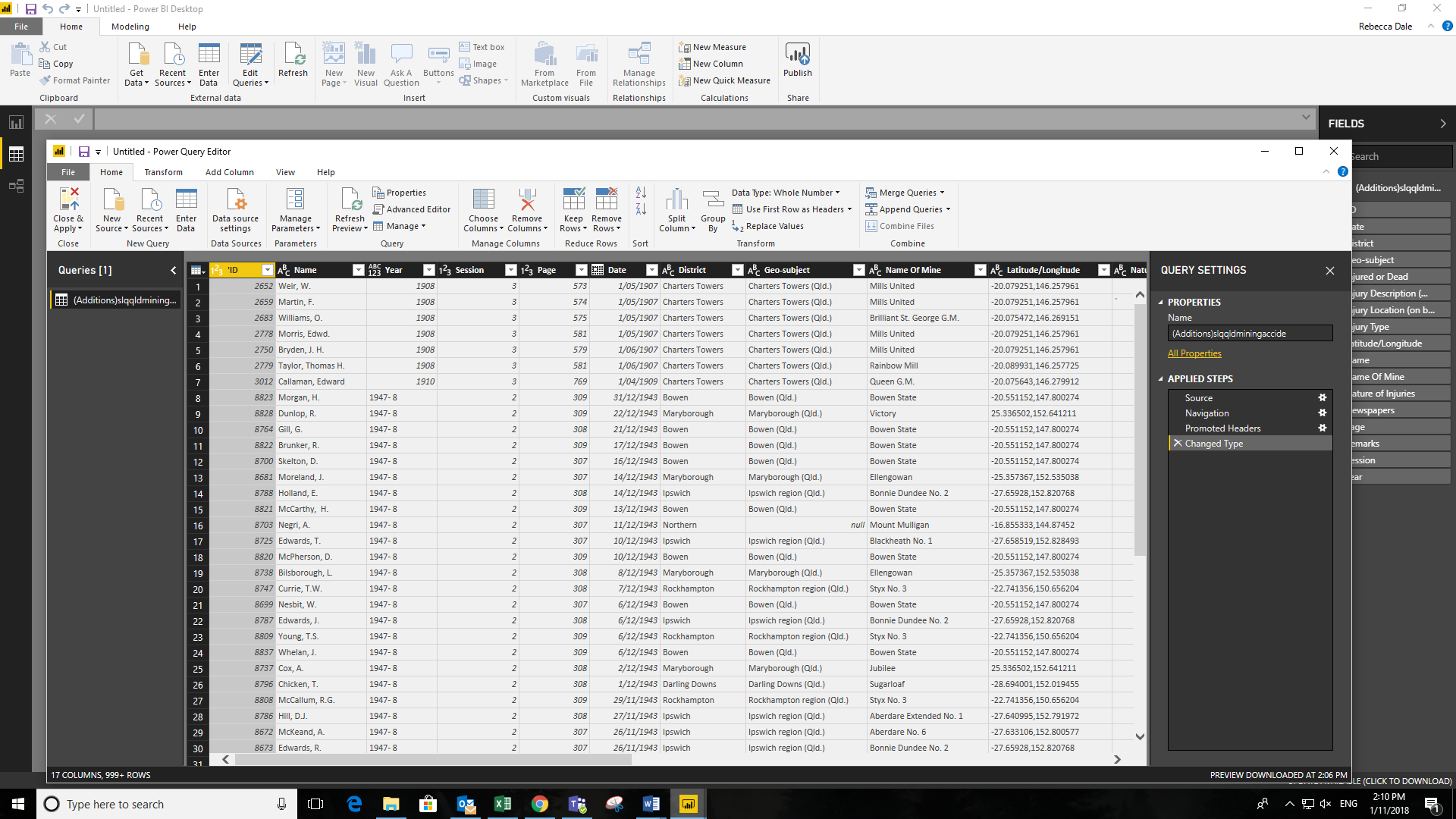




**Figure 1 – Screen caps of getting and loading data. Don’t forget to check the boxes in the navigator.**

Clean up Data

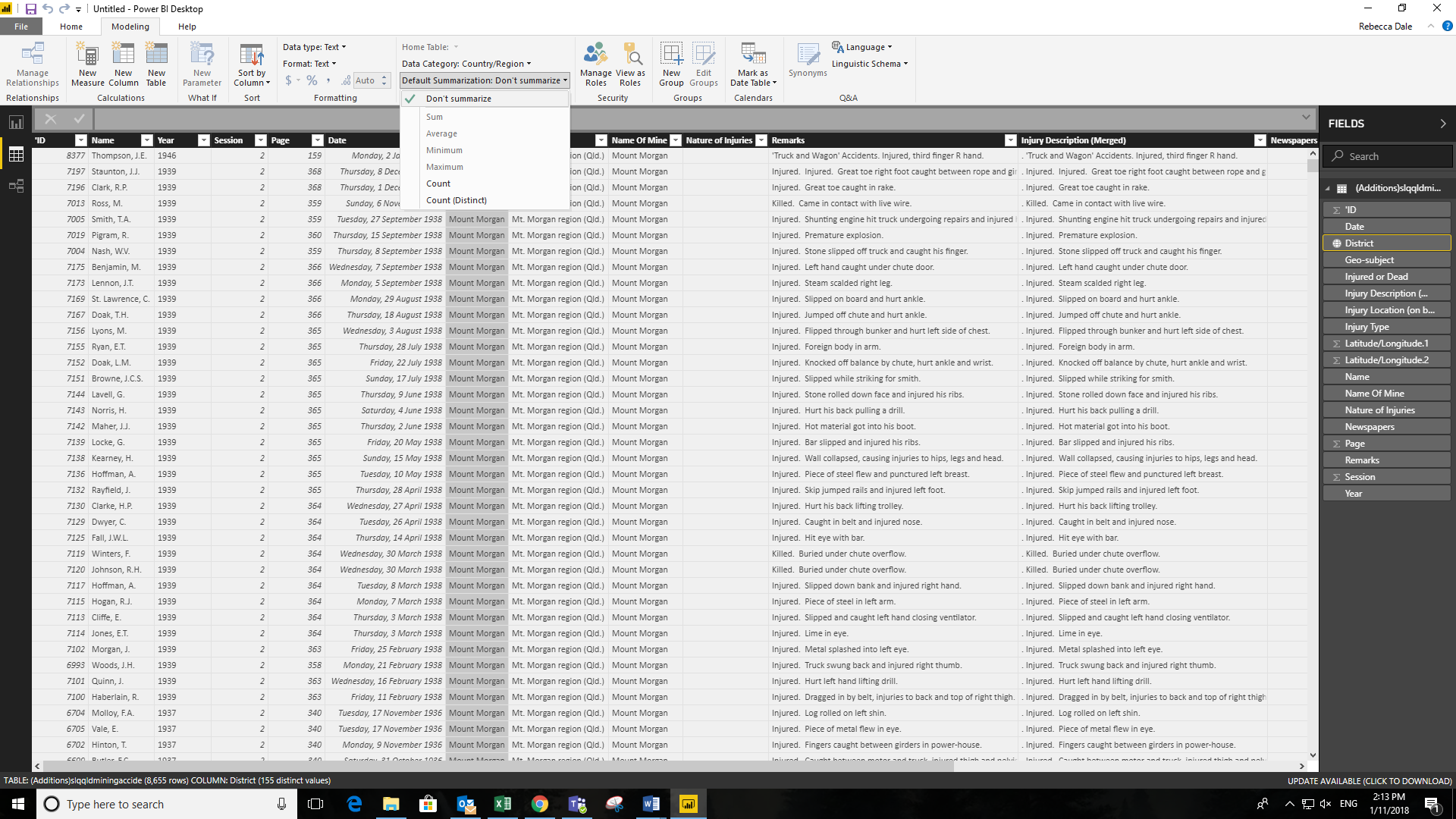
1. Click the data view on the left-hand side.
2. Click *Edit Queries.*
3. Some options on the top menu include;
   1. Splitting columns
   2. Merging columns
   3. Removing Columns
   4. Changing the type of data in each column
4. Click *Close and Apply.*



**Figure 2 – Screen caps selecting the data pane and editing queries.**

Modelling (Geographic)

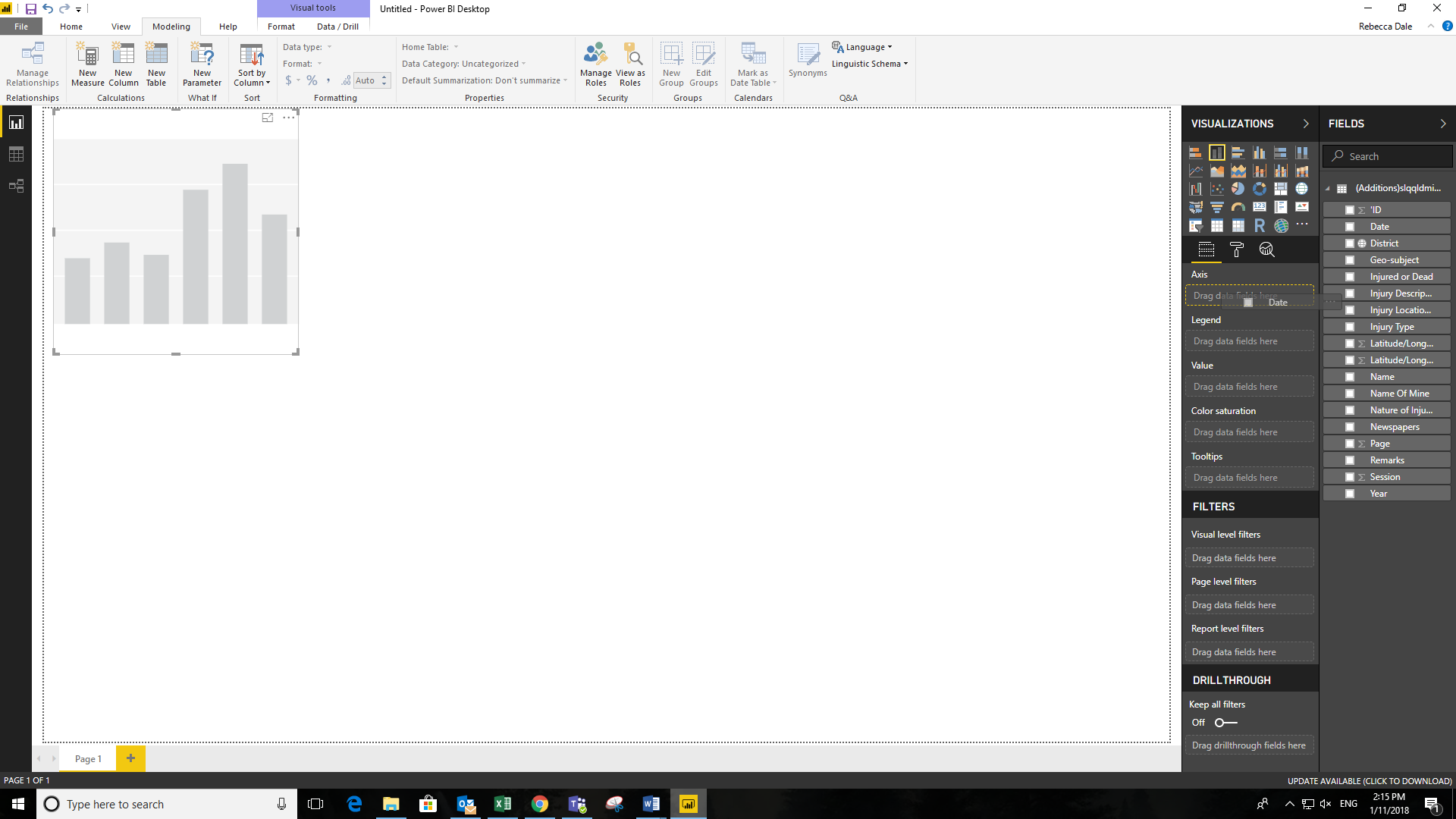
1. Click the data view on the left-hand side.
2. On the top ribbon, choose the tab called ‘modelling’
3. Select a column that describes geographic information (e.g. a city name, latitude).
4. The ribbon has a section called ‘Properties’. Click the drop-down menu next to ‘data-category’ and select a type (latitude, longitude, place, region, for example).
5. Under ‘default-summarisation type’- select ‘don’t summarise’ from the drop-down menu.



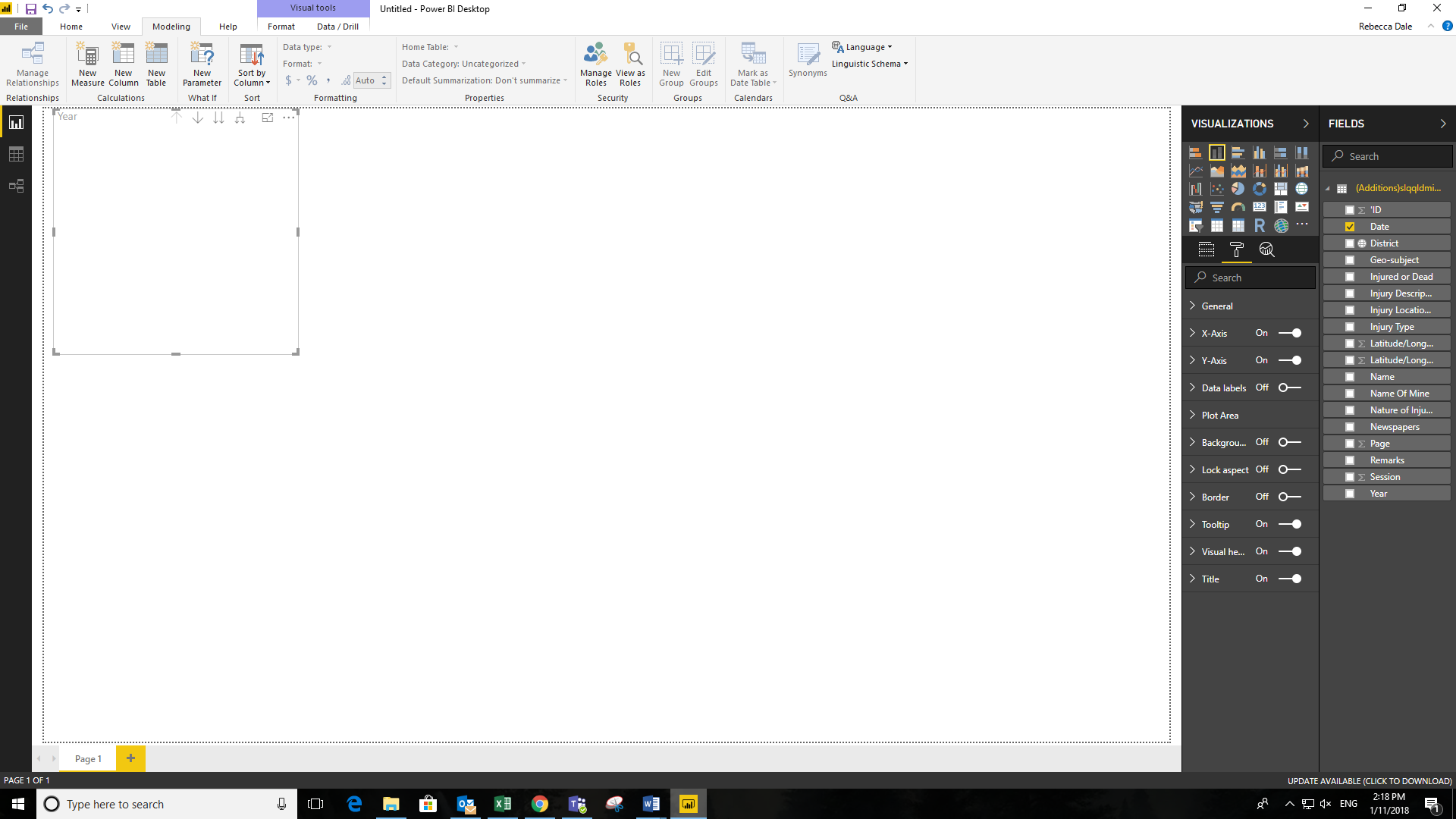
**Figure 3 – The modelling data tab.**

## Generating Visualisations

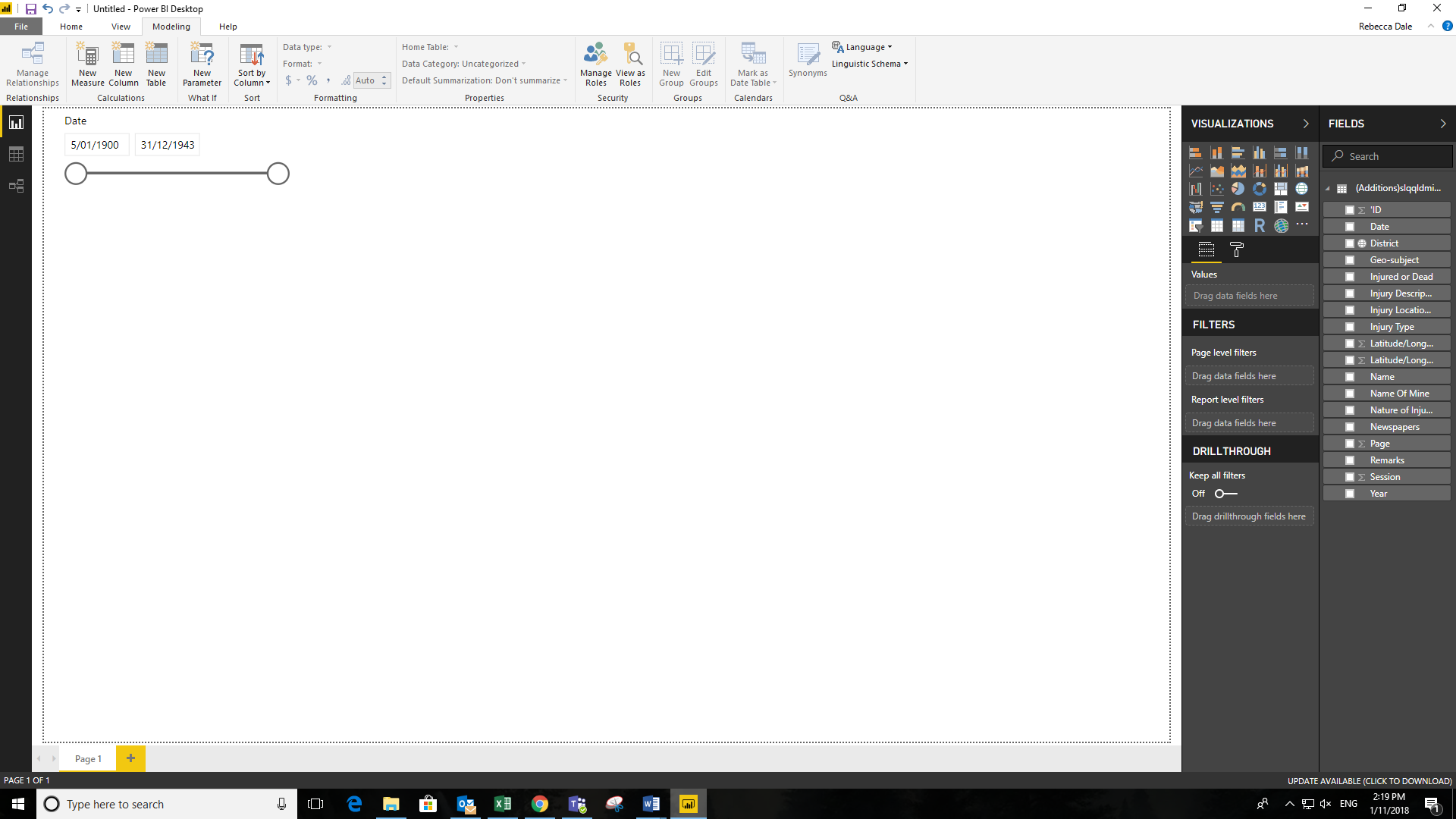
1. Navigate to the visualisation workspace (You may need to click ‘Reports’ icon on the left hand menu).
2. Click the visualisation type you wish to use. (e.g. bar chart, pie chart)
3. Drag and drop columns from your dataset on the right-most side of the screen (called Fields) into areas such as ‘axis’, ‘ledger’ and ‘values’.
4. You may need to rearrange these and experiment with them to get the visualisation you want.
5. Click on the paint-roller icon to format the visualisation; to add colour, titles, more or less detail etc.
6. Some visualisations also have an ‘analytics’ option where you can add goals or constant lines. Click this to access them.
7. Adding a slicer allows you to isolate parts of the dataset and see them within the visualisation. Click the slicker icon, and go to the field section, checking the box next to the column you would like to slice by (usually time or date, place, or some kind of type).
8. Geographic visualisations such as maps will require the steps called ‘modelling’ in the previous section.

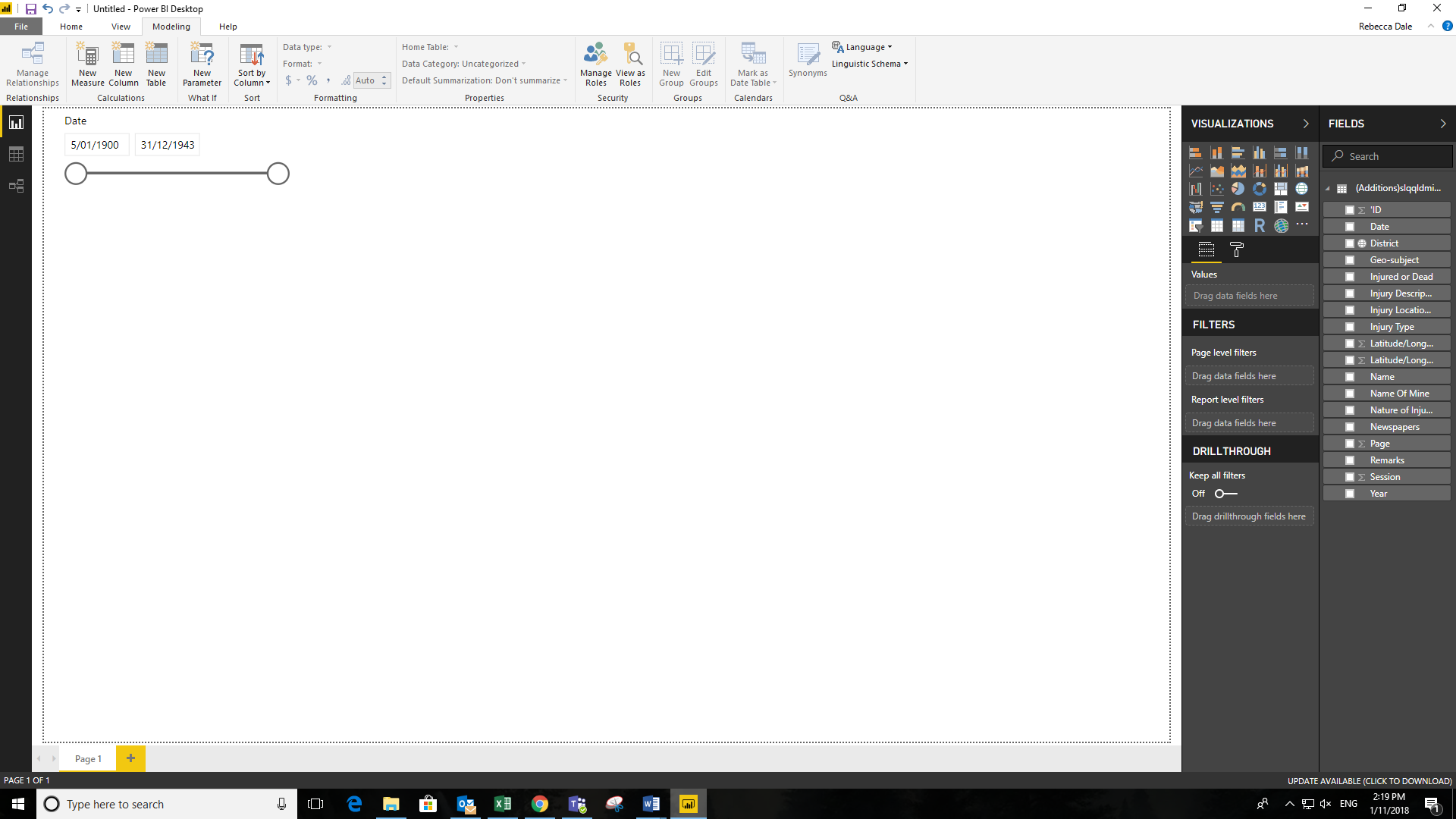


**Figure 4 – Dragging data from the fields section into different parts of a visualisation.**



**Figure 5 – Using the format tab to adjust the appearance of a visualisation in various ways.**





**Figure 6 – Select the slicer type in the visualisations section to create a date slider like this one.**

## Choosing and Transforming Datasets

**Some tips:**

* Choose datasets that have latitude and longitude pairs already included. This will make geographic visualisations very easy.
* Take notes about what you’ve done to a dataset and why- there might be times when you have to go back and rework your process.
* Create back-ups!
* Many historical data sets have columns/fields that contain lots of text; either remarks or descriptions. Developing a schema to categorise these remarks can allow you to create new fields with these categories, transforming qualitative to quantitative (For example, the demonstration set categorised remarks into injury types and accident types). You can use something like array functions in Excel to make text do this automatically. Intersect run a good excel-fu class that would be perfect to pick up this skill (see https://intersect.org.au/training/courses/).
* Be systematic about what you delete and include- it can affect your visualisations and skew your data. For example, if you delete rows with blank latitude/longitude (like in this example), you’re only getting a small part of the picture.

## Sources of historical and other datasets

* State libraries (e.g. State Library NSW, www.sl.nsw.gov.au)
* National Library of Australia (www.nla.gov.au)
* Research Data Australia (researchdata.ands.org.au)
* University repositories (such as OPUS, www.opus.uts.edu.au)