

# SAP Analytics Cloud Enablement Session – Manual

(updated as of 12 Feb 2021)

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## Introduction to the Data

The hands-on exercise of SAP Analytics Cloud is going to take about **2 hours**. In this hands-on demonstration, we are using a vehicular accident scenario that will help trace common occurrences of roadside accidents (what time, what place, what type of car, etc).



This follows the [United Nations Sustainable Development Goals 11: Make cities and human settlements inclusive, safe, resilient and sustainable](#)

Find out more about UN SDG 11: <https://www.un.org/sustainabledevelopment/cities/>

*Cities are hubs for ideas, commerce, culture, science, productivity, social development and much more. At their best, cities have enabled people to advance socially and economically. With the number of people living within cities projected to rise to 5 billion people by 2030, it's important that efficient urban planning and management practices are in place to deal with the challenges brought by urbanization.*

*Many challenges exist to maintaining cities in a way that continues to create jobs and prosperity without straining land and resources. Common urban challenges include congestion, lack of funds to provide basic services, a shortage of adequate housing, declining infrastructure and rising air pollution within cities.*

*Rapid urbanization challenges, such as the safe removal and management of solid waste within cities, can be overcome in ways that allow them to continue to thrive and grow, while improving resource use and reducing pollution and poverty. One such example is an increase in municipal waste collection. There needs to be a future in which cities provide opportunities for all, with access to basic services, energy, housing, transportation and more.*

The aim of the dataset is to come up with protocols that factor in passenger safety despite a steady growing urban population in the UK.

## Login Details to SAP Analytics Cloud

If you have the Username and Password already, please use them to log into SAP Analytics Cloud.

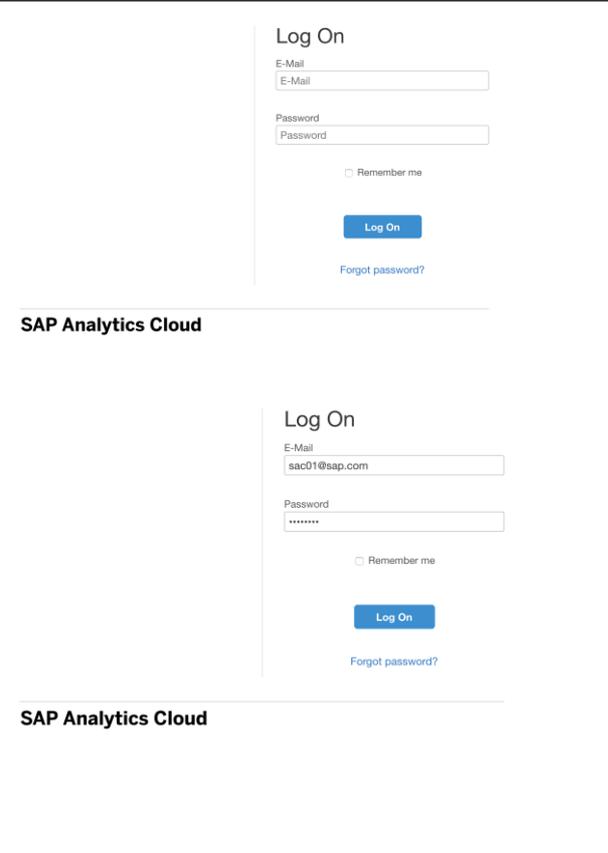
If not, you can get them by attending the enablement session, data analytics training on SAP Analytics Cloud, provided by the ASEAN Foundation and SAP for students and lecturers across the 10 ASEAN countries. A series of sessions are annually conducted for FREE from February to March (schedule may change). All participants attending the sessions will be given access to SAP Analytics Cloud. For inquiries on the enablement session, please contact Mr. Ilan Asqolani, Project Manager for the ASEAN Foundation-SAP Joint Initiatives through his email: [ilan.asqolani@aseanfoundation.org](mailto:ilan.asqolani@aseanfoundation.org).

Alternatively, you can get FREE access to SAP Analytics Cloud by participating in the ASEAN Data Science Explorers competition. You can sign up for the competition at [www.aseandse.org](http://www.aseandse.org). Call for applications is annually open from February to March (timeline might change). The access is valid until end of the year.

Also, you can obtain a 90-day free trial access to SAP Analytics Cloud via the following link: <https://www.sap.com/cmp/td/sap-analytics-cloud-free-trial.html>

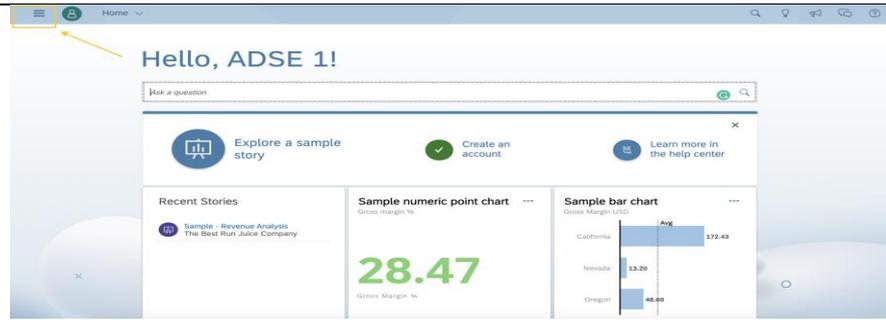
## SAP Analytics Cloud Link – Saving your Work

<https://aseandse.ap11.hcs.cloud.sap/hub/index.html>

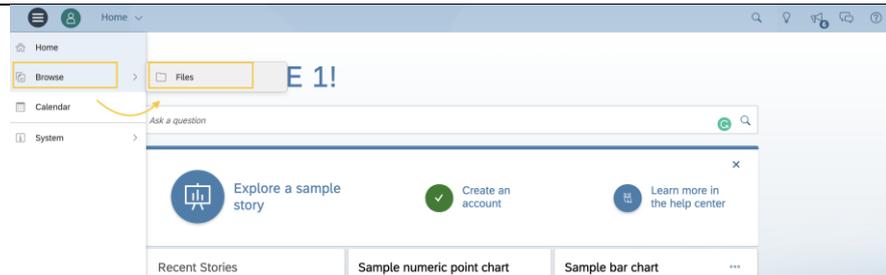
<p>Go to the link:</p> <p>Please use the Google Chrome browser to open this URL.</p> <p>If you already have the Username and Password, please use them to log in.</p>	 <p>The screenshot displays two identical SAP Analytics Cloud login pages. Each page features a 'Log On' header, an 'E-Mail' input field, a 'Password' input field, a 'Remember me' checkbox, a blue 'Log On' button, and a 'Forgot password?' link. The top instance shows empty input fields, while the bottom instance shows the email 'sac01@sap.com' and a masked password '*****'. The text 'SAP Analytics Cloud' is centered below each login form.</p>
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Welcome to your homepage!

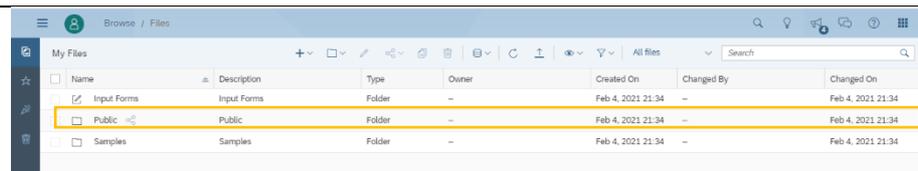
On the top left of the page, click on the menu bar.



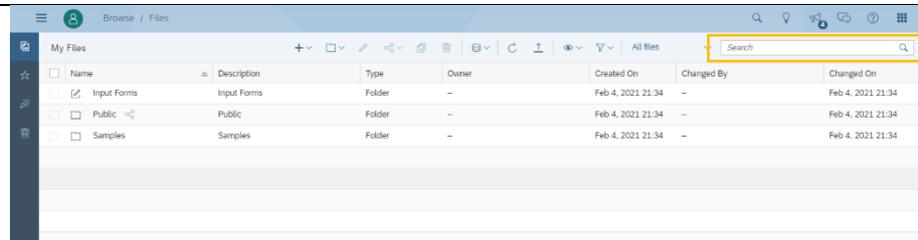
Click 'BROWSE'  
Click 'FILES'



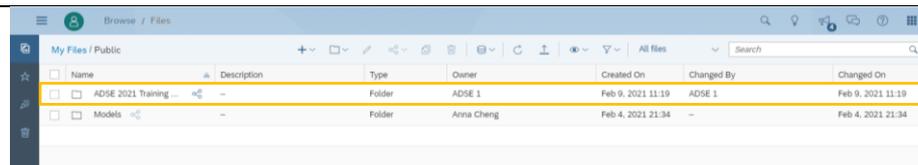
Click on 'PUBLIC'



In case you could not find the specify folder, please use the search engine.

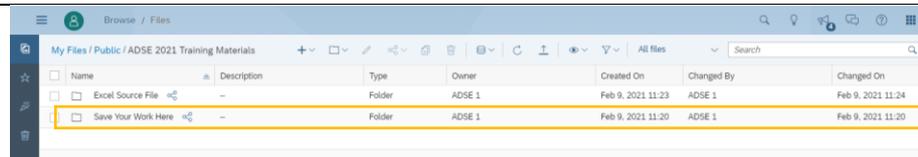


Click on 'ADSE 2021 TRAINING MATERIAL'



Click on 'SAVE YOUR WORK HERE'

Each user has a working area that contains the solutions for all the exercises in this workshop.



Click the folder of your own country.

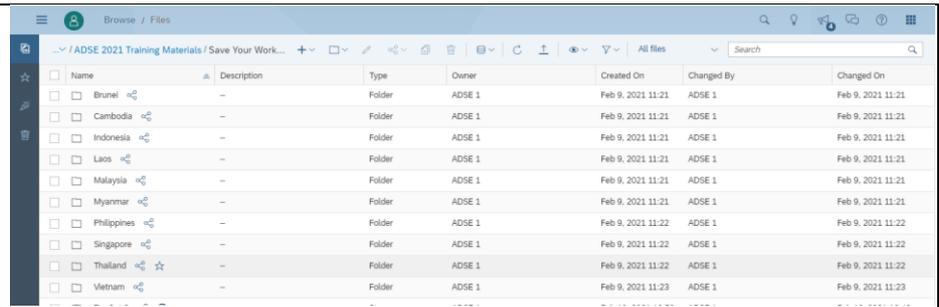
Please save your stories into the folder of your country of origin with your own name.

EXAMPLE:

Data  
Import\_ANNABELCHENG

PATH TO SAVE FILES:

Browse Files – Public –  
ADSE 2021 Training  
Materials – You're your  
Work Here – [Country] –  
Data Import\_Your Name



Name	Description	Type	Owner	Created On	Changed By	Changed On
Brunel	-	Folder	ADSE 1	Feb 9, 2021 11:21	ADSE 1	Feb 9, 2021 11:21
Cambodia	-	Folder	ADSE 1	Feb 9, 2021 11:21	ADSE 1	Feb 9, 2021 11:21
Indonesia	-	Folder	ADSE 1	Feb 9, 2021 11:21	ADSE 1	Feb 9, 2021 11:21
Laos	-	Folder	ADSE 1	Feb 9, 2021 11:21	ADSE 1	Feb 9, 2021 11:21
Malaysia	-	Folder	ADSE 1	Feb 9, 2021 11:21	ADSE 1	Feb 9, 2021 11:21
Myanmar	-	Folder	ADSE 1	Feb 9, 2021 11:21	ADSE 1	Feb 9, 2021 11:21
Philippines	-	Folder	ADSE 1	Feb 9, 2021 11:22	ADSE 1	Feb 9, 2021 11:22
Singapore	-	Folder	ADSE 1	Feb 9, 2021 11:22	ADSE 1	Feb 9, 2021 11:22
Thailand	-	Folder	ADSE 1	Feb 9, 2021 11:22	ADSE 1	Feb 9, 2021 11:22
Vietnam	-	Folder	ADSE 1	Feb 9, 2021 11:23	ADSE 1	Feb 9, 2021 11:23

## Exercise

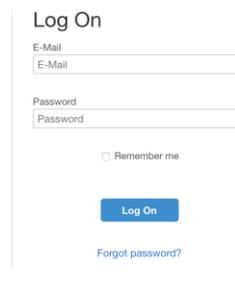
### Importing Data

Today for our ASEAN Data Science Explorers Enablement Session in Data Analytics Training - SAP Analytics Cloud, we will be analysing a dataset that revolves around an accident that happened in the UK, in particular, vehicular accidents. This follows the United Nations Sustainable Development Goals 11: Make cities and human settlements inclusive, safe, resilient and sustainable.

### Logging in to SAP Analytics Cloud

Open [SAC link](#) on Google Chrome.

Key in the credentials assigned to you.



Log On

E-Mail

Password

Remember me

[Forgot password?](#)

SAP Analytics Cloud

### Log On

E-Mail  
sac01@sap.com

Password  
\*\*\*\*\*

Remember me

**Log On**

[Forgot password?](#)

### SAP Analytics Cloud

You have arrived at your homepage!

On the top left of the page,

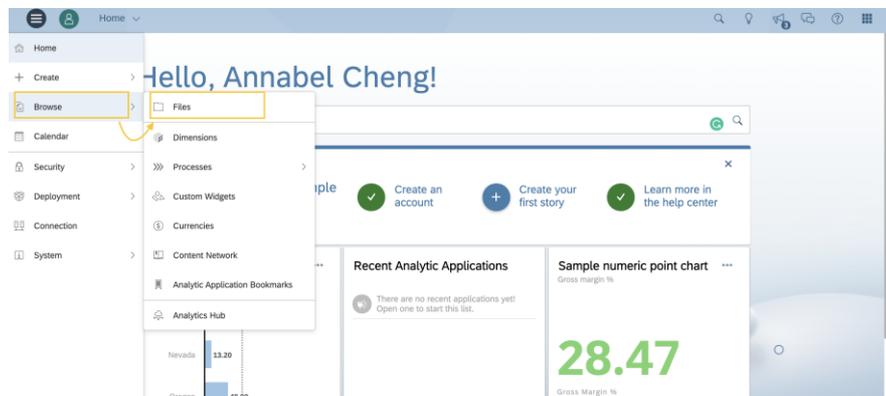
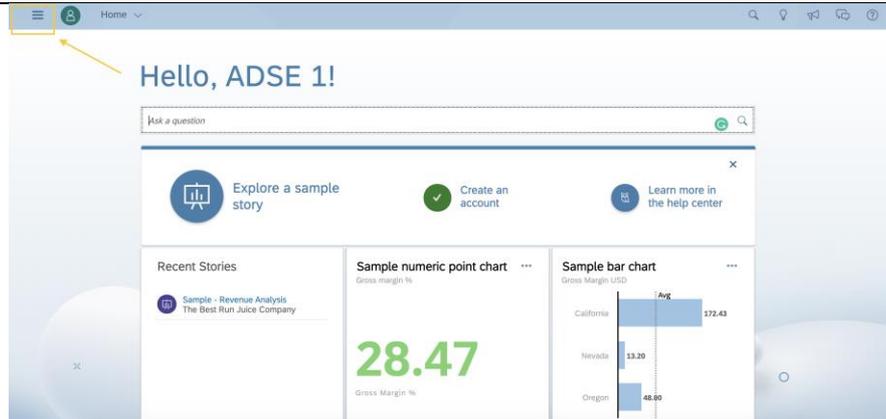
Click 'BROWSE'

Click 'FILES'

Click '[PUBLIC](#)'

Click 'ADSE 2021 Training Material'

This is where all files for the enablement session will be kept. Your saved files should exist within this folder as well.



The screenshot shows the "My Files" view in SAP Analytics Cloud. The table lists the following files:

Name	Description	Type	Owner	Created On	Changed By	Changed On
Input Forms	Input Forms	Folder	-	Feb 4, 2021 21:34	-	Feb 4, 2021 21:34
Public	Public	Folder	-	Feb 4, 2021 21:34	-	Feb 4, 2021 21:34
Samples	Samples	Folder	-	Feb 4, 2021 21:34	-	Feb 4, 2021 21:34

The screenshot shows the "My Files / Public" view in SAP Analytics Cloud. The table lists the following files:

Name	Description	Type	Owner	Created On	Changed By	Changed On
ADSE 2021 Training ...	-	Folder	ADSE 1	Feb 9, 2021 11:19	ADSE 1	Feb 9, 2021 11:19
Models	-	Folder	Anna Cheng	Feb 4, 2021 21:34	-	Feb 4, 2021 21:34

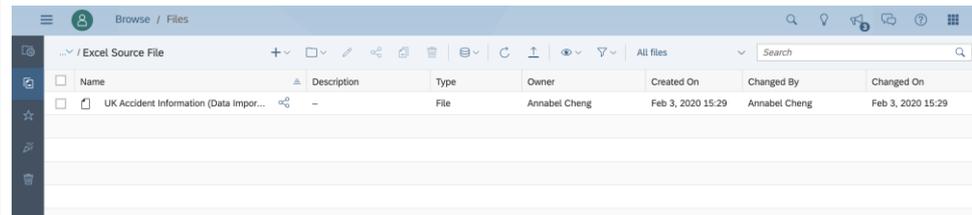
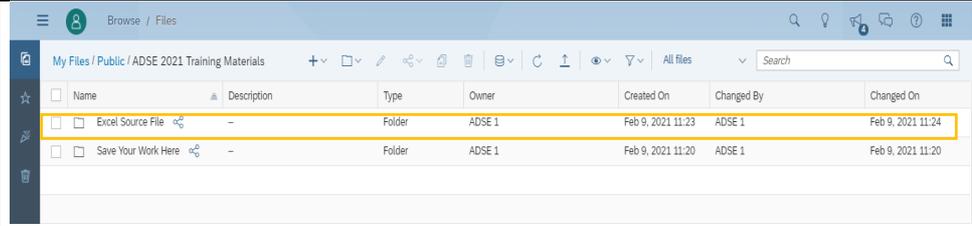
Public > ADSE 2021  
 Training Material >  
[Excel Source File](#)

Open file 'Excel  
 Source File'

Click on 'UK Accident  
 Information (Data  
 Import).xlsx

The file should be  
 downloaded into your  
 desktop.

Open the file you  
 have downloaded.  
 \*do not log out of  
 your SAC account,  
 we will be coming  
 back to it later



## EXCEL SHEET: UK ACCIDENT INFORMATION (DATA IMPORT).XLSX

Open up the **Excel sheet**  
 titled: **UK accident  
 information (data  
 import).xlsx**

We were able to retrieve  
 the datasets from the  
 internet dataset portals. It  
 is not 100% accurate but it  
 is close to life. It has been  
 tailor-made and  
 customized to be able to  
 fit the purpose of the  
 exercises that we will be  
 using and working on SAP  
 Analytics Cloud (SAC).

So, let me spend a few  
 minutes to go over the  
 contents of this data set.

 A screenshot of an Excel spreadsheet titled 'UK Accident Information (Data Import)'. The spreadsheet contains a large table of accident data. The columns include: Date, Location, Location Description, Country, Local Authority, Area Type, Junction Control, Accident Severity, Time of Day, Road Conditions, Junction Details, Driver Age, Sex of Driver, Vehicle Type, Vehicle Proprietary, Number of Accidents, and Number of Casualties. The data rows start from 1/1/2017 and go up to 4/1/2017.

First of all, we have the accident ID or identifiers – these are basically the report numbers. We have date here and if you noticed, we have explicitly left some of these date with an 'X' which we will be using in the exercise of cleaning the data.

The screenshot shows an Excel spreadsheet with columns for Date, Location, Location Description, Country, Latitude, Longitude, Area Type, Junction Control, Accident Severity, Time of Day, Road Condition, Junction Detail, Driver Age, Sex of Driver, Vehicle Type, Vehicle Proprietor, Number of Accidents, and Number of Casualties. The data is sorted by date, and several dates in the 'Date' column are marked with an 'X'.

Next, we also have some geographical information – country, city descriptions, complemented with longitude and latitude points which will be using for geospatial analysis.

This screenshot is identical to the one above, but with the columns for Location, Location Description, Country, Latitude, and Longitude highlighted in yellow to indicate their use in geospatial analysis.

We also have more information about the accident. For example,

- What time of the day did the accident occur?
- What was the road conditions?
- Was it near a stop sign? A traffic lights? Or a traffic enforcer?
- Where did the accident occur? Was it in an urban or rural setting?

This screenshot is identical to the one above, but with the columns for Accident Severity, Time of Day, Road Condition, Junction Detail, Driver Age, Sex of Driver, Vehicle Type, and Vehicle Proprietor highlighted in yellow to indicate their use in accident analysis.

There is also some information about the vehicle. For example,

- Was the driver male or female?
- What is the age range of a driver?
- What type of car he or she was driving?
- What is a propulsion of the car?
- Was it a hybrid electric car or a petrol car?

Date	Location	Country	Area Type	Junction Control	Accident Severity	Time of Day	Road Condition	Junction Detail	Driver Age	Sex of Driver	Vehicle Type	Vehicle Propulsion	Number of Accidents	Number of Casualties	Number of Vehicles Involved
2017 Jan 01	Birmingham	United Kingdom	52.8824	1.8004 Urban	Uncontrolled Junction	Slight	Afternoon	Wet Road	Not at junction	26-35	Male	Car	1	1	1
2017 Jan 01	Manchester	United Kingdom	53.4808	2.2426 Small Town	Traffic Enforcer	Serious	Early Morning	Snow	Roundabout	Over 56	Female	Hybrid Electric	1	1	1

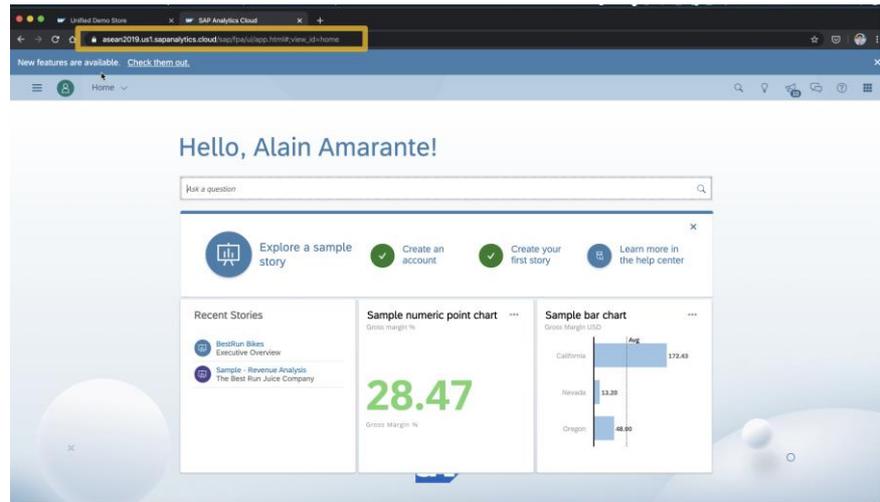
To the right, we have some numerical measures. Each row represents one number of accident but we also are able to see if the number of casualties and vehicles involved per accident and the accidental costs incurred, perhaps due to damages, medical or hospitalisation fees.

Date	Location	Country	Area Type	Junction Control	Accident Severity	Time of Day	Road Condition	Junction Detail	Driver Age	Sex of Driver	Vehicle Type	Vehicle Propulsion	Number of Accidents	Number of Casualties	Number of Vehicles Involved
04 Urban	Uncontrolled Junction	Slight	Afternoon	Wet Road	Not at junction	26-35	Male	Car	1	1	1	2	2643.44	1	1
26 Small Town	Traffic Enforcer	Serious	Early Morning	Snow	Roundabout	Over 56	Female	Motorcycle	Hybrid Electric	1	1	11	2	1847.23	1

**WELCOME TO SAP ANALYTICS CLOUD!**

Now that we understand the content of this data set, the first step is to upload the data set into SAP Analytics Cloud.

Once we access it through a browser, what the first want to do is opened is upper left-hand menu and be able to see the 'create' tab which is what we're going to be using bulk during our exercises. This 'create' tab is to create a story which is the reporting visualization layer which will be playing with later on but right now let's concentrate on creating a model.



## MODELLING

Model is the basic building block of SAP Analytics Cloud which is the data that is being fed to the visualizations and charts that we would be using later on.

Click on "Import a file from your computer"

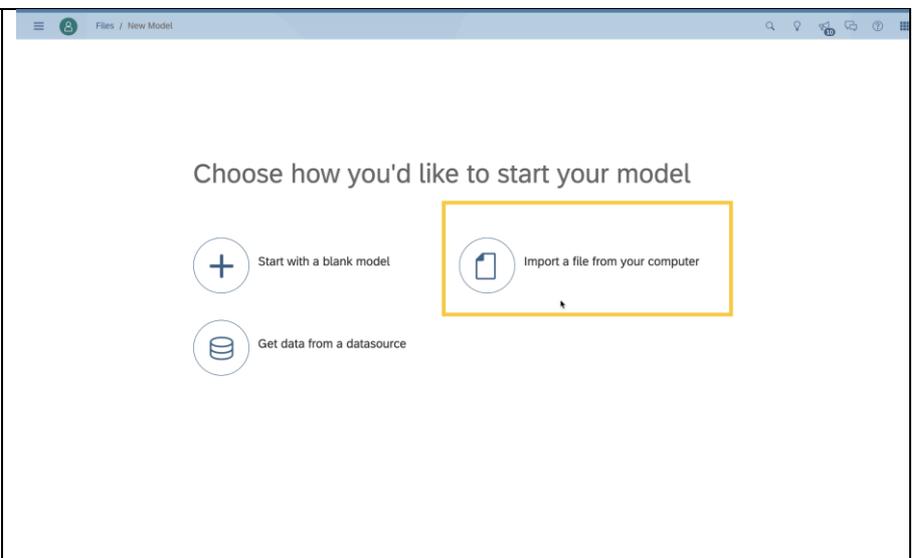
Select "source file"

Click on "UK accident information (data import).xlsx"

Check "use first row as column headers"

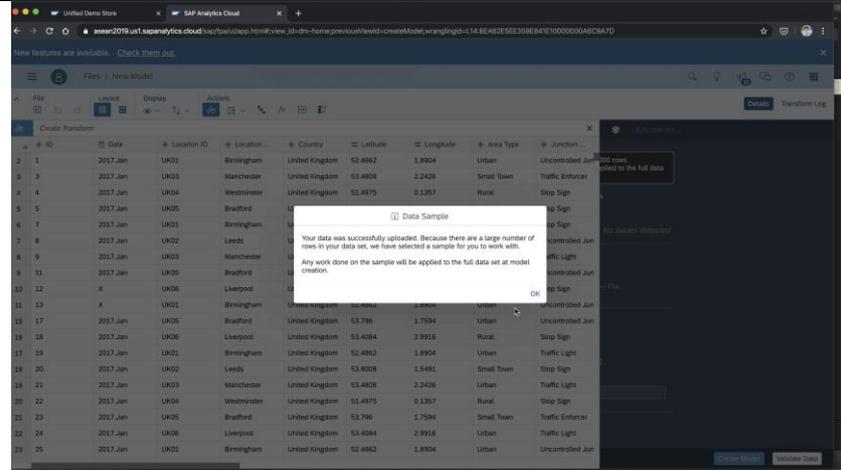
Click 'Import'.

What is happening now is that we are uploading data

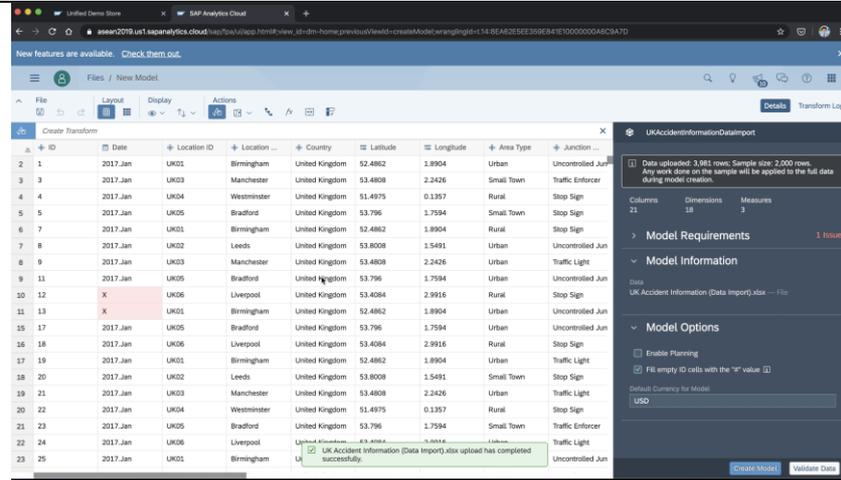


into SAP Analytics Cloud so that we don't have to work on Excel anymore.

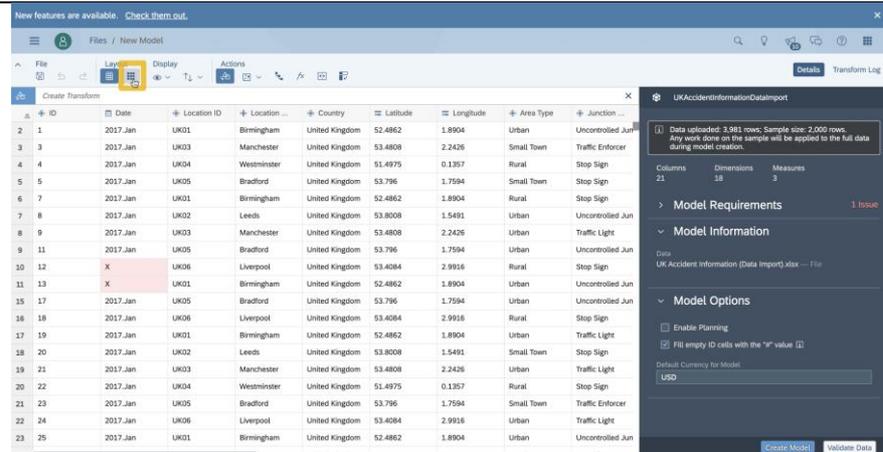
In a few seconds, you will receive a message that says that your data has been successfully uploaded. You should be able to see the table similarly to how we would do in an Excel sheet.

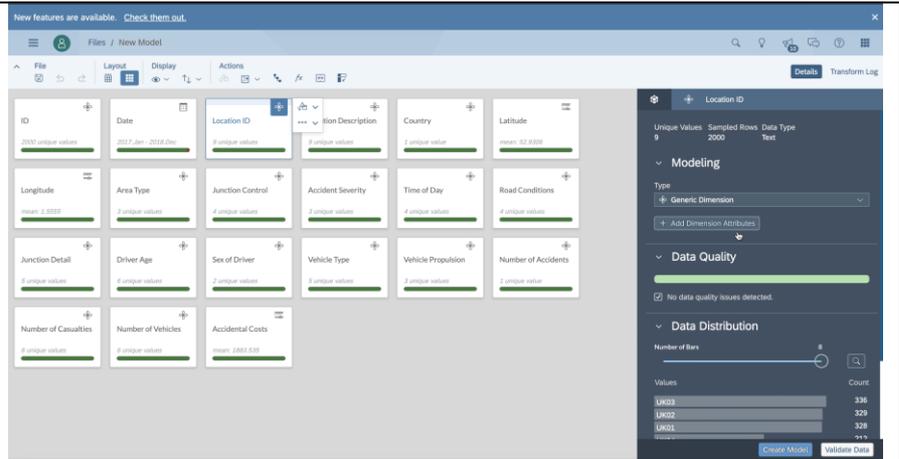


If you remember what you've seen a while ago, this sheet is similar to the excel sheet opened previously with the accident ID, date, location etcetera.

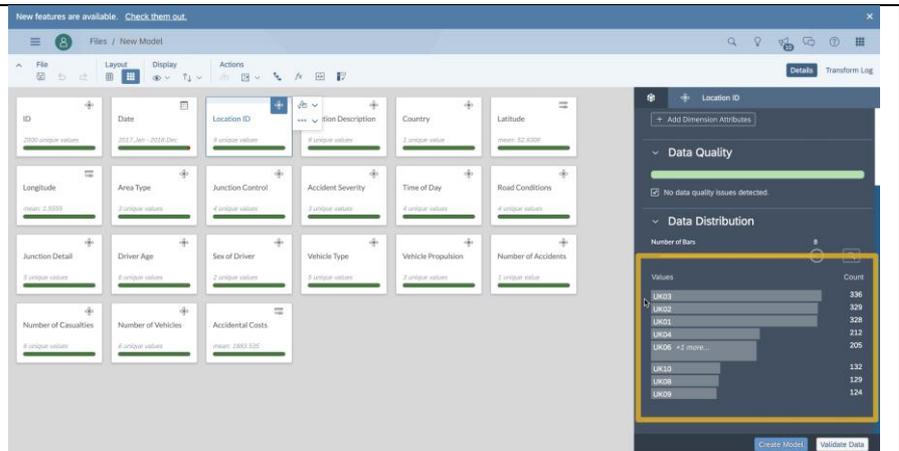


Another way to view this information in a much cleaner detail is by switching layout and in the form of tiles. Click on this in the 'layout' option.

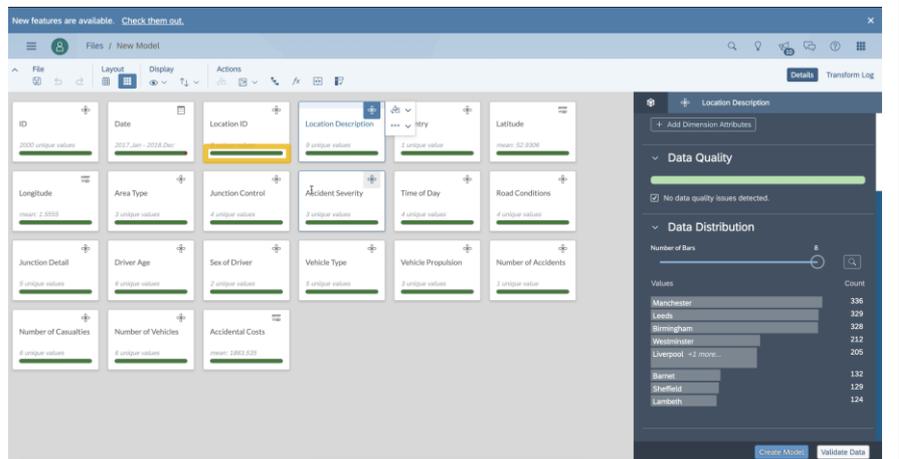




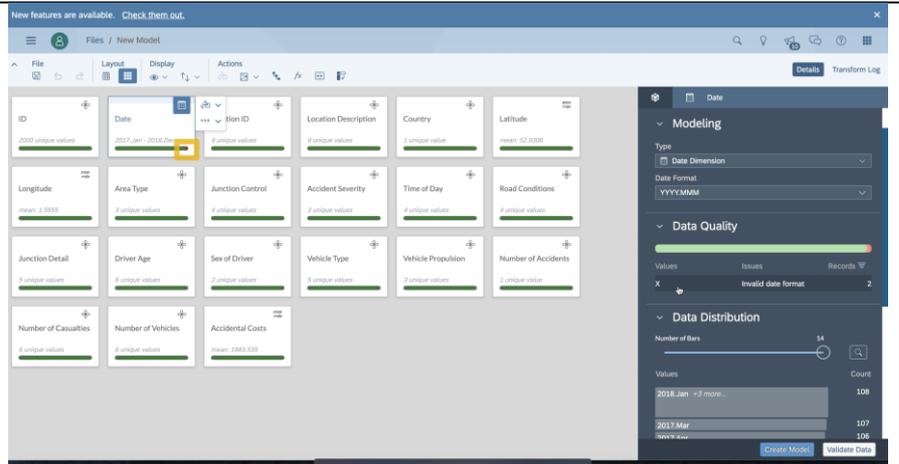
If you click on of these areas, on the right, you will be able to see the data distribution to know how many of our data points come from UK03 ID etc. We are able take a look at a high level of how much data we have for each of these areas that may or may not have an impact in our analysis later on.



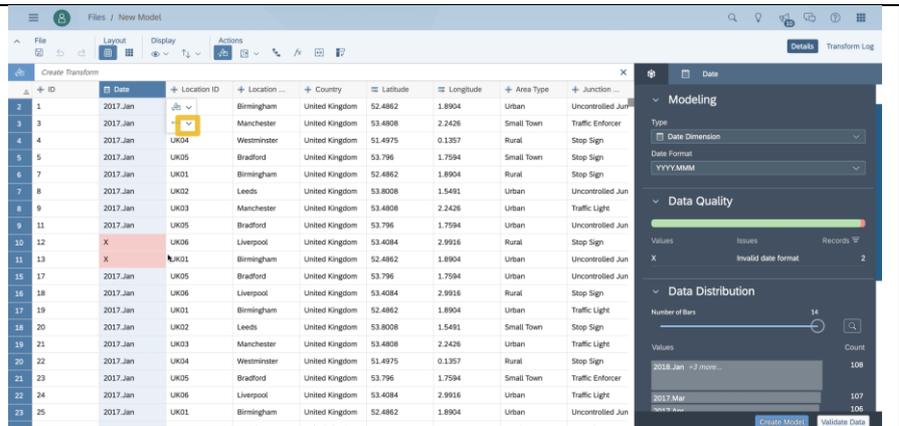
One thing to notice are these green bars at the bottom of each of the tiles. These bars represent the health and accuracy of that data. If the bars are completely green, it is a good thing and means that we have complete information without any errors in the data identified by SAP Analytics Cloud.



Alternatively, if you do notice and some hints of red, it could mean that there are some pending errors that needs to be corrected.



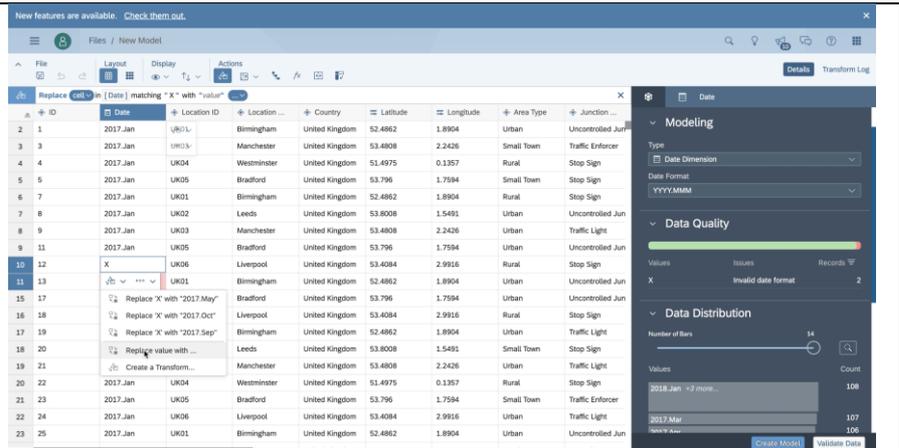
Now, if you remember a while ago, we left some values under the 'date dimension with an 'X' and SAC is able to pick this up automatically and it is registered as invalid date format in the software.



Instead of going back to Excel and correcting the data, we have the option to just transform it and fix it within SAC.

Switch the layout from tiles to sheet display.

In the drop bar, click the transform key.



As we know these were probably all under the January 2017 date range so

what we can do is simply just replace these values of 'X'.

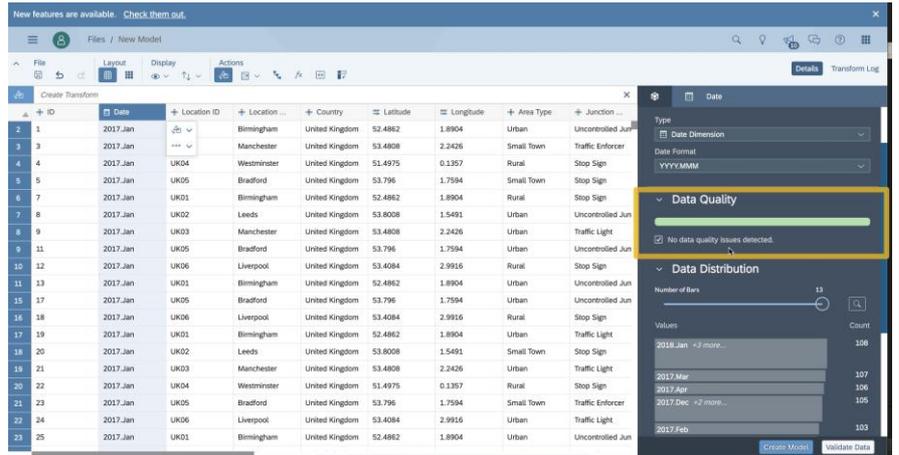
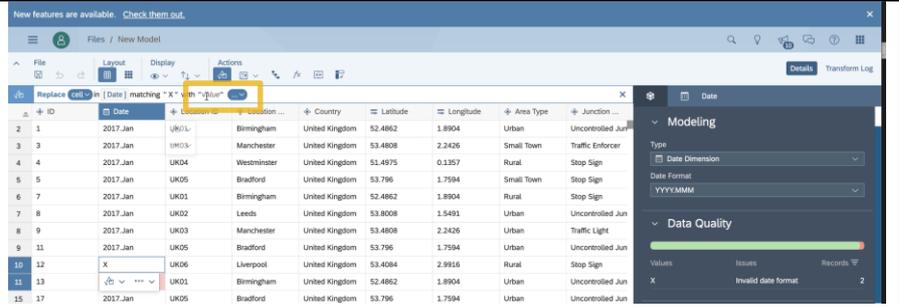
Click 'Replace value with...'

At the top, type "2017.Jan" following the format of the date range on the other rows.

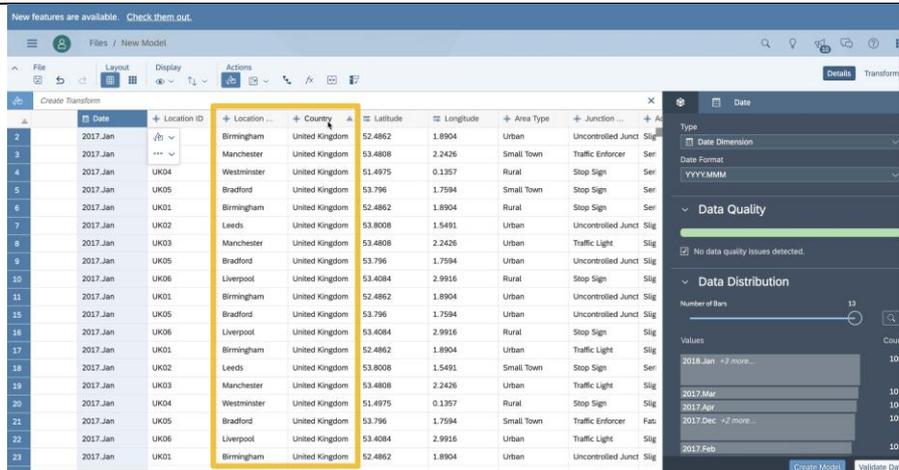
Click 'Enter'

It will automatically replace all 'X' with your new value input "2017.Jan".

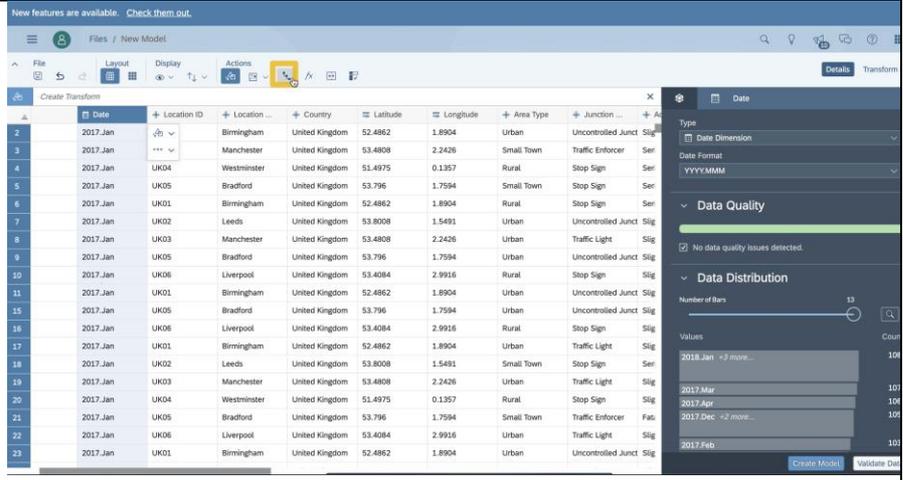
Now, on the side panel, you will see that there is no data quality issues detected. The health bar is restored to a full green.



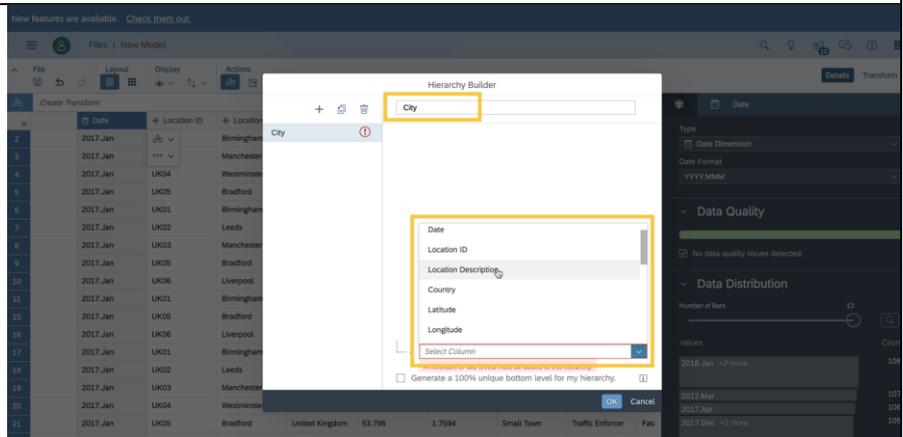
The second thing we are to do is to establish hierarchy. An example of a hierarchy is having a country and being able to drill down by cities. For example, UK drilling down to cities like Birmingham, Manchester, Westminster etcetera



We can create hierarchies by clicking on 'actions: level-based hierarchy' button at the top

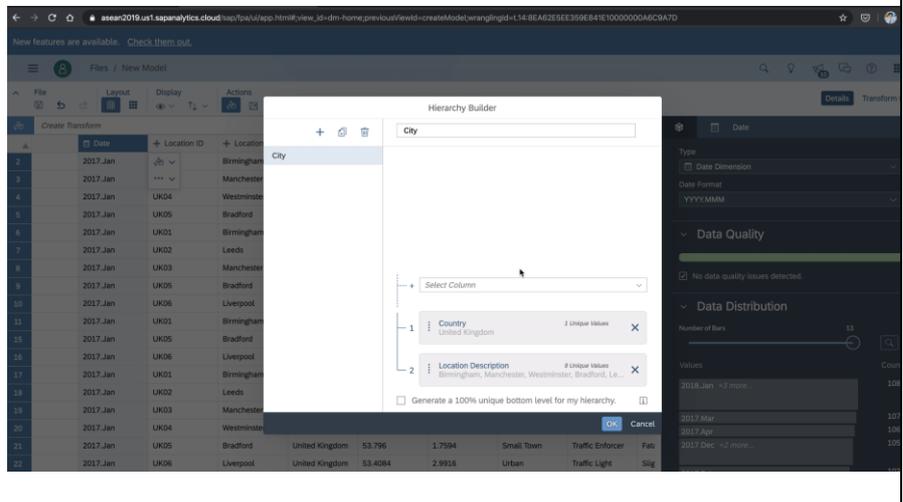


Give the hierarchy a name. In this case, we name it 'City'



We work backwards by taking for the lowest level of this hierarchy, which in this case would be the location description or the city, and then work to the top which is 'country'.

- Click 'Location Description'
- Click 'Country'
- Click 'ok'
- Confirm modelling changes

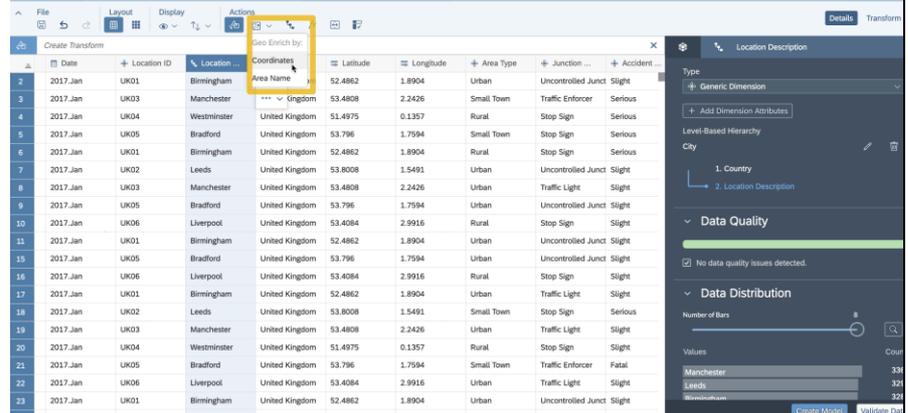


We want to utilize the longitude and latitude data points

Under Actions, click on 'Geo-enrich by:' button

Two options to geo-enrich by coordinates or area name.

To be able to be more specific with the data of points, it is highly recommended to use longitude and latitude points which is what we would be using today.



Click 'Coordinates'.

A pop-up should occur.

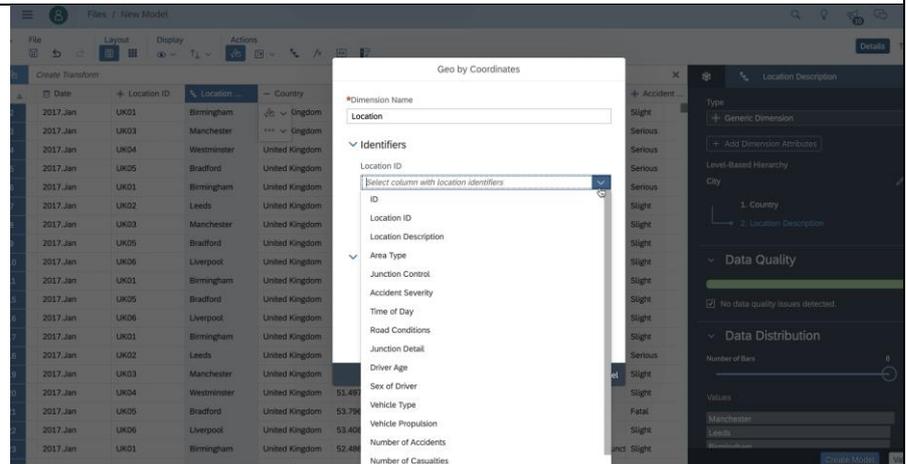
Map the missing fields with the ones that are already in.

Location ID tab: click 'location ID'

Location description: click location description

Latitude and longitude should be automatically picked up by the system as well

Click 'Create'



Once that is done, the geopoint should be automatically be created here on the right.

Once we have created these geopoints, we have no need for longitude and latitude points for analysis anymore.

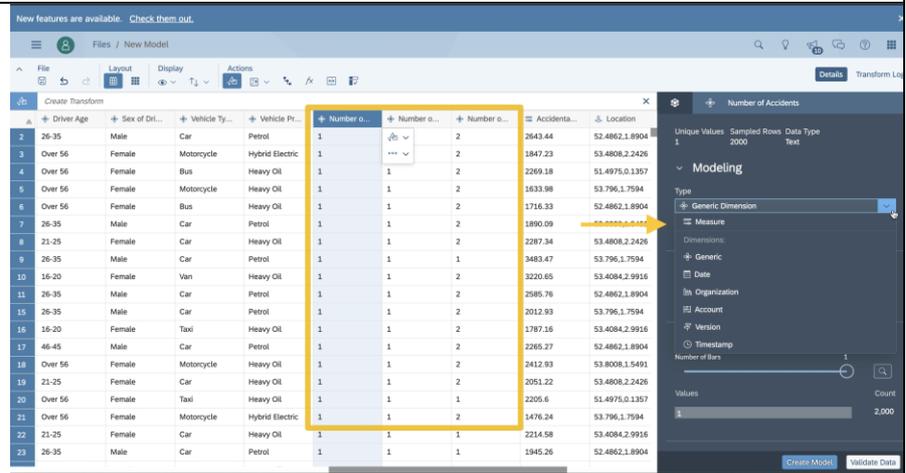
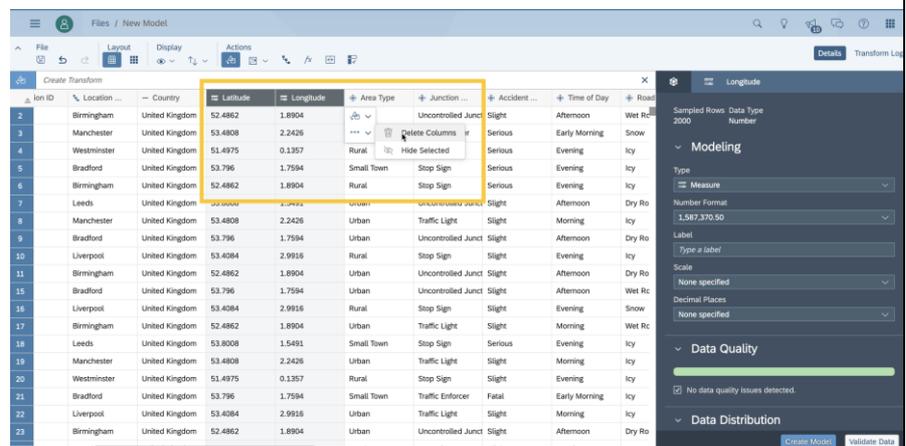
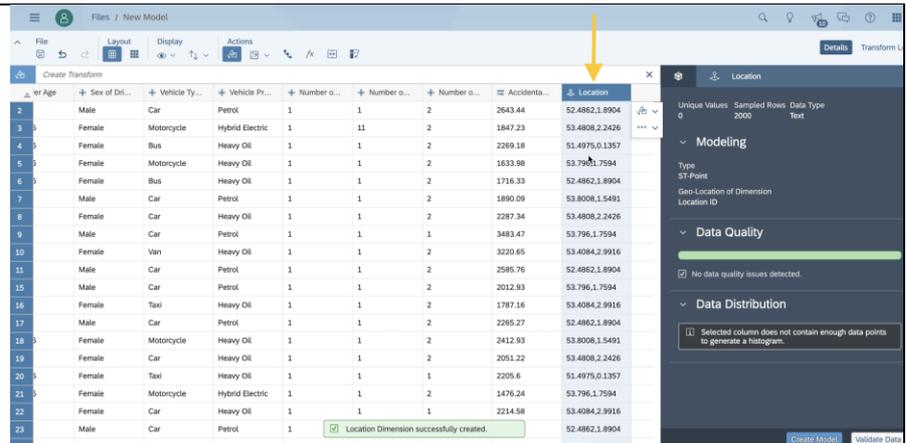
Select the columns:  
Longitude and Latitude

Right click: Delete these columns.

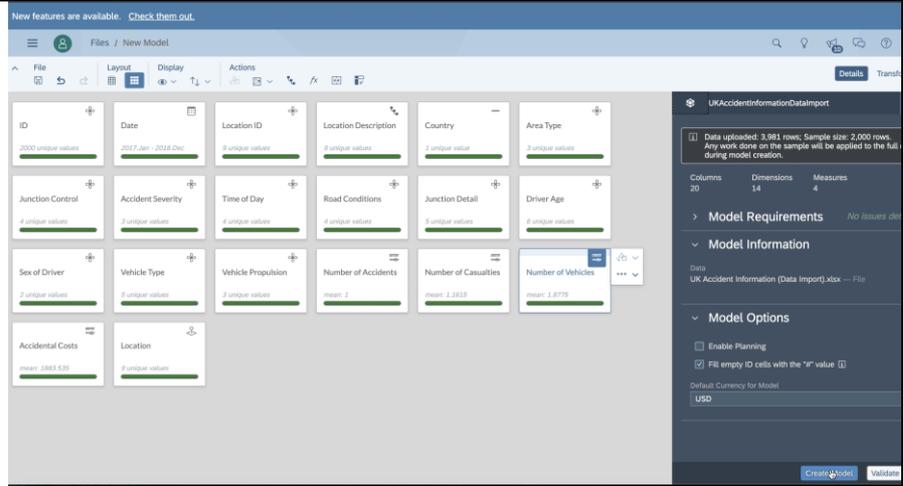
\* Important: please do NOT delete the location ID column (only longitude and latitude)

Last but not least, scroll to the right make sure that these tabs 'Number of accidents, number of casualties and number of vehicles' are picked up as measures (not generic dimension).

Do it individually for each column (numbers of xxx).



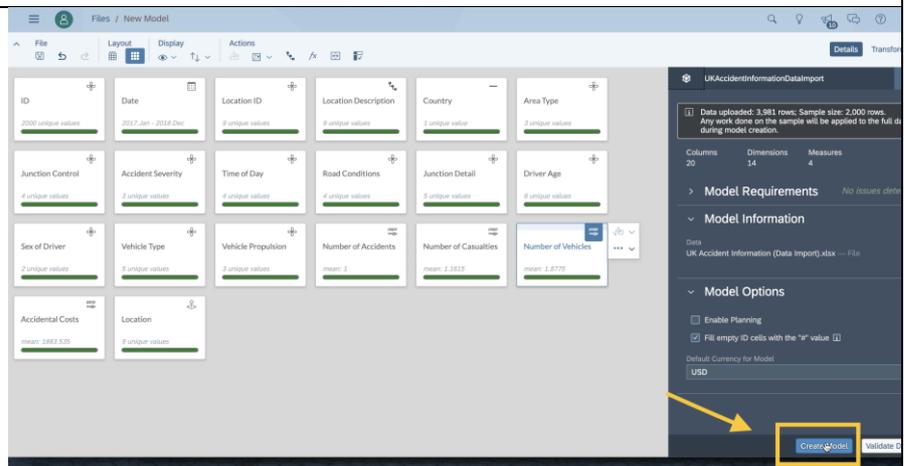
You can take one more look at your data sets by switching the layout to tiles to confirm that everything is in the green and everything is ready to be used for analysis.



Click “Create Model”

A pop-up should occur as the system will run one last validity check.

Click ‘Create’



Save your model - We navigate to a specific folder.

Click **Public** >

ADSE 2021 Training Material >

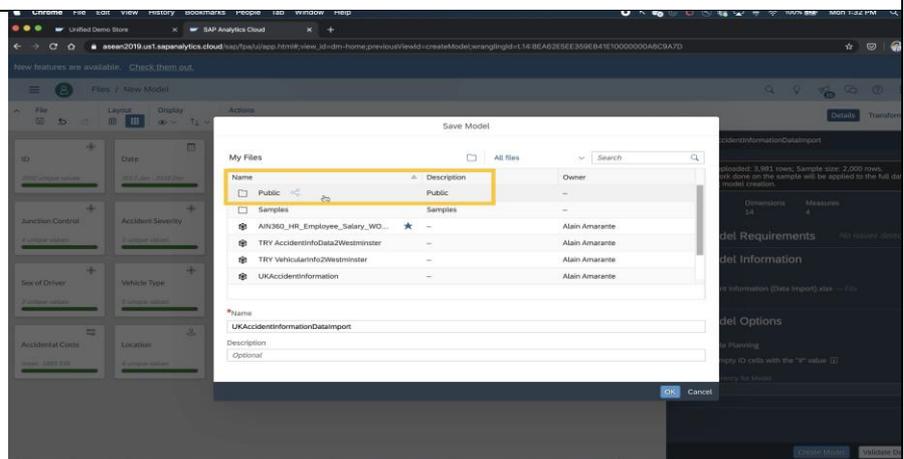
[COUNTRY]

Name it “DATA MODEL\_ **YOUR NAME**” >

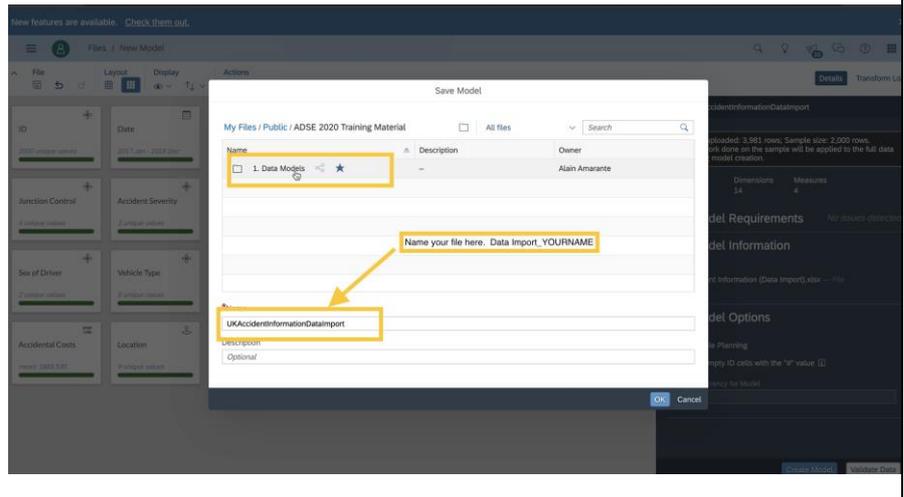
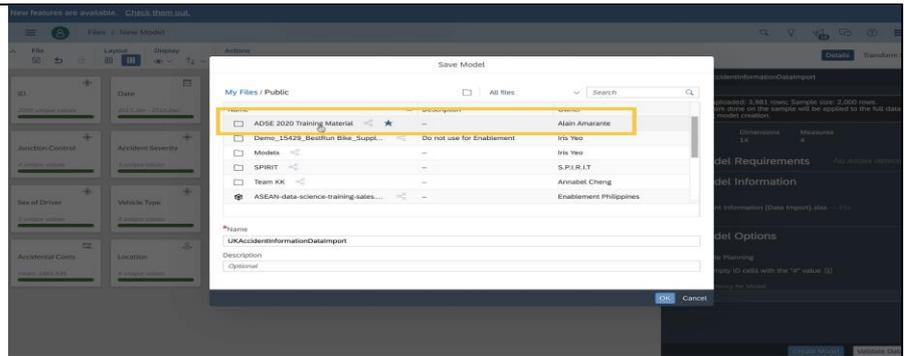
Click ‘OK’

PATH TO SAVE FILES:

Browse Files – Public – ADSE Enablement



## Session 2021 – [Country] – Data Import\_Name



Done! Model Created Successfully!

In this exercise, we have learnt to:

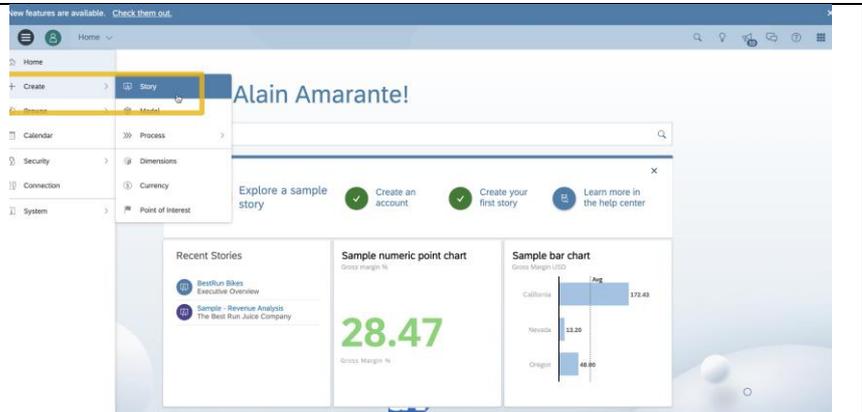
- Import data sets
- Evaluate the data set
- Fix some errors
- Create Hierarchy
- Fix Geopoints
- Transform columns from dimensions to measurements

# Smart Discovery

Now that we have created the model, we will proceed to create our visualization.

Click 'Menu' > Create > Story

A story is what we call a form of reports and visualization on SAP Analytics Cloud.

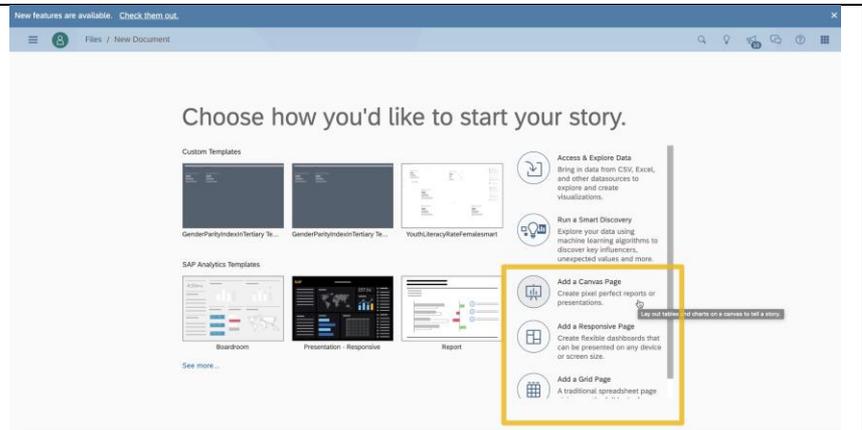


We have several options to start from using some of templates here at the bottom right:

Add a canvas page – for fixed reports

Add a responsive page – great for mobile devices with automatic resizing (Most recommended template to start from if you are creating it from scratch)

Add a grid page



For now, begin with **Smart Discovery** so that we don't start from the very beginning.

Search for the model that we just created

My files > Public > ADSE 2021 Training Material > [COUNTRY] > **Name you saved as earlier\***

PATH TO SAVE FILES:

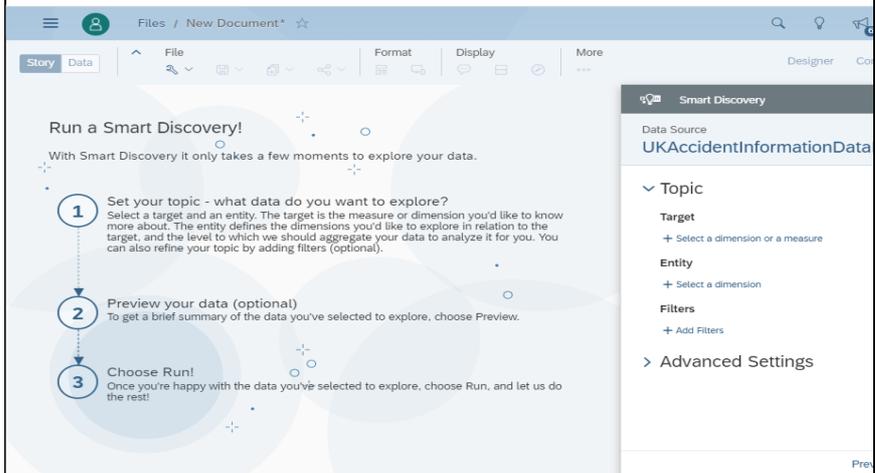
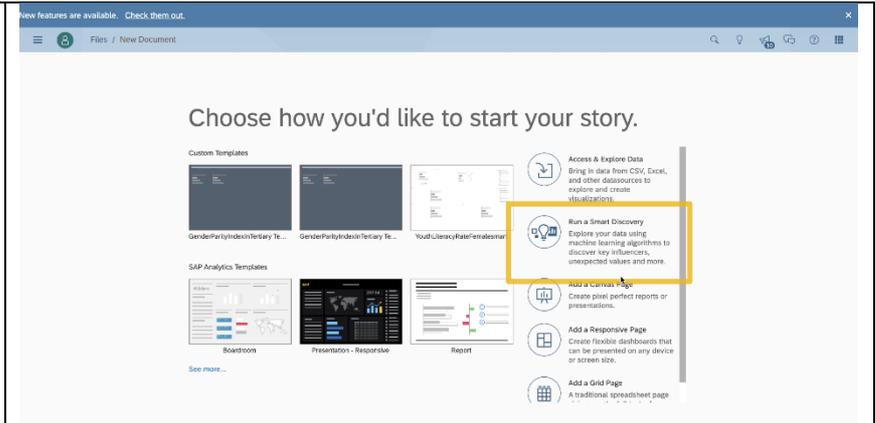
Browse Files – Public – ADSE Enablement Session 2021 – [Country] – Data Import\_Name

Click 'OK'

Smart Discovery uses machine-learning to generate insights about our dataset without having to go through the nitty-gritty ourselves.

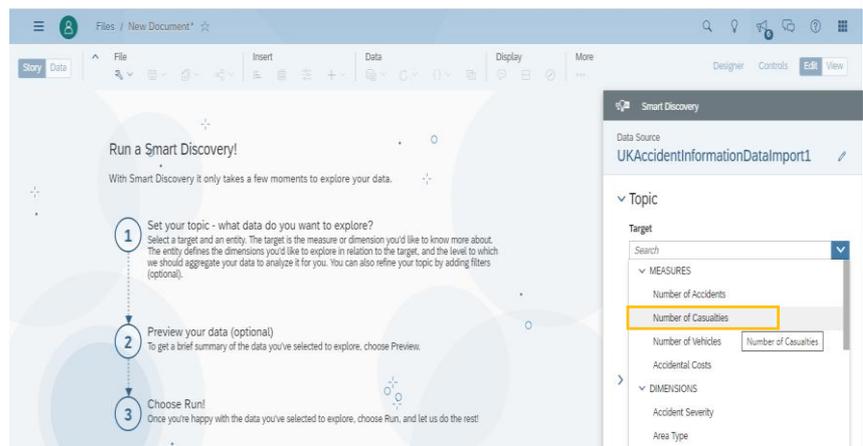
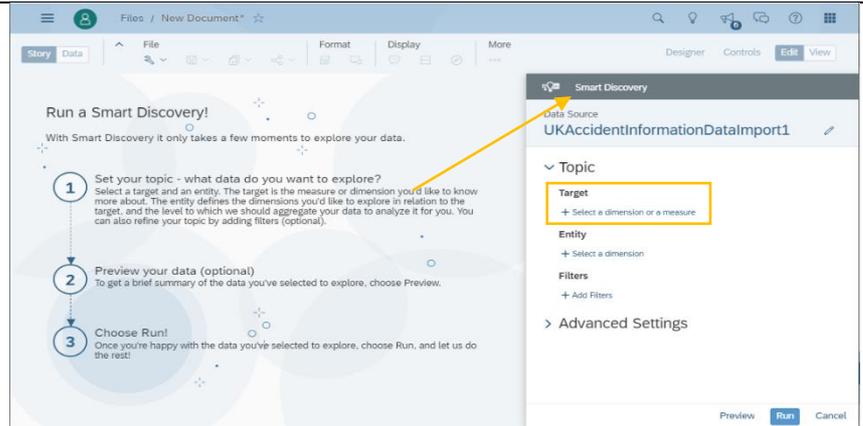
On the right of the page, a 'Smart Discovery' dropdown box asks us which measure we want to know more about and conduct the analysis on.

Now, let's ask the SAP Analytics Cloud to figure out what are the probable influencers of **number of casualties** in these accidents.

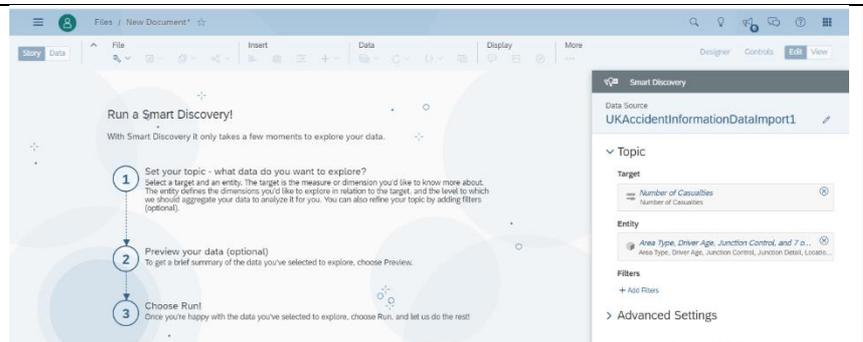


Hence, on the Target, click on 'Select a dimension or a measure'.

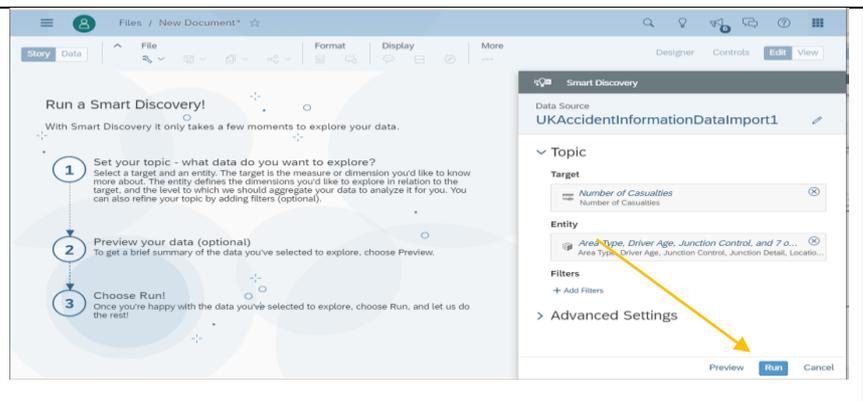
Then select on 'Number of Casualties'.



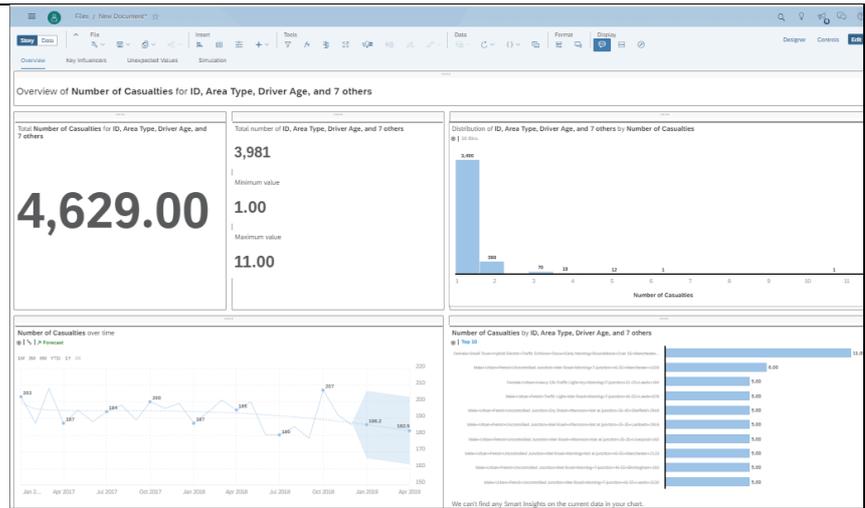
For the Entity, we can select up to ten dimensions. Hence, let select (i) Area Type; (ii) Driver Age; (iii) ID; (iv) Junction Control; (v) Junction Description; (vi) Location Description; (vii) Road Condition; (viii) Sex of Driver; (ix) Time of Day; (x) Vehicle Propulsion.



Click 'RUN' and it will give us back some results on what are the things that impact the number of casualties per accident.



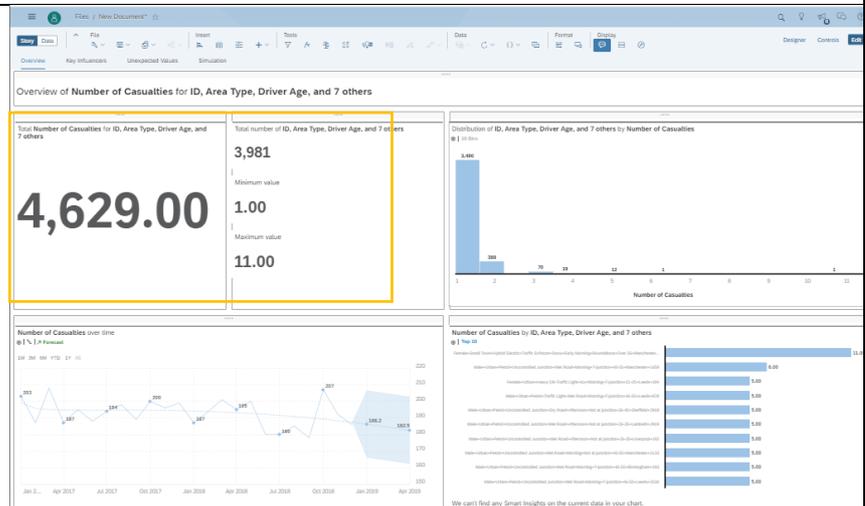
In just a few seconds, you were able to generate all of these charts automatically so the results of a Smart Discovery make for a really good starting point when it comes to creating our charts.



## Number of Casualties

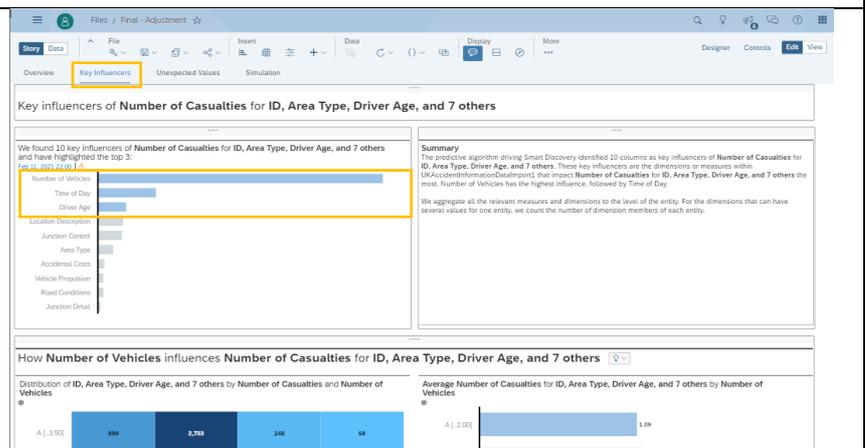
At the top left, we have a total number of the casualties based on our dataset. It shows that we have a minimum of one person suffering in an accident, with a maximum of 11 people involved in one accident.

Below that, we also could see the timeframe of the casualties.



On the top of the page, click on the tab 'KEY INFLUENCERS'. We want to get a deeper look on the key influences that affect the number of casualties. In blue, SAP Analytics Cloud automatically highlights the top three that is the most impactful.

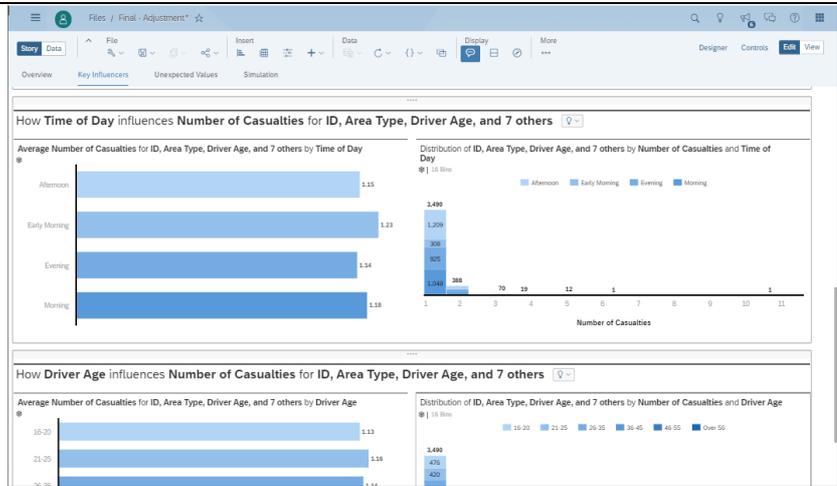
Number of vehicles involved: This goes without saying as the more cars involved in an



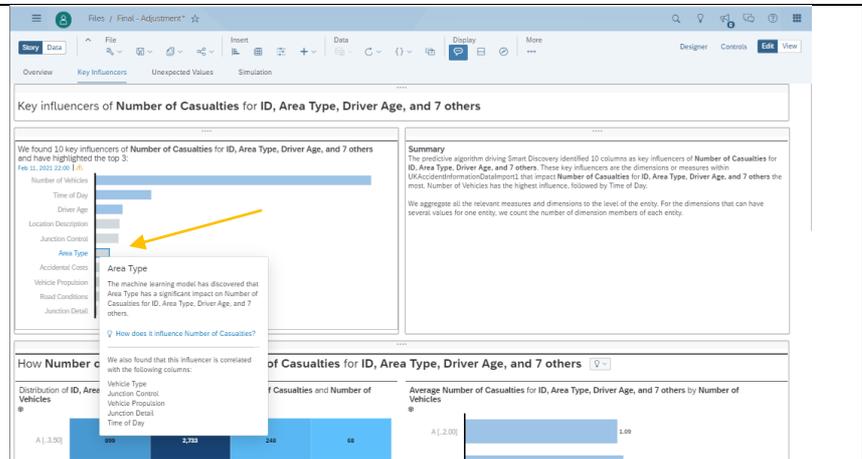
accident, the more probable it is for more people to suffer a casualty.

Time of day plays a huge part in the potential of having casualties as well.

Driving out in the early morning, between midnight to early 6 a.m., has higher chances of suffering from casualties. This could be due to be overconfidence of driving on the road since there are less people on the road, driving late coming from parties, exhausted driver or driving under the influence and hence, more prone to being less alert and cause accidents.

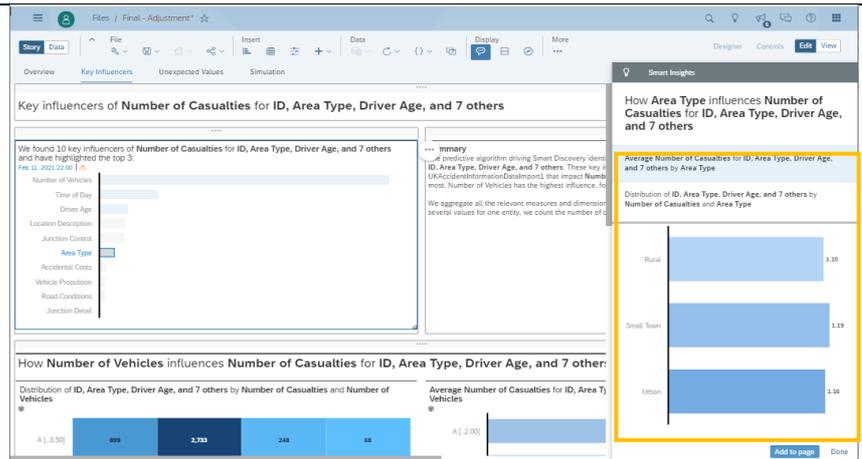


For all of the influencers, we are able to get more information about each item if we hover our cursor over the bar chart, and click on the pop out tab with text '[how does it influence Number of Casualties](#)' – a side panel will pop up on the right side of the page with more details.



For example, click on 'Area Type' > 'how does it influence a number of casualties'

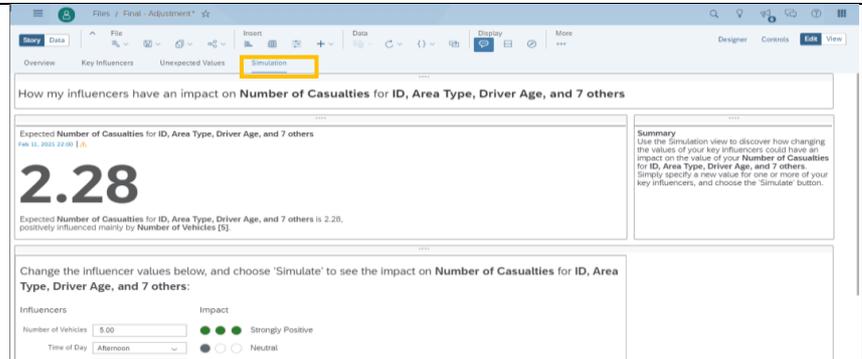
And we see that on average, small towns seem to have just a tad bit more average number of casualties. Assumptions made here are that it could be because in a less urbanized environment, there would be less traffic lights and people might not adhere to traffic rules hence resulting in slightly higher number of accidents.



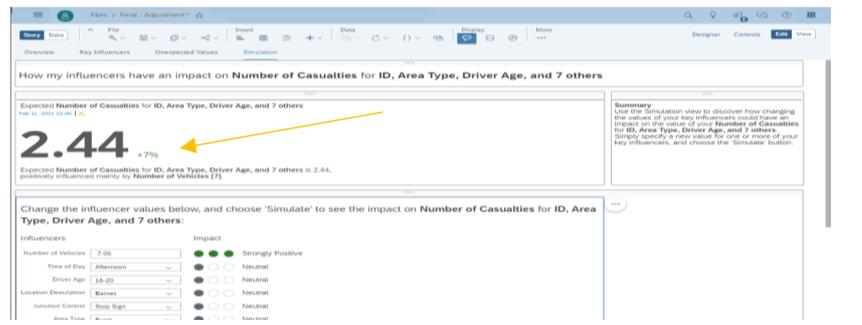
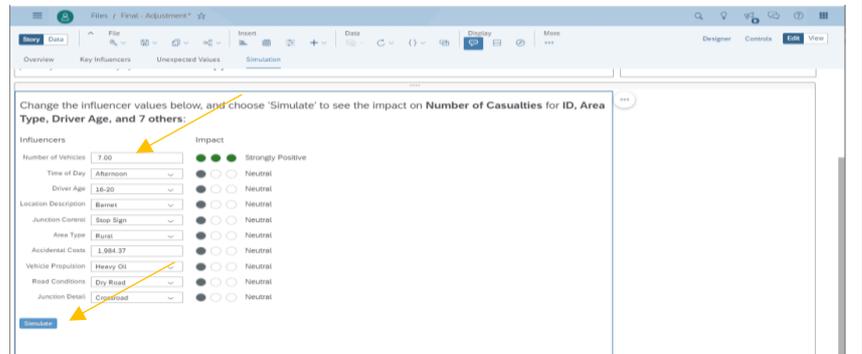
Next, let's move to the next part of the smart discovery is to run a simulation

tab 'SIMULATION'

A simulation ties together all the different influencers we were able to pull together. We can see how if we were to change particular aspects of these notes, how would it, in turn, impact the expected number of casualties.



For example, if we forecast or simulate an accident that involves around seven vehicles, we can expect a 7% increase in the number of casualties. We can play around with these different figures to see which and how influences affect the number of casualties.



# Data Explorer

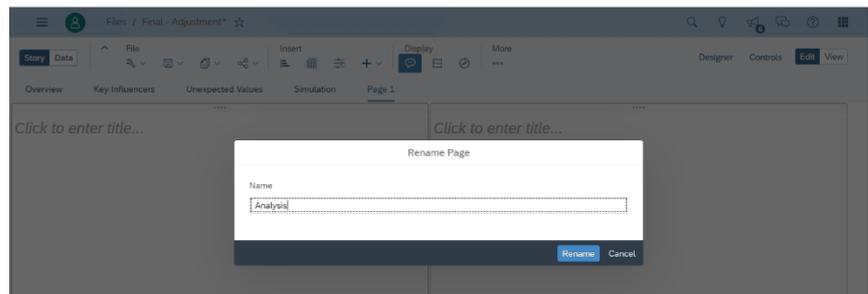
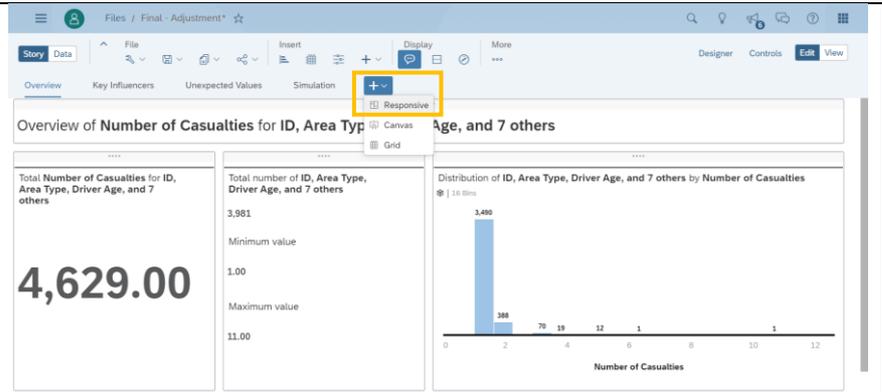
Smart discovery gave us a very nice jump start to create a dashboard.

Click on the (+) Tab, Click on Responsive.

Now, we are able to create our own analytical visualisations with the help of the query.

Let's rename the story tab 'Page 1'. Point the cursor on Page 1.

Click on 'Rename'  
 'Page 1' to 'Analysis'  
 Click 'Rename'

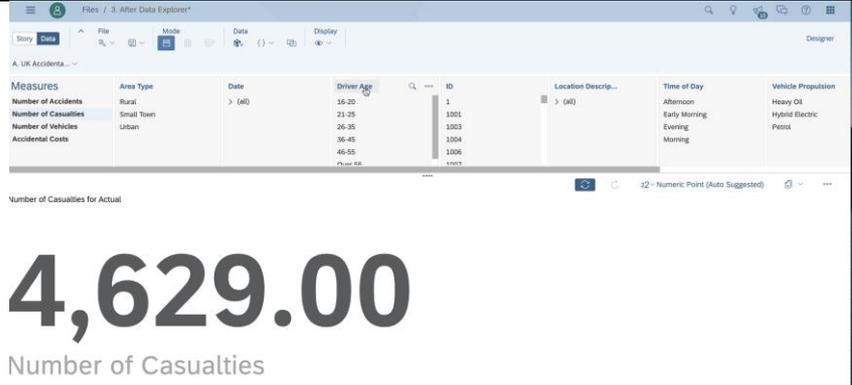


At the top left of the page, shift from story to the data view and it will bring us to the explorer mode where we are able to create ad-hoc tables and charts by selecting a combination of different parameters.

The screenshot shows the Data Explorer view in Power BI Desktop. The table below represents the data structure shown in the interface:

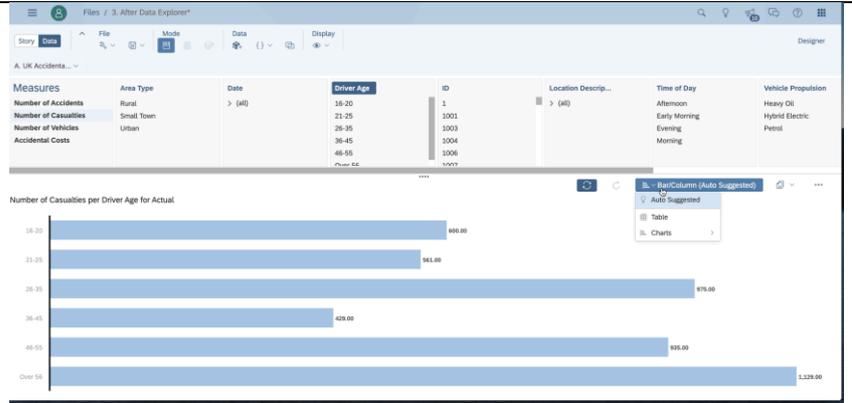
Measures	Area Type	Date	Driver Age	ID	Junction Control	Junction
Number of Accidents	Rural	> (all)	16-20	1	Stop Sign	Crossroad
Number of Casualties	Small Town		21-25	1001	Traffic Enforcer	Not at junction
Number of Vehicles	Urban		26-35	1003	Traffic Light	Private Road

For example, click on number of casualties and this chart at this blank space at the bottom will automatically give a total number of casualties.



Take a look at how driver's age plays a part. It creates an automatic bar chart.

We can click on Bar/Column (auto suggested) to change the type of visualization you see many options.



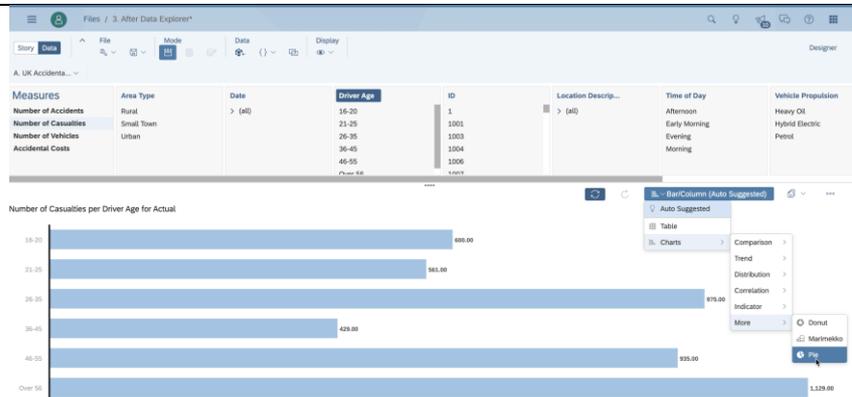
Click on 'Charts'

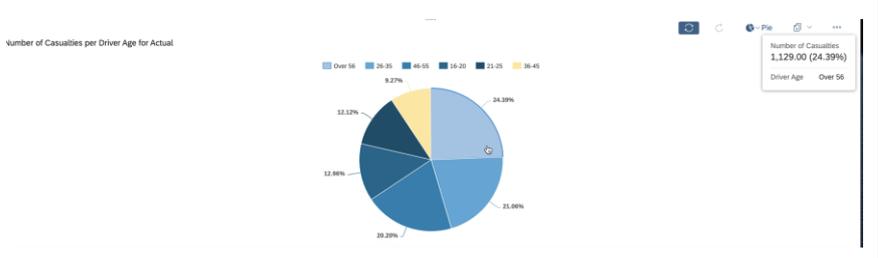
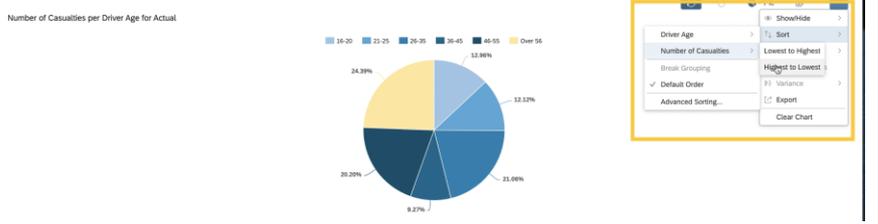
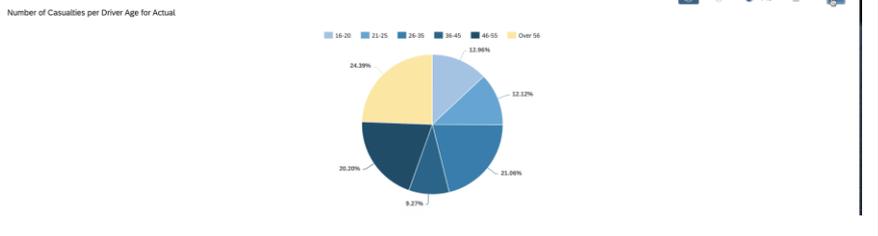
> 'More'

> 'Pie Chart'

To make it cleaner, we can sort from 'highest to lowest'

We are able to see at a glance that the number of casualties for drivers above age 56 is higher than the rest. It could play a role that elderly is more susceptible to causing accidents on the road and may mean that we need to provide additional training/retraining for people older than 65.



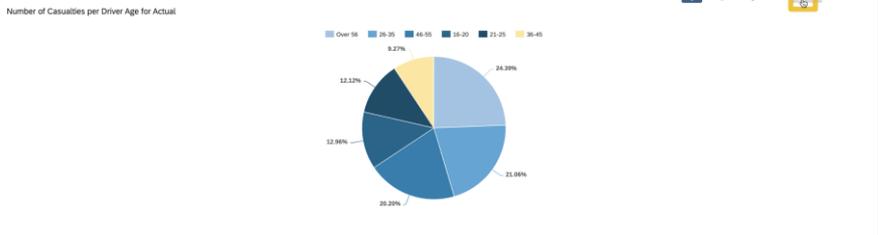


Once we have the chart, we click on the 'file' icon

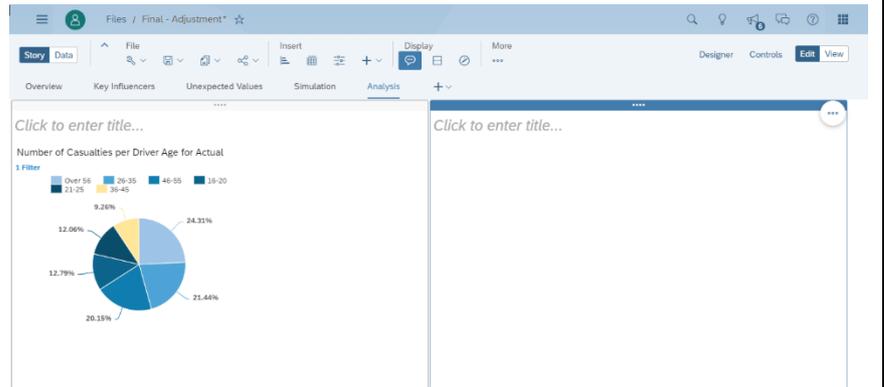
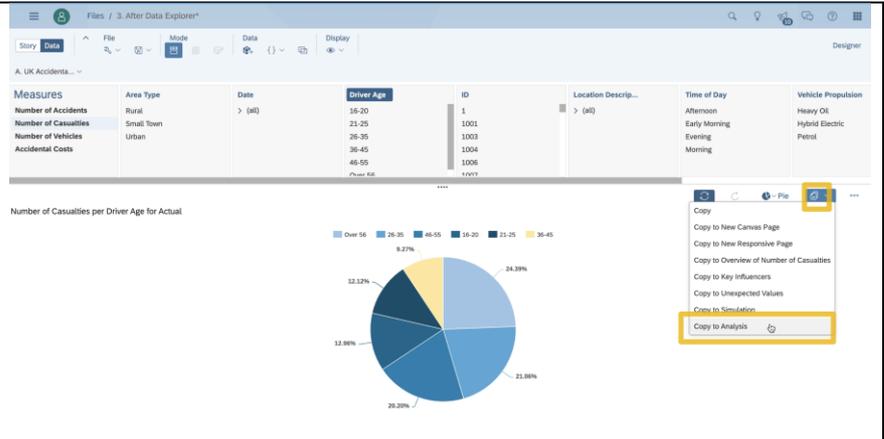
'Copy to Analysis' the page we have just created

You will receive a notification that visualization successfully copied.

Now we can begin including these visualizations that we will use later on.



Feel free to resize the charts by dragging the corners and you'll see a grid interface.

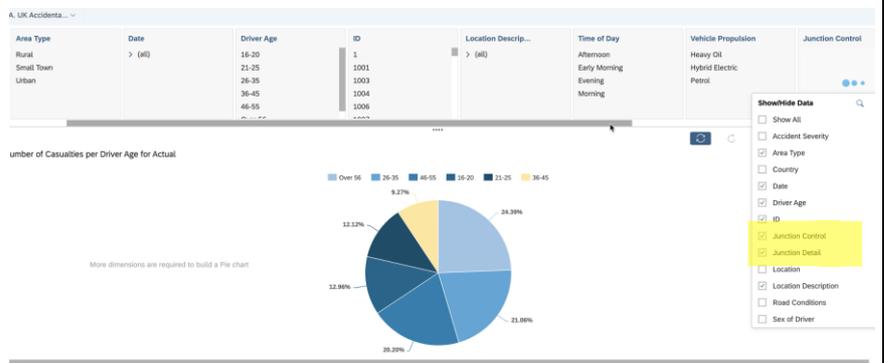
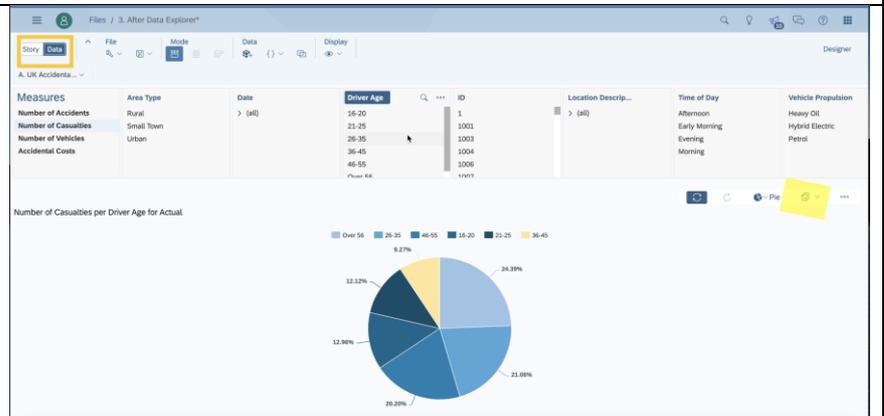


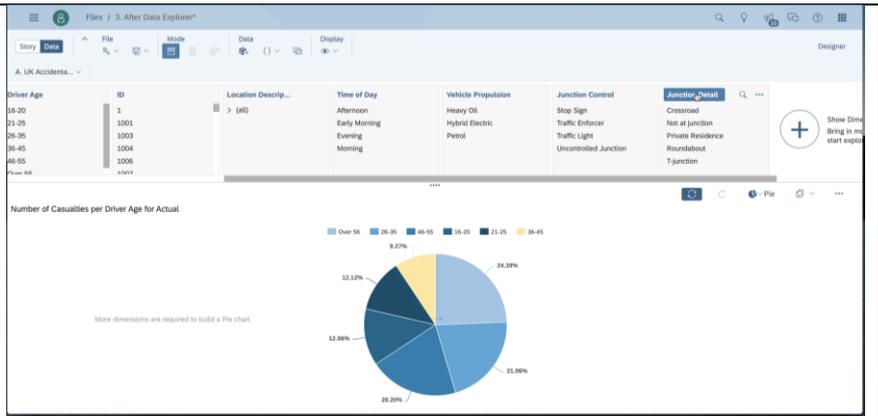
Switch back to Data View.

You can create more graphs by:

Deselecting 'driver age'

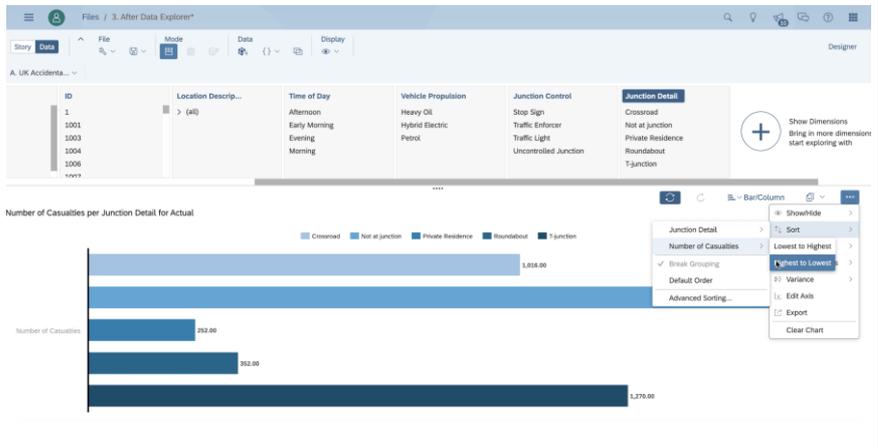
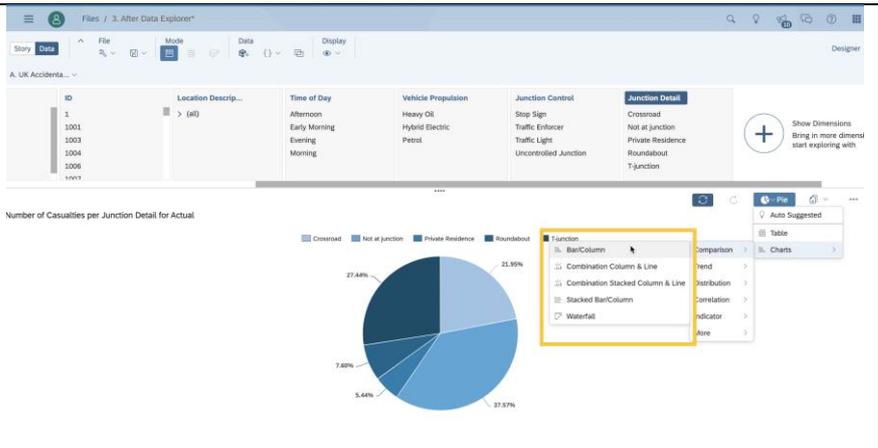
Select 'Junction Detail' tab





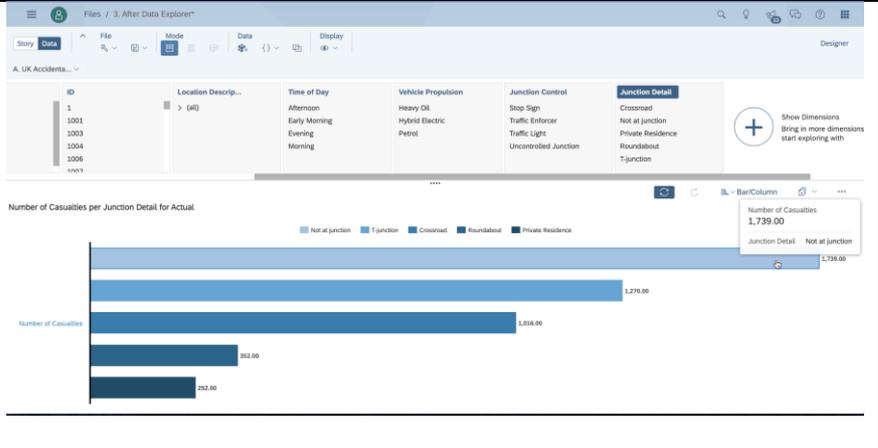
Now, let's view a bar chart instead.

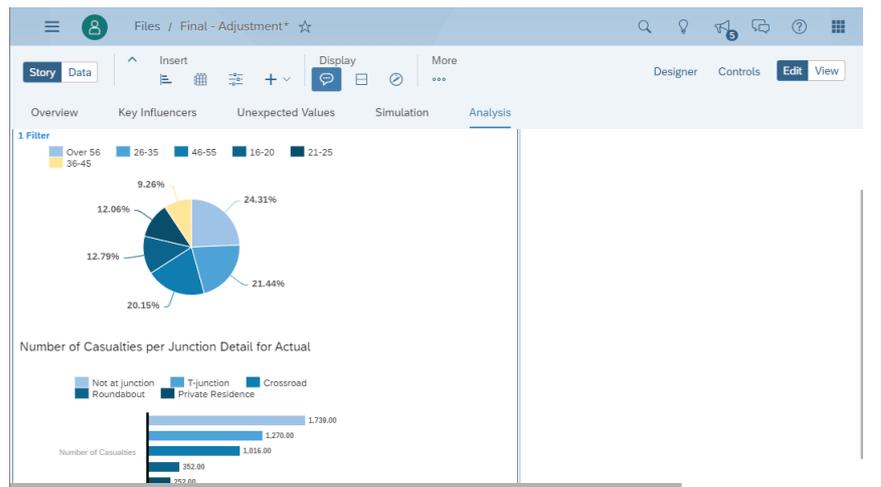
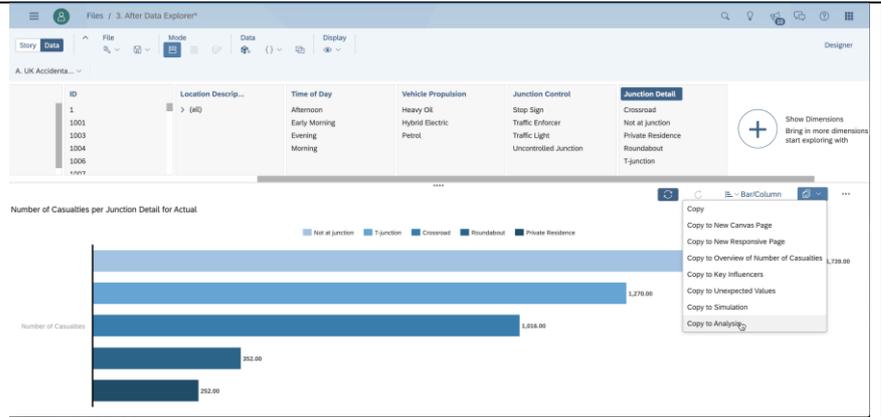
Sort it by 'Highest to Lowest'.



We now see that most of the accidents happen when they are not at the junction.

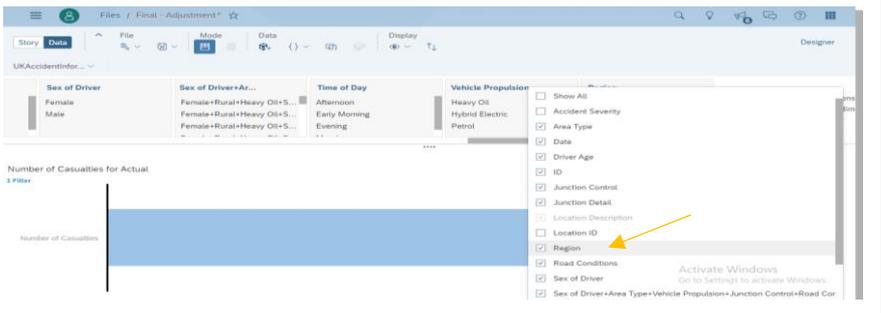
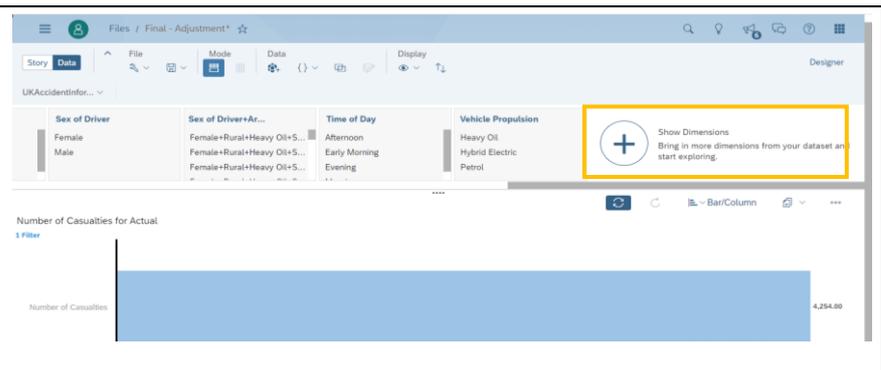
Let's copy and paste this chart into our Analysis Tab.



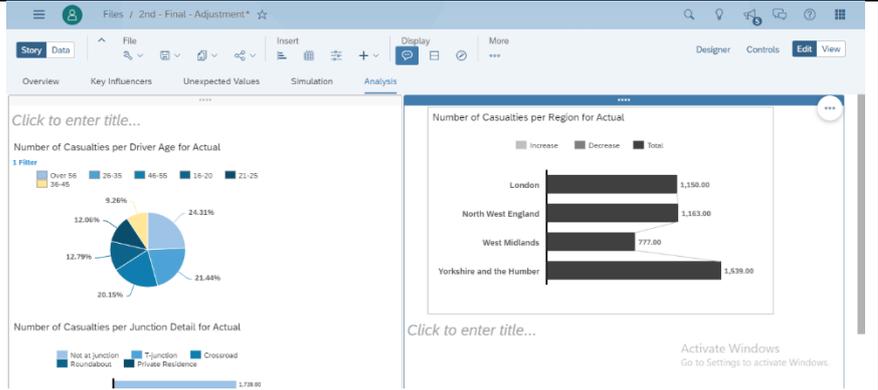


Switch back to Data View, you can bring more dimension from your dataset.

Let's choose the Region.



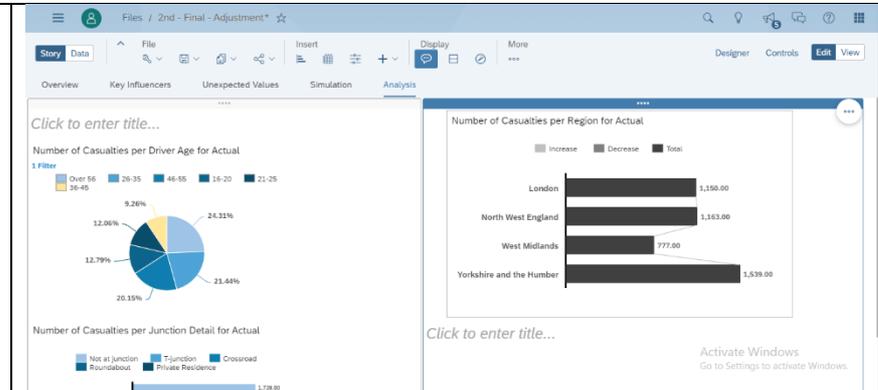
Create another graph on the region and copy it to Analysis tab.



In this part of the exercise, the instructor will come up with questions to help you play around with data explorer and create more queries to use in your analysis.

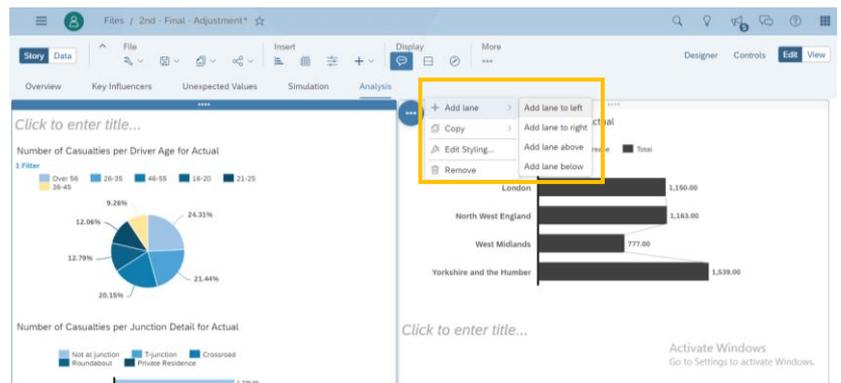
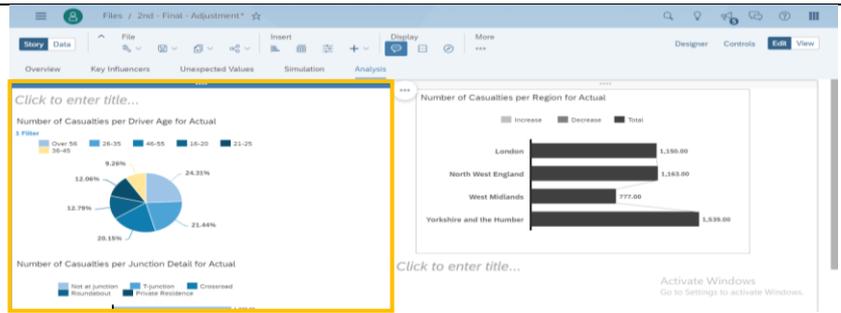
## Calculations & Input Controls

In this exercise, we are introducing filters through input controls and calculations to enhance our analysis.

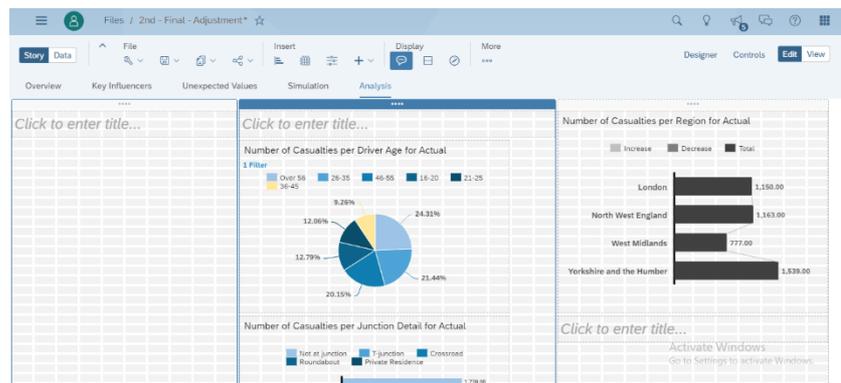
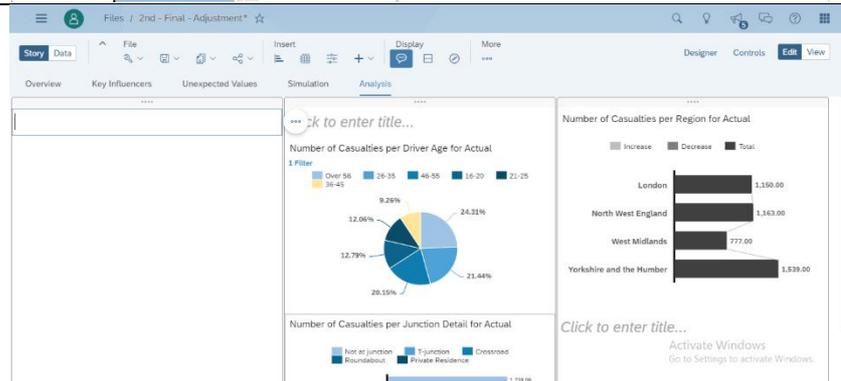


First, let's make space for that by customizing the lanes or these white spaces.

Click on the Ellipsis button > + Add Lane > Add Lane to the Left

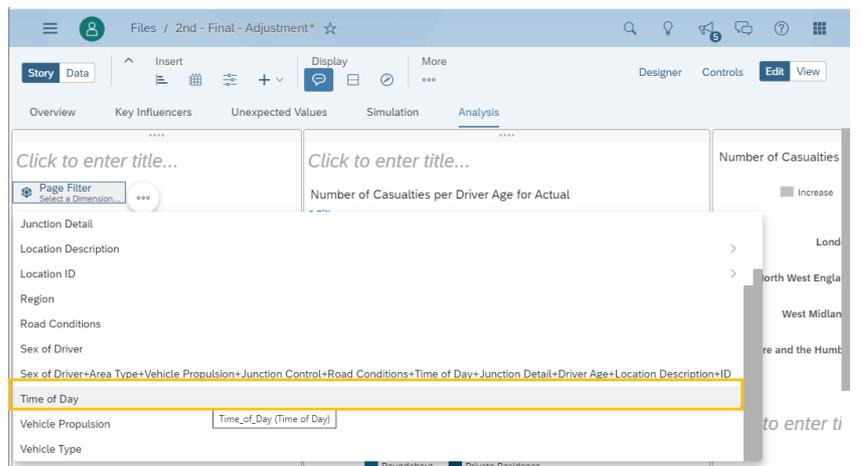
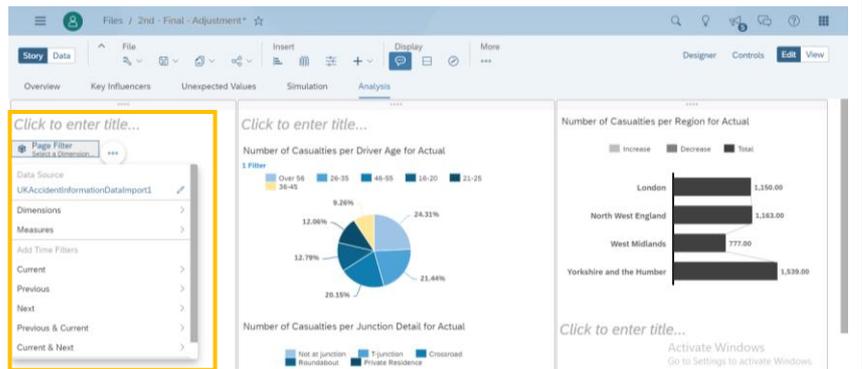
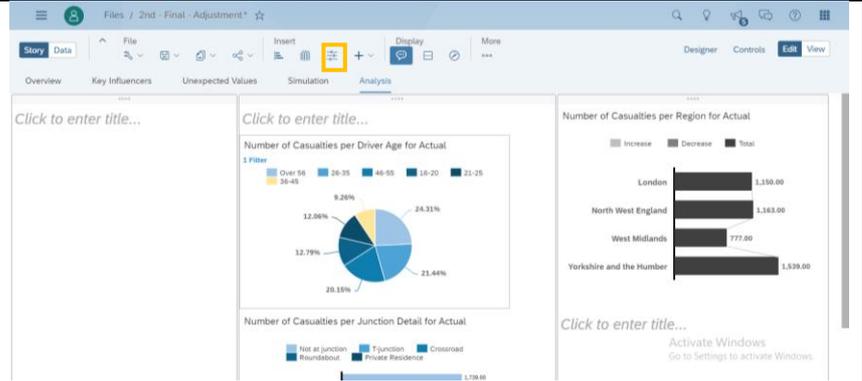


We now have the small space where we will put our filters on. You can resize by dragging the columns so that it is not skewed and you can resize the rest of the columns as well.



First, create an input control, under the 'insert' category on the toolbar

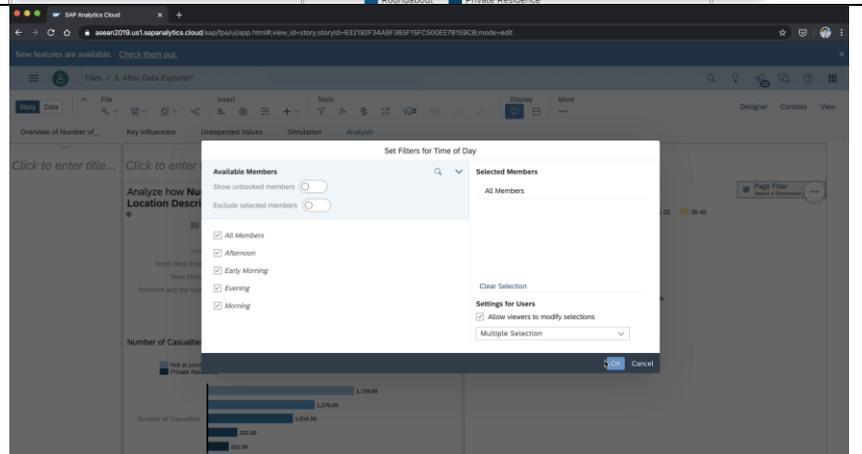
Click on 'Page Filter' > Select a dimension 'Dimensions' > 'Time of Day'

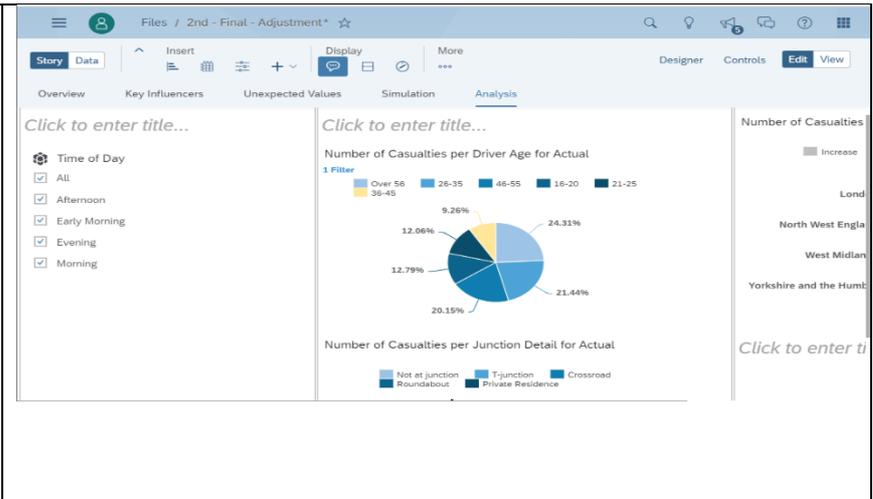
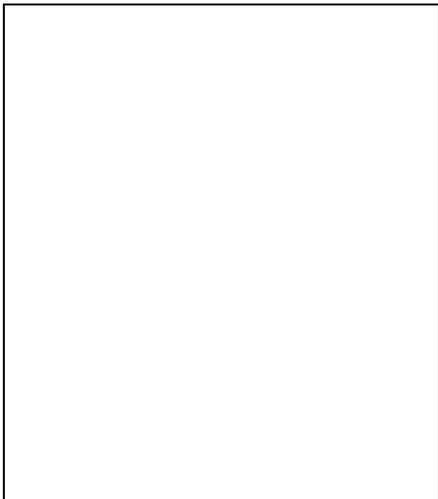


Select 'ALL MEMBERS' (all boxes will be checked) > 'OK'

Drag the box it to the left and you can expand it so you can read the text

Add another dimension

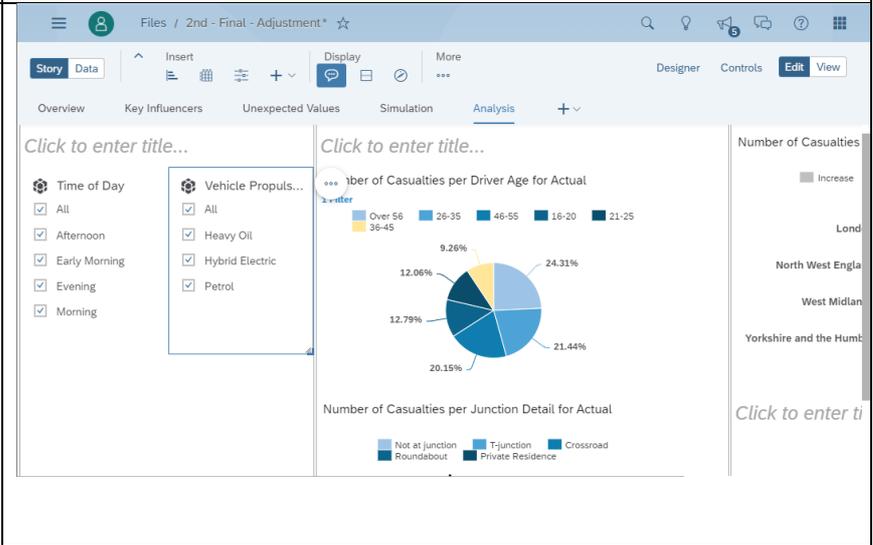




Click on 'Page Filter' > Select a dimension 'Dimensions' > 'Vehicle Propulsion'

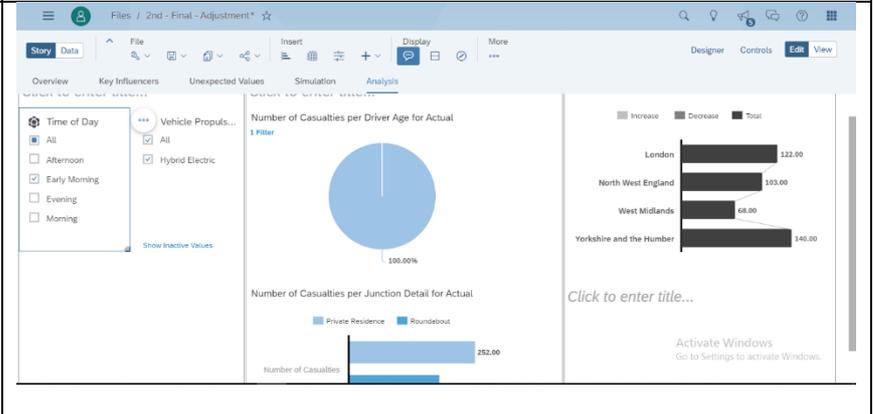
Select 'ALL MEMBERS' (all boxes will be checked) > 'OK'

Drag it to expand it



Now, we can play around with boxes

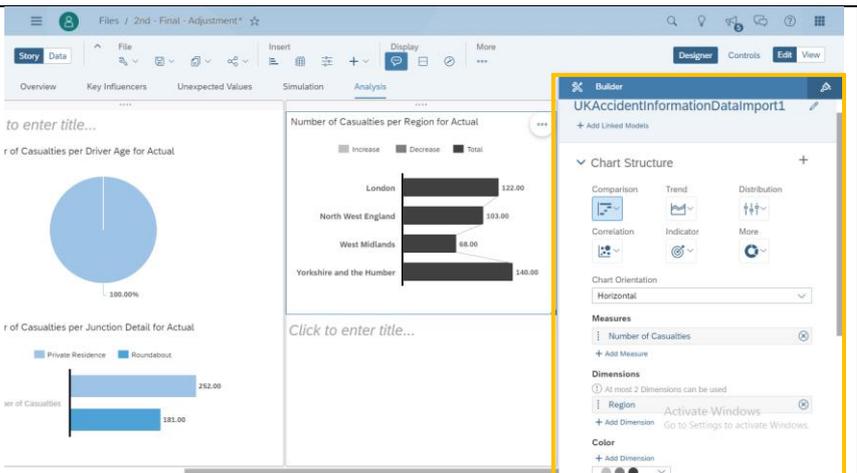
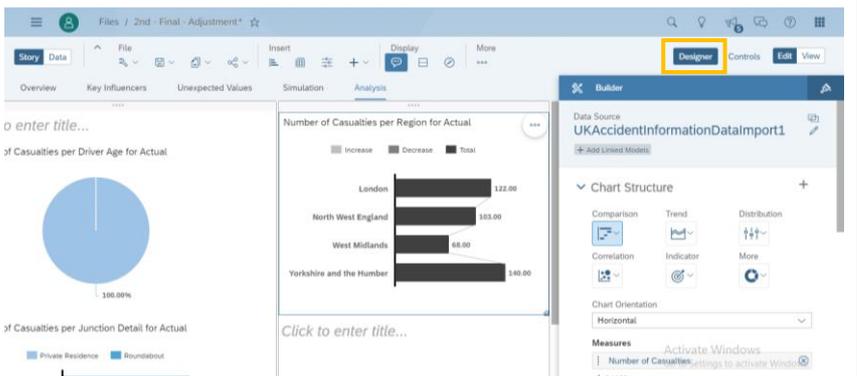
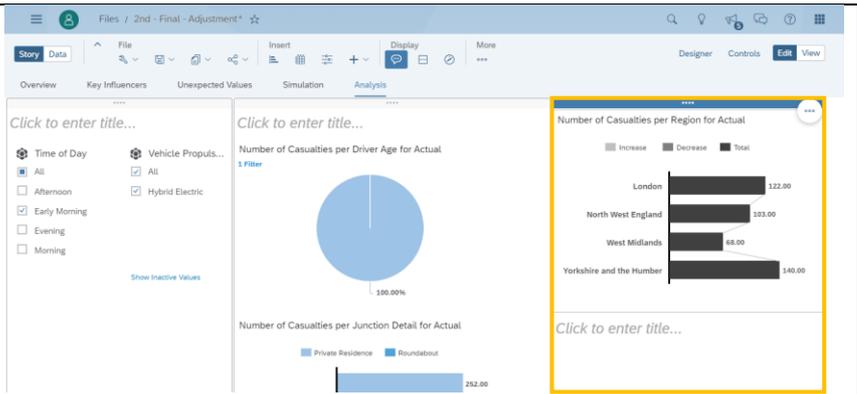
'Time of Day' Box – Select only 'early morning' and we can see how is that is broken down



Next, click on the chart 'Number of Casualties per Region for Actual'

Expand the 'designer mode' in the builder mode





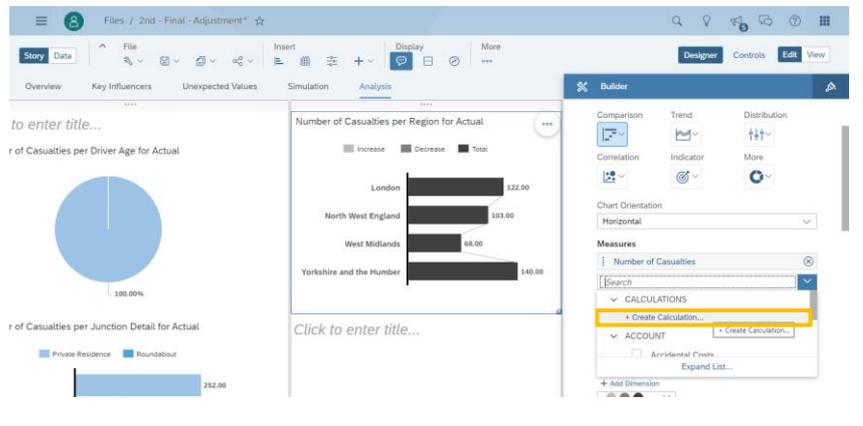
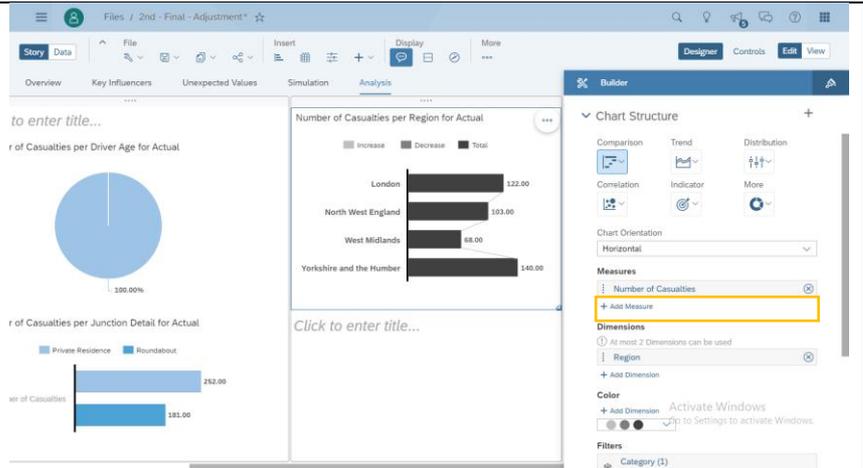
The builder mode allows you to have a detailed view of what the chart is comprised of.

We can see the chart type; we can see the measuring dimensions in which these are part of and we can also change the colour add some filters to these graphs as necessary.

To find out the average number of casualties...

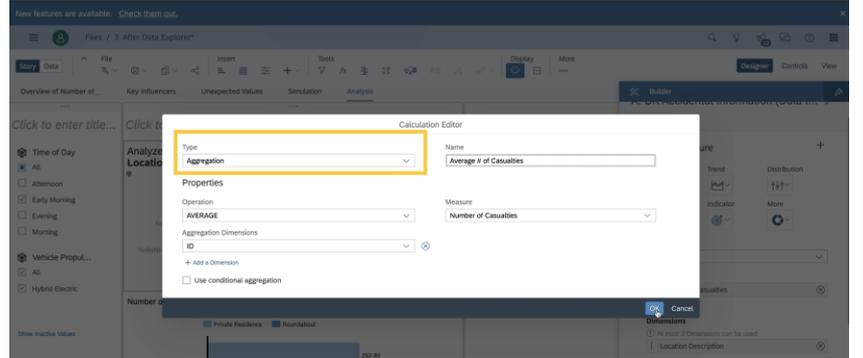
Look under 'measure' to find a (+) plus button click 'Add Measure'

Click on 'Create Calculation'



As the name suggests, calculations mean that it is able to run formulas on measures that we already have and make them more specialized or specific

Type: AGGREGATION

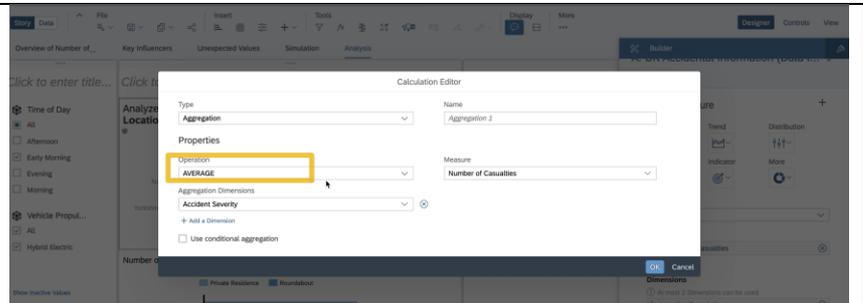


We have different options for operations here, for example, we are able to SUM, MIN, MAX etc.

Operations: Click 'AVERAGE'

Measure: Number of Casualties

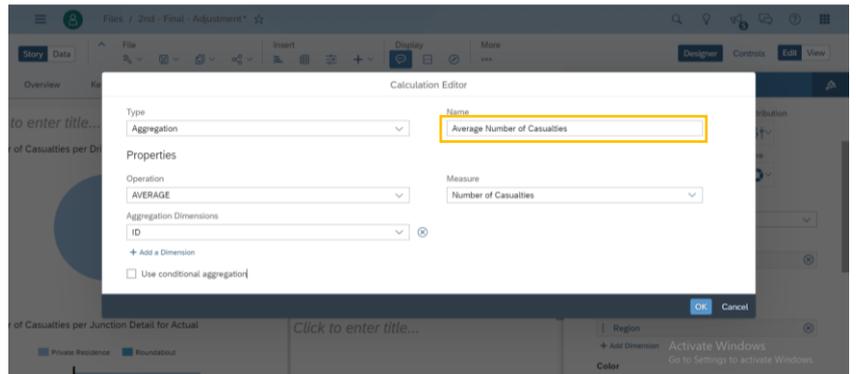
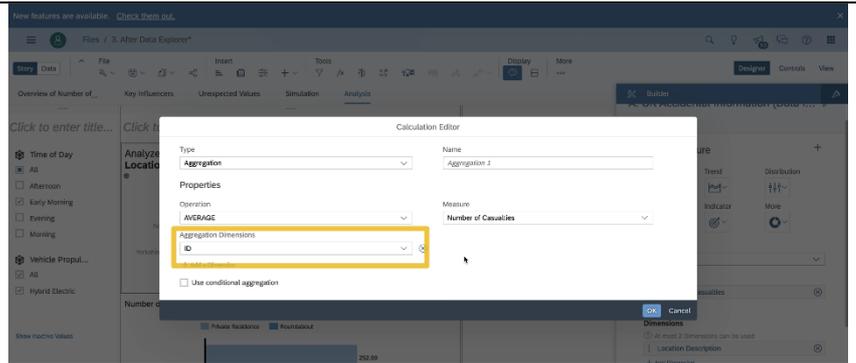
Aggregation Dimensions: ID



We want to run a calculation on how many average numbers of casualties we have across all the different ID reports.

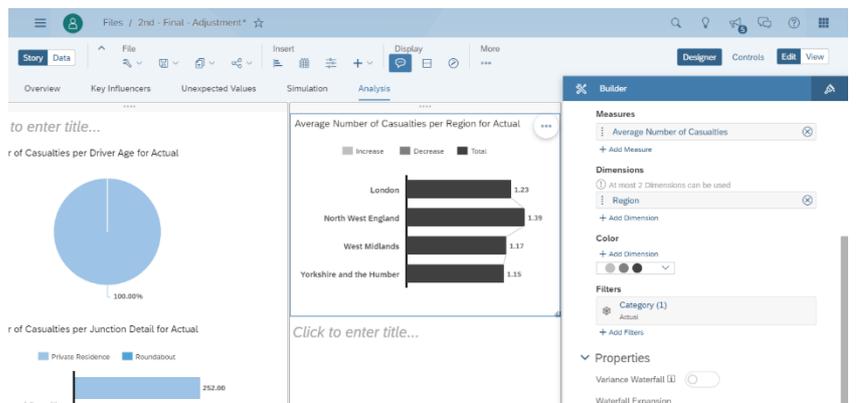
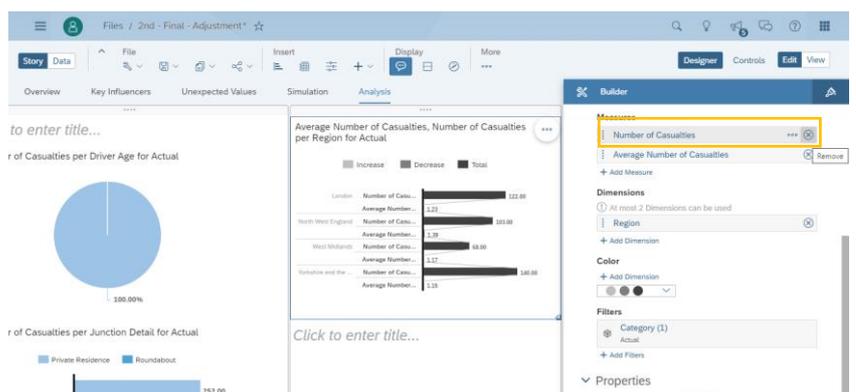
We name this: Average number of casualties

Click 'OK'



And we can deselect the original 'measures: number of casualties' button, you should only see 'average # of casualties' under your MEASURES tab

So, we now have a breakdown geographically of the average number of casualties per region in the UK



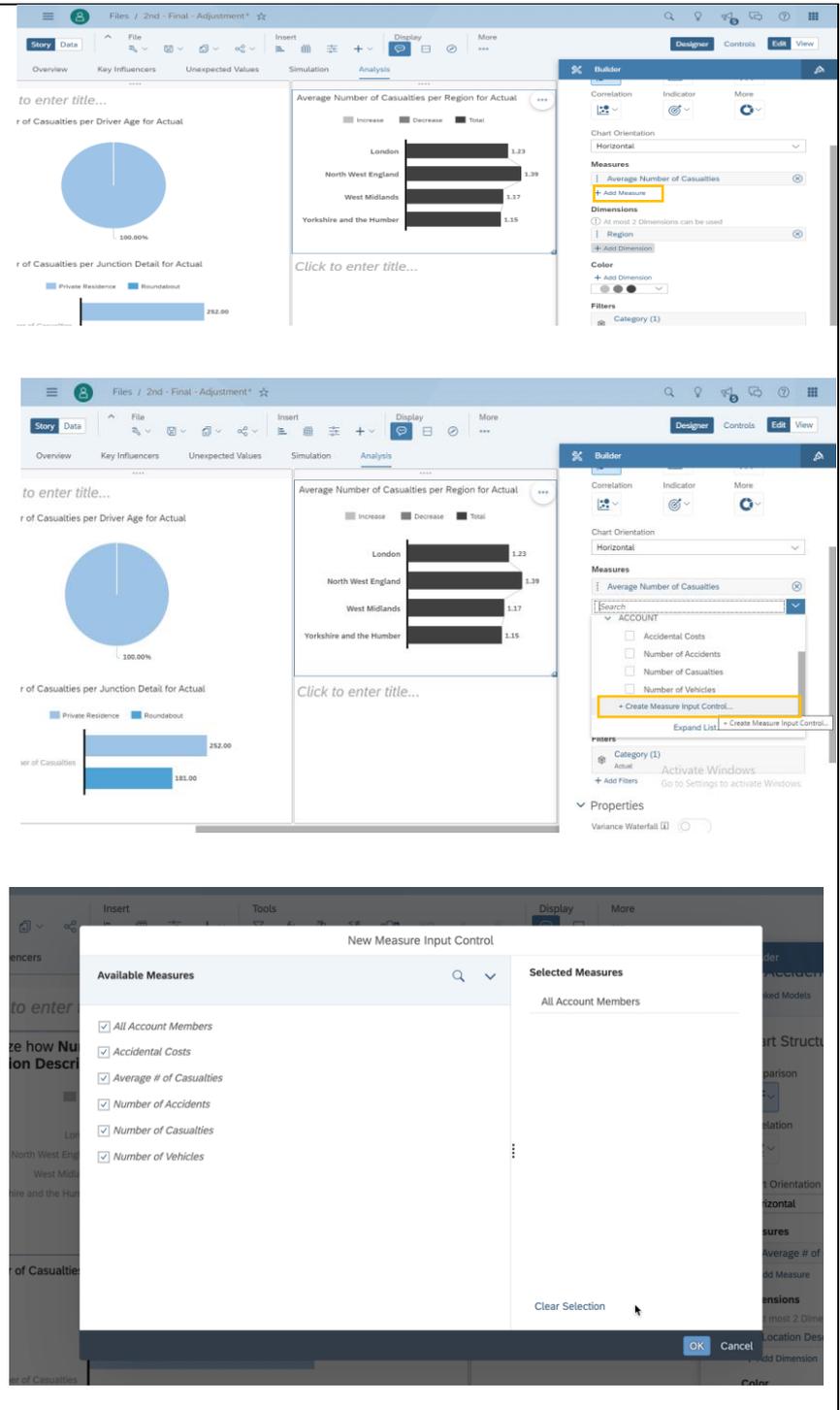
We also want to introduce the concept of measure input

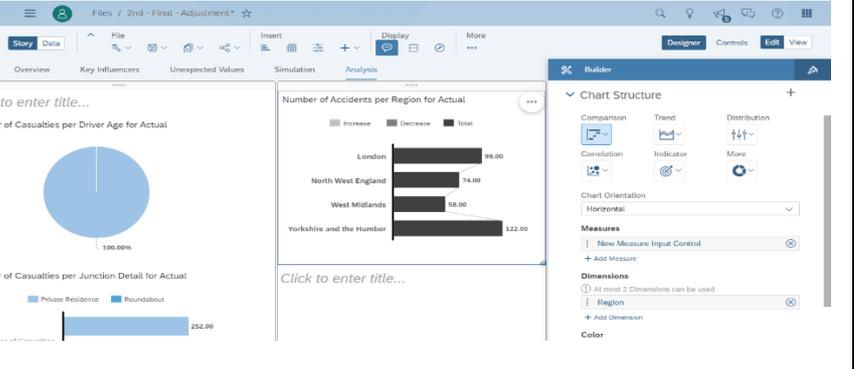
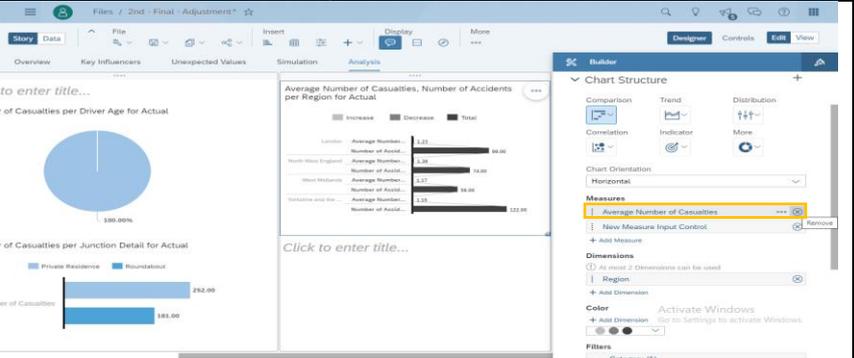
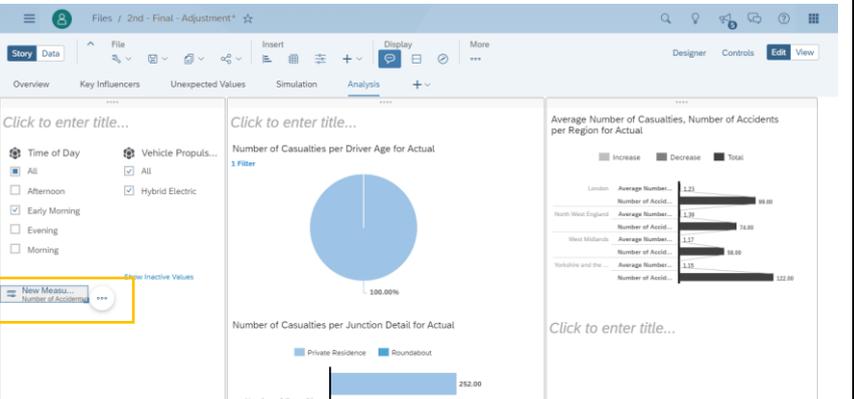
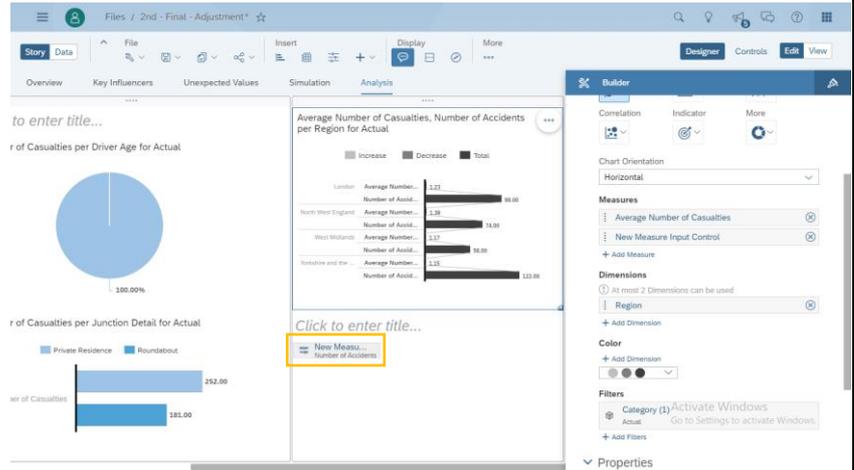
controls so these are filters on the measures.

Click on 'ADD MEASURE' > and at the bottom of all these different measures, select '+ Create Measure Input Control' > 'All Account Members' and this should check all boxes > Click 'OK'

You should see a new bar should pop up on your screen that says 'New measure input control'

Drag and drop it to our measure input column and expand it for visibility





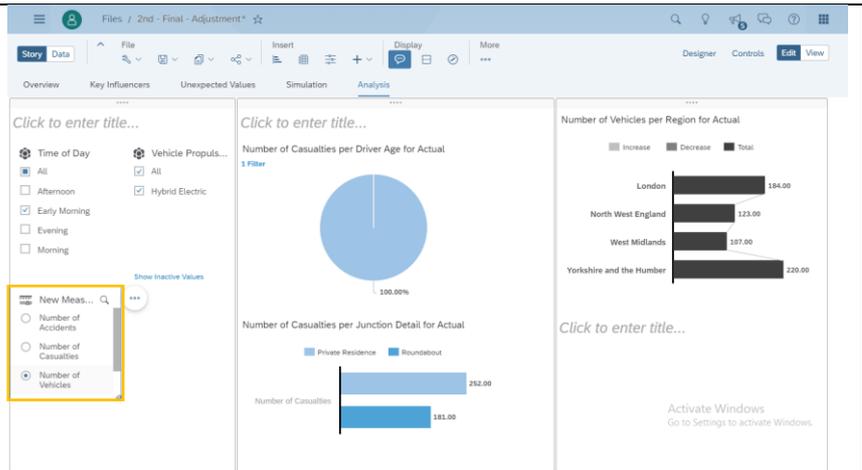
In the 'Average number of casualties, number of accidents per region for actual' chart

Deselect the 'average number of casualties' so you only have the 'New Measure Input Control' selected (on the right panel)

Click on this input control (left column) and change the measure that changing the 'Average number of casualties broken down my location description' chart so you can change to see the number of casualties, number of vehicles, accidental costs by location etcetera

That is the basic on creating these filters, input controls and also creating calculations.

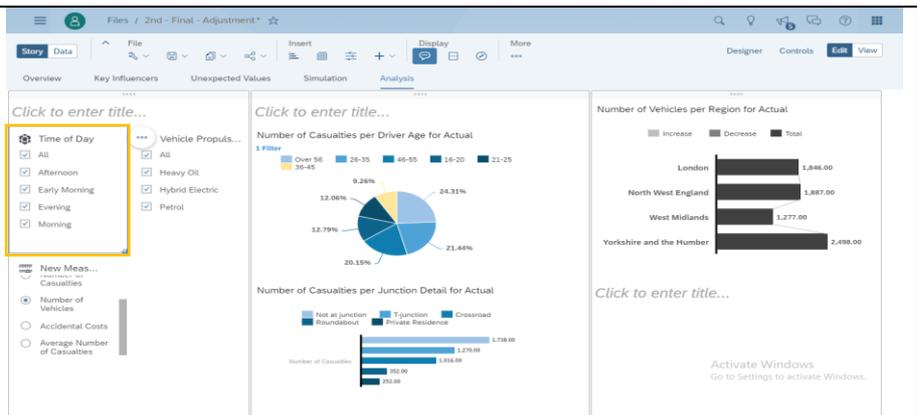
Save your work!



## Designer Mode and Geo-enrichment

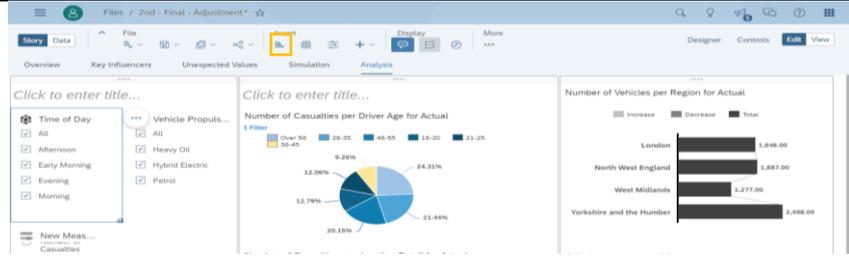
Now in this exercise we're going to take a little different visualization options that we have, playing around, changing some of the design elements and also creating Geospatial map analysis.

First, let's select all the Time of Day again to make sure of the factors in the analysis.

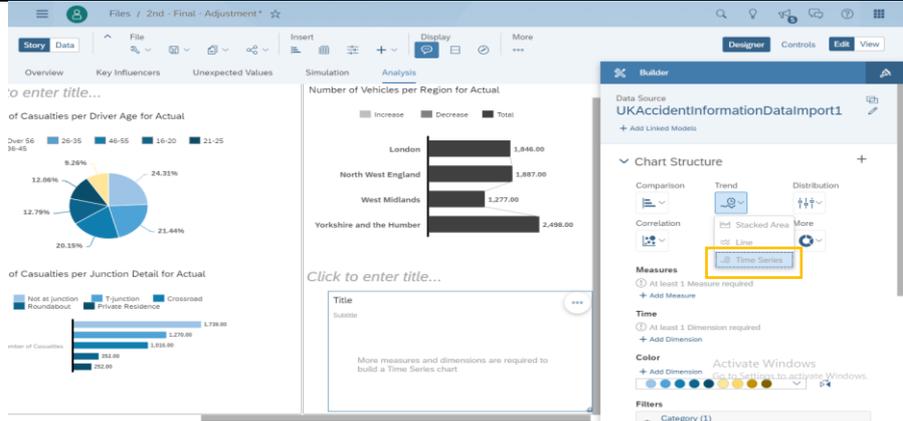


Then let's open up the Designer mode. What you want to do is introducing a new chart. We do that by clicking on the insert

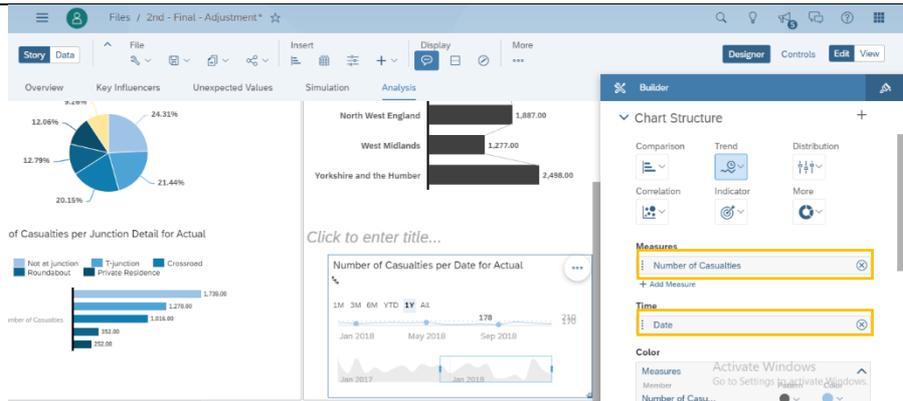
button, then click on insert a new chart.



Let's drag it into the empty space below the bar chart. And I want to introduce a Time Series analysis.

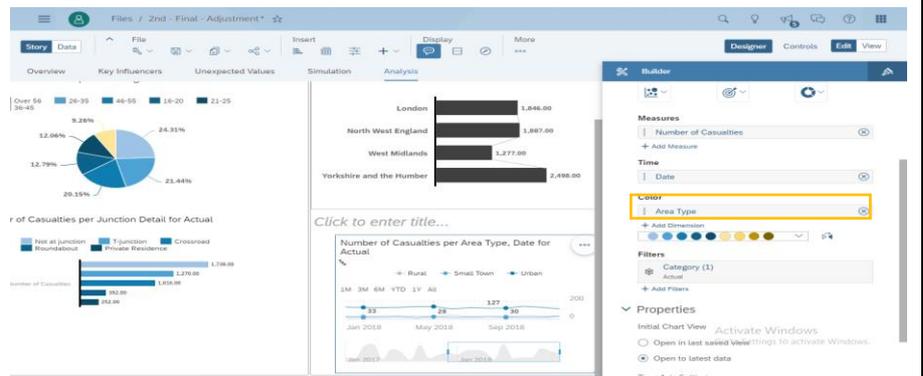
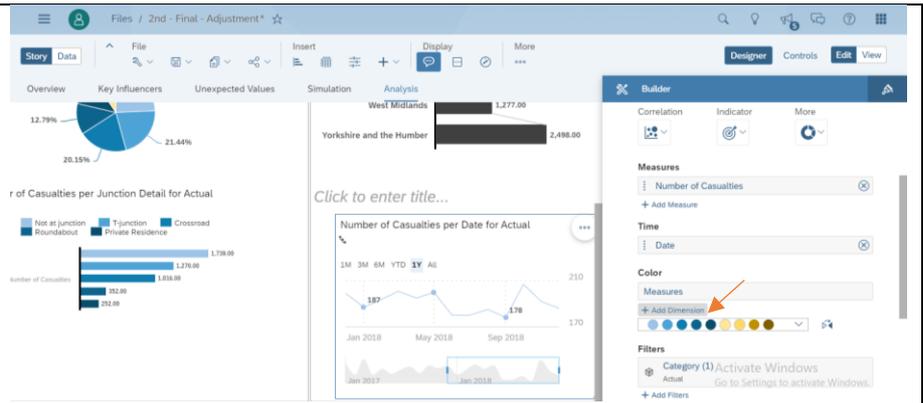


In this Time Series analysis, I want to run the number of Casualties.

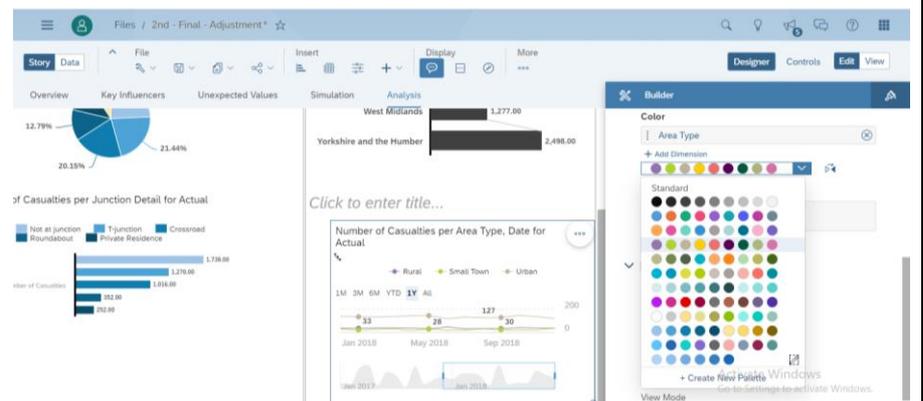


According to the time, which is the date, we now have this Time Series chart that shows the trend of how the casualties have increased or decreased throughout time.

Now we can add another layer to this by taking a look at Area Type. So, we then see how casualties are different, how many happened in urban, small towns and rural areas.



You can add further layer of design to the charts by changing the colour. There are templates for you to choose from. You can also create your own palette, if you're aiming for a specific colour skin for your presentation.

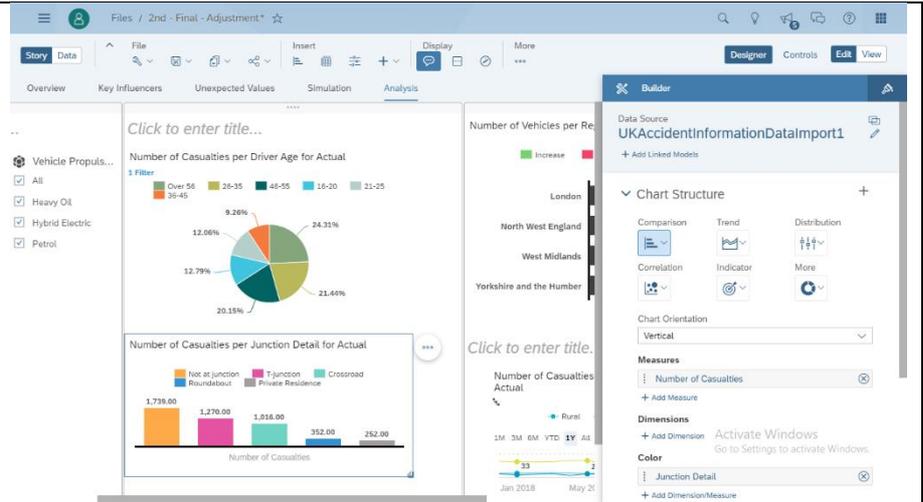


Now you can play around different colour elements and try to have a uniform look.

You can change all the different visualizations from the Designer Mode as well.

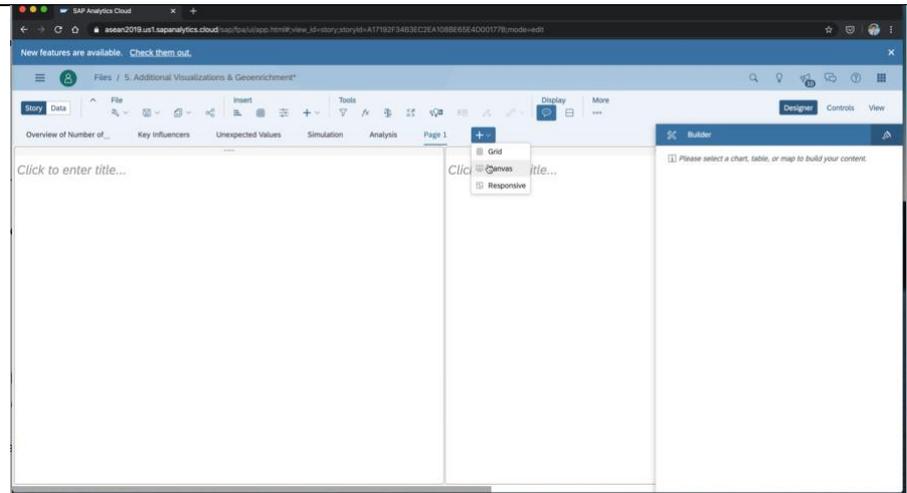
For example, for the bar chart you have the option of turning it to vertical orientation.

And you can play around with all these different tools to choose the correct visualization option to change the colour as well change the chart title to fit the content of your chart elements.

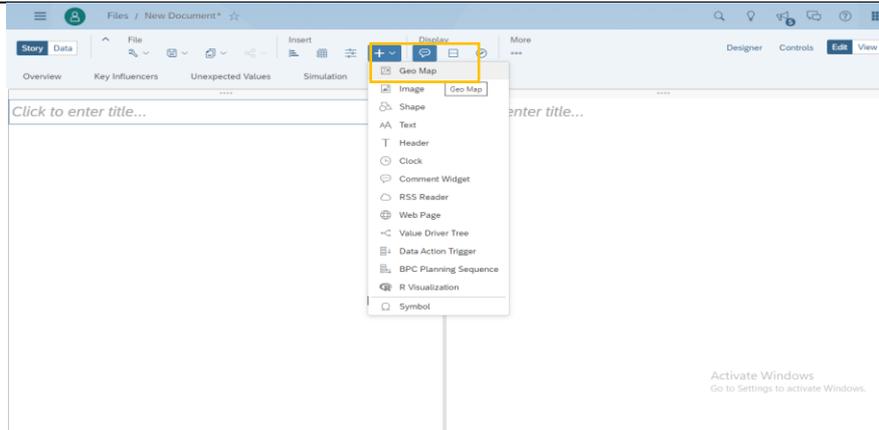


So next let's run a Geo analysis and we do that by creating a new page.

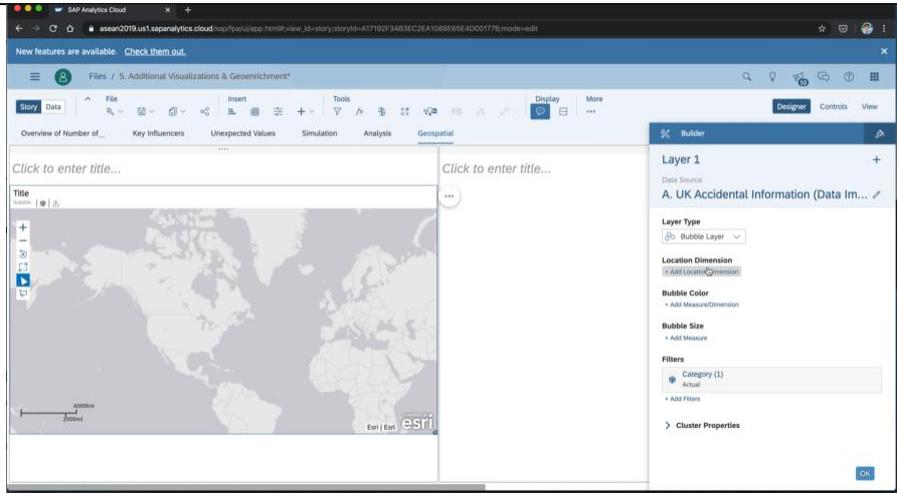
Click the plus button, then click on responsive. Then rename the page to be "Geospatial"



Click on the (+) Group under the Insert Tab, and then select Geo Map.

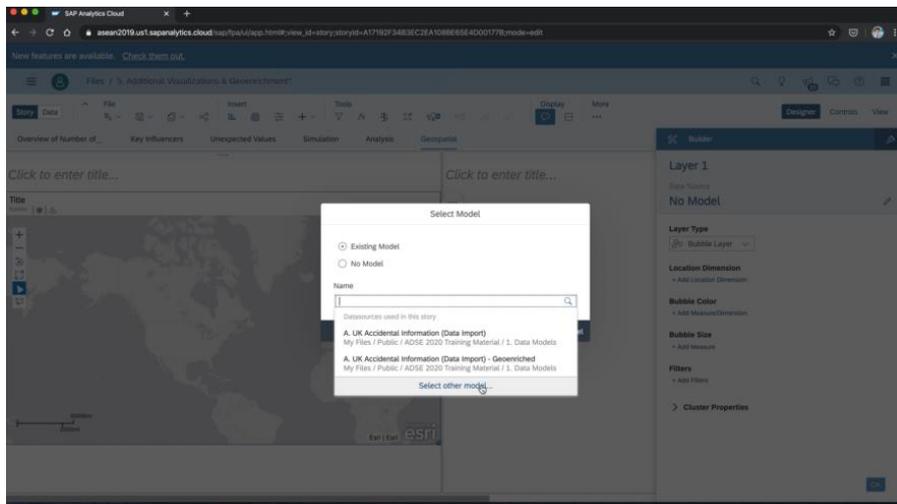


Now we add a Geo map to this visualization. You can expand it a bit.



And we choose a new model, an existing model so you may have to search first.

We do it by selecting the other model and you can simply type "Geoenriched".



Leave it as a bubble layer.

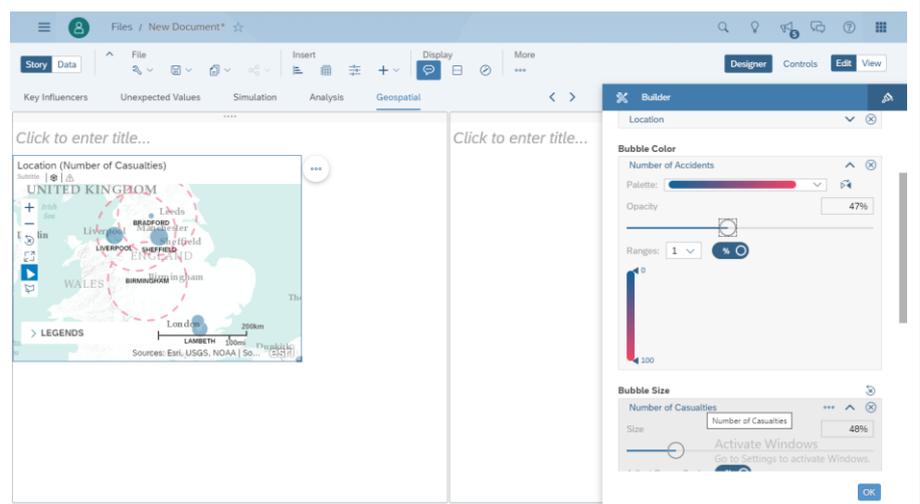
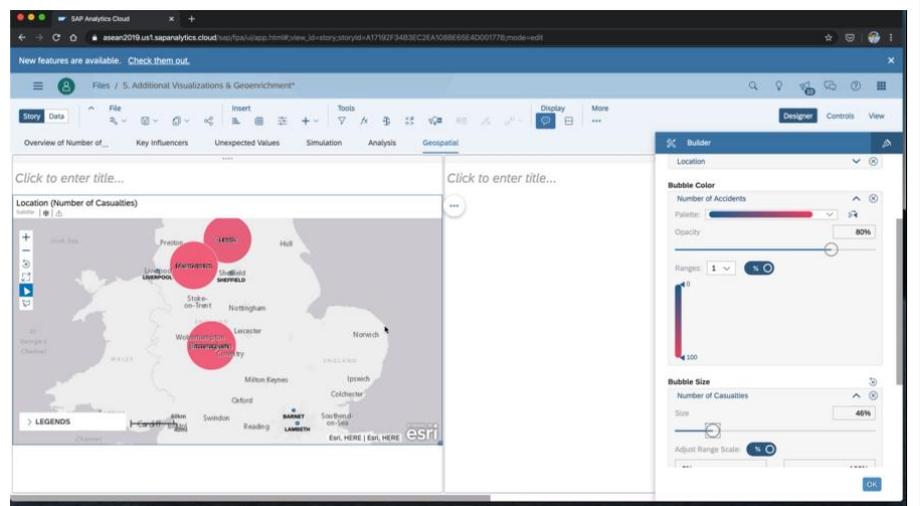
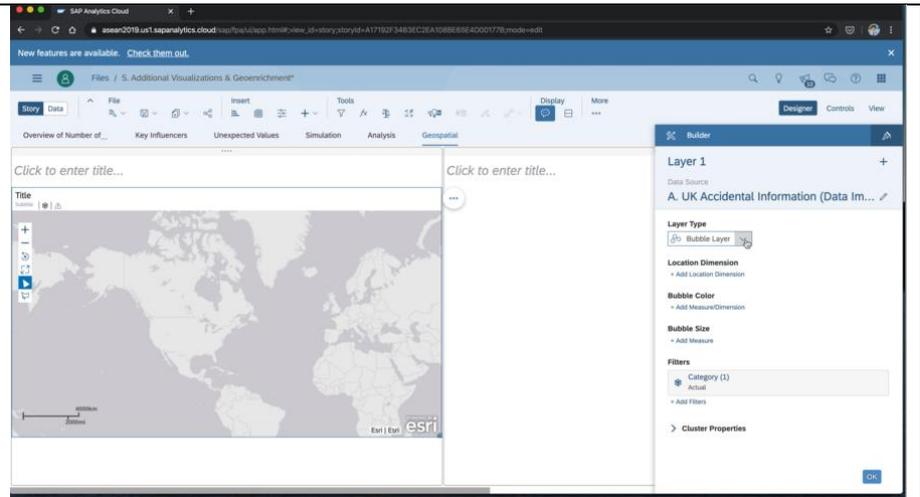
For Location Dimension, click on Location. Which will pop out the location point on the map that we have during the data embark stage.

For the Bubble Colour, we can do number of accidents. And for the Bubble Size we can do Number of Casualties as an example. We can then adjust the scale as necessary.

So, we can see the bigger circles correspond the higher number of casualties, while the colour represents the number of accidents.

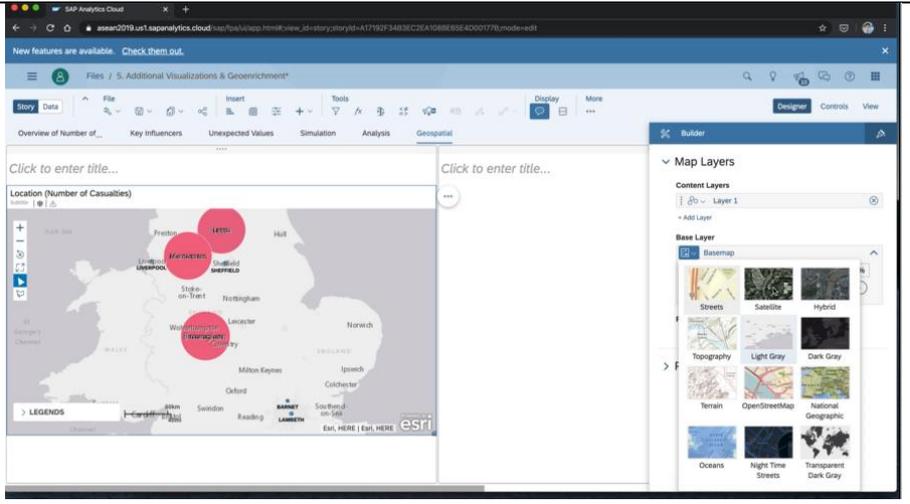
So right off the bat we're able to observe that there are some cities: Leeds, Manchester and Birmingham which have high number of accidents and casualties.

You can also adjust the bubble size or bubble colour.



Then click ok, go back to the map. We can change the type of map that we are looking at as well to fit the styling or the type of view that we're looking at.

We have several options; we have Street Map as well. You can zoom in as necessary.



## FAQ

What is the best browser to use for SAP Analytics Cloud?

Highly suggest Google Chrome, especially incognito mode if you run into any issues.

Where to find data sources?

World Economic Forum, Government sites, The World Bank, Your academic platforms or <https://datasetsearch.research.google.com/> to name a few

Where do I find more resources on SAP Analytics Cloud?

Here's our blog with a variety of topics surrounding the tool: <https://www.sapanalytics.cloud/blog/>

YouTube: <https://www.youtube.com/user/SAPBusinessObjects>

<https://www.youtube.com/watch?v=wCLmDUzTd4Q&list=PLufF7pZxICBisuuNMmNSrhmWkGGiyT3LU>

We are launching a course on <https://open.sap.com/> in 2020! Stay tuned!

More about ADSE?

Here's our website: <https://aseandse.org/>