Adding visualizations and charts to your Data Studio Report

First let's start by changing the name of the report. We will call this "2020 Vehicle Fuel Economy Dashboard".

Now this is just one page, for now it's a blank canvas, and on the right hand side we can see different configuration items for the layout of this dashboard. You can change different elements here, you can change the width and the height. You can also change the theme of the report including forms, different kinds of colors and themes. We're not going to change anything here right now. What we'll do is first add some visualizations and charts. So let's try to figure out how many vehicles there are in that table in total. So add this scorecard, and for the metric we will add the index and this will automatically convert to the count of index and you can see there are 435 vehicles in the table. We'll switch this and rename it to "number of vehicles". And this is counting the distinct number of IDs or the index in that field.

Let's add another scorecard identifying how many manufacturers are there. So we'll do the same thing, add a scorecard and this time we will pull in the manufacturer's name (Mfr Name). So "number of mfg" and as you recall there were also the divisions within the manufacturer. So we can take a different approach, we can copy this scorecard and we can paste. We'll move it to the right, let's move it to below this one. And here we can change just change the number of manufacturers to count of divisions. And now we have the division count, there are a total thirty nine divisions from twenty two manufacturers in our data table.

Now if we want to look at all the names of all the manufacturers and the count of vehicles we will add a bar chart. Let's draw that over here and it automatically picked up manufacturer name as the dimension. And for the metric we will again pick this index and it will count the, do a unique count on the index field and we can see over here the names of all the manufacturers. General Motors has more than a hundred and forty vehicles in this table and Honda has almost thirty. You can see they're only ten manufacturers. That's because for this chart if we go to the style, the bars are limited to ten. And we know that we have total twentytwo manufacturers. So we will just increase this to let's say thirty, and this will pull in names of all the manufacturers. And you can also change the styling bit, we can include data labels. This will include the numbers of the vehicles. And we will scroll down and remove the legend and we see the count over here. Now we will go ahead and add a text box at the bottom to indicate that this is the count of vehicles for each manufacturer, "count of vehicles for each mfg" and we will put that to the right.

So this is the first page of visualization and now we'll move on to the next page and add some more charts and tables. Before moving onto the next page for our dashboard, we can have a look at how this dashboard will look for our viewers. If we click on the "view" button on the top right side, the dashboard enters the view mode, and over here we can see how this would look like to a viewer of this dashboard. Now let's go back and we can click on "edit" and it goes back to the editing mode and we'll "add a new page". This adds a new blank page and for this page we'll try to reduce the height. We'll, let's say, make it 600 pixels in height.

Now we want to create a scatter chart of vehicles showing the engine displacement and fuel efficiency. So add a chart and we will make the scatter chart. Add that over here and

on the x axis we will add the engine displacement and on the y axis we will add the combined adjusted fuel efficiency and we will separate this by manufacturer name, the index model. We'll also add the carline to get that specific information.

And let's add one more division. Maybe we can replace the manufacturer's name with the division over here. And we can set the, for the style we will make sure that the bubble color changes by division. So it will have different divisions colored with, different divisions would be highlighted with different colors. Now there are a lot of different divisions here, thirty-nine of them, this chart looks a bit messy. So let's add a filter where we can choose a specific manufacturer. So, add a new filter, and for this filter it will be the manufacturer name that's picked by default. And if we select the view mode we can see that from here in the manufacture, we can click here to select any of the manufacturers. So let's say we can pick "General Motors" only and this shows us the distribution of all the General Motor Vehicles separated by different divisions under General Motors. And over here on the left side we have, on the y axis we have the adjusted fuel efficiency and then the x axis we have the engine displacement. We can go in and change a separate manufacturer we can select, let's say Honda. And there are only two divisions under it and you can see that distribution over here.

Now we can go back, and this returns to the original state. It is also possible for us to change what is displayed in this filter. So if we can, if we go back to the view mode you can see that there is a number that shows up on the right hand side. And what that number is over here is, we can see it's the sum of engine displacement, which doesn't really makes any sense. What we could do we could add the count of vehicles, and then if we view now, it'll show the manufacturers in descending order of vehicle count. We also have the option to omit these numerical values altogether. So we can just select not to show any values and we can select to use the dimension value and show that in ascending order. If we select that and go back to the view mode we can see that now it has all the vehicle names, vehicle manufacture names listed in ascending order. And we can, let's say, pick Ford Motor Company, and we'll see the Ford and Lincoln lines represented here.

So that was our second page and now we'll move on to the third page where we'll use multiple charts which will be interacting with each other. Now let's add another page to our dashboard and in this new page on the left hand side we'll add a bar chart, and over here we will add first the average fuel efficiency for all vehicles. From here we'll take the average and we'll name it the average fuel efficiency, and hit enter. And this is being done by manufacturer, let's go back and add all the manufacturers. Number 25, that should add all of them.

But we also want to add maybe the median fuel efficiency. So add back this same metric again but this time it's not sum or average, we'll choose "median". And we'll name this median fuel efficiency, and hit enter. So this is now showing us for all manufacturers the average fuel efficiency for the vehicles and the median fuel efficiency. We can go in and change the colors. So let's say we will color the average using this color and we will average the median by the blue color.

Now let's add a second chart, we will be add a time series chart on the right hand side. And on this chart we can see the time dimension release date is already selected. So we will rather than begin by date, we will pick this as "year month" and in blue we will add in the count of vehicles. So this showed us how many vehicles were released each month.

And we can maybe break it down using your aspiration method and we can see that mostly the vehicles were either turbocharged or naturally aspirated. And we can do even do an interesting thing here for the left chart. We can go into the options and we can scroll down and select for the chart interactions, apply filter. Once we do that and we go to the view mode, we can select any of the manufacturers on the left hand side and this will immediately filter the chart on the right hand side for that manufacturer. For example, if we select Nissan over here on the right hand side it will only see the values for Nissan vehicles and we can see that Nissan only makes natural gas rated or turbocharged vehicles, in this data set.

Let's pick something else maybe let's select Lotus. For Lotus you can see there is most likely only one. There were four vehicles and all four of them were supercharged and we can hit "edit" to go back. If we want to scroll through the pages, you or your viewers can use these arrow buttons here to scroll through in different pages and interact with different elements and different pages.

Let's head back into our edit mode.