

Lab 6: Table Visualization

In this lab, we will start working on visualizations.

Visualizations are simply the graphs, charts, any sort of visuals that basically take the data you have in your data table and visualize it.

Let's go through an exercise.

Let's say we want to look at the count of transactions we're going to do you count of sales by product name.

The screenshot shows a data exploration interface. On the left, there's a sidebar with a search bar and sections for 'All Fields' (Custom Fields, Customer, Office, Product), 'Dimensions' (Product Hourly Price, Product ID, Product Name), and 'Measures' (Average Hours, Average Sales, Count, Hourly Price, Total Hours). The main area has tabs for 'Data', 'Results', and 'SQL'. Below the tabs, there's a table with one row: 'Product Product Name'. A message at the bottom says 'Press "Run" to explore this data.' At the bottom left is a large blue 'Run' button.

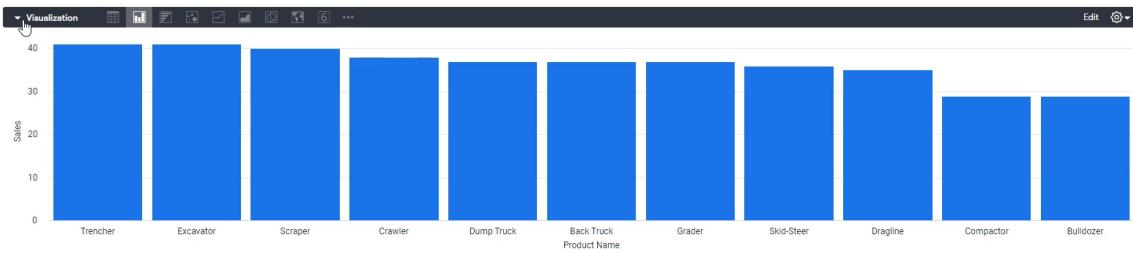
Let's click Run on that.



So we have about, you know, anywhere from 29 to 41 transactions for each product.

| Product | Product Name | Sales Count |
|---------|--------------|-------------|
| 1 | Trencher | 41 |
| 2 | Excavator | 41 |
| 3 | Scraper | 40 |
| 4 | Crawler | 38 |
| 5 | Dump Truck | 37 |
| 6 | Back Truck | 37 |
| 7 | Grader | 37 |
| 8 | Skid-Steer | 36 |
| 9 | Dragline | 35 |
| 10 | Compactor | 29 |
| 11 | Bulldozer | 29 |

Now if we open up visualizations, this will actually visualize the data that we have over here.



And this is primarily used for, you know, things like looks and dashboards being able to visualize the data.

What's nice about this as well is that it's very easy for you to change between different visualizations methods, and we'll go through all of them in more detail.

But in this exercise, what I want to go through is the fact that you open visualizations by clicking the `Visualization` button.

There are multiple things you can choose from. And that each one of these visualizations has a gear icon that you can use to actually edit certain things, for example, over here.



Table Visualization

Let's talk about our first visualization, which is the table visualization.

The first thing that we need is an actual what is an actual table to.

To compute what we're going to do over here in our explorer, we're going to look at simply the `office name`.

And we're going to look at the `total sales` and the `average sales`.

Explore

Sales ⓘ



Search

All Fields

In Use

▼ Office 1

DIMENSIONS

Office ID

Office Name

Office Zip Code

▶ Product

▼ Sales 2

DIMENSIONS

Customer ID

Office ID

Salesperson ID

State

▶ Transaction Date

Transaction ID

MEASURES

Average Hours

Average Sales

Count

Hourly Price

Total Hours

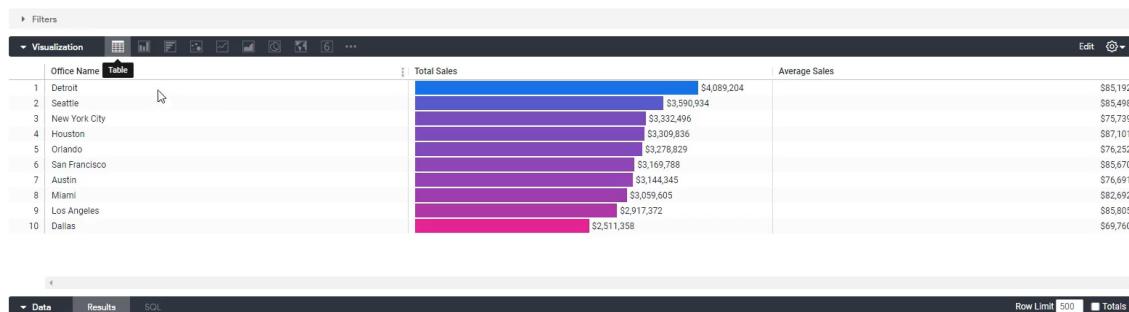
Total Sales

OK, let's compute that.

The screenshot shows a Looker interface with a table titled "Office Office Name". The columns are "Office Name", "Sales Total Sales ↓", and "Sales Average Sales". The data rows list ten offices with their respective total sales and average sales. The table has a "Row Limit" of 500 and a "Totals" checkbox.

| Office Name | Sales Total Sales ↓ | Sales Average Sales |
|-----------------|---------------------|---------------------|
| 1 Detroit | \$4,089,204 | \$85,192 |
| 2 Seattle | \$3,590,934 | \$85,498 |
| 3 New York City | \$3,332,496 | \$75,739 |
| 4 Houston | \$3,309,836 | \$87,101 |
| 5 Orlando | \$3,278,829 | \$76,252 |
| 6 San Francisco | \$3,169,788 | \$85,670 |
| 7 Austin | \$3,144,345 | \$76,691 |
| 8 Miami | \$3,059,605 | \$82,692 |
| 9 Los Angeles | \$2,917,372 | \$85,805 |
| 10 Dallas | \$2,511,358 | \$69,760 |

What we're going to do over here is now click `visualization` and then click the `table` icon. So. this is the default table that you should see.



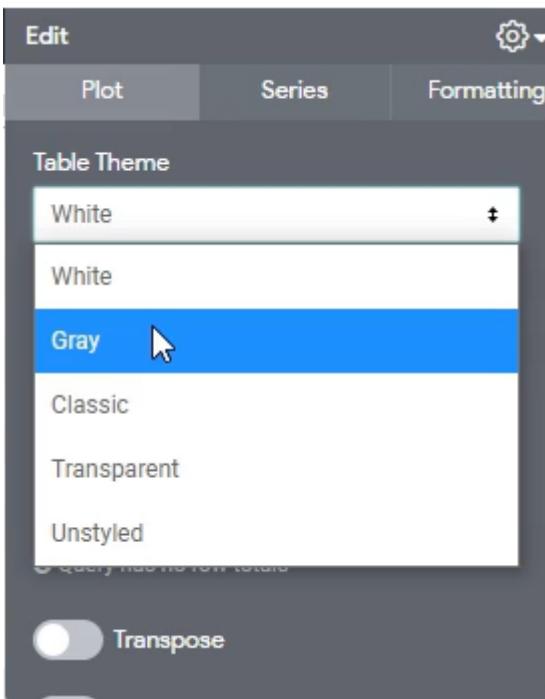
And there's a few things that we can change about it, which makes this more relevant to what we're trying to show.

You know, it's basically a very nice, pretty version of the table that we have here or of the data results that we have here.

But doing it this way, you can actually change certain things about it.

So, what we want to do first is let's go into edit and let's start with the `Plot`.

These are the default ones that are available and looker. So you have the gray theme, the classic theme and transparent.

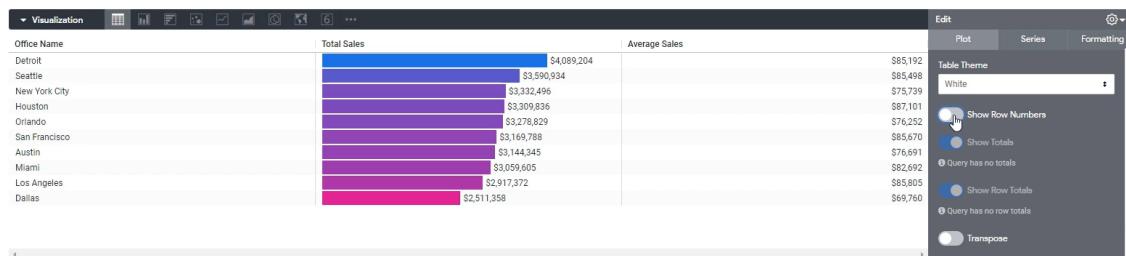


It looks like Looker prefers the white theme.

You know, it's nice because each row over here is a different color, which makes things nice. But you can use any theme you prefer.

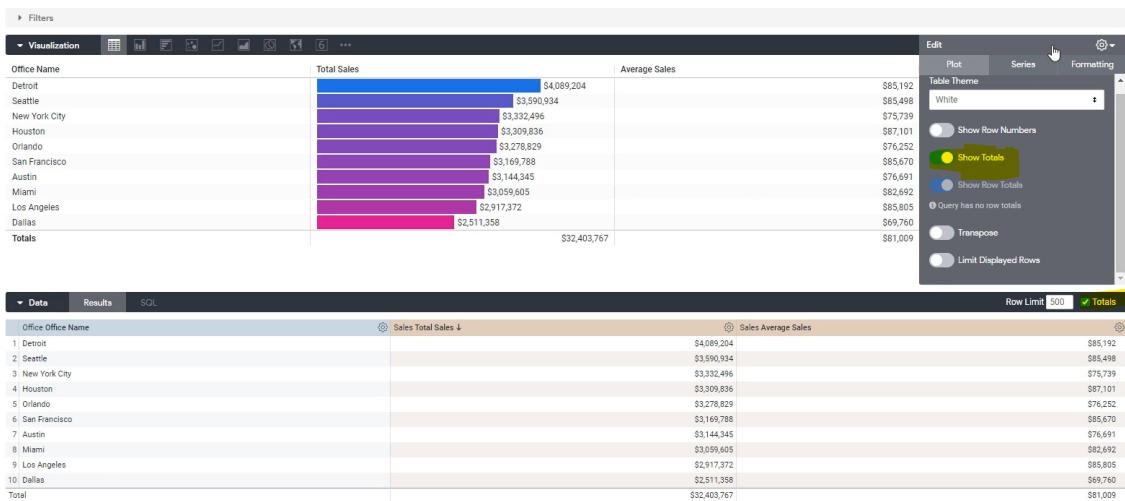
Over here, what we also see is the `Show Row Numbers`, so all tables by default are numbered one through end and they're shown over here, but you can toggle this on and off if you want.

We're going to get rid of it because row numbers for us don't really mean.

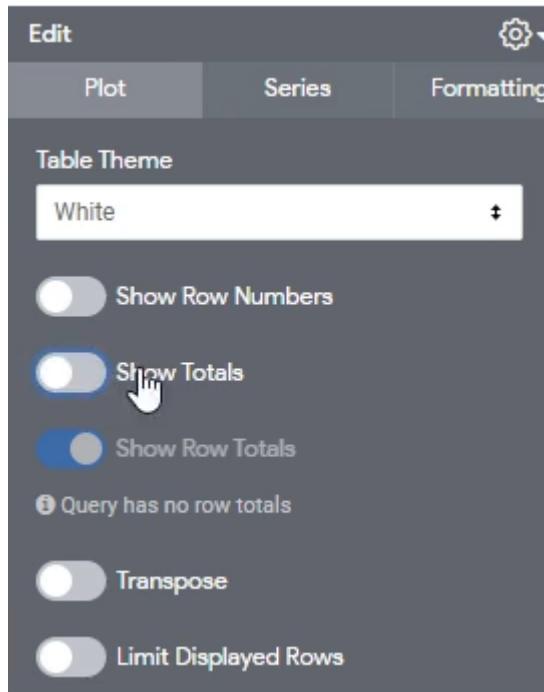


OK, we can also show `totals` in this data to if we'd like. So, what we would need to do then is apply `totals` checkbox in Data section.

And now, since this is activated, we can actually see totals over here as well.



Now, we are going to get rid of it, but just note that that option is there.



Transposes also very cool were transposed, does very simply is it basically makes all your role wise dimensions into column wise dimensions and all your column wise dimensions into railways dimensions.

Each row is a dimension. If we if we flip this, we'll see how this changes. We need to get rid of the `totals` icon in Data section.

So what we see over here is what used to be a rows in our columns and what used to be our columns are now our rows.

The screenshot shows a data visualization interface with a pivot table and its corresponding edit menu.

Pivot Table Data:

| Measure | Detroit | Seattle | New York City | Houston | Orlando | San Francisco | Austin | Miami | Los Angeles | Dallas |
|---------------|-------------|-------------|---------------|-------------|-------------|---------------|-------------|-------------|-------------|-------------|
| Total Sales | \$4,089,204 | \$3,590,934 | \$3,332,496 | \$3,309,836 | \$3,278,829 | \$3,169,788 | \$3,144,345 | \$3,059,605 | \$2,917,372 | \$2,511,358 |
| Average Sales | \$85,192 | \$85,498 | \$85,498 | \$75,739 | \$87,101 | \$76,252 | \$85,670 | \$76,691 | \$82,692 | \$85,805 |

Edit Menu (Top Right):

- Plot
- Series
- Formatting
- Table Theme: White
- Show Row Numbers (unchecked)
- Show Totals (unchecked)
- Query has no totals (info)
- Show Row Totals (checked)
- Query has no row totals (info)
- Transpose (checked)
- Limit Displayed Columns (unchecked)
- Row Limit: 500
- Totals (unchecked)

Data View (Bottom Left):

| Office Office Name | Sales Total Sales 4 | Sales Average Sales |
|--------------------|---------------------|---------------------|
| 1 Detroit | \$4,089,204 | \$85,192 |
| 2 Seattle | \$3,590,934 | \$85,498 |
| 3 New York City | \$3,332,496 | \$75,739 |
| 4 Houston | \$3,309,836 | \$87,101 |
| 5 Orlando | \$3,278,829 | \$76,252 |
| 6 San Francisco | \$3,169,788 | \$85,670 |
| 7 Austin | \$3,144,345 | \$76,691 |
| 8 Miami | \$3,059,605 | \$82,692 |
| 9 Los Angeles | \$2,917,372 | \$85,805 |
| 10 Dallas | \$2,511,358 | \$69,760 |

You can also do this with pivot data as well. So, for example, let's uncheck `Transpose` icon.

The screenshot shows the edit menu for a pivot table, with a focus on the `Transpose` setting.

Edit Menu (Top Left):

- Plot
- Series
- Formatting

Table Theme: White

Settings (Bottom):

- Show Row Numbers (unchecked)
- Show Totals (unchecked)
- Query has no totals (info)
- Show Row Totals (checked)
- Query has no row totals (info)
- Transpose (checked)**
- Limit Displayed Rows (unchecked)

Let remove `average sales`. And in addition to office, let also put in `State` and pivot it.

Sales

2

DIMENSIONS

Customer ID

Office ID

Salesperson ID

State

► Transaction Date

Transaction ID

MEASURES

Average Hours

Average Sales

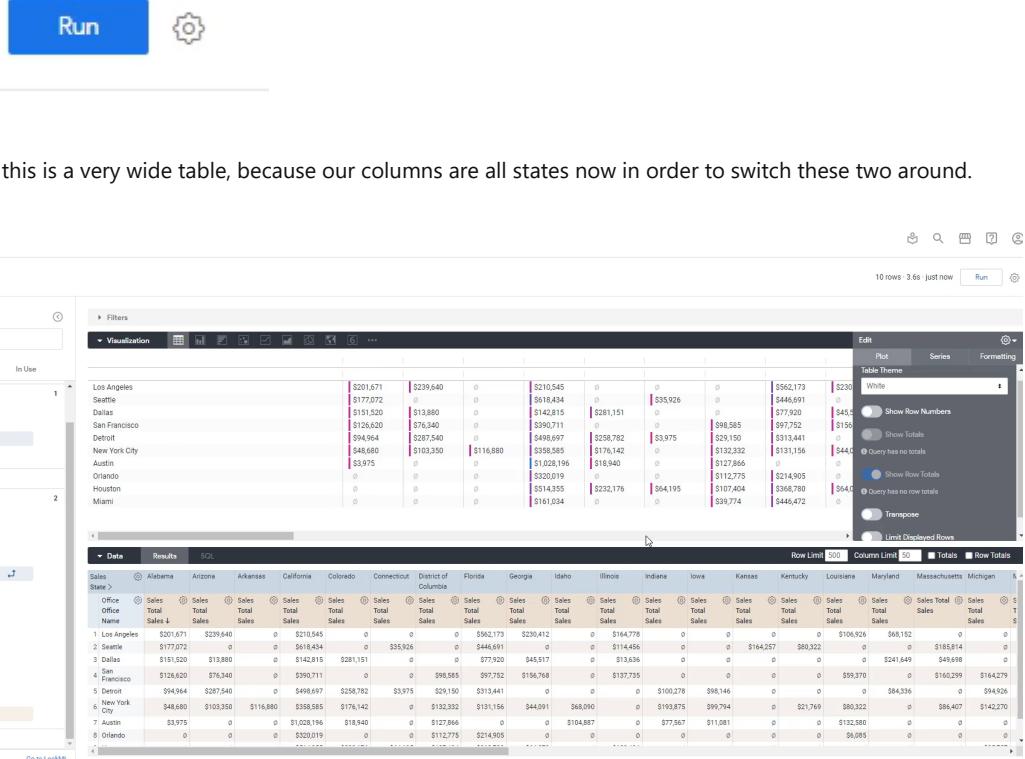
Count

Hourly Price

Total Hours

Total Sales

Let's run.



Well, we can simply just un pivot state and pivot office, or we can just `Transpose` the visualization that we've created, which does that for us.

The screenshot shows a Power BI visualization interface. At the top, there's a toolbar with icons for filters, visualization, plot, series, and formatting. Below the toolbar is a table with data for various US states. The table has columns for State, Measure, and then specific cities: Los Angeles, Seattle, Dallas, San Francisco, Detroit, New York City, Austin, Orlando, Houston, and Miami. Each cell contains a value, such as \$201,671 for Total Sales in Alabama. To the right of the table is a context menu with tabs for 'Edit', 'Plot', 'Series', and 'Formatting'. The 'Edit' tab is selected, showing options like 'Table Theme' (White), 'Show Row Numbers', 'Show Totals', 'Query has no totals', 'Show Row Totals', 'Query has no row totals', and 'Transpose'. The 'Transpose' option is checked. There are also buttons for 'Row Limit' (set to 500), 'Column Limit' (set to 50), and 'Totals' (unchecked). The bottom of the table area has a 'Data' tab selected, followed by 'Results' and 'SCoP'.

| State | Measure | Los Angeles | Seattle | Dallas | San Francisco | Detroit | New York City | Austin | Orlando | Houston | Miami |
|----------------------|-------------|-------------|-----------|-----------|---------------|-----------|---------------|-------------|-----------|-----------|-----------|
| Alabama | Total Sales | \$201,671 | \$177,072 | \$151,520 | \$126,620 | \$94,964 | \$48,680 | \$3,975 | 0 | 0 | 0 |
| Arizona | Total Sales | \$239,640 | 0 | \$13,880 | \$76,340 | \$287,540 | \$103,350 | 0 | 0 | 0 | 0 |
| Arkansas | Total Sales | 0 | 0 | 0 | 0 | 0 | \$116,880 | 0 | 0 | 0 | 0 |
| California | Total Sales | \$210,545 | \$618,434 | \$142,815 | \$390,711 | \$498,697 | \$358,585 | \$1,028,196 | \$320,019 | \$514,355 | \$161,034 |
| Colorado | Total Sales | 0 | 0 | \$281,151 | 0 | \$258,782 | \$176,142 | \$18,940 | 0 | \$232,176 | 0 |
| Connecticut | Total Sales | 0 | 0 | 0 | 0 | \$3,975 | 0 | 0 | 0 | \$64,195 | 0 |
| District of Columbia | Total Sales | 0 | 0 | 0 | 0 | \$98,585 | \$29,150 | \$132,332 | \$127,866 | \$112,775 | \$107,404 |
| Florida | Total Sales | \$562,173 | \$446,691 | \$77,920 | \$97,752 | \$13,441 | \$131,156 | 0 | \$214,905 | \$368,780 | \$446,472 |
| Georgia | Total Sales | \$230,412 | 0 | \$45,517 | \$156,768 | 0 | \$44,091 | 0 | 0 | \$64,079 | 0 |
| Idaho | Total Sales | 0 | 0 | 0 | 0 | 0 | \$68,090 | \$104,887 | 0 | 0 | 0 |
| Illinois | Total Sales | \$164,778 | \$114,456 | \$13,636 | \$137,735 | 0 | 0 | 0 | 0 | \$129,494 | \$99,040 |
| Indiana | Total Sales | 0 | 0 | 0 | 0 | 0 | \$100,278 | \$193,875 | \$77,567 | 0 | \$105,445 |
| Iowa | Total Sales | 0 | 0 | 0 | 0 | 0 | \$98,146 | \$99,794 | \$110,081 | 0 | \$96,143 |
| Kansas | Total Sales | 0 | \$164,257 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | \$111,182 |

Well, let's go back to what we had before, so let's get rid of `state`.

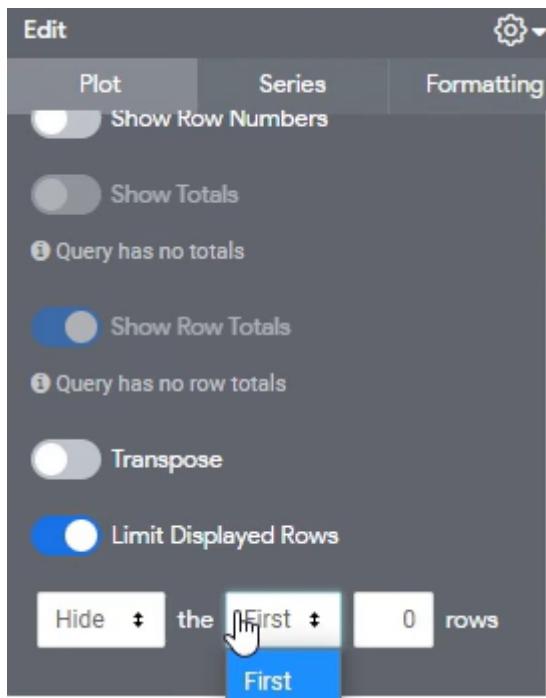
And add back in the `average sales`, and I'm also going to add in the `total hours` and the `average hours`.

| | |
|--------------------|---|
| ▼ Office | 1 |
| DIMENSIONS | |
| Office ID | |
| Office Name | |
| Office Zip Code | |
| ▶ Product | |
| ▼ Sales | 4 |
| DIMENSIONS | |
| Customer ID | |
| Office ID | |
| Salesperson ID | |
| State | |
| ▶ Transaction Date | |
| Transaction ID | |
| MEASURES | |
| Average Hours | |
| Average Sales | |
| Count | |
| Hourly Price | |
| Total Hours | |
| Total Sales | |

Let's click Run .

You can also limit displayed rows if you want.

This feature isn't used that often, but like if you want to, for example, hide the first few rows or show the first few rows or even hide the last or show the last rows, you can do that as well.



For example, let's say if you have a customer list and you only want to show the top 10 customers.

Well, you can't have all your customers in the underlying data. The visualization only shows your top 10, for example.

Now let's go to `series`. The first thing is you can `Truncate Text`.

Basically what that means and we don't really see an option here.

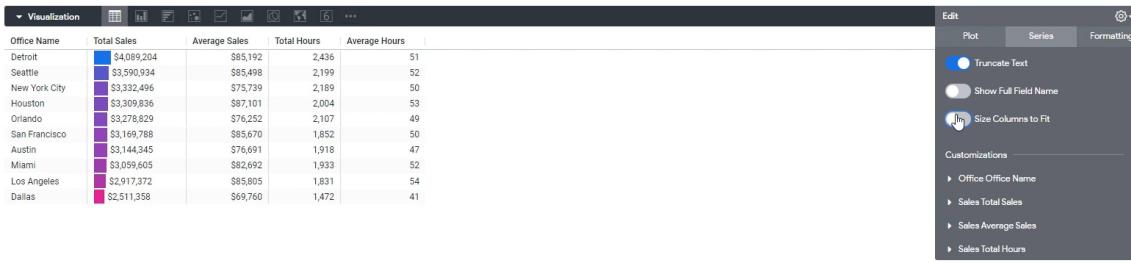
But if, for example, `Detroit` was very, very long and it spanned more than the column length, then it would truncate if this option is toggled on. If not, then the column would widen to accommodate the actual field.

| Office Name | Total Sales | Average Sales | Total Hours | Average Hours | |
|---------------|-------------|---------------|-------------|---------------|----|
| Detroit | \$4,089,204 | | 885,192 | 2,436 | 51 |
| Seattle | \$3,590,934 | | 885,498 | 2,199 | 52 |
| New York City | \$3,332,496 | | 875,739 | 2,189 | 50 |
| Houston | \$3,309,836 | | 887,101 | 2,004 | 53 |
| Orlando | \$3,278,829 | | 876,252 | 2,107 | 49 |
| San Francisco | \$3,169,788 | | 888,670 | 1,852 | 50 |
| Austin | \$3,144,345 | | 876,691 | 1,918 | 47 |
| Miami | \$3,059,605 | | 882,692 | 1,933 | 52 |
| Los Angeles | \$2,917,372 | | 885,805 | 1,831 | 54 |
| Dallas | \$2,511,358 | | 869,760 | 1,472 | 41 |

The screenshot shows a visualization of sales data for various offices. The columns are labeled 'Office Name', 'Total Sales', 'Average Sales', 'Total Hours', 'Average Hours', and a blank header cell. The data is presented as a horizontal bar chart where each bar's length corresponds to the total sales value. The 'Edit' interface on the right shows the 'Series' tab selected, with the 'Truncate Text' option turned on. A 'Customizations' section below it contains three items: 'Office Office Name', 'Sales Total Sales', and 'Sales Average Sales'. The 'Size Columns to Fit' option is also visible but turned off.

Size column to fit is also very interesting to those columns, to fit means that the columns will be wide enough, so it fits the entire screen size.

If you untoggle this icon, Looker goes to the actual size of the column name. And if you have lots of columns to see if you have lots of dimensions, for example, this is useful.



Let's untoggle **Size column to fit** icon.

We can also make column wise customizations. So, for example, what we can do over here is these are all the same fonts.

But what if we don't want that to be?

We can, for example, change the font of the office name to something else so we can make it bold.



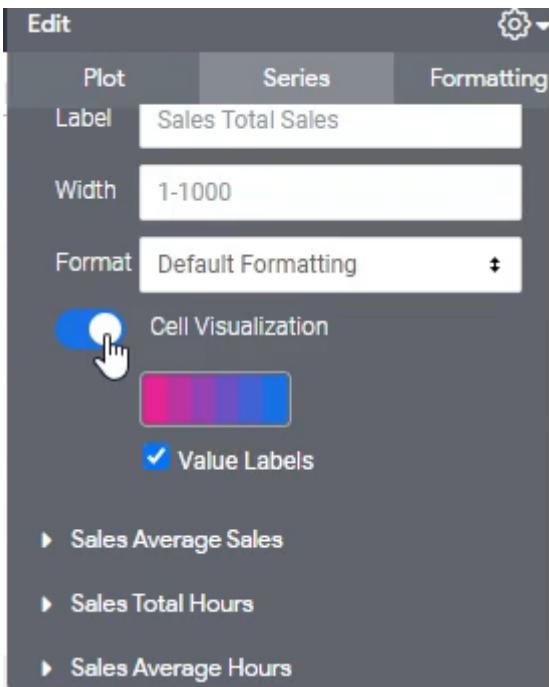
We can make it a different color if we want. And also justify centre, right and left as well.



We can also make changes to particular columns, too.

So, for example, we can see a `total_sales` is using this bar graph type customization, so let me click it.

We can see over here that we have **cell visualization** turned on.



All visualization are only turned on for measures, but we can change the formatting as well.

Right now, it uses the `default formatting` we have over here, which is dollars.

But for example, let's say if this wasn't in dollars and this was in.

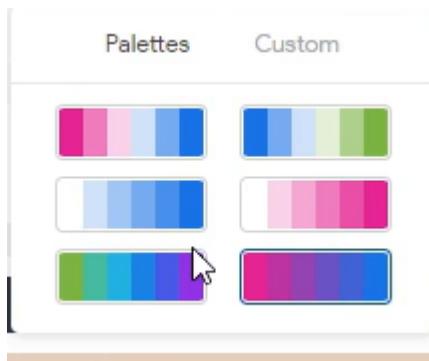
You know it because our SQL data is or because our developer didn't set up look tight, this might not be dollars, it might be just numbers instead. Well, you can formatted however you want.

You can add Euros to it. Change to decimals, U.S. dollars with decimals, whatever you need to do.

The screenshot shows a data visualization interface with a sidebar on the left containing numerical values and a main area with a dropdown menu open. The sidebar includes rows for British Pounds, Decimals, and Euros, followed by a section for Sales with values from 51 to 54. The main area has a 'Plot' section with a color palette and a 'Format' dropdown set to 'Default Formatting'. A 'Value Labels' checkbox is checked. The dropdown menu, which is the focus of the image, lists various number formats: British Pounds (0) - £1,235, British Pounds (2) - £1,234.57, Decimals (0) - 1,235, Decimals (1) - 1,234.6, Decimals (2) - 1,234.57, Decimals (3) - 1,234.567, Decimals (4) - 1,234.5668, Euros (0) - €1,235, Euros (2) - €1,234.57, ID - 1235, Percent (0) - 123,457%, Percent (1) - 123,456.7%, Percent (2) - 123,456.68%, Percent (3) - 123,456.679%, Percent (4) - 123,456.6789%, U.S. Dollars (0) - \$1,235, and Default Formatting.

Again, the cell visualization part is very cool, if you turn this off, it just turns into numbers, but this you can see the graph over here.

You can also change the color palette if you want to.



And again, what your developer might be able to do is create one specific to your company as well.

Right now, these don't have cell visualizations, but you can have many rights you can have, for example, the `total sales` and `total hours`. Both have cell visualizations where we can see.

| Office Name | Total Sales | Average Sales | Total Hours | Average Hours |
|---------------|-------------|---------------|-------------|---------------|
| Detroit | \$4,089,204 | | 885,192 | 2,436 |
| Seattle | \$3,590,934 | | 885,498 | 2,199 |
| New York City | \$3,332,496 | | 875,739 | 2,189 |
| Houston | \$3,309,836 | | 887,101 | 2,004 |
| Orlando | \$3,278,829 | | 876,252 | 2,107 |
| San Francisco | \$3,169,788 | | 885,670 | 1,852 |
| Austin | \$3,144,345 | | 876,691 | 1,918 |
| Miami | \$3,059,605 | | 882,692 | 1,933 |
| Los Angeles | \$2,917,372 | | 885,805 | 1,831 |
| Dallas | \$2,511,358 | | 869,760 | 1,472 |

Now moving on to `formatting` tab, this allows you to format the entire table. So for example, what we can see over here is a `Collection`.

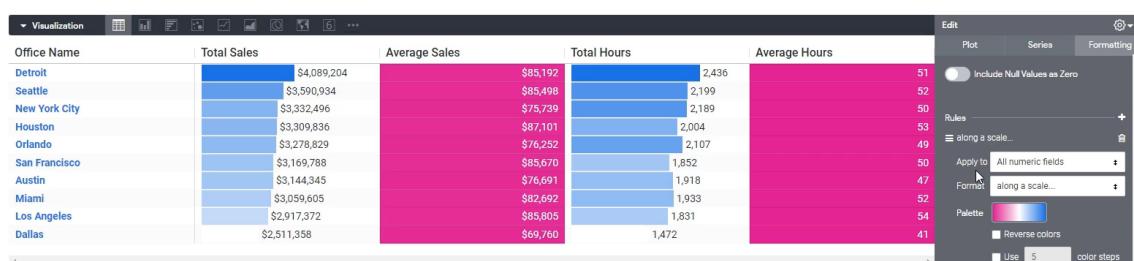
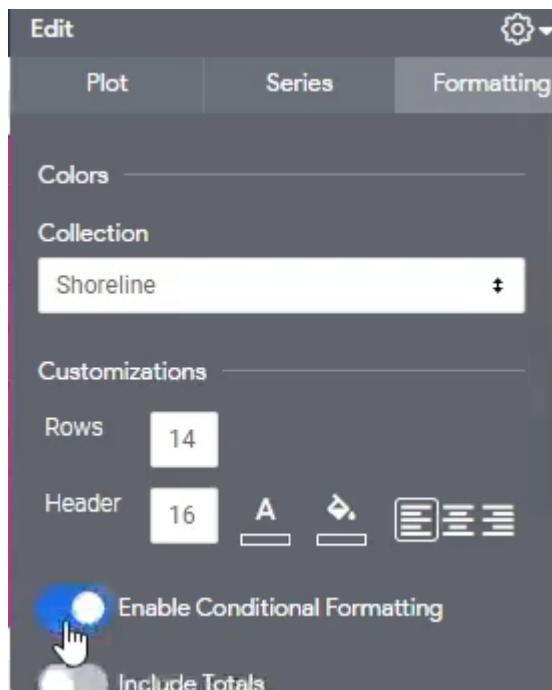
Right now, we're not going to modify it because it's a very particular use case.

What is really interesting, though, is you can change the font size. For example, you can make the Header font size 16. And the Rows size 14.



And the reason why this gets more useful and useful is when you show this in a dashboard, for example, you might want this visualization to have a greater font size than a bar graph, for example, because these are actual numbers that you need to look at.

OK, the last thing on this front over here is conditional formatting. Well, let's turn it on and show you what we can do with it. It's very similar to Excel, you can conditionally format a cell based on its value, for example.



And one thing to note is that you can't conditionally format a column that has cell visualizations turned on, which means that we won't be able to conditionally format `total sales` and `total hours` since the cell visualization part does that for us.

What we're going to do over here is conditionally format, `average sales`. Right now, this does it along a scale, but you can conditionally format this based on if the value is greater or is actually less than a certain amount.

If the value, for example, is less than 70000, then that's worrying, because maybe what that would signify is that the sales process isn't efficient enough because each transaction we're only getting \$70000.

So if the value is less than \$70000, I want the background color actually be red for us to flag that.

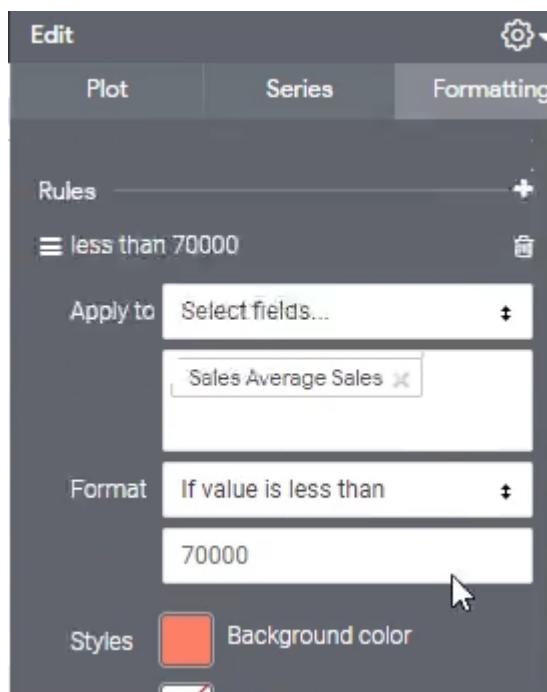
We're going to do is add a rule like:

Apply to: Select Fields > Sales Average Sales

Format: If value is less than

Value: 70000

Background color: Red



Click `Add a rule` button to add new rule.

And there we go. That's a rule that we've created over here. So, now this is not using a scale or a solar visualization instead. We're flagging this based on the average sales of being under a certain amount.

| Office Name | Total Sales | Average Sales | Total Hours | Average Hours |
|---------------|-------------|---------------|-------------|---------------|
| Detroit | \$4,089,204 | \$85,192 | 2,436 | 51 |
| Seattle | \$3,590,934 | \$85,498 | 2,199 | 52 |
| New York City | \$3,332,496 | \$75,739 | 2,189 | 50 |
| Houston | \$3,309,836 | \$87,101 | 2,004 | 53 |
| Orlando | \$3,278,829 | \$76,252 | 2,107 | 49 |
| San Francisco | \$3,169,788 | \$85,670 | 1,852 | 50 |
| Austin | \$3,144,345 | \$76,691 | 1,918 | 47 |
| Miami | \$3,059,605 | \$82,692 | 1,933 | 52 |
| Los Angeles | \$2,917,372 | \$85,805 | 1,831 | 54 |
| Dallas | \$2,511,358 | \$69,760 | 1,472 | 41 |

Let's also do the same thing for the hours as well, the average hours depicts for each sale how many hours or is the equipment being rented for.

And let's say if something is, you know, below 50, that's kind of troubling. We're going to add a rule. And we're going to apply this to select fields only to average hours, wait to see if the value is less than 50.

We're going to do is add a rule like:

Apply to: Select Fields > Sales Average Hours

Format: If value is less than

Value: 50

Background color: Red



We've turned what was a default table into something that's more appropriate to what we want, which is this table over here.

There's a lot more things that we can do over. The first simple one is being able to sort.

Now you can simply click a column to sort by that, think this is currently sorted by `total_sales`.

But if we, for example, want to sort by `average hours`, will we just click it and it sorts it for us.



You can also sort by a dimension, for example, for if you want to sort by alphabetical office name.