



# **Kibana Workshop**

Lab 2 - Kibana Lens

# Requirements

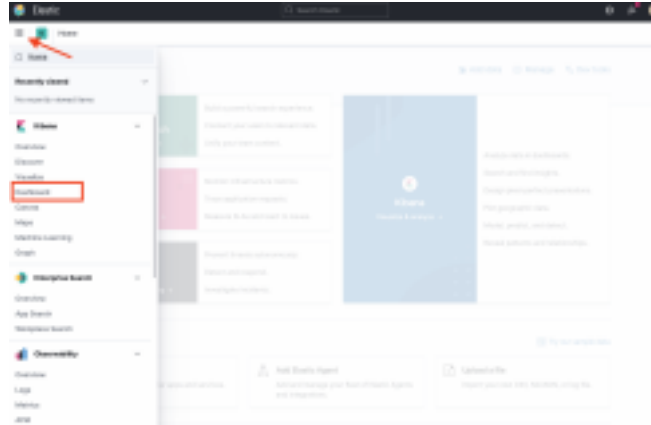
With this Labs you will explore the powerful and flexibility of data visualization in Kibana Lens, just Drag & drop. You have been requested by your business to visualize different metrics and aggregation for the Flight Data (kibana\_sample\_data\_flights):

- Total flights in total
- Delays by carrier
- Count of Fly, AVG Ticket price, AVG Flight Time, AVG Flight delay by carrier
- Carrier AVG Ticket Price over time
- Carrier AVG Ticket Price over time with:
  - Maximum of Flight Time Min overtime
  - Maximum of Taxable Total price overtime
- Shows the total number of Delayed and not Delayed flight by Destination
- Shows the AVG Ticket Price by Country and Destination Airport

Let's get started visualizing your data using Kibana Lens.

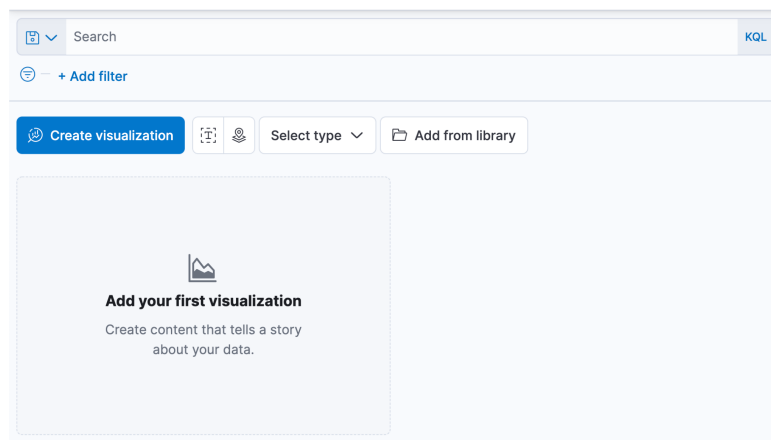
# Introduction to Kibana Lens

1. The first step is to click on the menu button located at the top left which brings up the main menu. Select the "**Dashboard**" option under "**Analytics**".

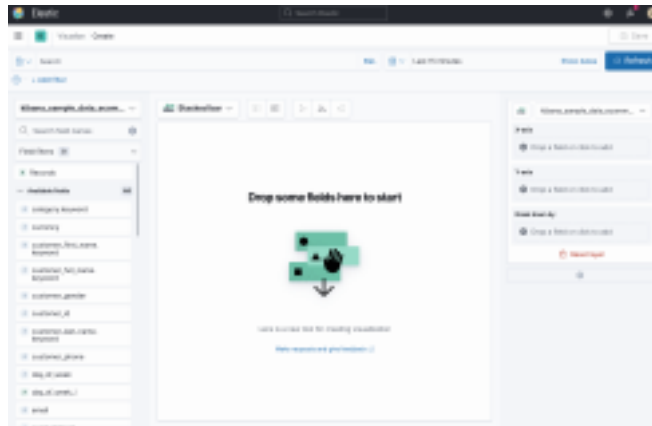


2. Click on "**Create dashboard**" to create a new dashboard. This brings you to an empty dashboard.

3. Then click on "**Create visualization**" to add a new visualization to the dashboard:

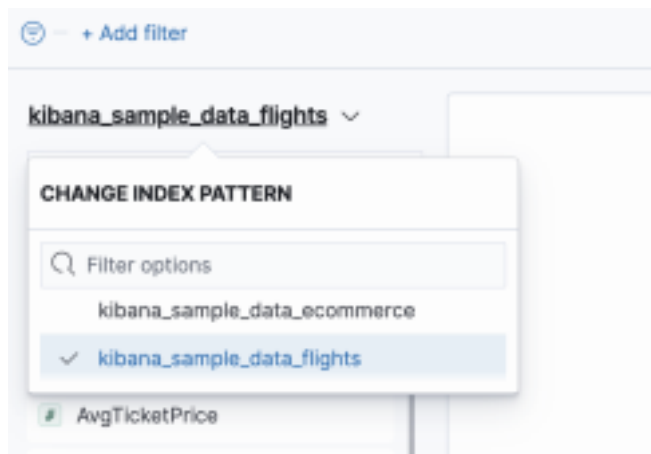


4. Automatically you will land into Kibana Lens. This is the Kibana Lens view:



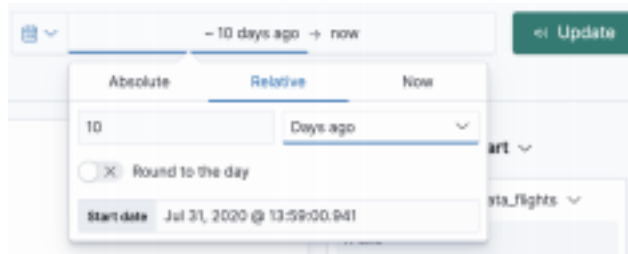
At the top, you have the query bar, where you can write queries and create filters. On the left, you see a list of the fields that exist in your data. In the middle, you have an area that will show your visualization. And finally, on the right you can configure your visualization.

6. Select the `kibana_sample_data_flights` index pattern in the index pattern dropdown:

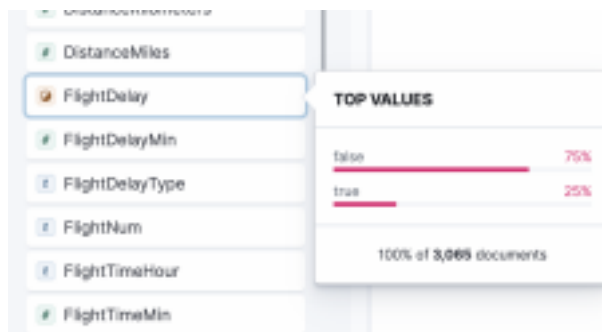


7. By default, Kibana visualizes the last 15 minutes of data. You can change that using the time filter in the top right corner:

- Select "Relative" and set the following time period. Click "Update" for changes to take effect:



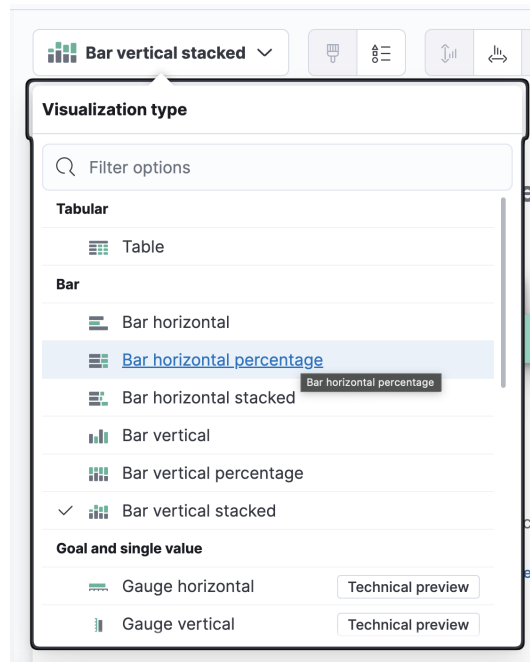
8. Note the list of fields presented on the left-hand side. You can search for a specific field or group them by type. For convenience, Lens will only show fields that contain data. Click on a field for a quick view of the top values in a field or their distribution:




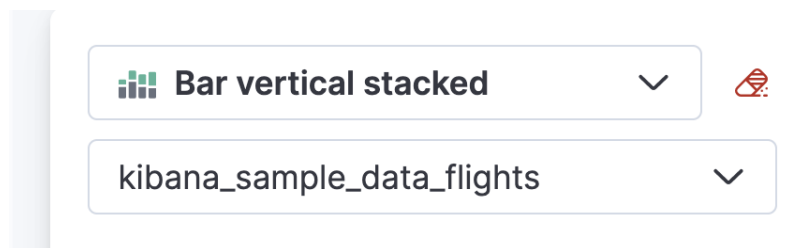
9. Explore the different fields in the index using the same method to familiarize yourself with the data.

10. To start visualizing a field, simply drag and drop it into the central visualization area of the page.

11. Below the visualization area, Lens shows some suggestions for alternate visualization types. You are not limited to those suggestions. To change the chart type, click on the chart icon next to the index name:



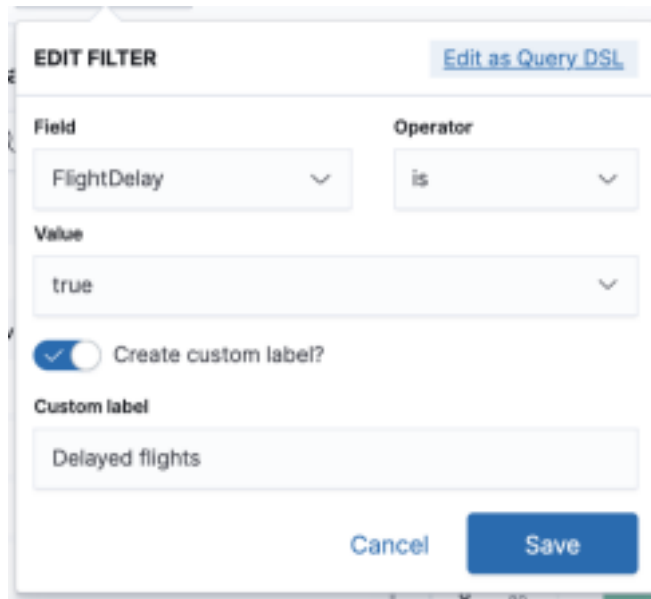
12. Reset the chart area. To achieve this, click eraser icon  near the Layer:



# Metric visualization

The most simple visualization is a metric visualization. It shows a number. In this exercise, you will create such a metric visualization.

1. Inside the Lens view, click on "Add filter"
2. Select "FlightDelay" is `true` and create a custom label:



EDIT FILTER [Edit as Query DSL](#)

Field: FlightDelay Operator: is

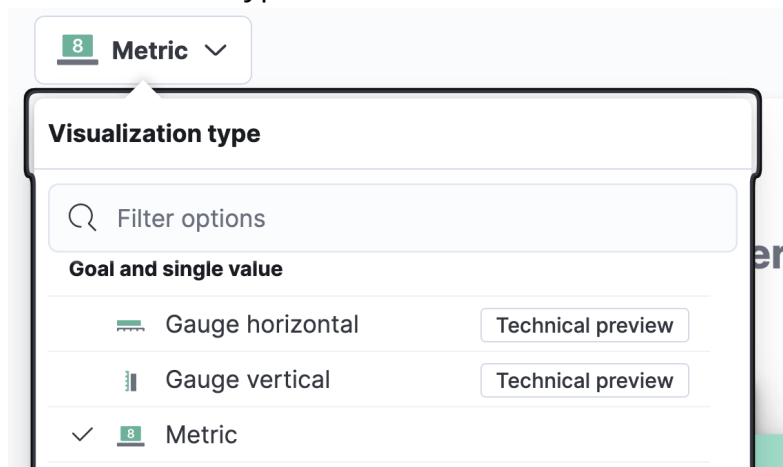
Value: true

☒ Create custom label?

Custom label: Delayed flights

Cancel Save

3. Select "**Metric**" as visualization type



8 Metric

Visualization type

Filter options

Goal and single value

Gauge horizontal Technical preview

Gauge vertical Technical preview

✓ 8 Metric

4. Drag the field "Records" to create a visualization:

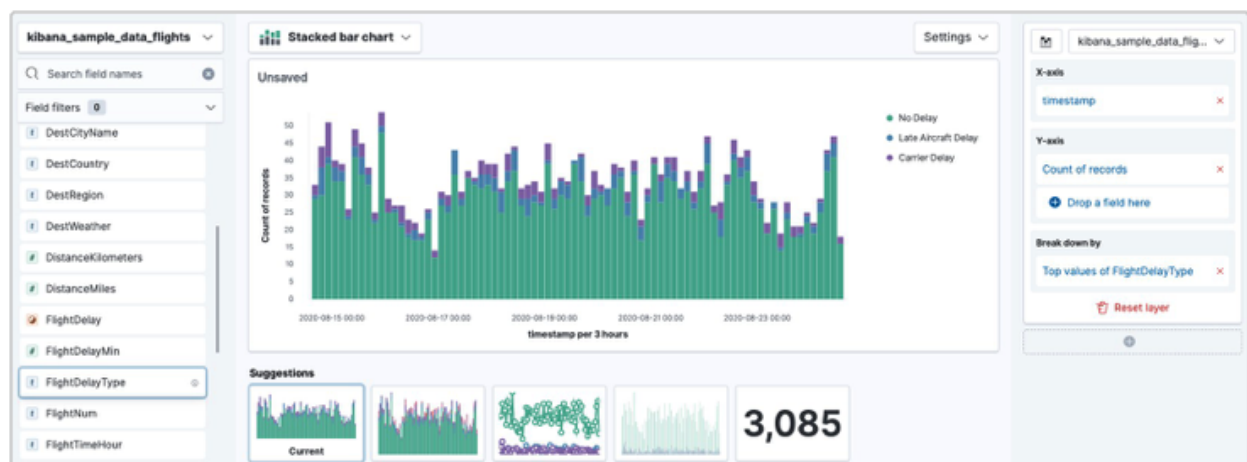


5. Click on **"Save to Library"** in the top right. Give the visualization a title.
6. Leave the "Add to dashboard after saving" option selected. This way, you will immediately add this visualization to the dashboard when you click "Save and return".

## Bar chart

In this exercise, you will create a bar chart to visualize the flight delays per carrier.

1. From within the same dashboard used in the previous exercise, click on "Create new" to add another Lens visualization.
2. In the "New Visualization" menu click on the "Go to Lens" button.
3. Drag and drop the "Records" field:



4. Click on "Add filter" to create a filter. Select "FlightDelay" is true and create a custom label `Delayed flights`.
5. Change the x-axis to reflect carriers. Click on "timestamp" on the right-hand side to open this side panel:



6. Click on "Top values" and change the field from "timestamp" into "Carrier". Increase the number of values to 4.
7. Change the label into "Delays by carrier".
8. Click on "Save". Add a title, and keep the "Add to dashboards after saving" option selected.
9. Finally click on "Save and return" to return to the dashboard.

# Stacked bar chart

In this exercise you will build a stacked bar chart by breaking down records into sub groups.

1. From within the same dashboard used in the previous exercise, click on "Create new" to add another Lens visualization.
2. In the "New Visualization" menu click on the "Go to Lens" button.
3. Inside Lens, Drag and drop the field "Records" into the chart.
4. The x-axis shows the "timestamp" field by default. Lens has selected a time interval for you. You can change the interval by clicking on the "timestamp" link on the right.
5. Drag and drop "FlightDelayType" field into "Break down by" area on the right.

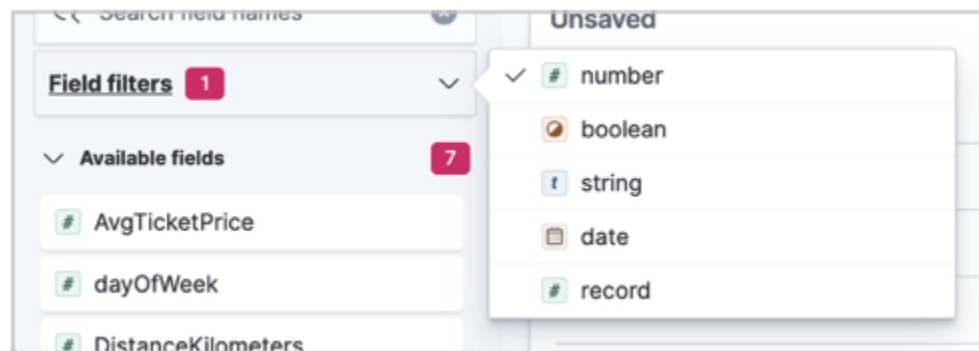


6. Click on "Save", add a title, and keep the "Add to dashboards after saving" option selected.
7. Finally click on "Save and return" to return to the dashboard.

# Table

In this exercise you will create a table with several of the fields as columns.

1. From within the same dashboard used in the previous exercise, click on "Create new" to add another Lens visualization.
2. In the "New Visualization" menu click on the "Go to Lens" button.
3. Inside Lens, drag and drop the "Carrier" field into the chart.
4. Select "Data table" from the dropdown above the visualization area.
5. Let's add some more columns to the table. Use "Field filters" (on the left, above the list of fields) to view only numeric fields:



6. Drag the following fields to the "Metrics" area on the right-hand side: "AvgTicketPrice", "FlightTimeMin", and "FlightDelayMin". The resulting table will look like this:

Data table ▾

Unsaved

Top values of Carrier	Count of records	Average of AvgTicketPrice	Average of FlightTimeMin	Average of FlightDel:
ES-Air	791	\$618.9	524.312	42.649
JetBeats	800	\$621.9	521.507	47.606
Kibana Airlines	757	\$613.37	516.045	46.724
Logstash Airways	826	\$615.84	518.641	46.616

kibana\_sample\_data\_flights ▾

Break down by

Top values of Carrier ×

⊕ Drop a field or click to add

Metrics

Count of records ×

Average of AvgTicketPrice ×

Average of FlightTimeMin ×

Average of FlightDelayMin ×

⊕ Drop a field or click to add

🗑️ Reset layer

- Click on "Save", add a title, and keep the "Add to dashboards after saving" option selected.
- Click on "Save and return" to return to the main dashboard.
- Finally, save your dashboard by clicking "Save" in the top right. Give your dashboard a title, and click the "Save" button.

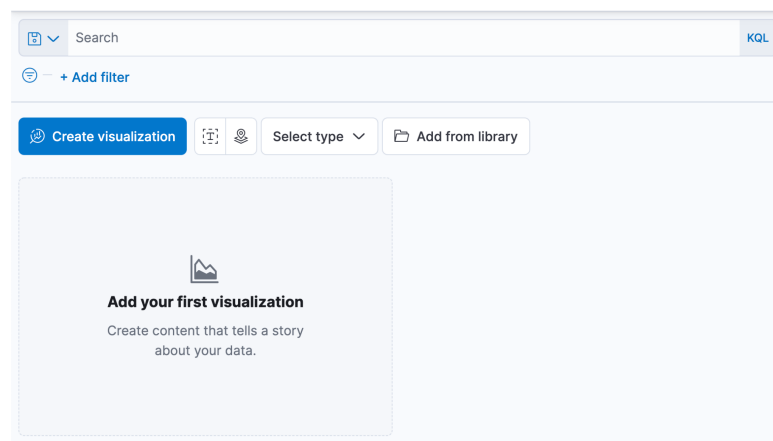
# Advanced visualizations

So far, you have used Kibana Lens to create basic visualizations. Next, you will build more more advanced visualizations.

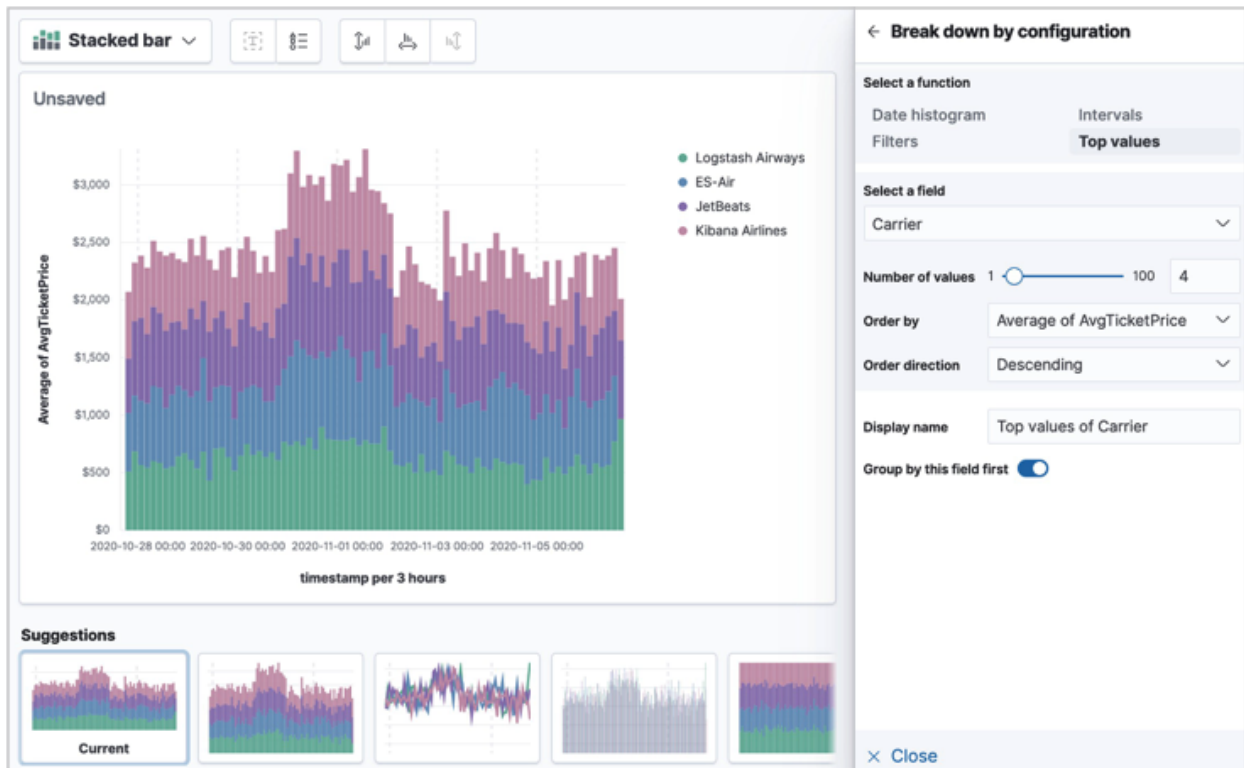
## Multiple layers and indices

Lens allows you to create multiple layers. Layers allow you to combine data from multiple data sources into one visualization.

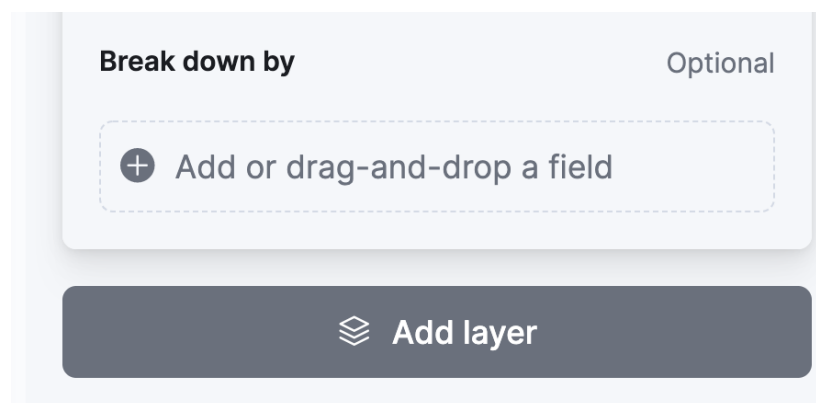
1. The first step is to click on the menu button located at the top left which brings up the main menu. Select the "**Dashboard**" option under "**Analytics**".
2. Click on "**Create dashboard**" to create a new dashboard. This brings you to an empty dashboard.
3. Then click on "**Create visualization**" to add a new visualization to the dashboard:



4. Select the *kibana\_sample\_data\_flights* index.
5. Drag and drop "AvgTicketPrice" into the chart area. Ensure that the time filter indicates "Last 10 days" to visualize only the data in the last 10 days.
6. Click on "Drop a field or click to add" under "Break down by".
7. Select "top values", and select "Carrier" as the field.
8. Change the "Number of values" into 4, to see all carriers:



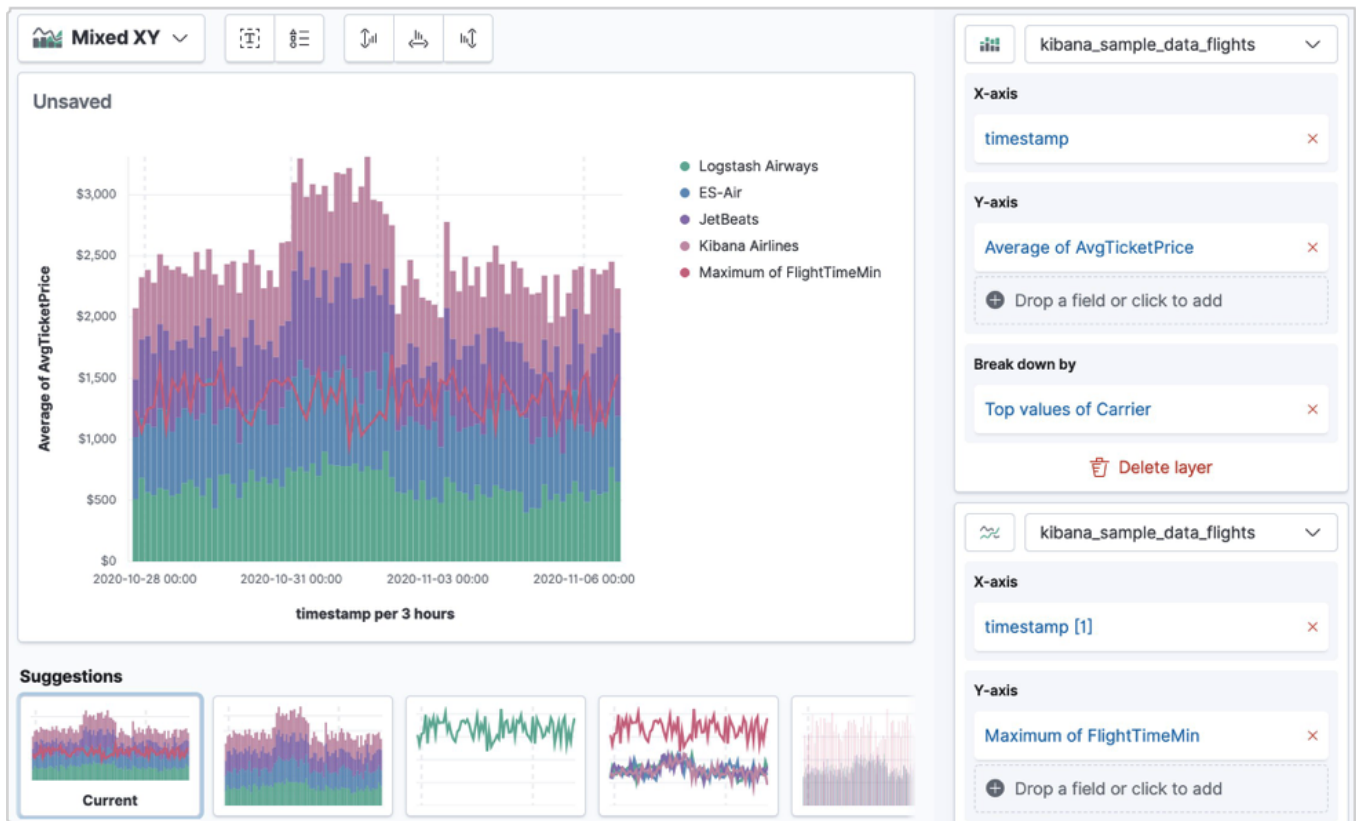
10. Close the side panel where you've just configured the breakdown, and click on **"Add layer"** to add another layer.



11. Select the kibana\_sample\_data\_flights index.

12. Change the chart type to "**Line**" - click on the dropdown menu on top of the index pattern name to do so.

13. Choose Maximum of "FlightTimeMin" for Y-axis and "timestamp" for the x-axis.



14. Add a third layer to your chart. This time select kibana\_sample\_data\_ecommerce. Select maximum "taxful\_total\_price" for y-axis and "order\_date" for X-axis. Finally change the chart type for this layer to stacked area chart.



15. Click on "Save" and add a title.

16. Keep the "Add to Dashboard after saving" option selected. Click on "Save and return" to return to the dashboard.

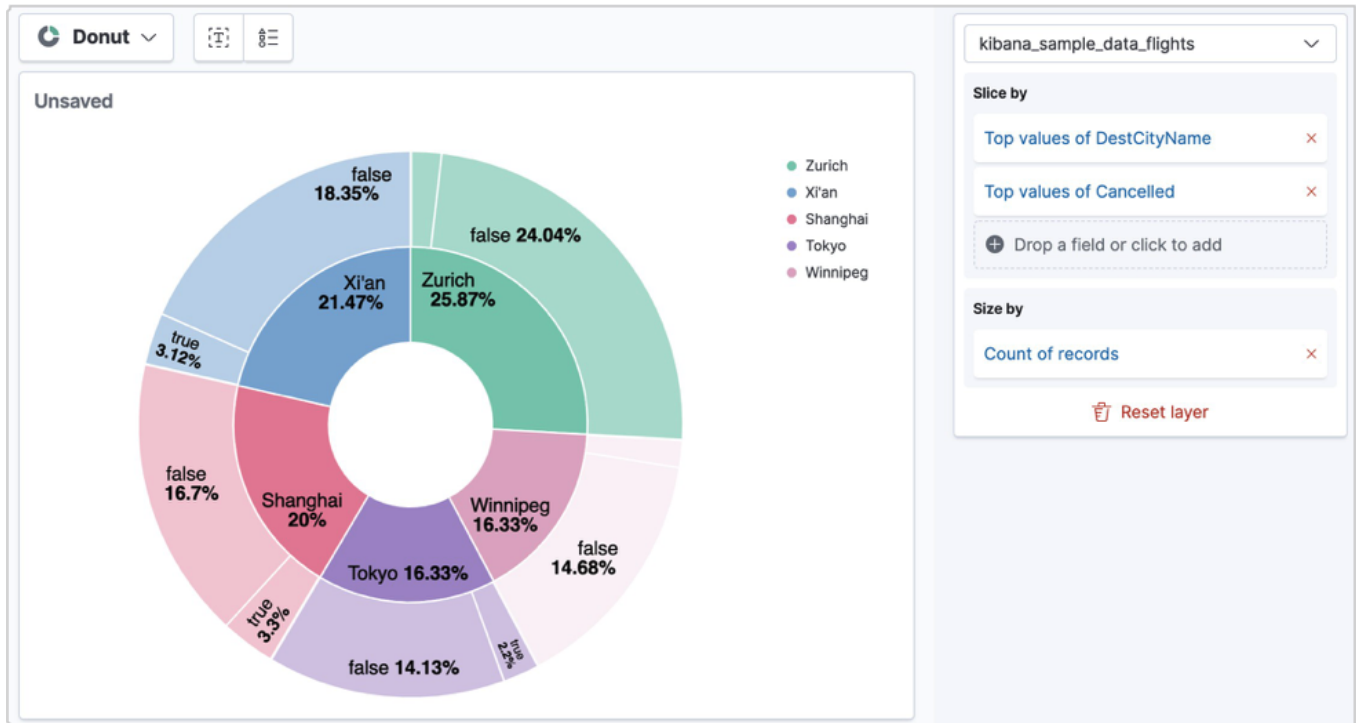
## Sub-buckets

Basic visualizations already offer some kind of grouping capabilities. Sometimes it's necessary to further sub-group the data to understand data. You can use visualizations that support sub-buckets for that. In this exercise, you will create a pie chart made up of sub-buckets by simply using drag and drop operations.

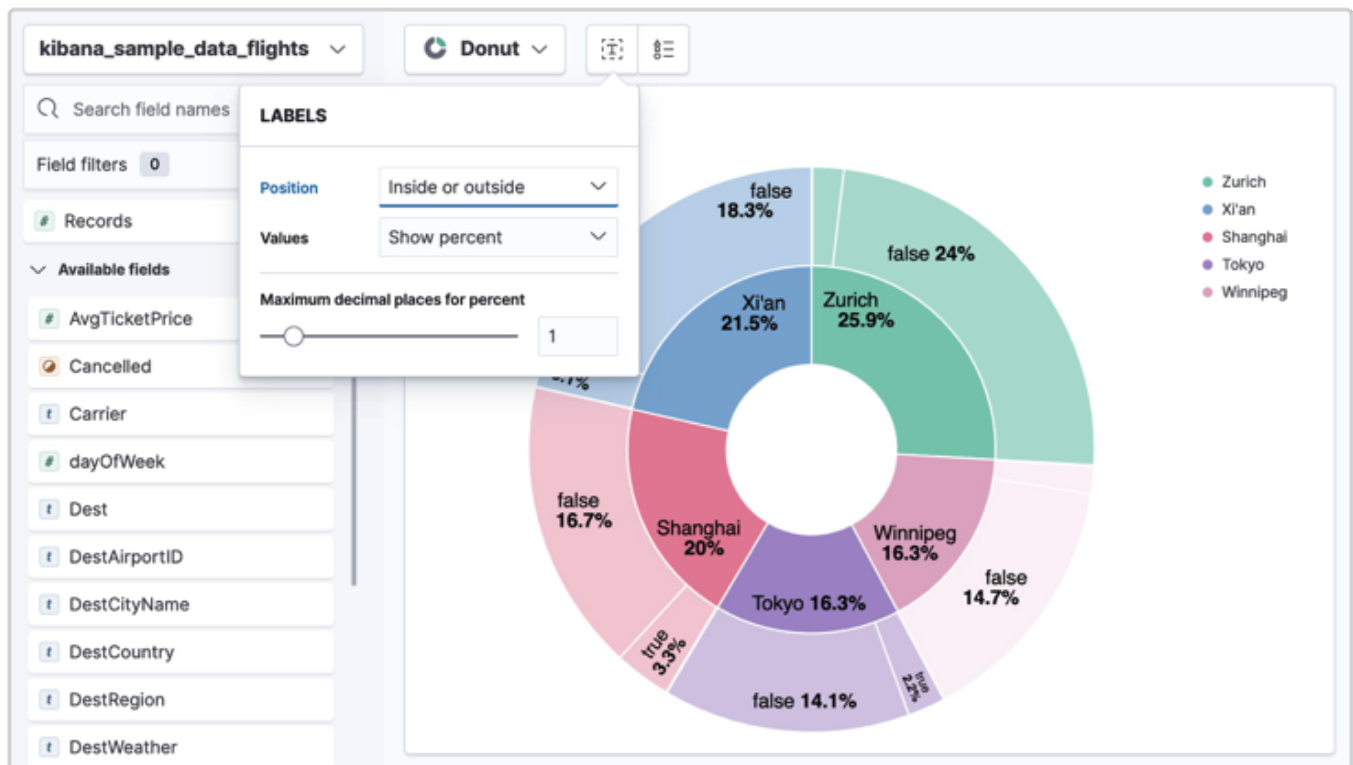
1. From within the same dashboard used in the previous exercise, click on "Create new" to add another Lens visualization.
2. In the "New Visualization" menu click the "Go to lens" button.
3. Select the kibana\_sample\_data\_flights index.
4. Drag and drop "DestCityName" into the chart area.
5. Change the chart type to "Donut".



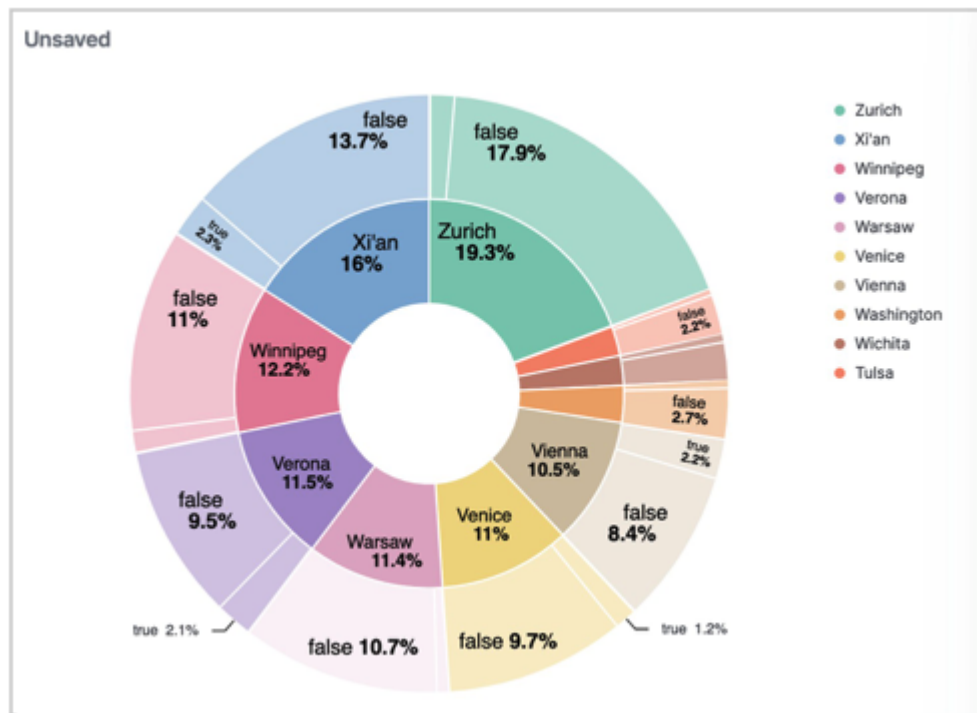
6. Drag and drop the "Cancelled" field into the chart area. Your chart should look like the chart below. The inner part of the donut chart represents the top destination cities. The outer ring represents the proportion of cancelled flights vs. non-cancelled flights.



7. You can customize the labels on this donut chart. Click on the first button to the right of the chart type dropdown (it looks like the letter "T" in a dotted square). Set the "Maximum decimal places for percent" to 1. You should see values that represent each slice change to one decimal place.



- By default, the inner ring only show five slices. Click on the "Top values of DestCityName" below "Slice by" and set "Number of values" to 10.
- Change the "Order by" to "Alphabetical" to arrange the slices by label as opposed to the value.
- The end result should look like the following chart:



11. Click on "Save" and add a title.

12. Keep the "Add to Dashboard after saving" option selected. Click on "Save and return" to return to the dashboard.

## Treemap

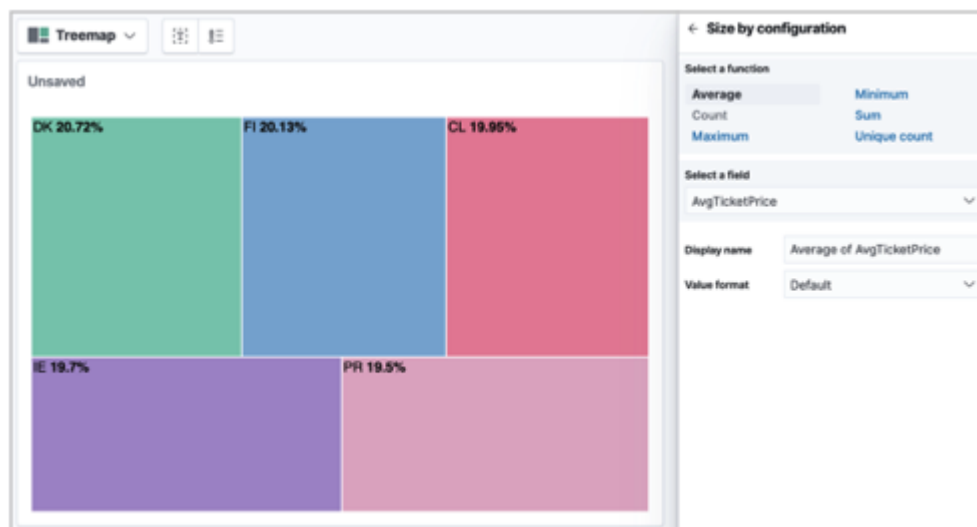
You can also visualize hierarchical data using Lens. For instance, you can use a treemap or pie chart to display the top destination countries. Next, for each of those countries, you can further break down the top destination airports.

1. From within the same dashboard used in the previous exercise, click on "Create new" to add another Lens visualization.
2. In the "New Visualization" menu click the "Go to lens" button.
3. Select the `kibana_sample_data_flights` index.
4. Drag "DestCountry" into the chart area. Ensure that the time filter indicates "Last 10 days" to visualize only the data in the last 10 days.
5. Select the "Treemap" visualization from the chart type dropdown.

6. By default, you will see a breakdown of the top countries represented by the number of records.



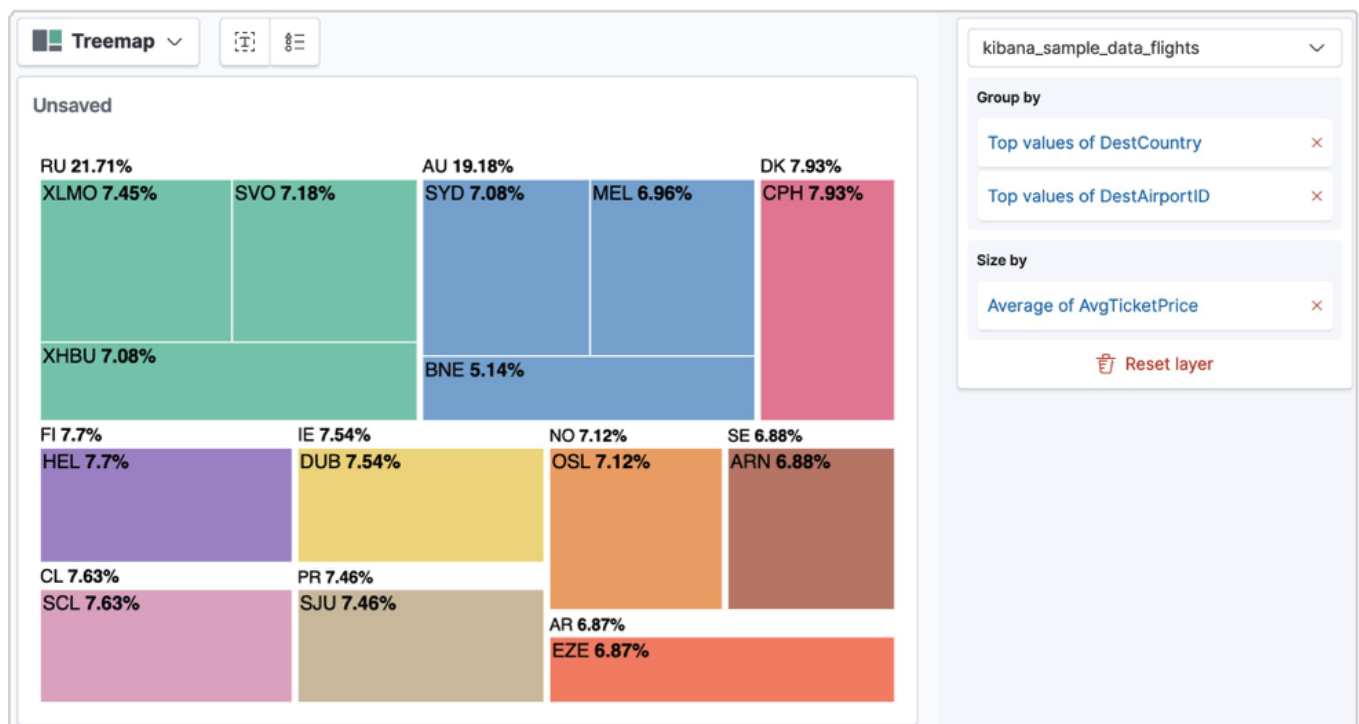
7. By default, the rectangle size of the treemap represents the number of records. You can use another metric instead, like the average of the ticket price. Click on "Count of records" under "Size by" on the right. Select "Average" and "AvgTicketPrice" as the field.



8. The next step is to further break down each destination country by destination airport. Drag and drop the "DestAirportID" field into the chart area or the "Group by" section on the far right.



9. You can further customize the visualization to make it more interesting. Click on the "Top values of DestCountry" option and then set "Number of values" to 10. You should get something like below:



10. Click on "Save" and add a title.
11. Keep the "Add to Dashboard after saving" option selected. Click on "Save and return" to return to the dashboard.
12. Finally, save your dashboard by clicking "Save" in the top right. Give your dashboard a title, and click the "Save" button.