03_visualize

Embedded Data Visualizations

Pre-requisite

1. Please ensure that you have completed the lab (01_ingest.md#lab-2-ingest-into-other-tables-needed-for-analysis-and-visualization) to ingest data needed for Visualization.

Lab 1: Enable data visualization:

1. Go to Data Warehouse Clusters page.
2. Click on Data Visualisation and click on Data viz. 

3. Click on `Connections` and then create a new Connection. 

4. On the popped window , Give the connection name as `Embedded-Dataviz` and Select the CDW Warehouse from the dropdown.
5. Hostname and UserName are auto-populated on selection of CDW warehouse. Click on `Connect`. Password is optional.

Lab 2: Create a dataset

In this lab, we will create a dataset that contains a correlation across the various datasets we have ingested and prepare for creating visualizations.

1. Now click `New Dataset` 2.`Dataset title` as `airlines-master` 3.`Data Source` as `From SQL` 4.Enter the below SQL query into the field:

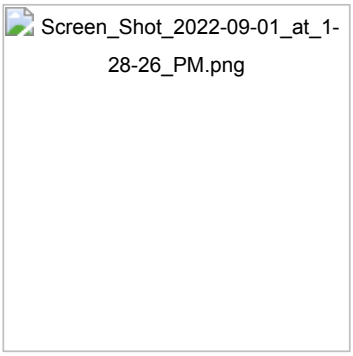
```
select B.description as 'carrier', C.city as 'origincity', D.city 'destinationcity', A.*,
CAST(CONCAT(CAST(`year` AS STRING) , '-', CAST(`month` AS STRING), '-', CAST(`dayofmonth` AS STRING))
AS DATE FORMAT 'yyyy-mm-dd') as flightdate
from airlines.flights A
INNER JOIN airlines.airlines B ON A.uniquecarrier = B.code
INNER JOIN airlines.airports C ON A.origin = C.iata
INNER JOIN airlines.airports D ON A.dest = D.iata
```

6. Click `Create`

Lab 3: Create a dashboard

In this lab, we will create a sample dashboard to visualize the reports for a business user.

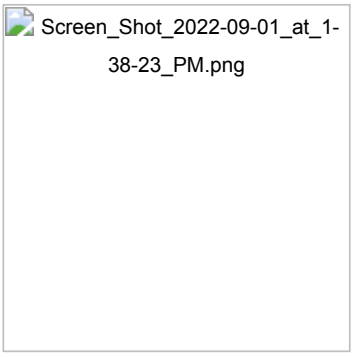
1. Click on the `dataset` we created in Lab 3 and then click `New Dashboard` icon.



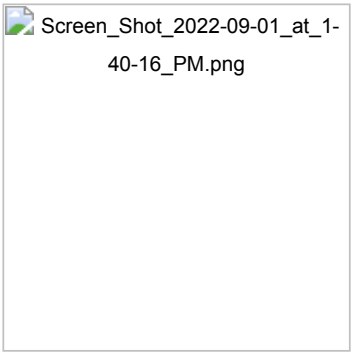
2. We will now create 3 reports & charts in this dashboard
    1. Total arrival delays by Carrier
    2. Cities with the most number of delayed flights (Top 10)
    3. Correlate delays with origin & destination city pairs

Total arrival delays by Carrier

1. Enter a the tile for the dashboard as `Airlines dashboard`
2. Click `Visuals`, then `New Visual`



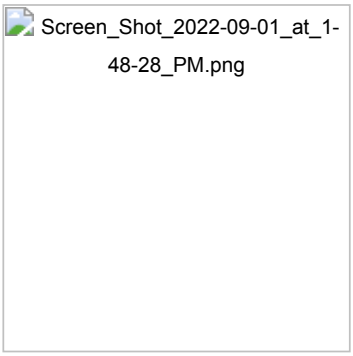
1. Click `Grouped Bars` as the chart type
2. From the `Dimensions` shelf, drag the `carrier` field into the `X Axis` field
3. From the `Measures` shelf, drag the `arrdelay` field into the `Y Axis` field
4. Enter the title for this chart as `Total arrival delays by Carrier`



Cities with the most number of delayed flights (Top 10)

We will create a scatter chart to identify the cities that have the most number of delayed flights

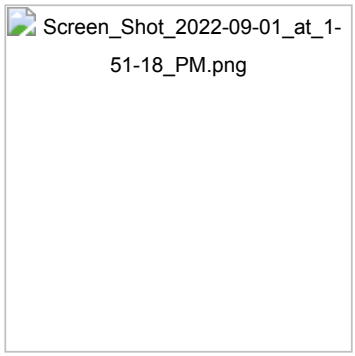
1. Click `Visuals`, then `New Visual`
2. Click `Scatter` as the chart type
3. Enter the name of the chart as `Cities with the most number of delayed flights (Top 10)`
4. From the `Dimensions` shelf, drag the `destinationcity` field into the `X Axis` field
5. From the `Measures` shelf, drag the `Record Count` field into the `Y Axis` field & double click on the field you just brought in.
6. We now want to only show the top 10 records.
    1. Under `Field Properties` , go to `Order` and `Top K` field, then to Top K
    2. Enter `10` as the value and click `Refresh Visual`



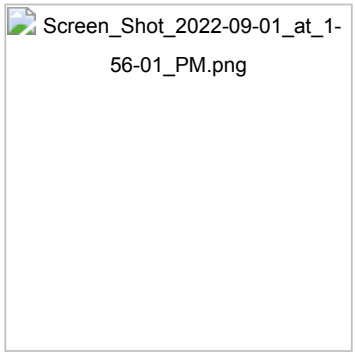
Correlate delays with origin & destination city pairs

For this use-case, we will let Cloudera Data Visualization recommend a chart type for us.

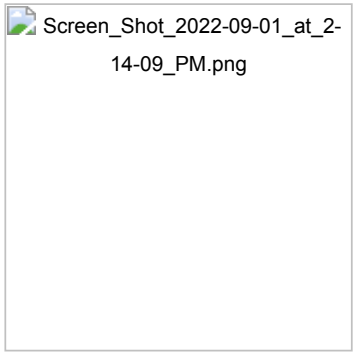
1. Click `Visuals`, then `New Visual`
2. Now click on `Explore Visuals`



1. In the pop-up window, choose `origincity` and `destinationcity` on the `Dimensions` shelf. `Record Count` on the `Measures` shelf
2. The `Possible Visuals` pane will show you a list of recommended visuals.
3. You can explore the various charts and then choose `Correlation Heatmap`
4. Name your chart as `Correlate delays with origin & destination city pairs`



7. You can change the color of correlation map by clicking on the `Explore Options` icon on top of the chart and then `Colors`, then choose a format you prefer



Click `Save` to save the dashboard.

As a nextstep, you can try creating a visual application based on the dashboard we just built and showcase how a business user dashboard could look like. The documentation is here (https://docs.cloudera.com/data-visualization/7/howto-apps/topics/viz-create-app.html)