DHL Logistics Facility Data Analytics using IBM Cognos Analytics

Project Report

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INTRODUCTION:

The project is to analyse the DHL data to provide insights and grow business. DHL is a German logistics company providing courier, package delivery and express mail service, which is a division of the German logistics firm Deutsche Post. The company group delivers over 1.6 billion parcels per year. Adrian Dalsey, Larry Hillblom and Robert Lynn founded DHL in 1969. Today, DHL is the world's leading logistics company and has spread its network over 220 countries.

The dataset used had the following features:

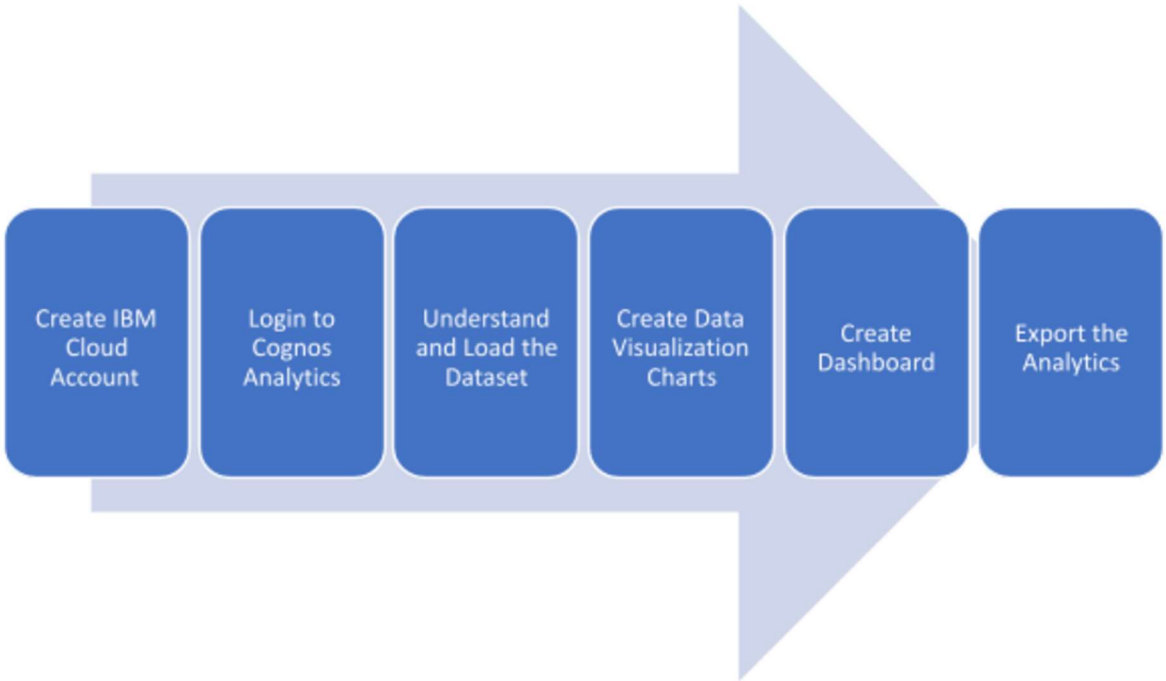
S.No.	Field Name	Type	Description
1	X	Geo	Geo Code
2	Y	Geo	Geo Code
3	OBJECTID	int	Object ID – Sequence Number
4	FEATURE_ID	Int	Feature ID – Int number
5	NAME	Text	Name of the Client
6	ADDRESS	Text	Address 1
7	ADDRESS2	Text	Address 2
8	CITY	Text	City Name
9	STATE	State	State Name
10	ZIP	Int	Zip code
11	LATITUDE	Geo	Geo value of Latitude
12	LONGITUDE	Geo	Geo value of Longitude
13	MATCH_STATUS	Text	Address Match Status
14	PLACEMENT	Text	Delivered Target
15	CENSUS_CODE	Int	Zip Code of Target
16	LAST_PICKUP	Text	Last Pickup Time and Day
17	LOCATION_TY	Text	Source Location type
18	LOCATION_TH	Text	Target Location type

PURPOSE:

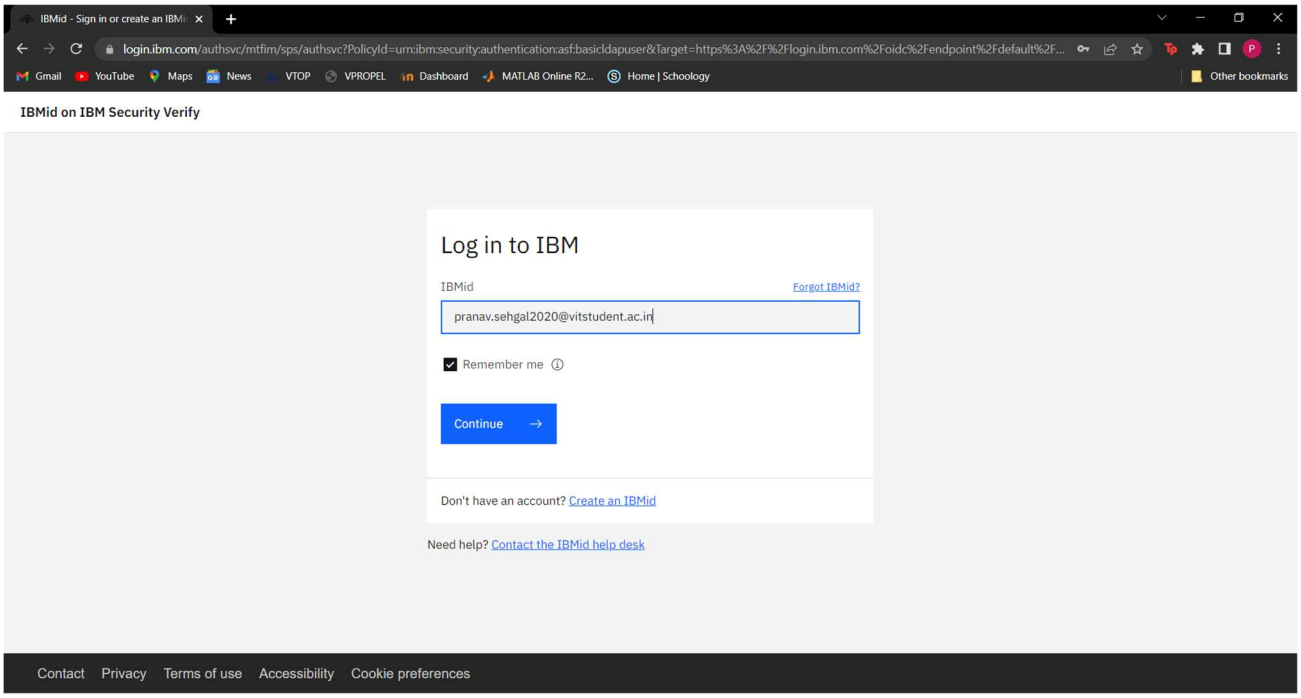
To create various graphs and charts to highlight the insights and visualizations.

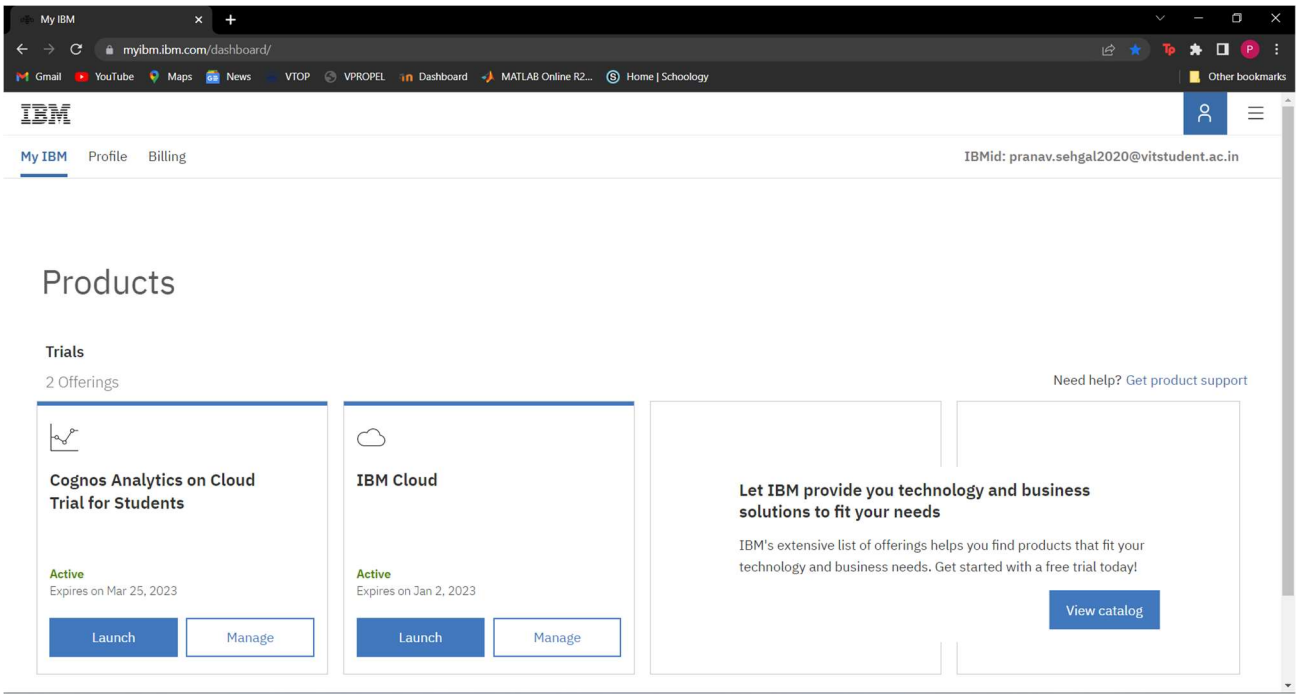
1. City-wise No of Pickups made?
2. City-wise No of Objects serviced?
3. State-wise No of Cities, where DHFL Services are provided?
4. Total Number of Objects IDs Serviced by DHFL - Summary Card
5. Zip Code wise Number of Objects Serviced?
6. Placement Filters
7. Mach Status Filters
8. Location Ty Filters
9. Location Th Filters
10. Top Contributor Countries / Cities? - Geo Map display

FLOWCHART TO PROCEED:

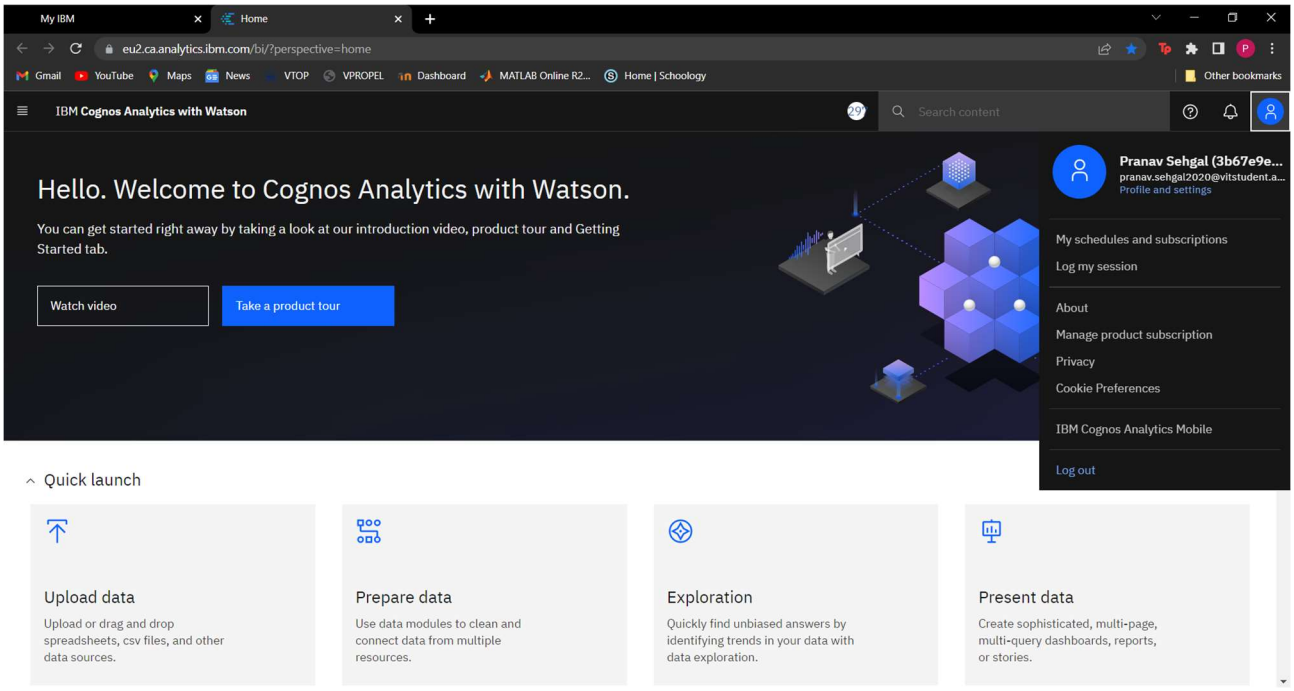


CREATE & LOGIN TO IBM CLOUD ACCOUNT:



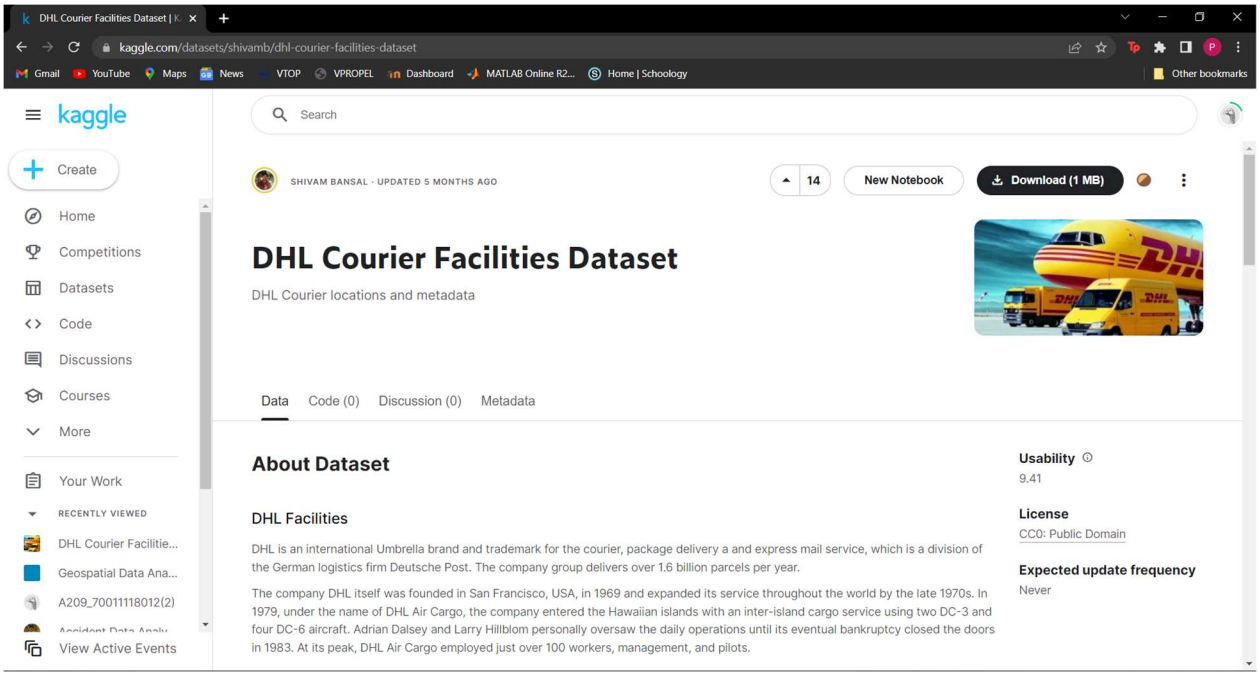


LOGIN TO IBM COGNOS ANALYTICS:

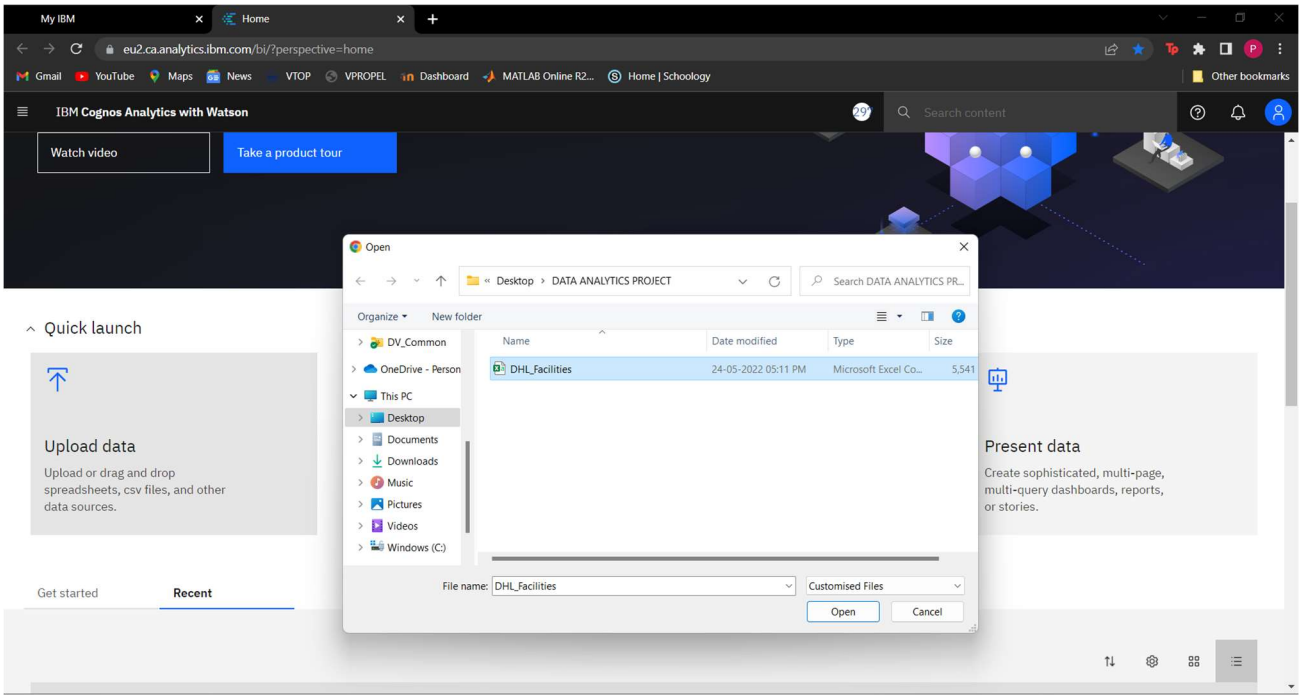


DOWNLOAD, UNDERSTAND AND LOAD DATA TO COGNOS ANALYTICS:

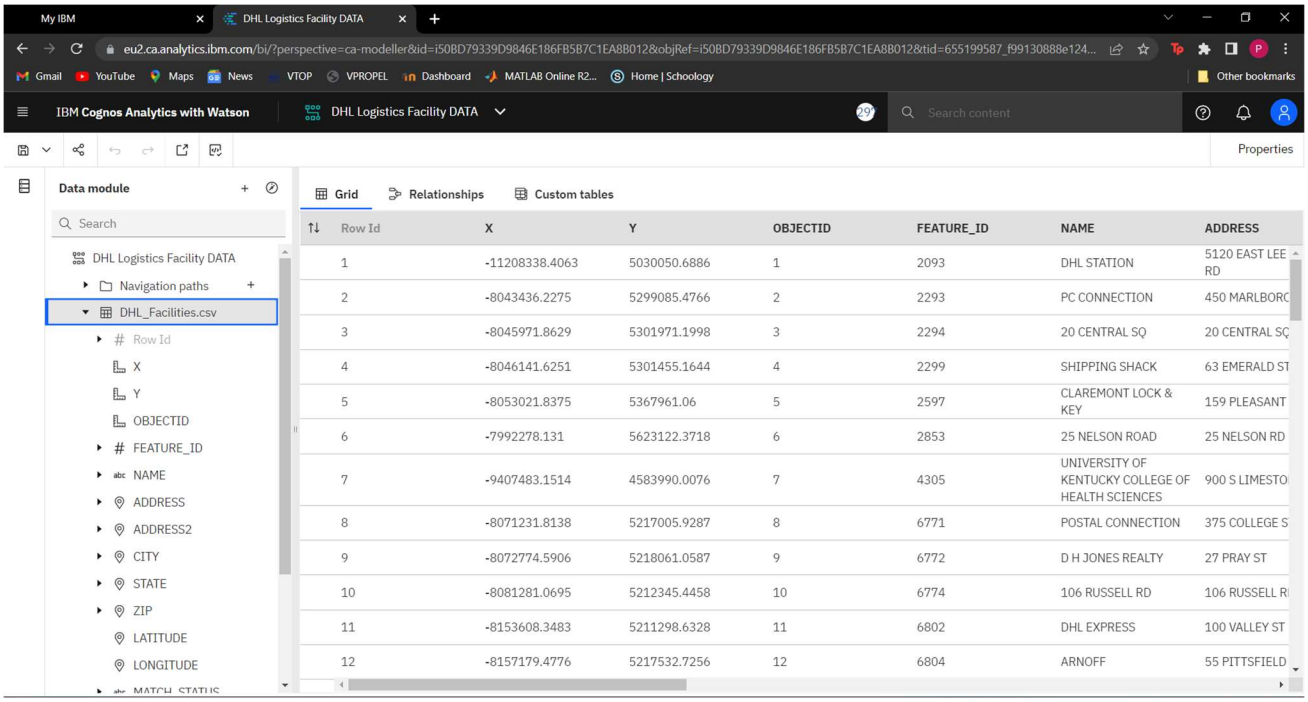
Download the data from the given link: https://www.kaggle.com/shivamb/dhl-courier-facilities-dataset



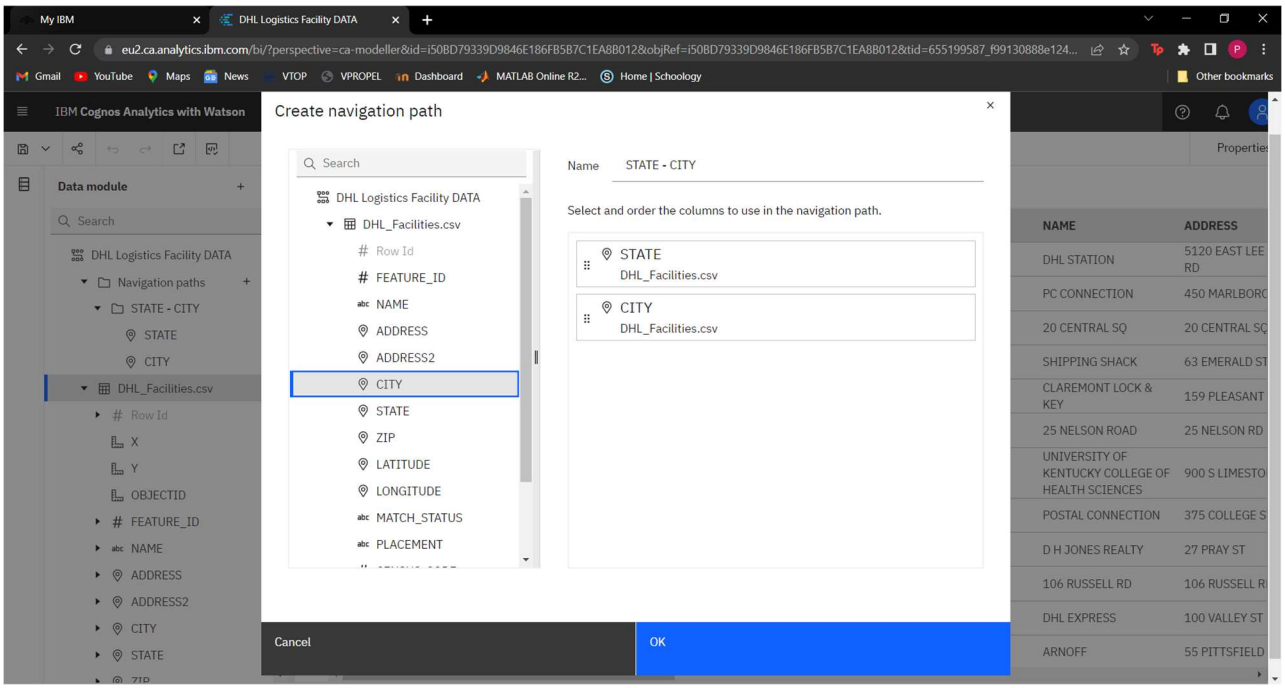
Load data to Cognos Analytics:



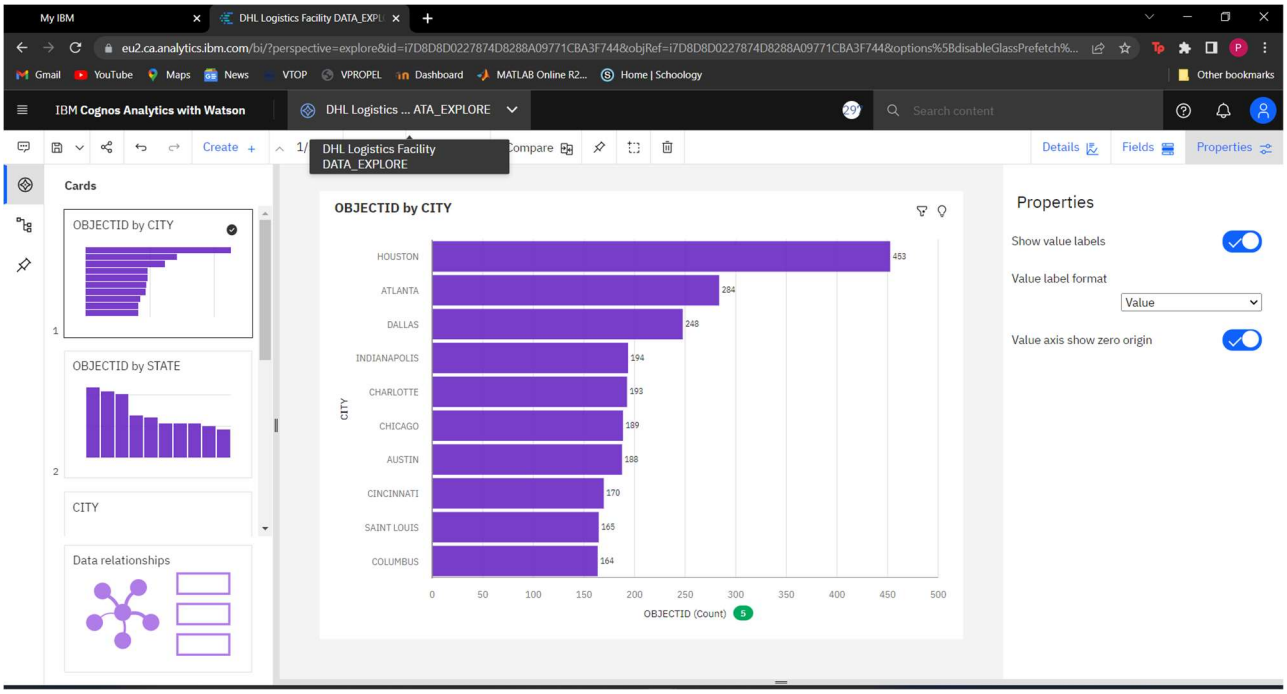
DATA PREPARATION:



Create a new navigation path:

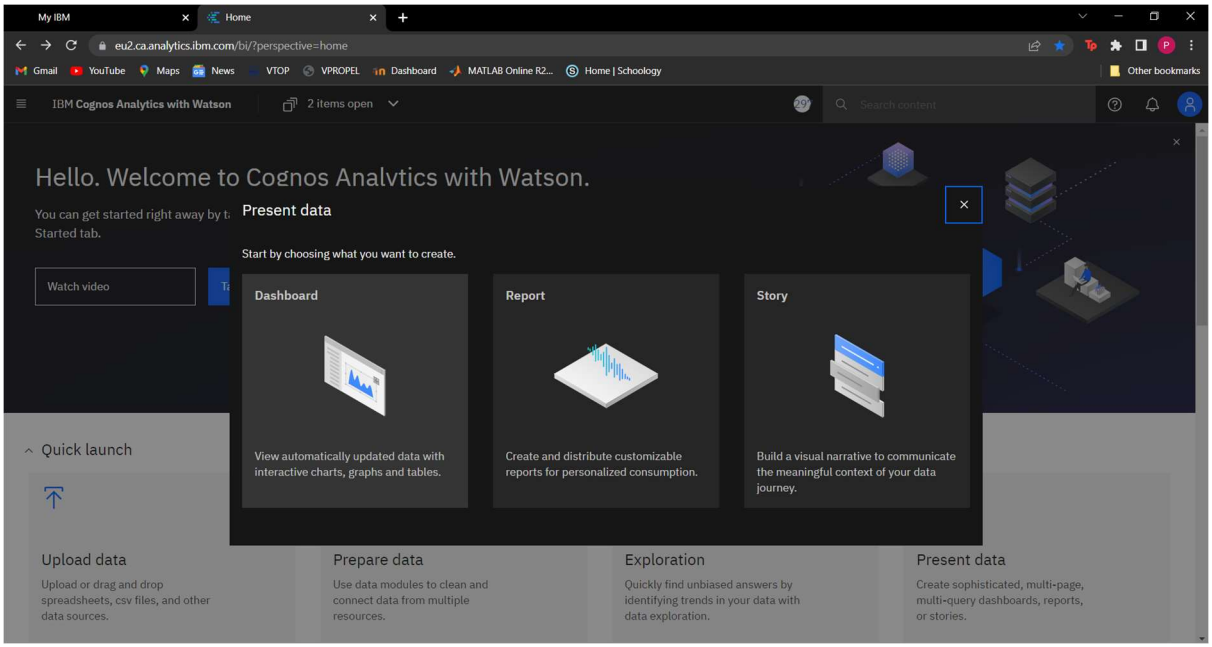


DATA EXPLORATION:

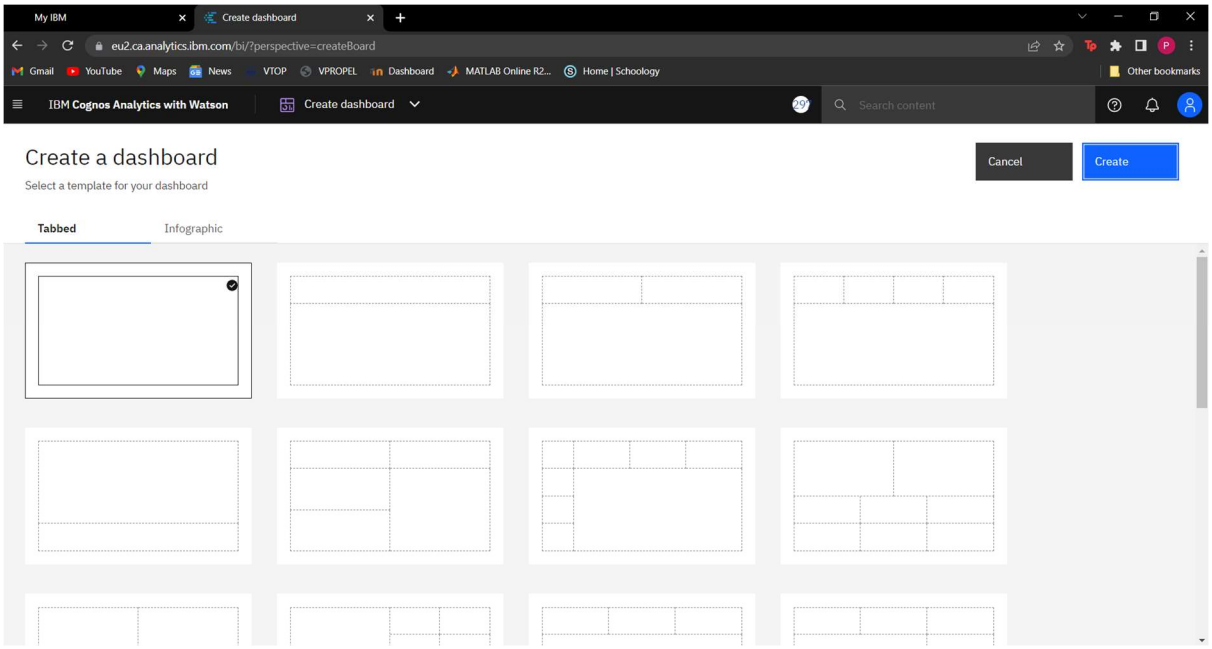


DATA VISUALIZATION:

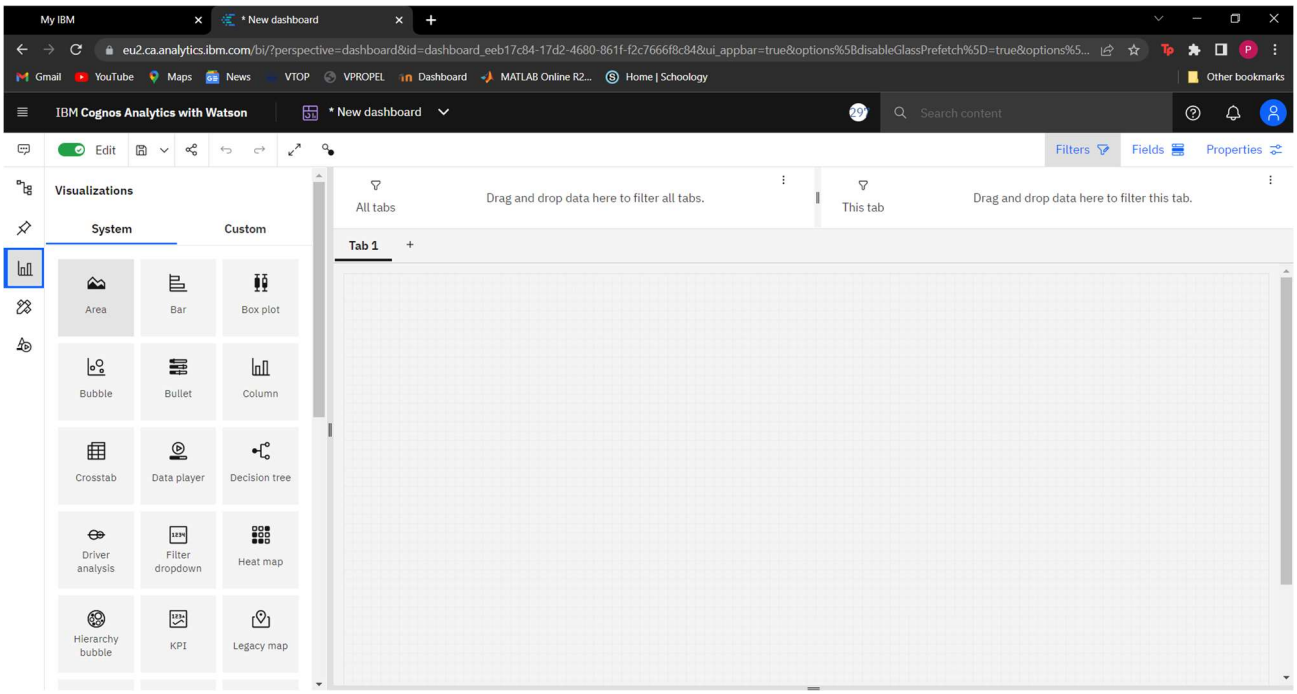
CREATE DASHBOARD:



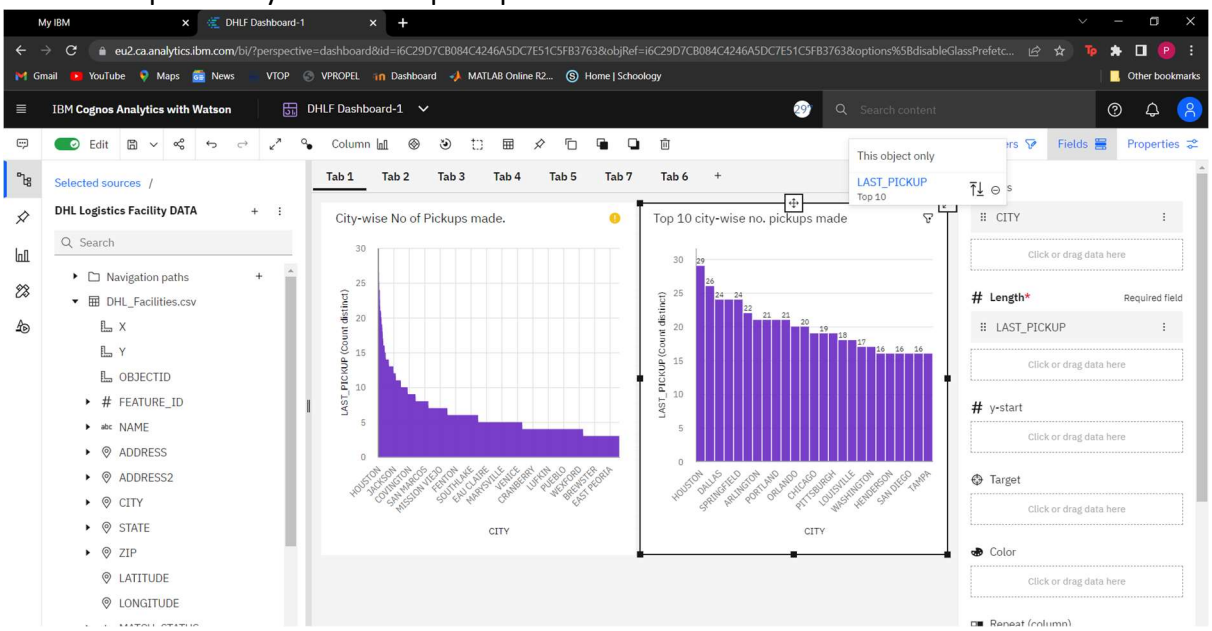
SELECT TEMPLATE



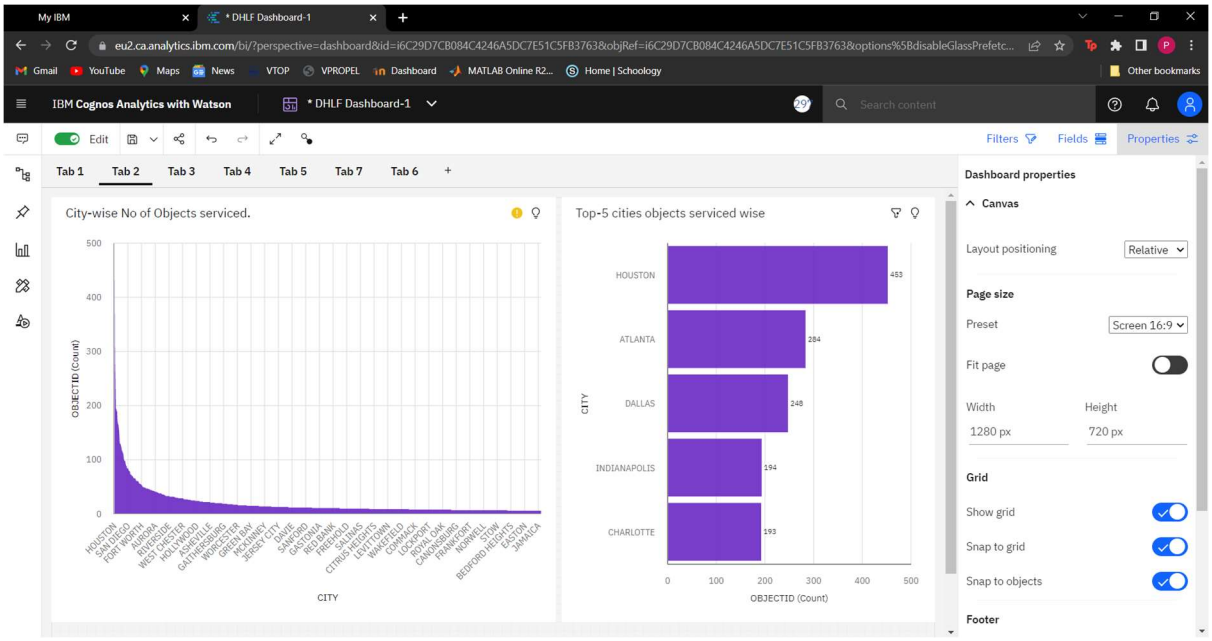
ADD VISUALIZATIONS:



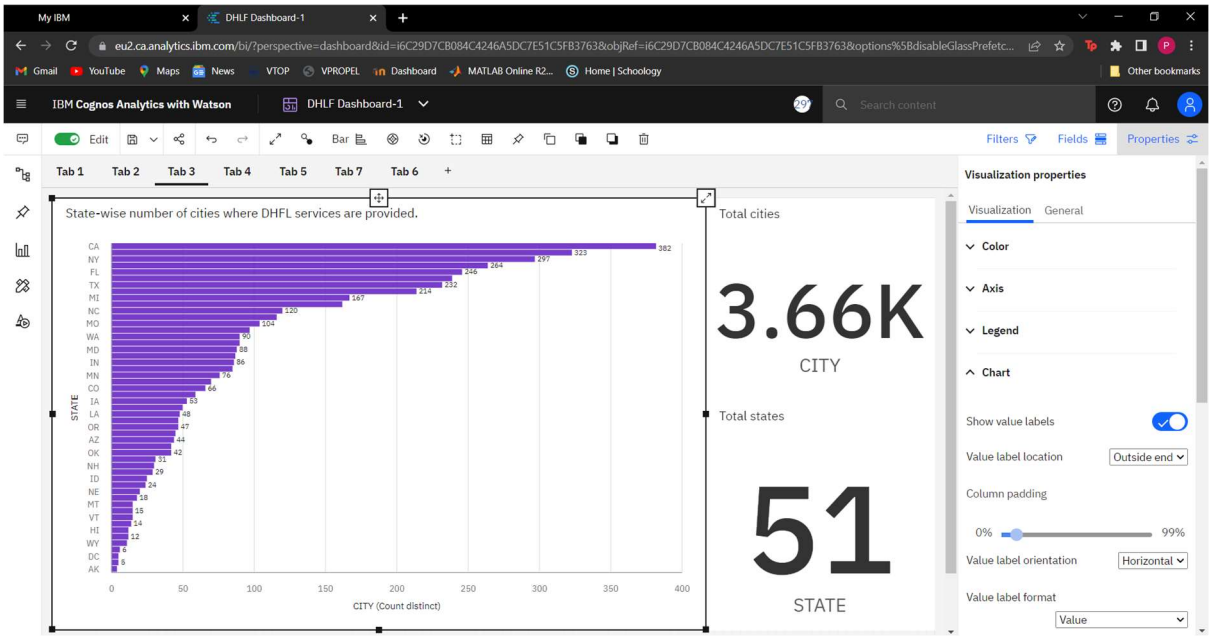
1. **City-wise No of Pickups made:**
   Area chart has been used to analyse the city-wise number of pickups made by DHL, where we have CITY on X-axis and Pickups on Y-axis. Also a column chart is used to visualize top cities by number of pickups.



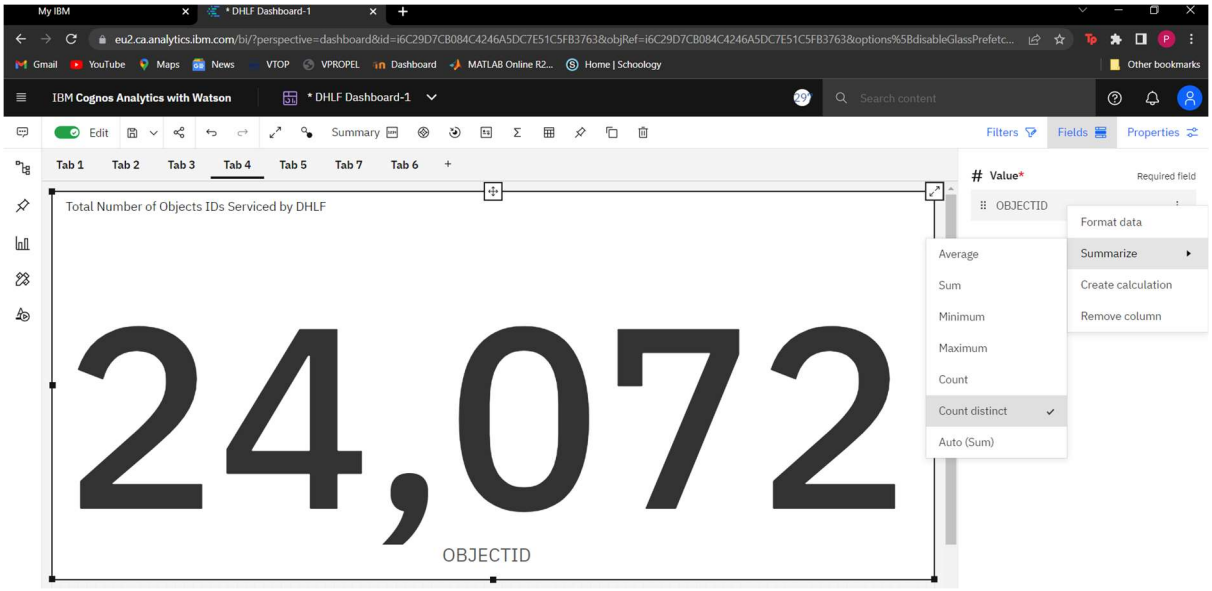
2. **City-wise No of Objects serviced:**
   An area chart has been used to visualise the city-wise number of objects serviced by DHL and also a bar chart is used to find top 5 cities according to the number of objects serviced.



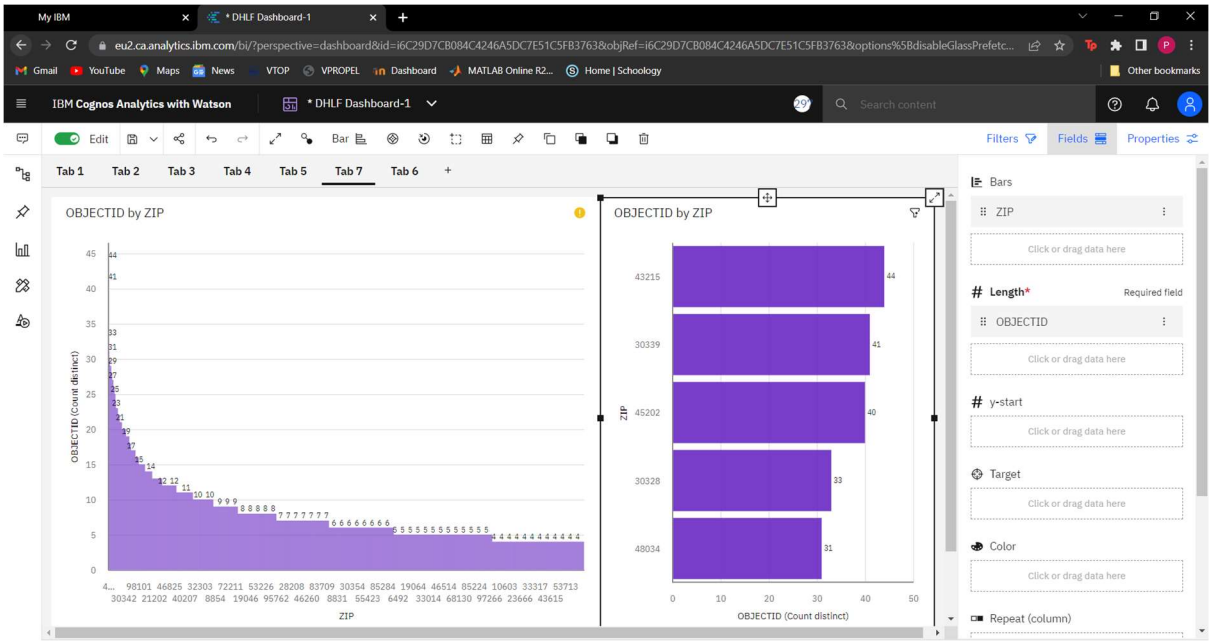
3. **State-wise No of Cities, where DHFL Services are provided:**
   Bar chart is used to find the state-wise number of cities where DHL services are provided and also summary card are used to find out total number of states and total number of cities.



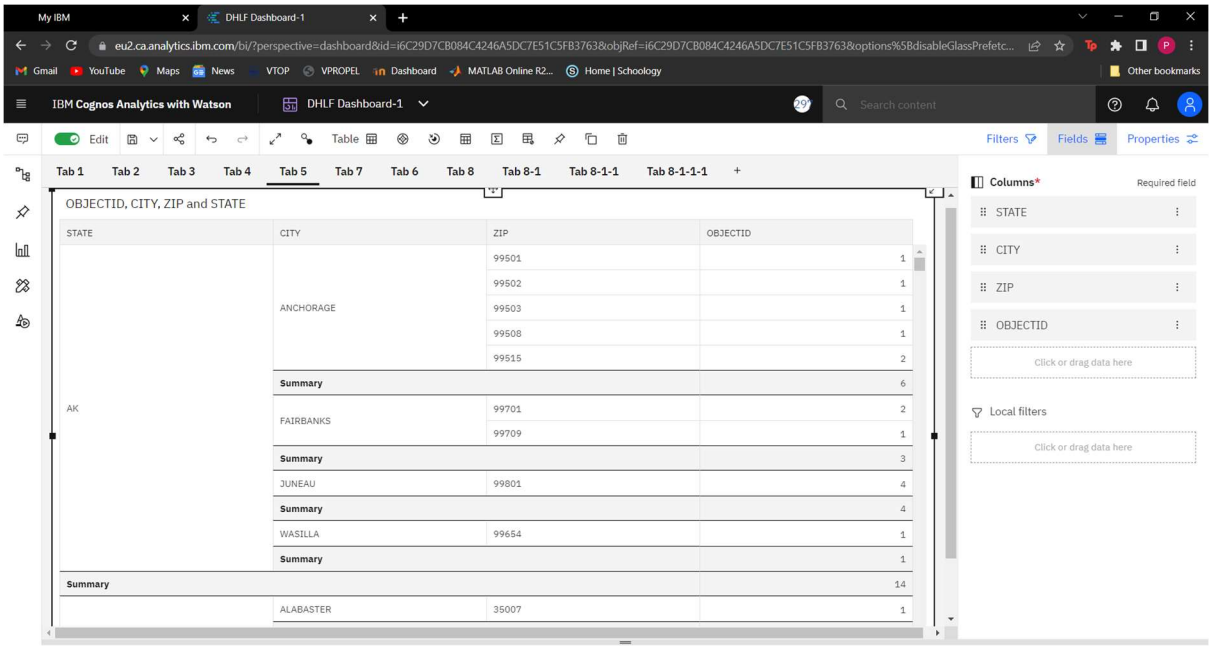
4. **Total Number of Objects IDs Serviced by DHFL - Summary Card:**
   A summary card is used to find the total number of objects serviced by DHL and we find it by counting the distinct OBJECT_ID's.



5. **Zip Code wise Number of Objects Serviced:**
   Column chart is used to visualize zip-code wise object-id's serviced and a bar chart is used to find the top-5 zip codes according to object-id's serviced.



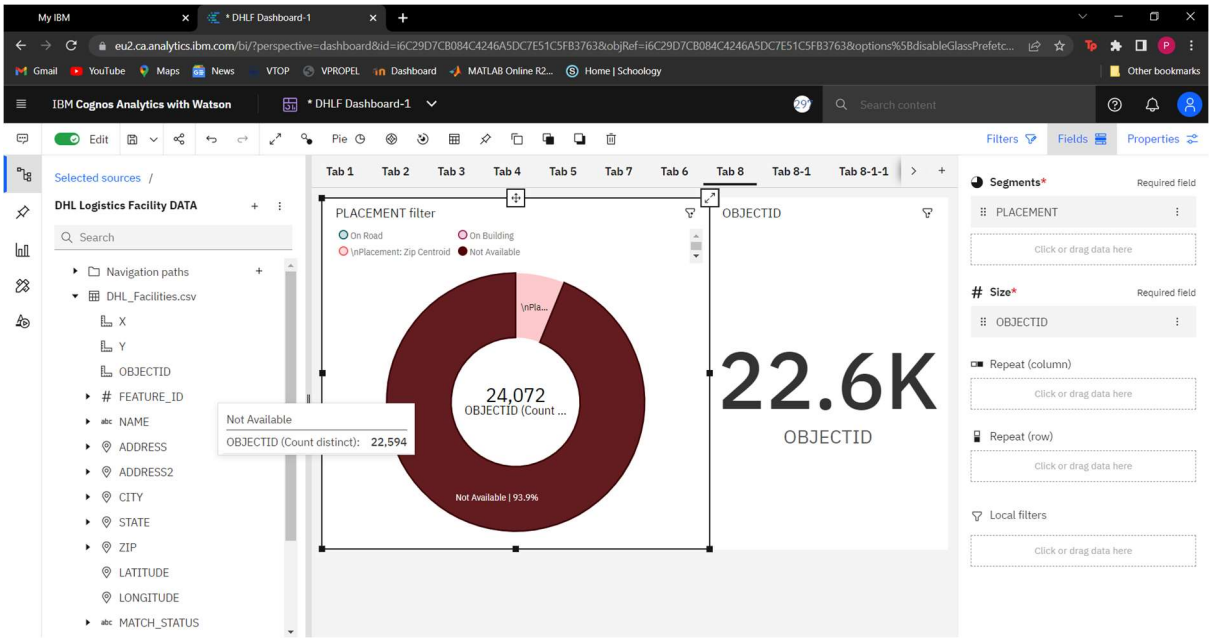
A tabular visualization of data showing the state, city, zip code and object-id's serviced by DHL.



STATE	CITY	ZIP	OBJECTID
	ANCHORAGE	99501	1
		99502	1
		99503	1
		99508	1
		99515	2
	Summary		6
AK	FAIRBANKS	99701	2
		99709	1
	Summary		3
	JUNEAU	99801	4
	Summary		4
	WASILLA	99654	1
	Summary		1
Summary			14
	ALABASTER	35007	1

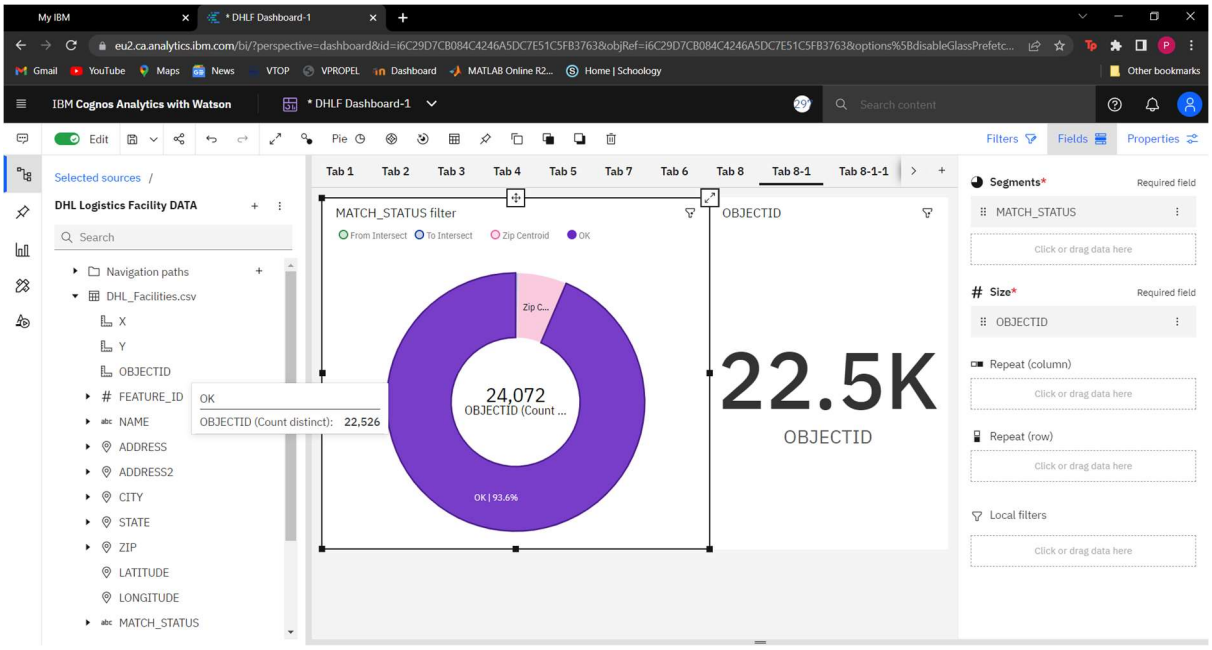
6. Placement Filters:

A doughnut pie chart is used to show the placement filters and summary card to show number of object-id's.



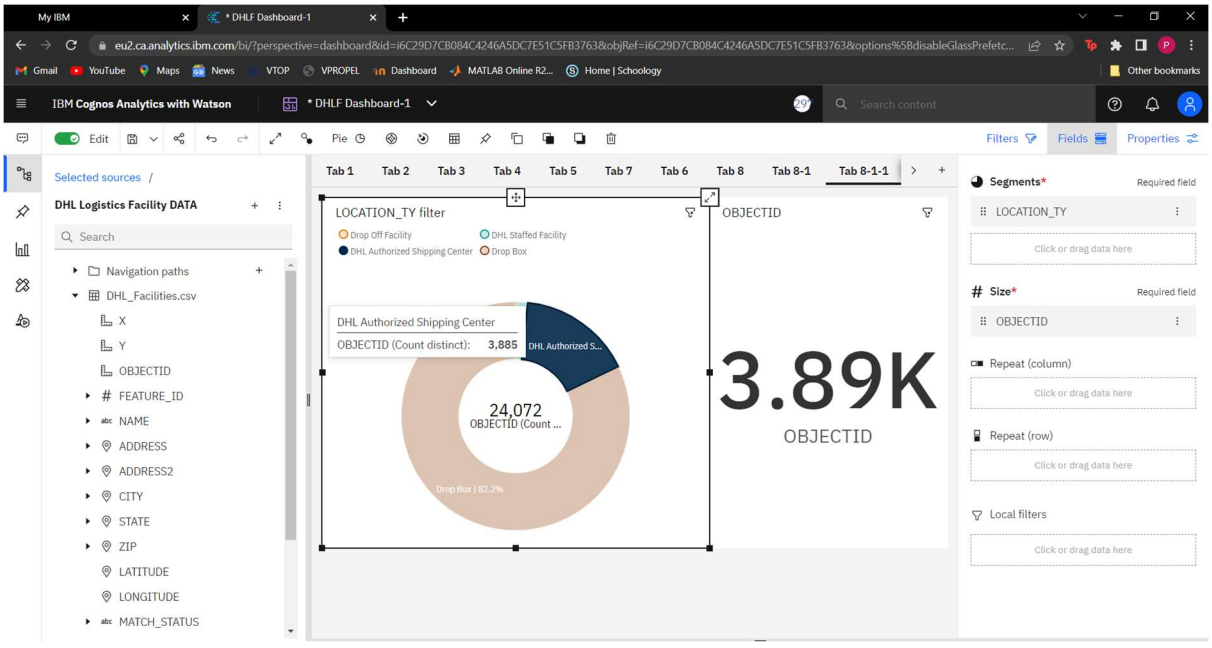
7. Match status Filters:

A doughnut pie chart is used to show the match status filters and summary card to show number of object-id's.



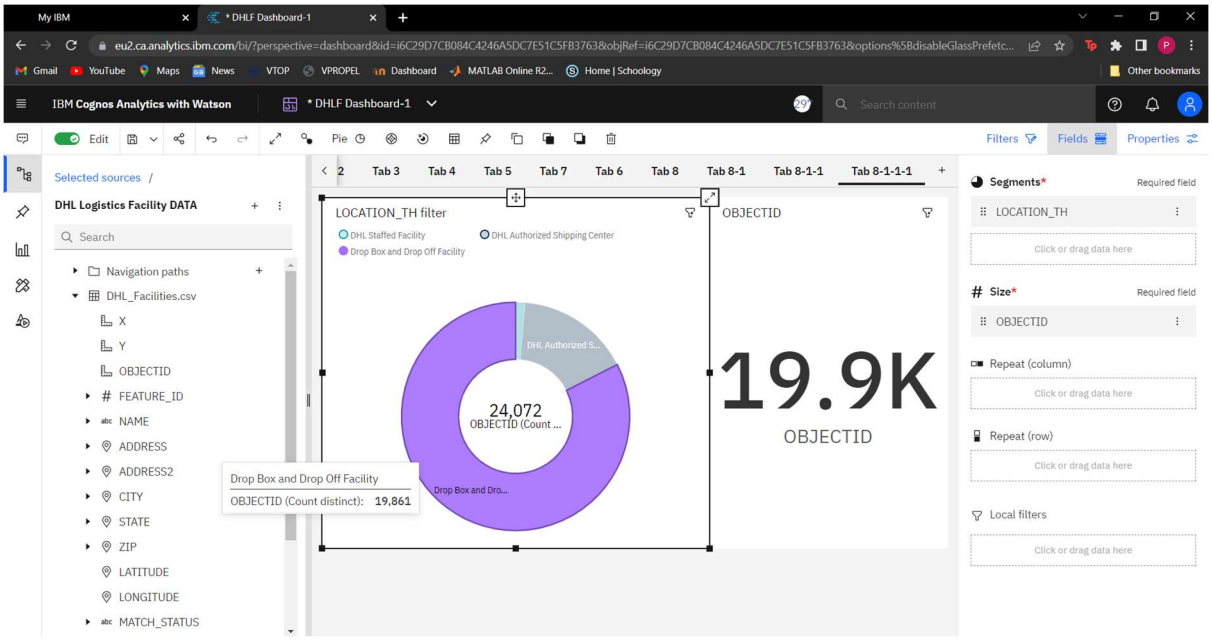
8. Location_TY Filters:

A doughnut pie chart is used to show the Location_TY filters and summary card to show number of object-id's.



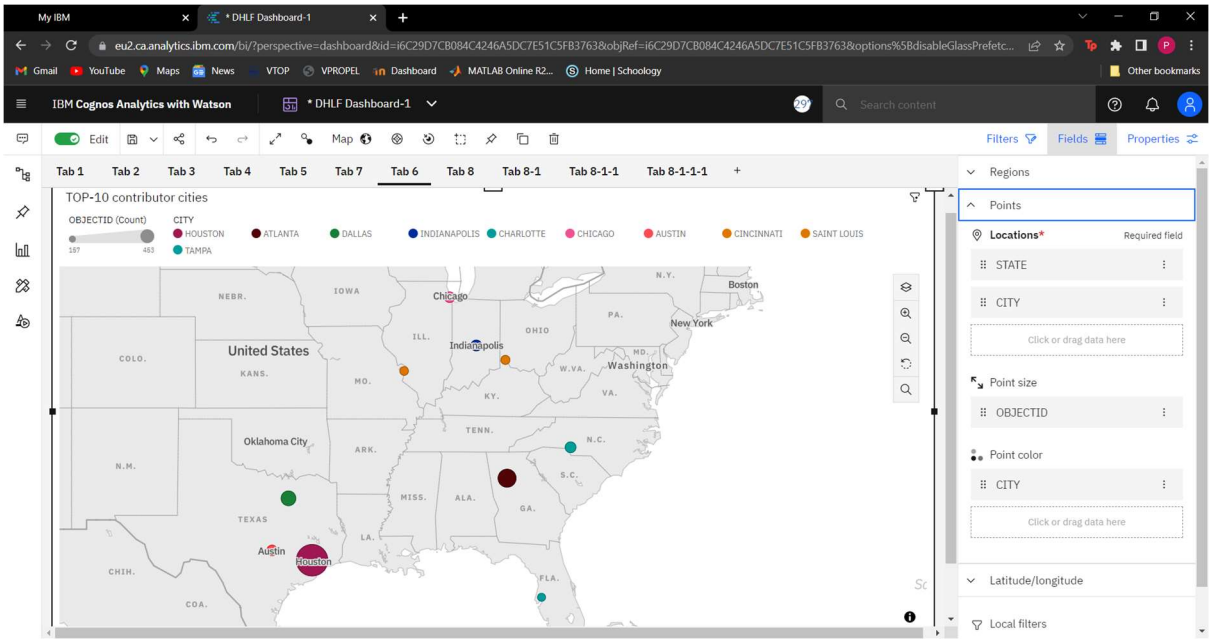
9. Location_TH Filters:

A doughnut pie chart is used to show the Location_TH filters and summary card to show number of object-id's.



10. Top Contributor Cities - Geo Map display:

A Map visualization used and in it we use points to show the top-10 contributor cities. State is placed in location field then the city is placed under the location field. Then in point size field OBJECTID is placed to count the distinct object-id's and point color is assigned to different cities.



ADVANTAGES AND DISADVANTAGES OF CREATING DASHBOARDS

1. ADVANTAGES:

- Enhanced Visibility: Dashboards provide greater visibility with information available whenever it is required to ensure businesses are better placed to respond to changing market conditions
- Timesaving Efficiency: With dashboards, we are no longer wasting valuable time generating reports from multiple systems. Instead, data is drawn from a source and displayed as an easy to interpret visual overview
- Better Forecasting: With greater insight into the data, future demand can be more accurately predicted using historic information. Businesses can be more effectively planned for demand fluctuations, setting measurable goals and deliverables for greater success
- Better Decision Making: Whether you're providing reporting and analysis for the entire organization or functional areas of the business, a dashboard allows companies to analyze key data quickly and meticulously. Visualized interactivity serves to deliver overwhelming amounts of data in a way that is easy to understand. With the ability to easily identify what the data really means; better decisions can be made relevant to the business.

2. DISADVANTAGES

- Flashy or cluttered design, with users attempting to incorporate too much information without understanding constraints or considering their specific needs from the range of different measurables detailed data analysis provides.
- The technology used in the development of dashboards differs from other software solutions already employed in organizations and can be initially difficult to understand.
- The business has no predetermined rules and hierarchies for how dashboard metrics are used. This means each employee can use the metrics in different ways, resulting in a diverse set of data being reported.

CONCLUSION:

This way, with the help of diagrams, graphs, and maps we can understand given data. This understanding of data allows us to ask the right questions to reach our desired goals by optimizing methods. With this project, we learned how to upload and prepare data. We also statistical concepts which helped in calculations and plotting of graphs and maps to make a dashboard.

Link to my IBM Cognos Analytics Dashboard:
https://eu2.ca.analytics.ibm.com/bi/?perspective=dashboard&pathRef=.my_folders%2FDHLF%2BDashboard-1&action=view&mode=dashboard&subView=model0000018113ebf76b_00000000