

SAMPLE SUPERSTORE DATA ANALYTICS USING IBM COGNOS ANALYTICS

Name- SHARAD PRIYA

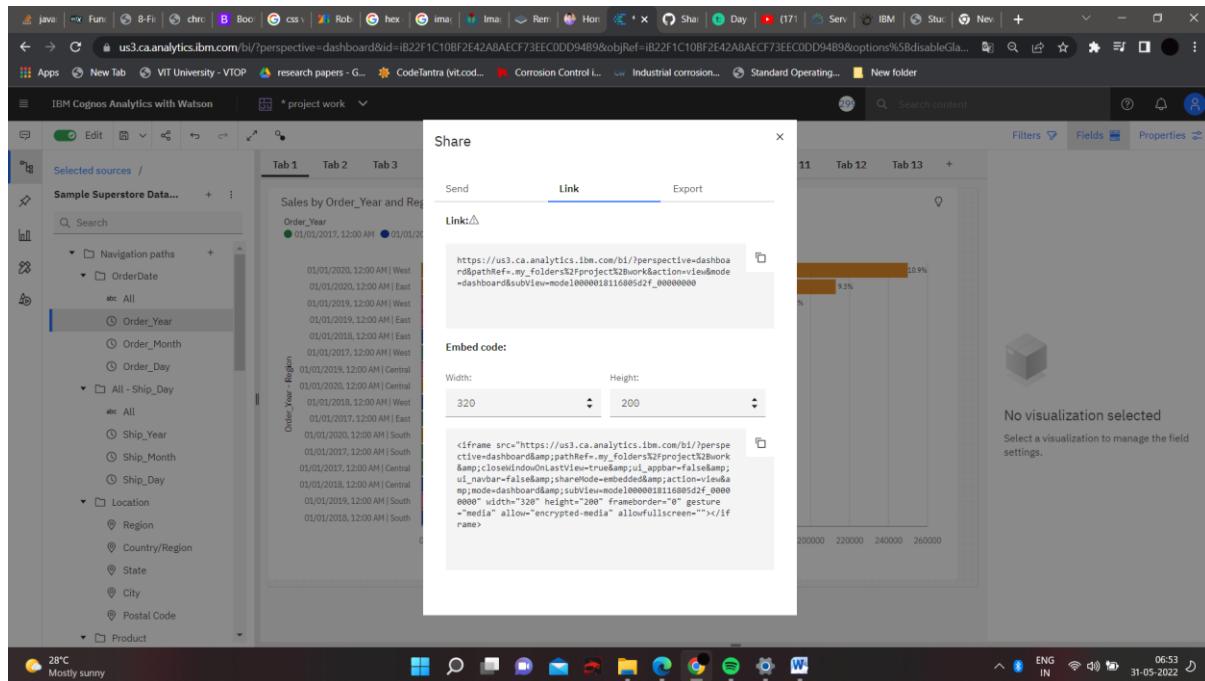
Reg no- 19BME0415

VIT VELLORE

DATA ANALYTICS

Links-

https://us3.ca.analytics.ibm.com/bi/?perspective=dashboard&pathRef=.my_folders%2Fproject%2Bwork&action=view&mode=dashboard&subView=model0000018116805d2f_00000000



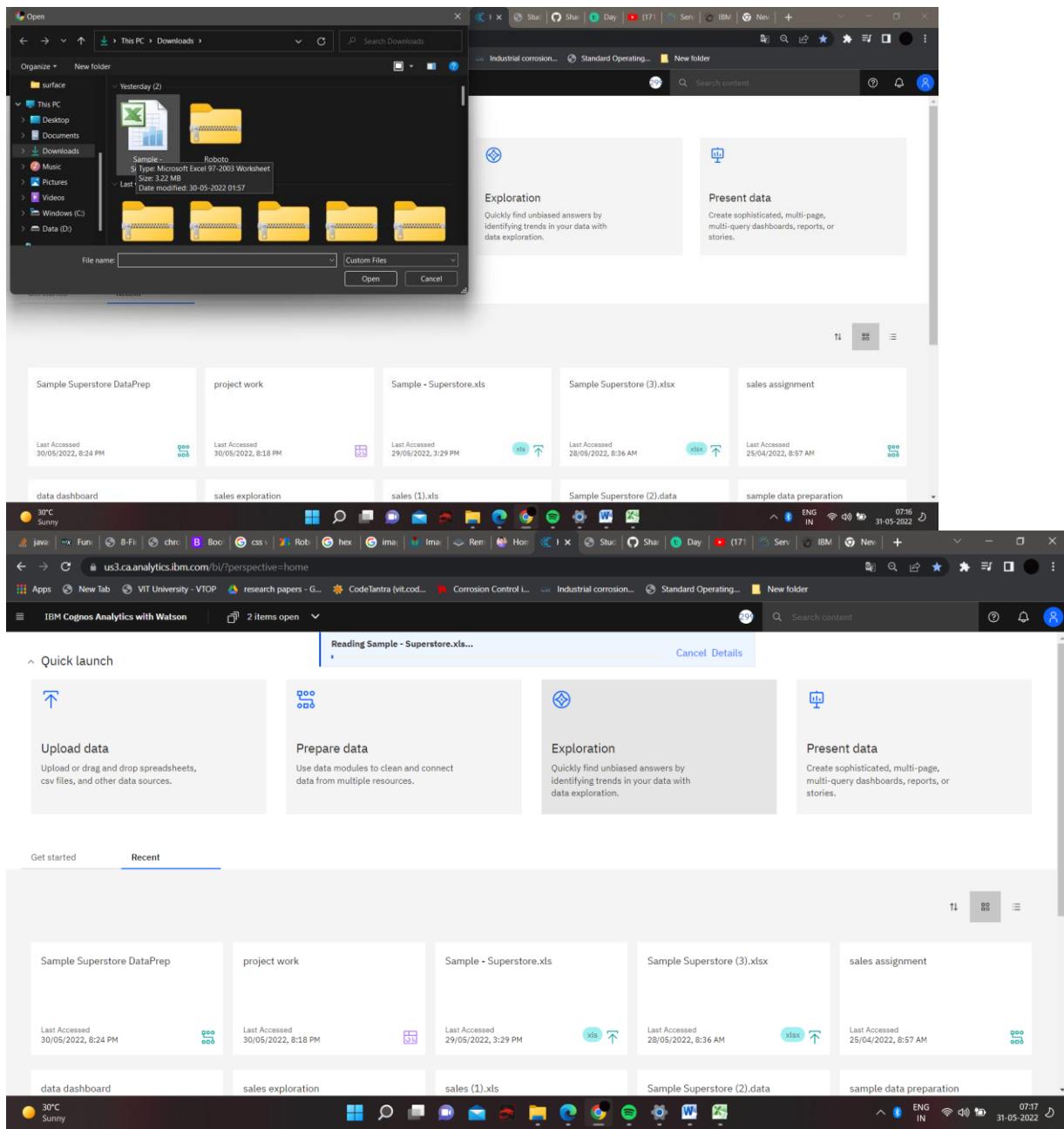
UNDERSTANDING THE DATASET

Q1	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Sub-Cat	Product Name
1	Row	Order ID	Order Date	Ship Date	Ship Mode	Customer	Customer	Segment	Country/Region	City	State	Postal Code	Region	Prod ID	Category	Sub-Cat	Product Name	
2	1	CA-2019-152156	08-11-2019	11-19-2019	Second Class	CG-1250	Clair Guit	Consumer	United States	Henderson	Kentucky	42420	South	FUR-B0-1	Furniture	FUR-B0-1	Bush Somerton Collection Bed	
3	2	CA-2019-152156	08-11-2019	11-11-2019	Second Class	CG-1250	Clair Guit	Consumer	United States	Henderson	Kentucky	42420	South	FUR-Q-0	Furniture	FUR-Q-0	Horn Deluxe Fabric Bed	
4	3	US-2019-108966	11-10-2018	08-10-2019	Standard	CS-20395	Sean O'D	Consumer	United States	Fort Lauderdale	Florida	33311	South	FUR-TA-1	Furniture	FUR-TA-1	Brookside Bed	
5	4	US-2019-108966	11-10-2018	10-18-2018	Standard	CS-20395	Sean O'D	Consumer	United States	Fort Lauderdale	Florida	33311	South	FST-ST-1	Office Sup	FST-ST-1	Elford CR4500 Mesh Chair	
6	5	US-2019-108966	11-10-2018	10-18-2018	Standard	CS-20395	Sean O'D	Consumer	United States	Fort Lauderdale	Florida	33311	South	FST-ST-1	Office Sup	FST-ST-1	Elford F500 N Roll Cast Style	
7	7	CA-2019-151812	09-06-2019	09-16-2019	Standard	CH-11710	Bronx H	Consumer	United States	Los Angeles	California	90028	West	TEC-H-1	Technology	TEC-H-1	Expressions Wood Art	
8	8	CA-2019-151812	09-06-2019	09-16-2019	Standard	CH-11710	Bronx H	Consumer	United States	Los Angeles	California	90028	West	TEC-H-1	Technology	TEC-H-1	Wooden Wall Art	
9	9	CA-2019-151812	09-06-2019	09-16-2019	Standard	CH-11710	Bronx H	Consumer	United States	Los Angeles	California	90028	West	TEC-H-1	Technology	TEC-H-1	Metal 5120 IP Phone VoIP	
10	10	CA-2019-151812	09-06-2019	09-16-2019	Standard	CH-11710	Bronx H	Consumer	United States	Los Angeles	California	90028	West	TEC-H-1	Technology	TEC-H-1	DLG Angle-View Binders	
11	10	CA-2019-151812	09-06-2019	09-16-2019	Standard	CH-11710	Bronx H	Consumer	United States	Los Angeles	California	90028	West	TEC-H-1	Technology	TEC-H-1	Office Sup Binders	
12	11	CA-2019-151812	09-06-2019	09-16-2019	Standard	CH-11710	Bronx H	Consumer	United States	Los Angeles	California	90028	West	TEC-H-1	Technology	TEC-H-1	Office Sup Accessory	
13	12	CA-2019-151812	09-06-2019	09-16-2019	Standard	CH-11710	Bronx H	Consumer	United States	Los Angeles	California	90028	West	TEC-H-1	Technology	TEC-H-1	Office Sup Accessory	
14	13	CA-2020-114412	15-04-2020	20-04-2020	Standard	CA-1046	Andrew Al	Consumer	United States	St. Louis	North Carolina	28927	South	FP-FPA-1	Office Sup	FP-FPA-1	Kontrol 250 Conference Chair	
15	14	CA-2019-161989	05-12-2019	10-18-2019	Standard	CM-15079	Irene Madeline	Consumer	United States	St. Louis	North Carolina	98103	South	FP-FPA-1	Office Sup	FP-FPA-1	Xerox 1967	
16	15	CA-2019-161989	05-12-2019	10-18-2019	Standard	CM-15079	Irene Madeline	Consumer	United States	St. Louis	North Carolina	98103	South	FP-FPA-1	Office Sup	FP-FPA-1	Office Sup Paper	
17	16	CA-2019-161989	05-12-2019	22-11-2019	Standard	CH-14185	Havard Pa	Home	United States	Fort Worth	Texas	76108	Central	FP-FPA-1	Office Sup	FP-FPA-1	Holmes Replacement Filter	
18	17	CA-2019-161989	05-11-2019	11-17-2019	Standard	CH-19073	Pete Kitz	Consumer	United States	Madison	Wisconsin	53711	Central	FP-FB-10	Office Sup Binders	FP-FB-10	Stow-Away Tech Recycled File	
19	18	CA-2019-161764	13-05-2017	15-05-2017	Standard	CH-10270	Allegro	Consumer	United States	Madison	Wisconsin	53711	Central	FP-FST-1	Office Sup Storage	FP-FST-1	Stow-Away Sterilizing Unit	
20	19	CA-2019-161764	13-05-2017	15-05-2017	Standard	CH-10270	Allegro	Consumer	United States	Madison	Wisconsin	53711	Central	FP-FST-1	Office Sup Storage	FP-FST-1	Storage Sterilizer Drawer	
21	20	CA-2019-143398	27-04-2019	01-09-2019	Standard	CD-21260	Zuechous	Consumer	United States	San Francisco	California	94109	West	TEC-H-1	Technology	TEC-H-1	Swivel Chair	
22	21	CA-2019-143398	27-04-2019	01-09-2019	Standard	CD-21265	Zuechous	Consumer	United States	San Francisco	California	94109	West	TEC-H-1	Technology	TEC-H-1	Wilson CIS 501G Phone	
23	22	CA-2019-137930	09-12-2019	13-12-2019	Standard	CD-19560	Kenji	Consumer	United States	Lincoln	Nebraska	68025	Central	FP-FAA-1	Office Sup Binders	FP-FAA-1	Wilson JH Hanging View	
24	23	CA-2019-137930	09-12-2019	13-12-2019	Standard	CD-19560	Kenji	Consumer	United States	Lincoln	Nebraska	68025	Central	FP-FAA-1	Office Sup Binders	FP-FAA-1	Wilson JH Hanging View	
25	24	US-2020-156909	16-07-2020	18-07-2020	Standard	CF-5E-2006	Sandra Fl	Consumer	United States	Philadelphia	Pennsylvania	19140	East	FP-C-1	Furniture	FP-C-1	Global Desktop Stacking Chair	
26	25	CA-2019-106320	25-08-2019	08-08-2019	Standard	CE-18870	Emily Burr	Consumer	United States	Utah	Utah	84057	West	FP-FTA-1	Furniture	FP-FTA-1	Reverb C4500 Series Slim	
27	26	CA-2019-121755	16-01-2019	20-01-2019	Standard	CH-14945	Erico H	Home	United States	Los Angeles	California	90040	West	FP-FB-10	Office Sup Binders	FP-FB-10	Wilson 500 Action Chair	
28	27	CA-2019-151812	09-06-2019	09-16-2019	Standard	CH-11710	Bronx H	Consumer	United States	Los Angeles	California	90028	West	TEC-H-1	Technology	TEC-H-1	Wingback Chair	
29	28	US-2019-156930	17-09-2019	21-09-2019	Standard	CTB-21520	Tracy	Business Consumer	United States	Philadelphia	Pennsylvania	19140	East	FP-FB-10	Office Sup Binders	FP-FB-10	Bookzaire Riverside Papasan Royal Lounge Chair	
30	29	US-2019-156930	17-09-2019	21-09-2019	Standard	CTB-21520	Tracy	Business Consumer	United States	Philadelphia	Pennsylvania	19140	East	FP-FR-1	Home Furnishings	FP-FR-1	Wingback Chair 34"-34" Dia	
31	30	US-2019-156930	17-09-2019	21-09-2019	Standard	CTB-21520	Tracy	Business Consumer	United States	Philadelphia	Pennsylvania	19140	East	FP-FR-1	Home Furnishings	FP-FR-1	Wingback Chair 34"-34" Dia	
32	31	US-2019-156930	17-09-2019	21-09-2019	Standard	CTB-21520	Tracy	Business Consumer	United States	Philadelphia	Pennsylvania	19140	East	FP-FR-1	Home Furnishings	FP-FR-1	Wingback Chair 34"-34" Dia	
33	32	US-2019-156930	17-09-2019	21-09-2019	Standard	CTB-21520	Tracy	Business Consumer	United States	Philadelphia	Pennsylvania	19140	East	FP-FR-1	Home Furnishings	FP-FR-1	Wingback Chair 34"-34" Dia	
34	33	US-2019-156930	17-09-2019	21-09-2019	Standard	CTB-21520	Tracy	Business Consumer	United States	Philadelphia	Pennsylvania	19140	East	FP-FB-10	Office Sup Binders	FP-FB-10	BOSTON Model 1800 Electric Chair	
35	34	US-2019-156930	17-09-2019	21-09-2019	Standard	CTB-21520	Tracy	Business Consumer	United States	Philadelphia	Pennsylvania	19140	East	FP-FB-10	Office Sup Binders	FP-FB-10	Acco Presarcord Covers w/	

UPLOAD THE DATA

The screenshot shows the IBM Cognos Analytics with Watson interface. At the top, there's a navigation bar with various links like 'Fun', 'Rob', 'hex', 'ima', 'Ren', 'Hor', 'Stuc', 'Shar', 'Day', '171', 'Serv', 'IBM', 'New', and icons for search, refresh, and user profile. Below the navigation bar is a toolbar with 'Apps', 'New Tab', 'VIT University - VTOP', 'research papers - G...', 'CodeTantra (vit.cod...', 'Corrosion Control...', 'Industrial corrosion...', 'Standard Operating...', 'New folder'. The main header says 'IBM Cognos Analytics with Watson' and shows '2 items open'. On the left, there's a 'Quick launch' sidebar with four sections: 'Upload data' (icon: blue arrow pointing down), 'Prepare data' (icon: two overlapping documents), 'Exploration' (icon: blue diamond with a question mark), and 'Present data' (icon: blue monitor). Each section has a brief description and a link. Below the sidebar, there are tabs for 'Get started' and 'Recent', with 'Recent' being the active tab. The main area displays a grid of recent projects:

Project Name	Description
Sample Superstore DataPrep	project work
Sample - Superstore.xls	Sample Superstore (3).xlsx
Sales assignment	
Last Accessed 30/05/2022, 8:24 PM	Last Accessed 30/05/2022, 8:18 PM
Last Accessed 29/05/2022, 3:29 PM	Last Accessed 28/05/2022, 8:36 AM
data dashboard	sales exploration
sales (1).xls	Sample Superstore (2).data
	sample data preparation
	70.16 ENG IN
30°C	07.16 31-05-2022

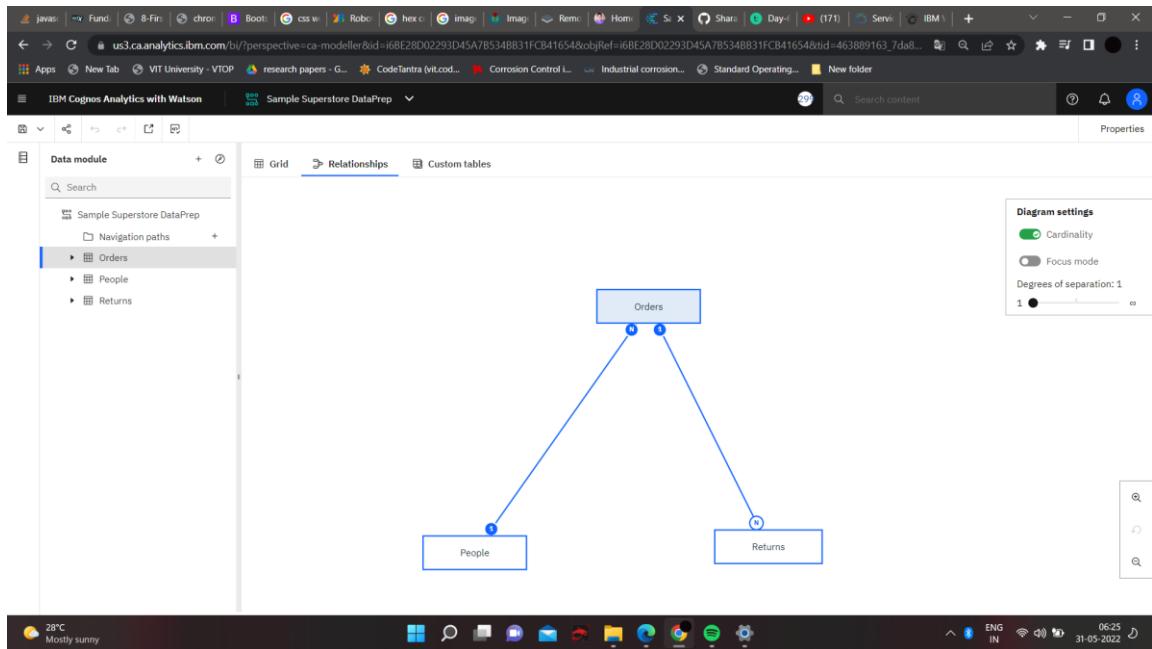


PREPARE THE DATA

In prepare data first we have to join the table

1. Joining the tables:

- Join Orders (Order Id) with Returns(Order ID) as 1 : N (One to Many Relationship).
- Join Orders (Region) with People (Region) as 1:1 (One to One Relationship).

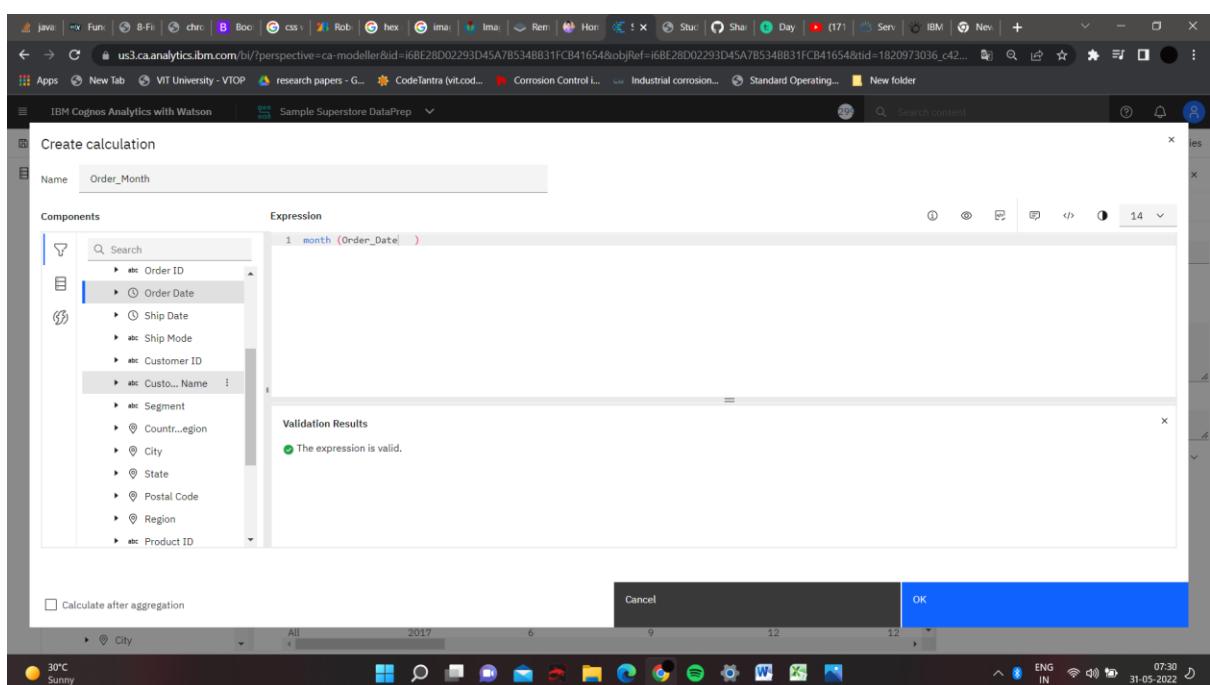
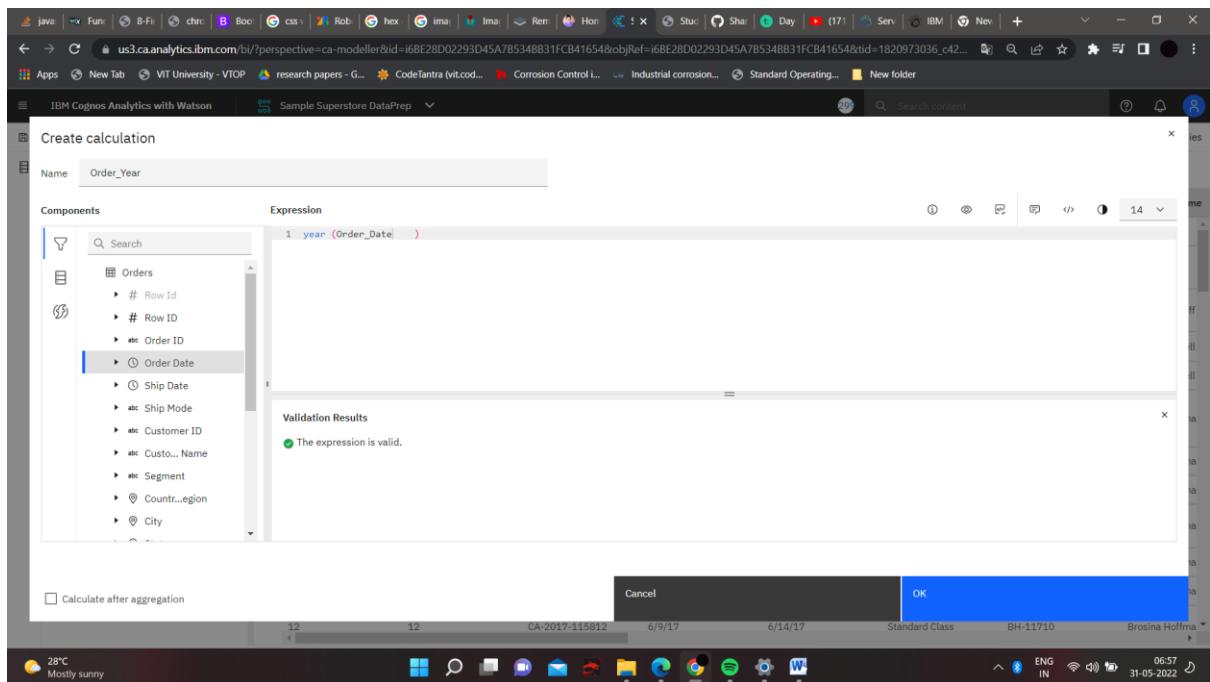


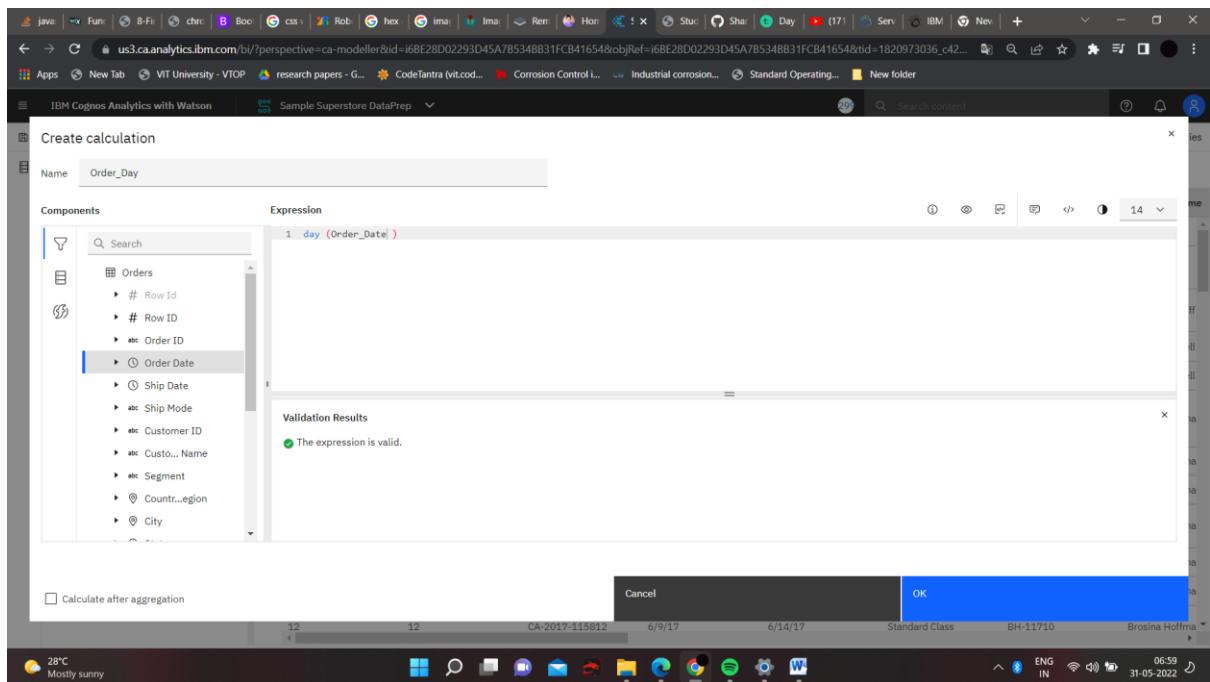
Then we have to do the preparation through calculation of year, month and day of orders dates

- a. Prepare Calculations of Year, Month, Day fields for **Order Dates** and **Ship Dates** and also the related **Navigation paths**.
- b. Create Navigation Path of Location as :
Location ? Region, Country / Region, State, City, Postal Code
- c. Create Navigation path of Product as :
Product ? Category, Sub-Category, Manufacturer, Product Name

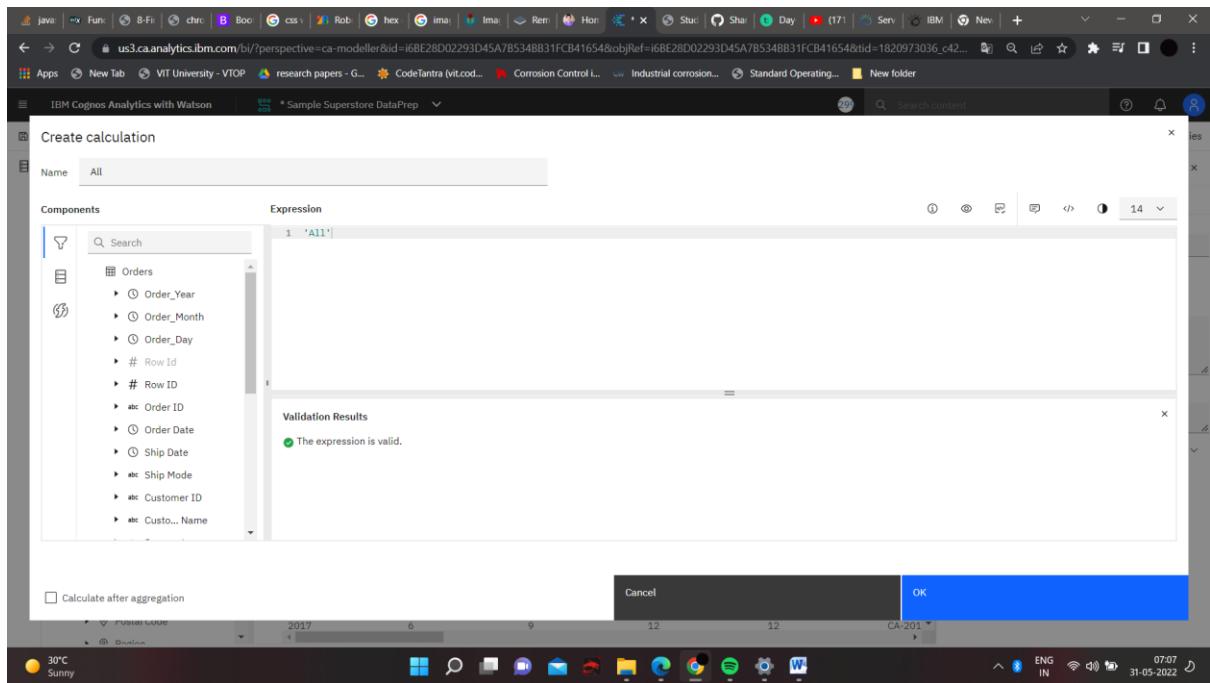
The screenshot shows the 'Grid' view of the 'Sample Superstore DataPrep' data module. The table has columns: Order_Year, Order_Month, Order_Day, Row_Id, Row_ID, Order_ID, Order Date, and Ship Date. The data consists of several rows of order information, including dates like 11/11/19 and 6/11/18, and IDs like CA-2019-152156 and US-2018-108966. The 'Order_Year' column is highlighted. The left sidebar shows navigation paths, including 'Order_Year' which is currently selected.

Order_Year	Order_Month	Order_Day	Row_Id	Row_ID	Order_ID	Order Date	Ship Date
2019	11	8	1	1	CA-2019-152156	11/11/19	11/11/19
2019	11	8	2	2	CA-2019-152156	11/11/19	11/11/19
2019	6	12	3	3	CA-2019-138688	6/12/19	6/16/19
2018	10	11	4	4	US-2018-108966	10/11/18	10/18/18
2018	10	11	5	5	US-2018-108966	10/11/18	10/18/18
2017	6	9	6	6	CA-2017-115812	6/9/17	6/14/17
2017	6	9	7	7	CA-2017-115812	6/9/17	6/14/17
2017	6	9	8	8	CA-2017-115812	6/9/17	6/14/17
2017	6	9	9	9	CA-2017-115812	6/9/17	6/14/17
2017	6	9	10	10	CA-2017-115812	6/9/17	6/14/17
2017	6	9	11	11	CA-2017-115812	6/9/17	6/14/17
2017	6	9	12	12	CA-2017-115812	6/9/17	6/14/17

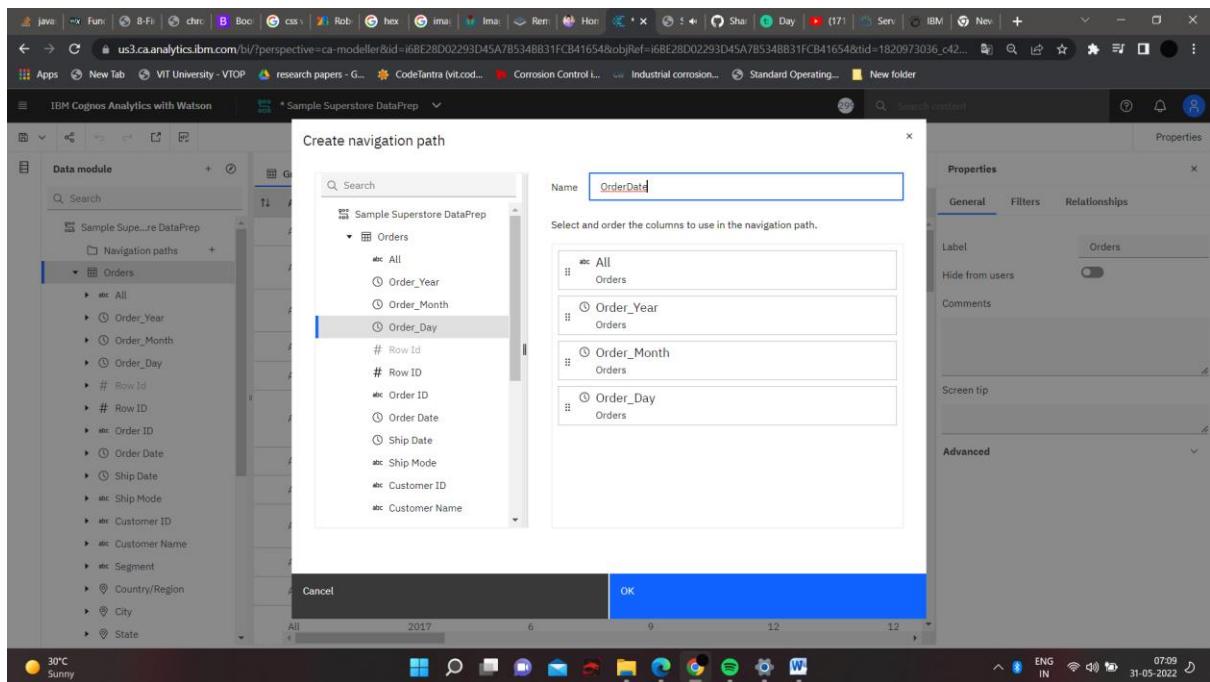




In the this creating an extra All



After that create a navigation path for order date in which first select all then order year order month and order date and name it Orderdate



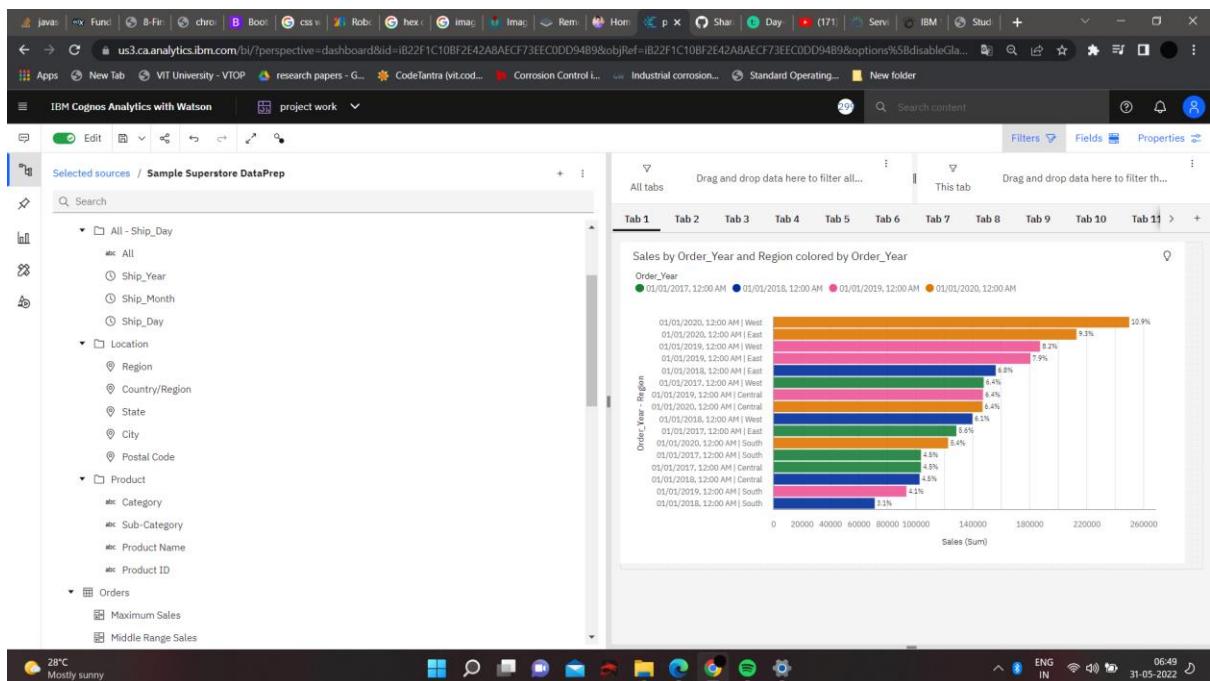
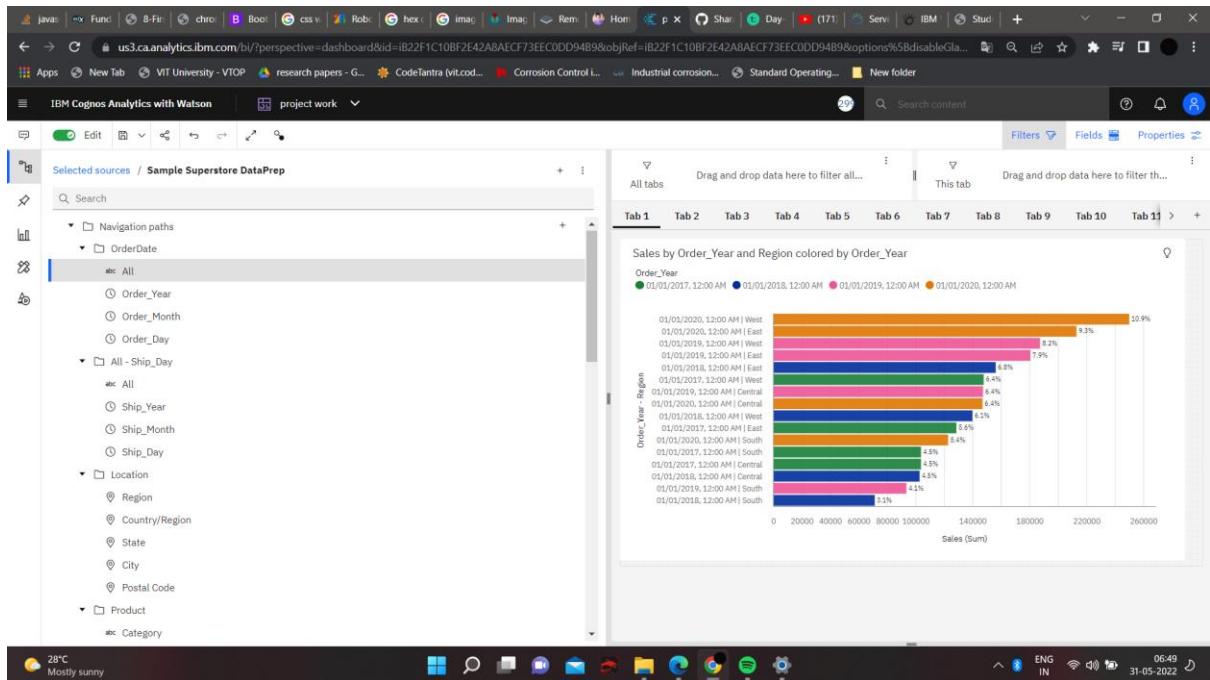
Then do the format document by setting it to date and time and then do the properties in which change usage to attribute aggregate to count distinct and in represents select time and year for year month for month and date for date and then enabled it.

	Order_Year	Order_Month	Order_Day	Row Id	Row ID	Order ID
1	2019	11	8	1	1	CA-201
2	2019	11	8	2	2	CA-201
3	2019	6	12	3	3	CA-201
4	2018	10	11	4	4	US-201
5	2018	10	11	5	5	US-201
6	2017	6	9	6	6	CA-201
7	2017	6	9	7	7	CA-201
8	2017	6	9	8	8	CA-201
9	2017	6	9	9	9	CA-201
10	2017	6	9	10	10	CA-201
11	2017	6	9	11	11	CA-201
12	2017	6	9	12	12	CA-201

The screenshot shows the IBM Cognos Analytics with Watson interface. On the left, there's a navigation pane with a tree view of data modules, currently expanded to show 'Orders' and its sub-nodes: 'Order_Year', 'Order_Month', 'Order_Day', 'Row Id', 'Row ID', and 'Order ID'. The main area displays a grid of data with columns: Order_Year, Order_Month, Order_Day, Row Id, Row ID, and Order ID. The 'Order_Month' column is highlighted with a blue border. To the right of the grid is a 'Properties' panel. Under the 'General' tab, the 'Label' field is set to 'Order_Month'. The 'Time' dropdown in the 'Represents' section is set to 'Month'. The system status bar at the bottom indicates it's 07:06 on 31-05-2022.

This screenshot is nearly identical to the one above, but the 'Order_Day' column is now highlighted with a blue border in the grid. The 'Properties' panel shows the 'Label' field has been changed to 'Order_Day'. The 'Time' dropdown in the 'Represents' section is now set to 'Day'. The system status bar remains the same.

Repeat the same procedure for ship date and then again navigate it to all-shipday from all year month day and also do navigation for location and product. In location region, country/region, state city, postal code and in product category, subcategory, product name, product id.

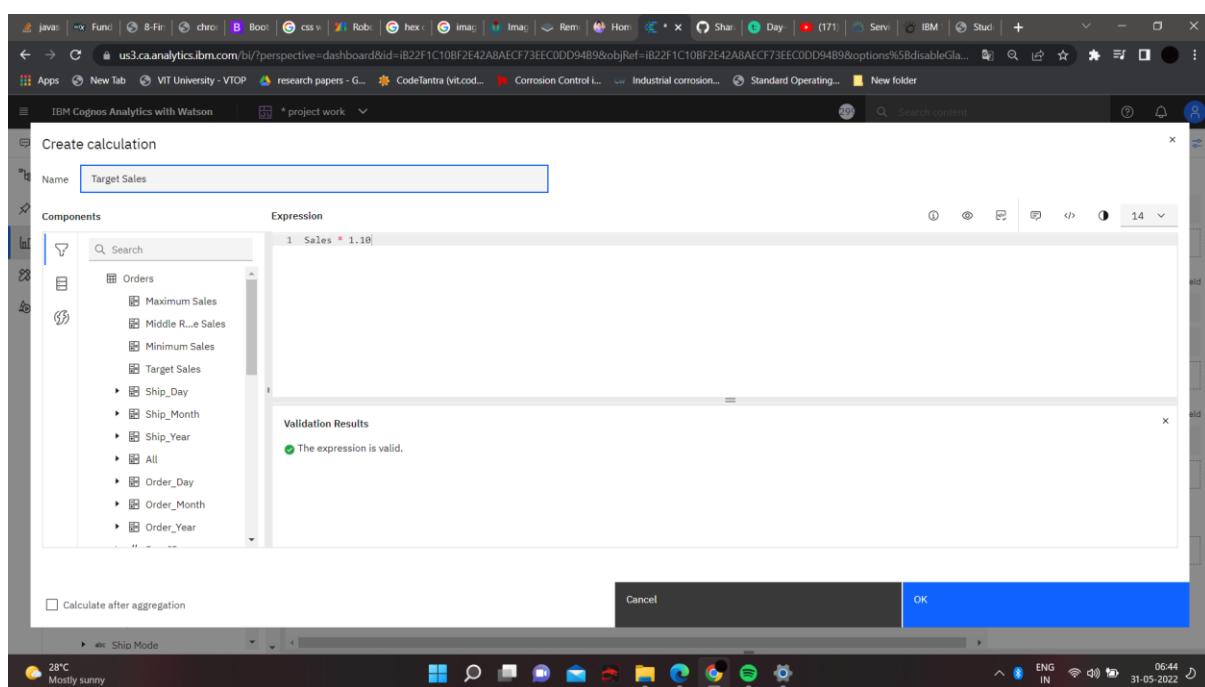
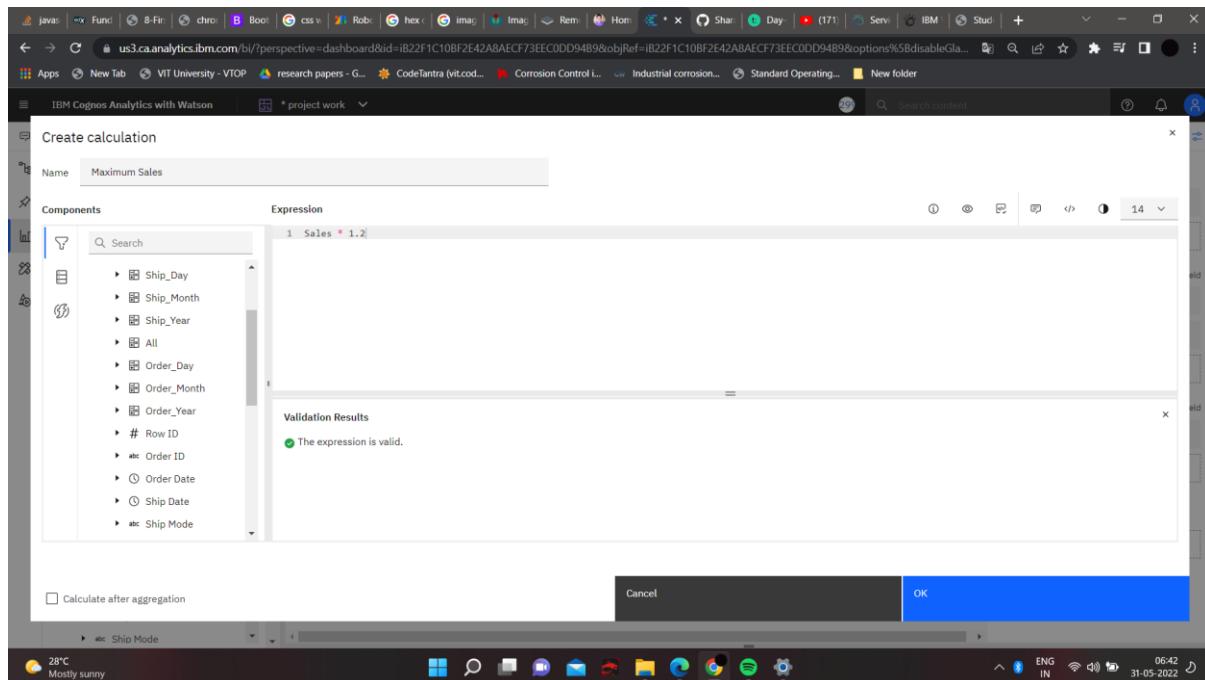


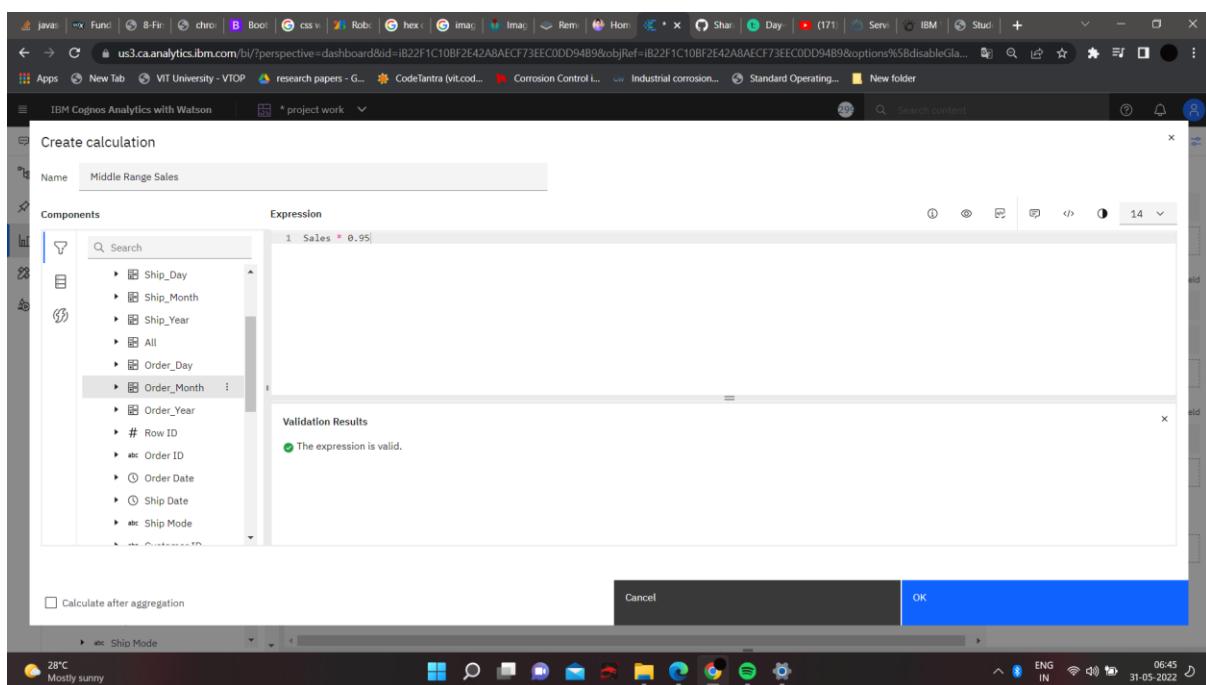
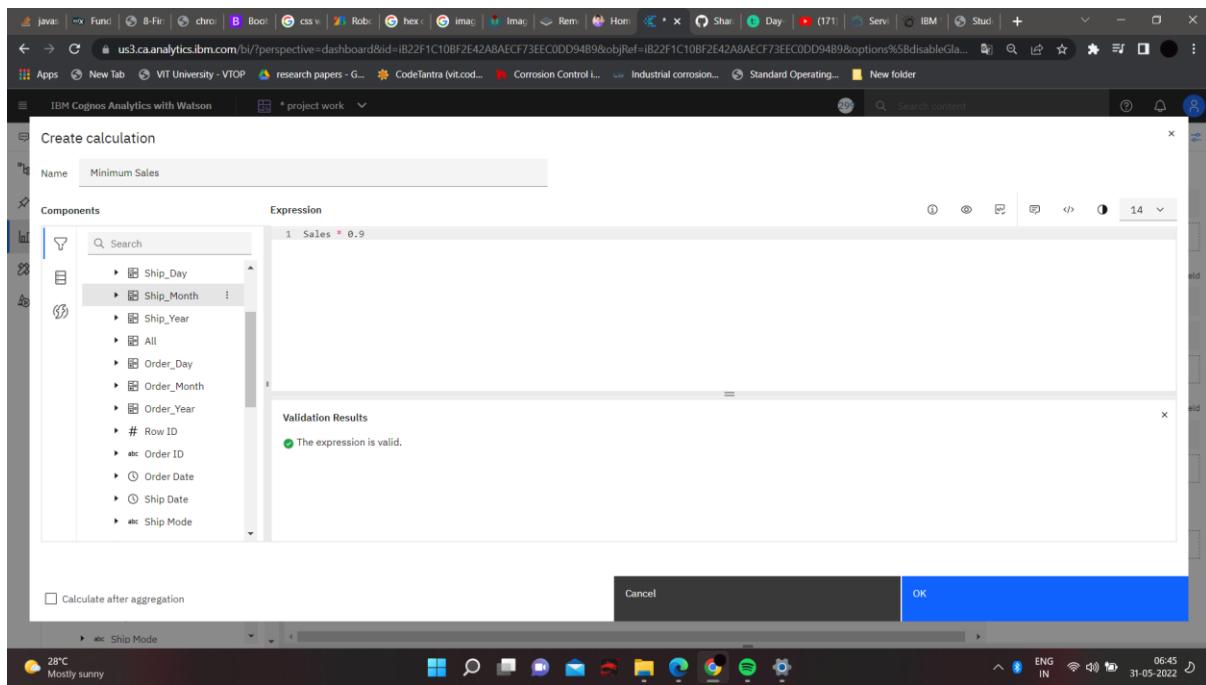
Create few more calculation of maximum sales, target sales. Minimum and Middle range sales

d. Create Few more Calculations:

$$\begin{array}{lcl} \text{Target Sales} & = & 110 \% \text{ Sales}, \\ \text{Min Sales} & = & 90 \% \text{ Sales}, \end{array}$$

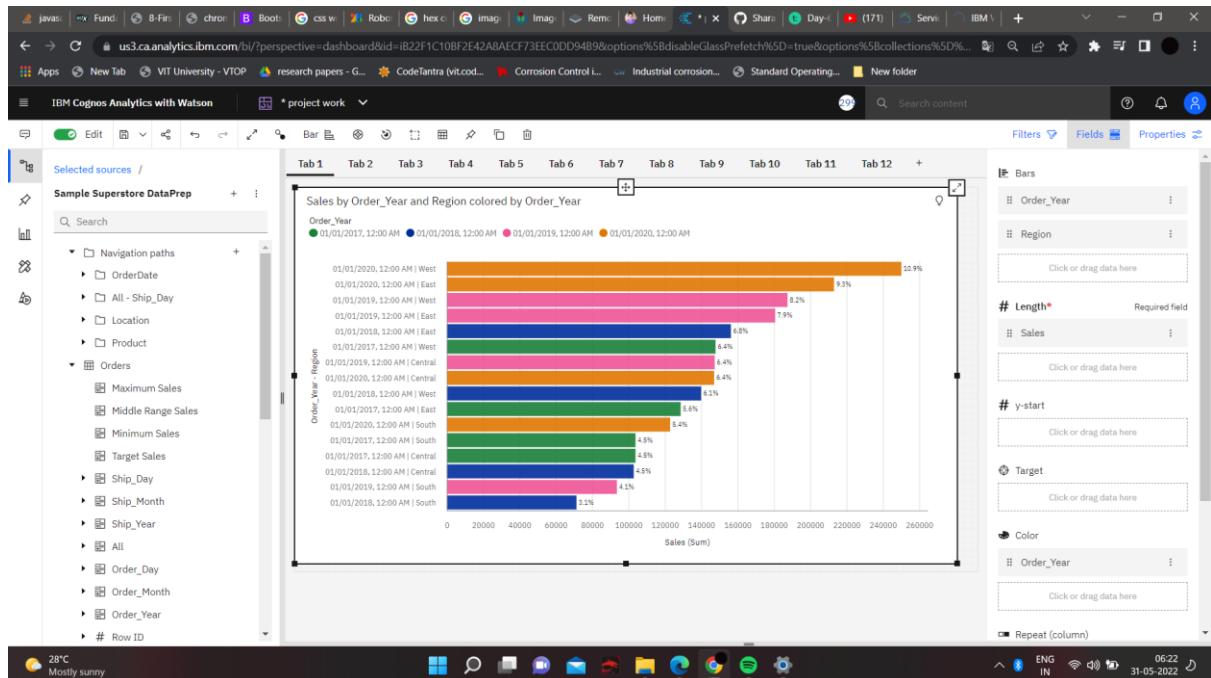
$$\begin{array}{lcl} \text{Max Sales} & = & 120\% \text{ Sales}, \\ \text{Middle Range Sales} & = & 95\% \text{ Sales}. \end{array}$$





Data Visualization Charts

Build A Bar Chart Showing The Regional Sales By Year

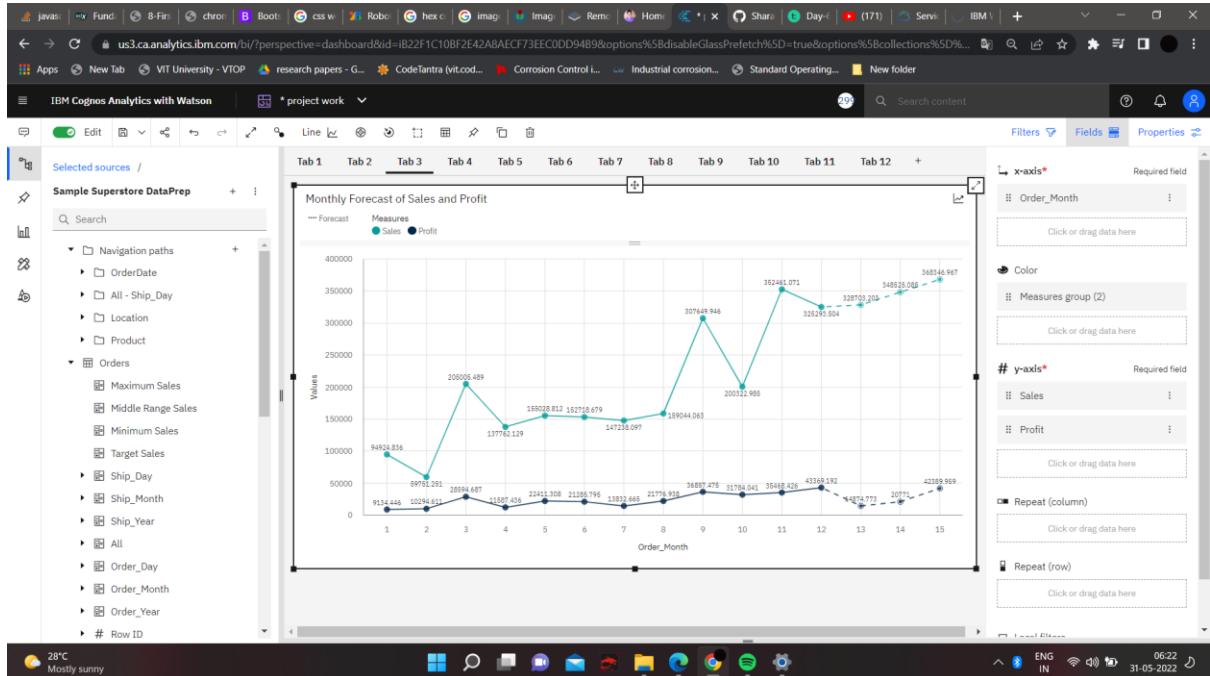


Build A Text Table Showing The Regional Sales By Year And Category

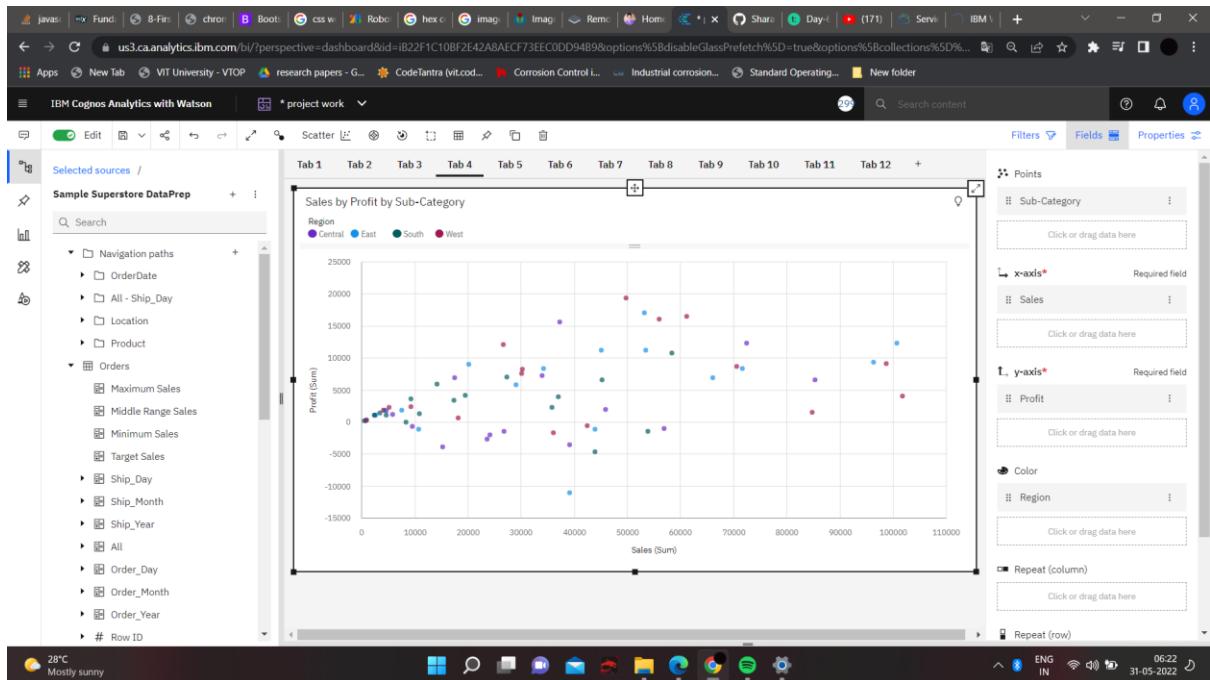
The screenshot shows a Crosstab titled "Regional Sales by Order Year and Category". The table displays sales data for different categories across four regions (Central, East, South, West) over four years (2017, 2018, 2019, 2020). The table shows that Furniture sales were highest in the Central region in 2017.

	Sales	Summary				
		Central	East	South	West	
01/01/2017, 12:00 AM	Furniture	32909.664	47232.739	26968.003	50082.448	157192.853
	Office Supplies	37001.691	35968.969	25958.678	52846.654	151776.412
	Technology	33926.81	45478.729	50918.963	44953.731	175278.233
01/01/2018, 12:00 AM	Summary	103838.165	128680.457	103845.844	147883.033	484247.498
	Furniture	35592.047	53817.432	24103.814	57004.944	170518.237
	Office Supplies	25461.391	42655.245	31253.295	37863.532	137233.463
01/01/2019, 12:00 AM	Technology	41820.764	59659.38	16002.871	45097.774	162780.809
	Summary	102874.222	156332.057	71359.98	139966.25	470532.509
	Furniture	50773.182	46387.172	27921.441	73819.64	198901.436
01/01/2020, 12:00 AM	Office Supplies	45792.789	61801.208	28666.628	47679.357	183939.982
	Technology	50863.405	72497.442	37022.154	65981.179	226364.18
	Summary	147429.376	180685.822	93610.223	187480.177	609205.598
	Furniture	44522.271	60853.861	38305.425	71705.711	215387.269
	Office Supplies	58770.544	65090.613	39772.512	82463.506	246097.175

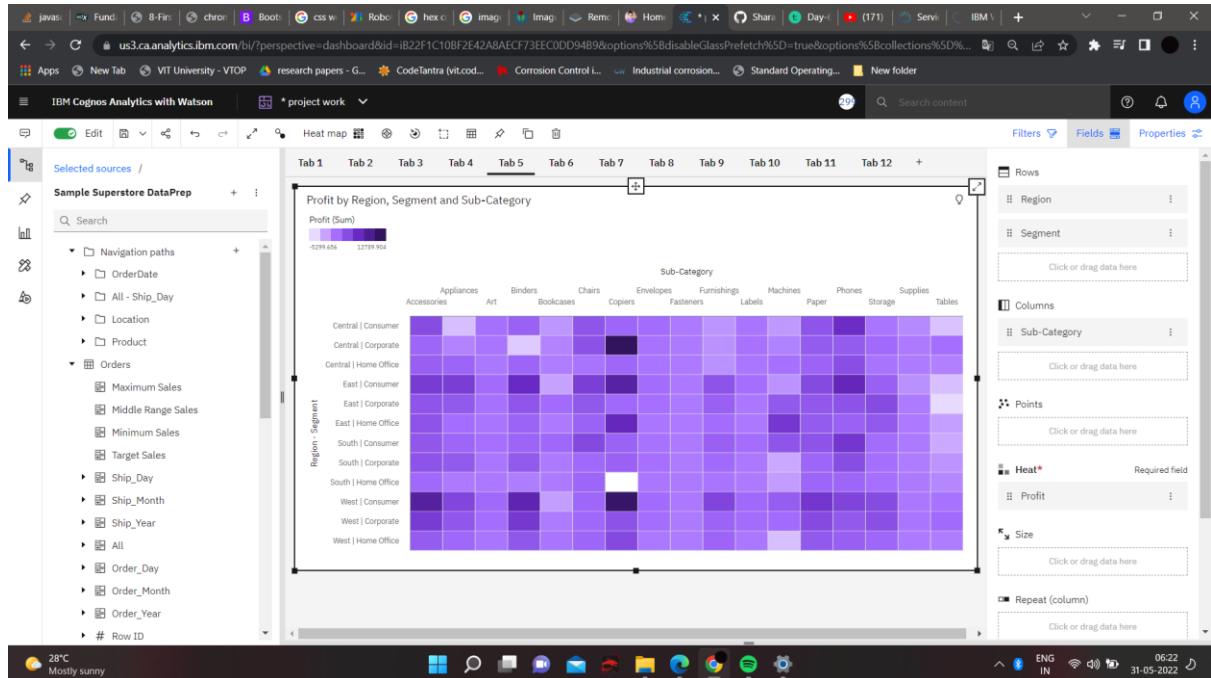
Build A Line Chart Showing The Sales And Profit Forecasts



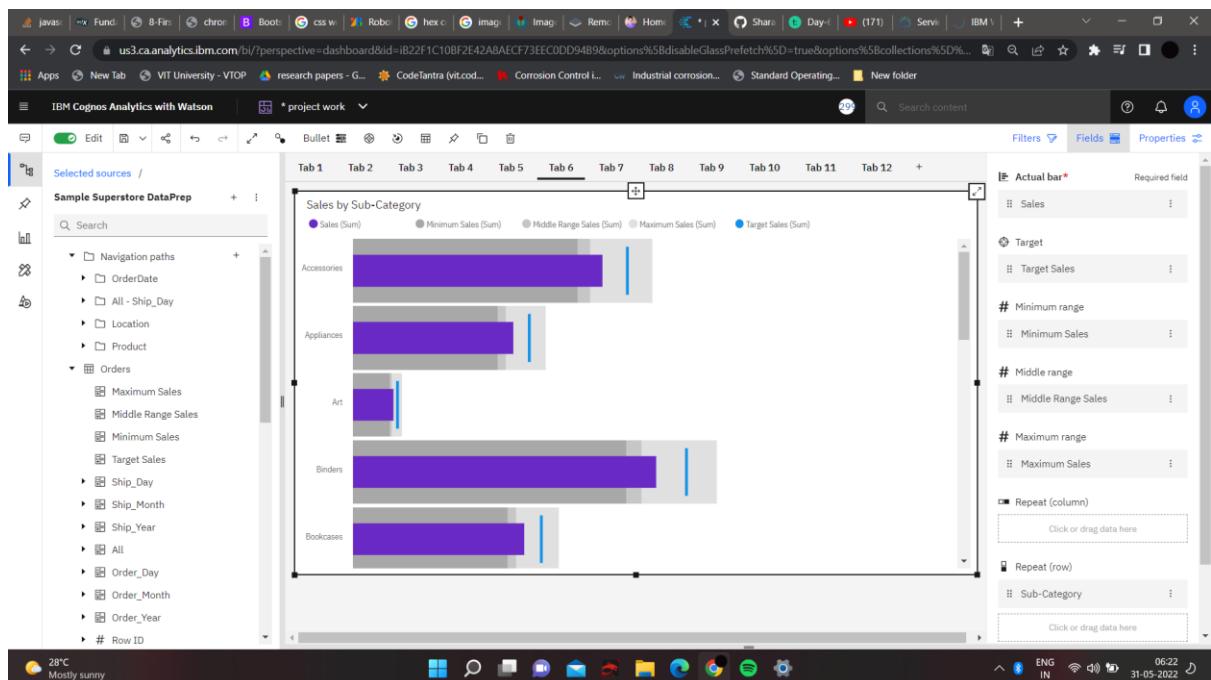
Build The Sales Vs Profit Scatter Plot



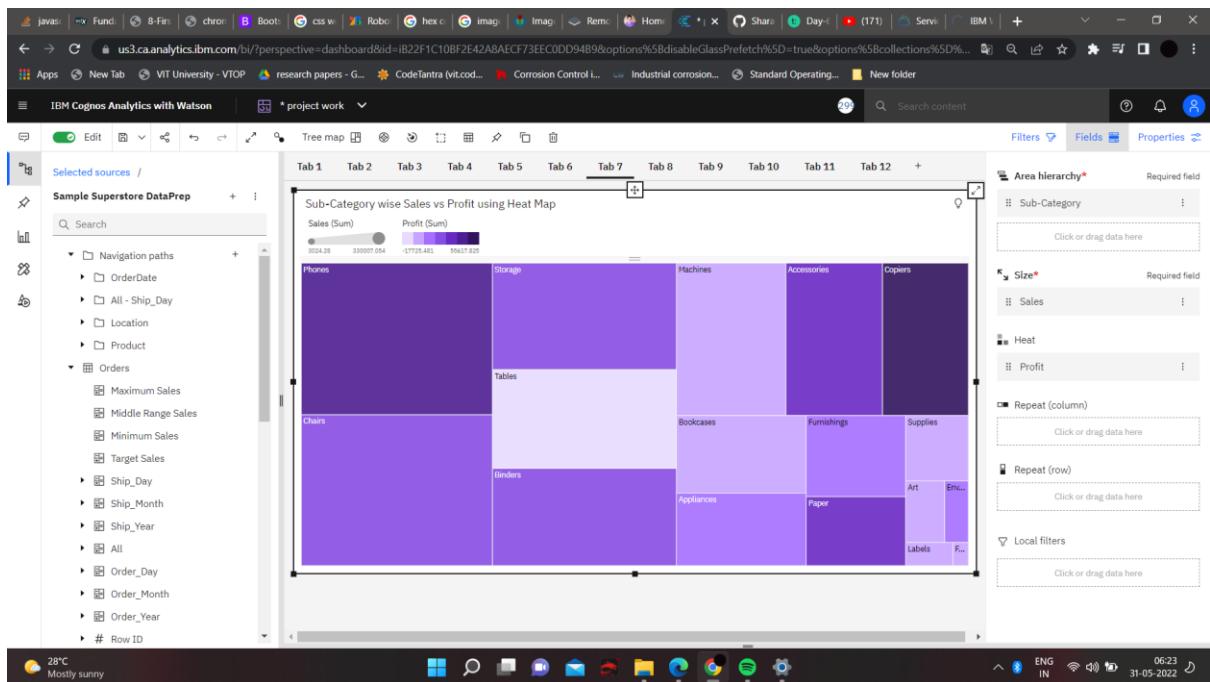
Build A Heat Map Showing The Regional, Segment And Sub-Category Wise Profits



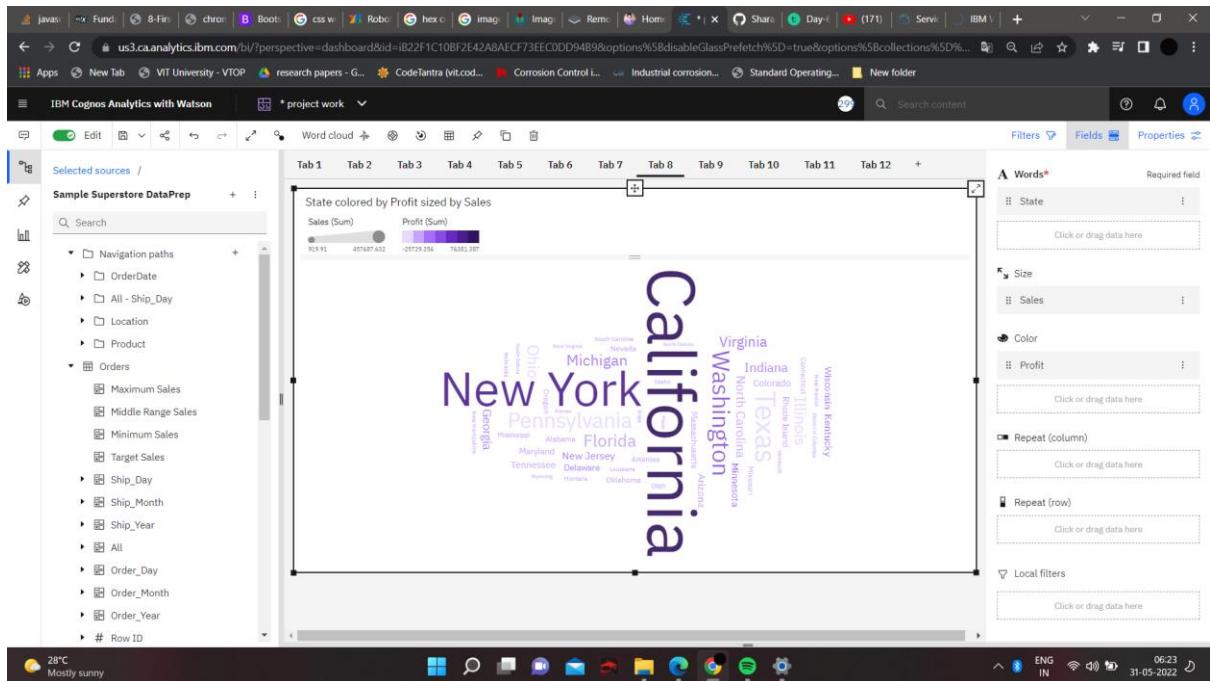
Build A Bullet Chart Showing Sales Analytical Values Across Different Sub-Categories



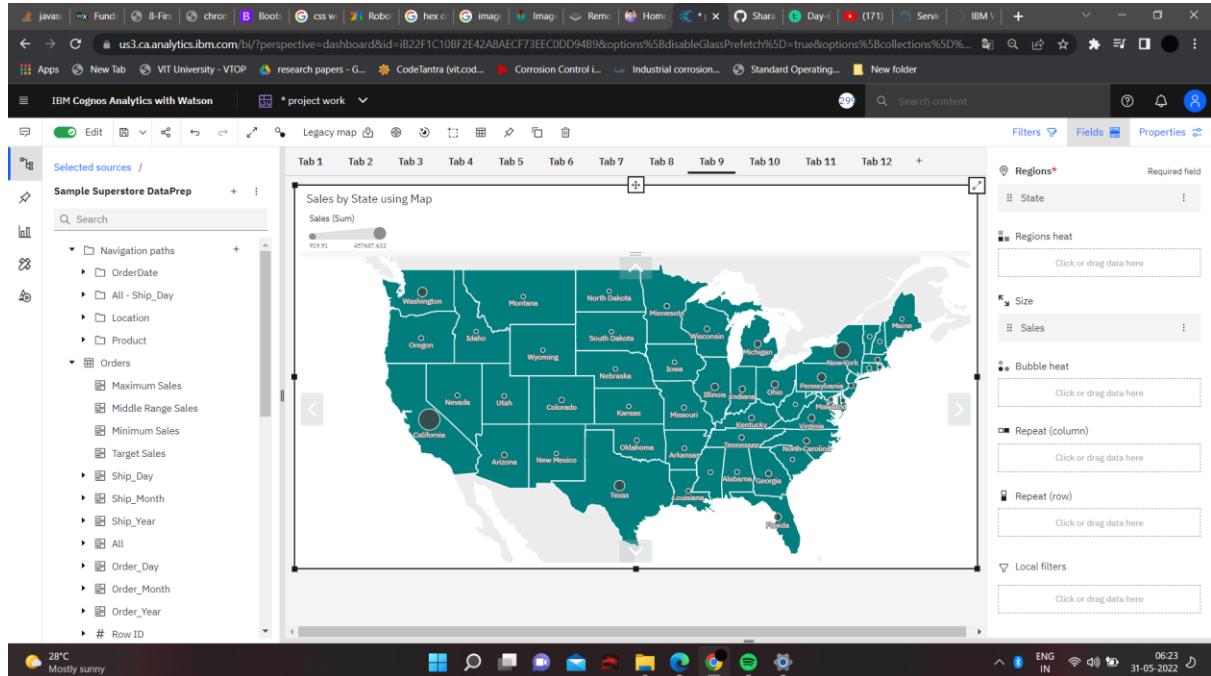
Build A Tree Map By Sub-Category Of Sales



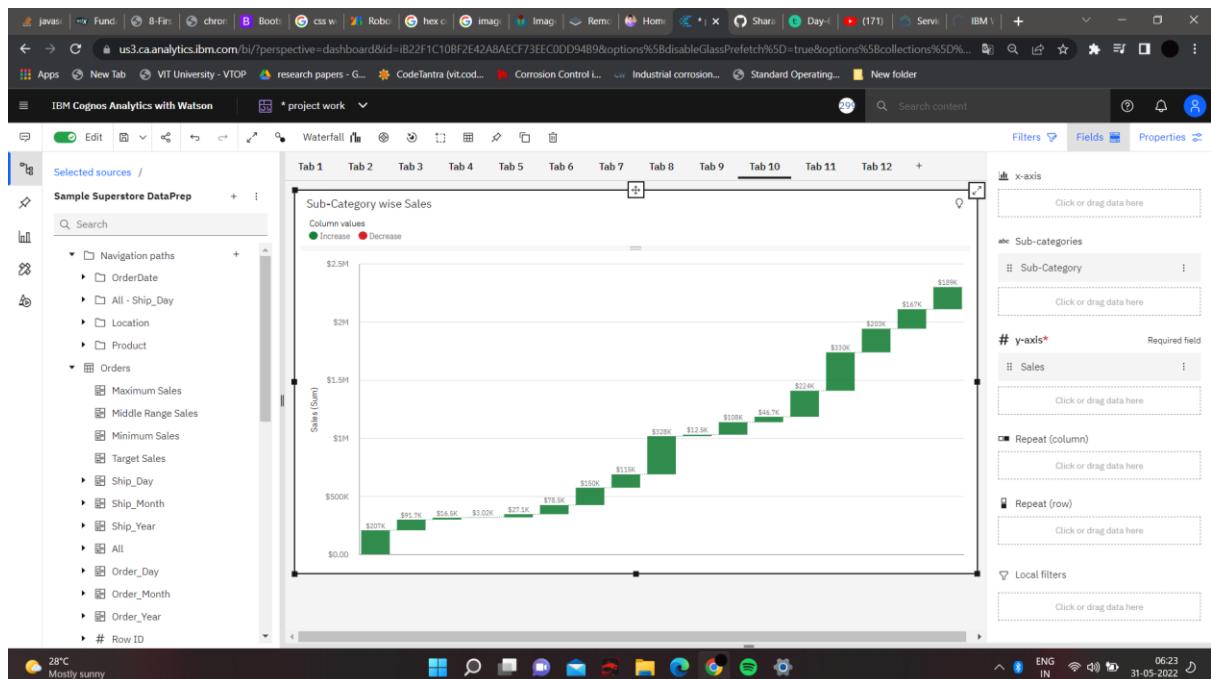
Build A Word Cloud Showing The Sales And Profits



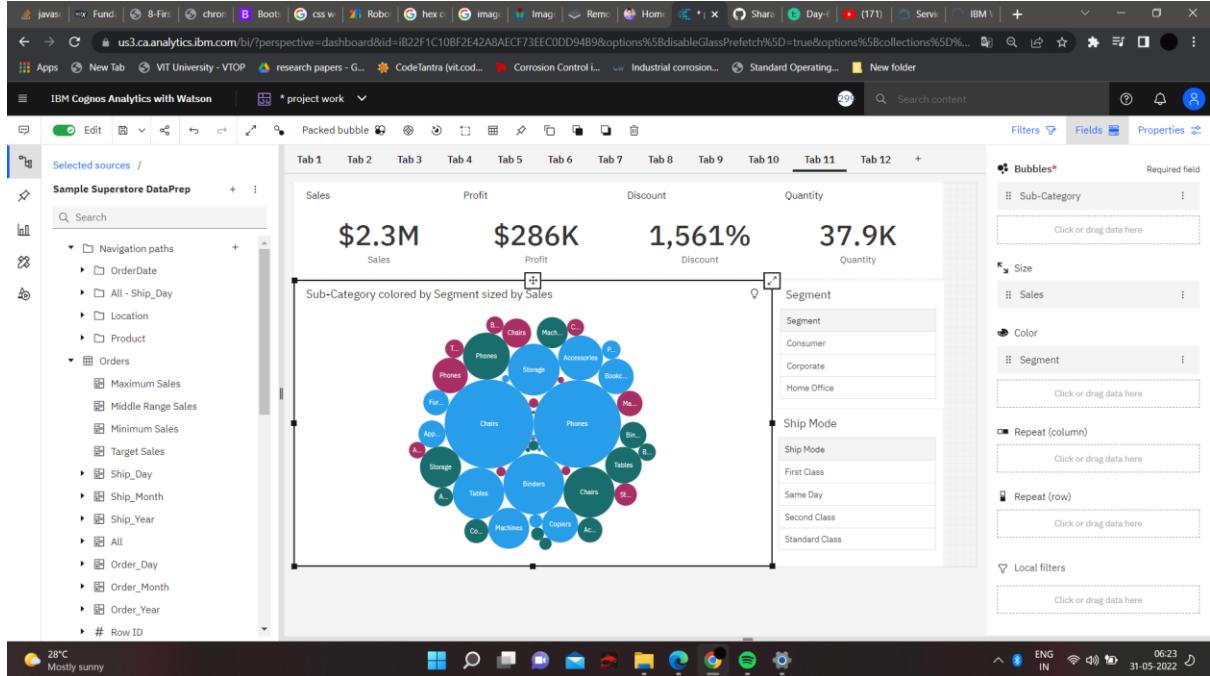
Build A Geographical Map Showing The Sales By States



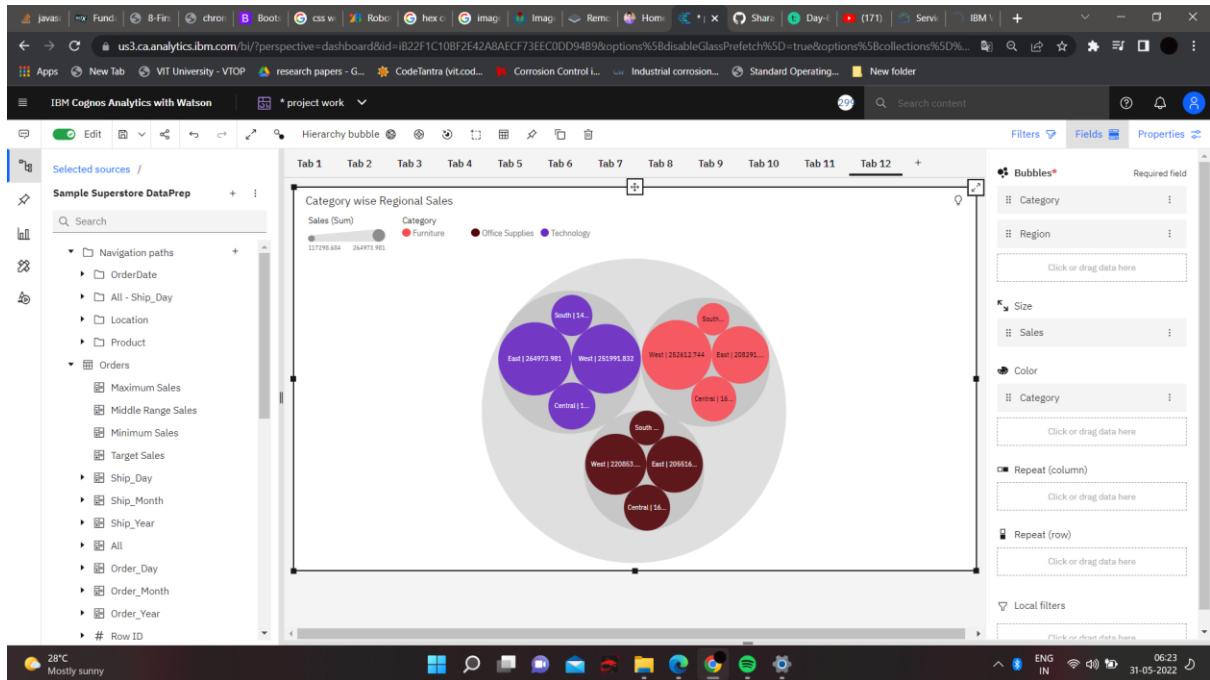
Build A Waterfall Chart Showing The Sub-Category Wise Sales



Build Summary Cards Of Sales, Profit, Quantity And Discounts



Build A Hierarchical Bubble Chart To Show Case Category-Wise Regional Sale



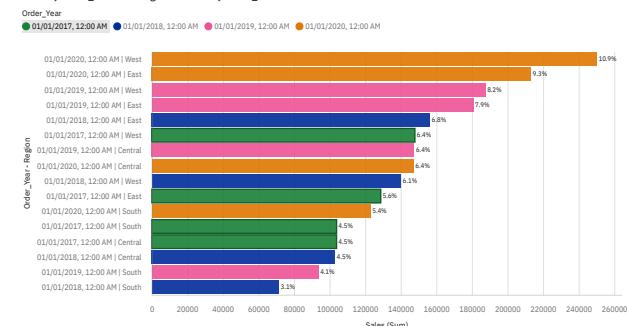
EXPORT FILE FROM COGNOS ANALYTICS ADDED NEXT

5/31/22, 5:16 AM

* project work

Tab 1

Sales by Order_Year and Region colored by Order_Year



5/31/22, 5:16 AM

* project work

Tab 2

Regional Sales by Order Year and Category

Sales	Central	East	South	West	Summary
01/01/2017, 12:00 AM	Furniture	32909.664	47232.739	26948.003	50082.448
	Office Supplies	37001.691	35968.989	25958.878	52846.854
	Technology	33926.81	45478.729	50918.963	44953.731
Summary	103838.165	128680.457	103845.844	147883.033	484247.498
01/01/2018, 12:00 AM	Furniture	35592.047	53817.432	24103.814	57004.944
	Office Supplies	25461.391	42655.245	31253.295	37863.532
	Technology	41820.784	59859.38	16002.871	45097.774
Summary	102874.222	156332.057	71359.98	139966.25	470532.509
01/01/2019, 12:00 AM	Furniture	50773.182	46387.172	27921.441	73819.64
	Office Supplies	45792.789	61801.208	28666.628	47679.357
	Technology	50863.405	72497.442	37022.154	65981.179
Summary	147429.376	180685.822	93610.223	187480.377	609205.598
01/01/2020, 12:00 AM	Furniture	44522.271	60853.861	38305.425	71705.711
	Office Supplies	58770.544	65090.613	39772.512	82463.506
	Technology	43805.313	87138.43	44827.92	95959.148

5/31/22, 5:16 AM

* project work

Tab 3



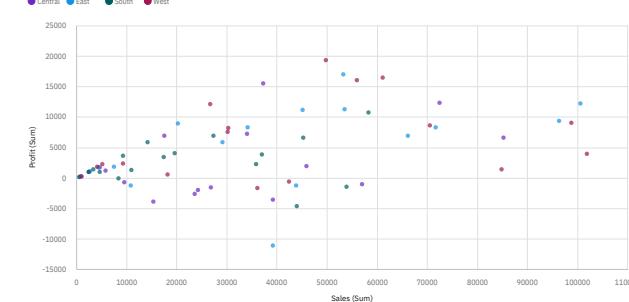
5/31/22, 5:16 AM

* project work

Tab 4

Sales by Profit by Sub-Category

Region: Central (purple), East (blue), South (green), West (red)



5/31/22, 5:16 AM

* project work

Tab 5

Profit by Region, Segment and Sub-Category

Profit (\$)

-5299.656

12770.860

Sub-Category

Accessories

Appliances

Art

Binders

Bookcases

Chairs

Copiers

Envelopes

Fasteners

Furnishings

Labels

Machines

Paper

Phones

Storage

Supplies

Tables

Region - Segment

Central | Consumer

Central | Corporate

Central | Home Office

East | Consumer

East | Home Office

South | Consumer

South | Corporate

South | Home Office

West | Consumer

West | Corporate

West | Home Office



5/31/22, 5:16 AM

* project work

Tab 6

Sales by Sub-Category

Sales (\$)

Minimum Sales (\$)

Middle Range Sales (\$)

Maximum Sales (\$)

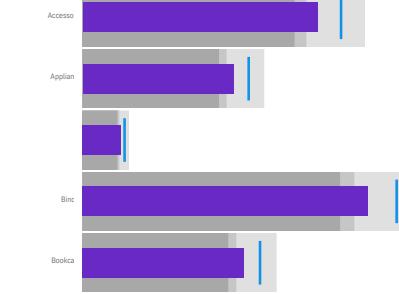
Target Sales (\$)

Accesso

Applian

Bind

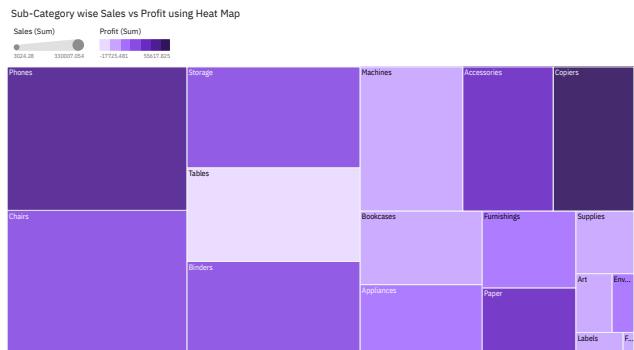
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Tab 7



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Tab 8



5/31/22, 5:16 AM

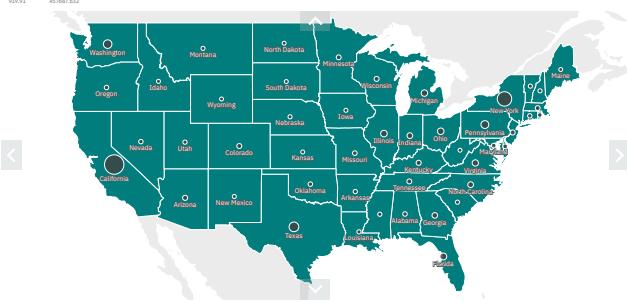
* project work

Tab 9

Sales by State using Map

Sales (\$Sum)

925.92 457,677.83



5/31/22, 5:16 AM

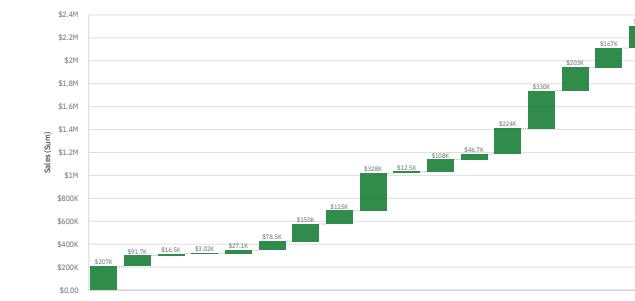
* project work

Tab 10

Sub-Category wise Sales

Column values

● Increase ● Decrease



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* project work

Tab 11



5/31/22, 5:16 AM

* project work

Tab 12

