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Lab Assignment – IA4 Scalar Visualizations – 2

Note on Software used for following Visualizations: (Tableau)

Tableau is a visual analytics platform transforming the way we use data to solve problems—empowering people and organizations to make the most of their data.

It includes:

- Easy to access from different sources.

- No need for any technical or programming knowledge, and Quick response for making a dashboard.

- In terms of connecting and sharing, it has various inbuilt advanced features such as: Collaboration and distribution, highly securable, Multiple data sources connection, Easy importation and exportation of the massive size of data.

- For easy accessibility and analysis, the data file can be downloaded locally on mobile or desktop, multilingual representation of data, real-time exploration of any dataset, etc.

Q) Create a dataset of five or more ordinal values of two categorical data associated with any of your interested domain. Visualize the data using:
        a. Luminance colour map
        b. Zebra Colour map
        c. Rainbow colour map
        d. Contours
(Note: In case if you find that the dataset created does not have sufficient fields or data, you can add the type of field / data as per the necessity)

Answer: Some Key points to note before visualization process:

1. Dataset Used:

The dataset used is that of the Superstore Sales Data at a given Superstore Chain. Contains 8390 Rows and 21 Columns as required by the question.
Link(s): https://drive.google.com/drive/folders/1eEL3dpCk_mfSsvEhME04-qJkWjrpi8Ib

Screenshot 1 — Tableau - IA4

File Data Server Window Help

Connections — Add

Sample - Superstore Sales (Microsoft Excel)

Sheets
- [ ] Use Data Interpreter
  Data Interpreter might be able to clean your Microsoft Excel workbook.
- Orders
- Returns
- Users
- New Union

Orders (Sample - Superstore Sales)

Connection: ⦿ Live ○ Extract Filters: 0 | Add

Orders ▾ | 21 fields 8390 rows | 100 → rows

Row ID	Order ID	Order Date	Order Priority	Order Quantity	Sales	Discount	Ship Mode	Profit	Unit Price	Shipping Cost
1	3	13-10-2010	Low	6	261.54	0.040000	Regular Air	-213.25	38.940	35.0000
2	6	20-02-2012	Not Specified	2	6.93	0.010000	Regular Air	-4.64	2.080	2.5600
3	32	15-07-2011	High	26	2,808.08	0.070000	Regular Air	1,054.82	107.530	5.8100
4	32	15-07-2011	High	24	1,761.40	0.090000	Delivery Truck	-1,748.56	70.890	89.3000
5	32	15-07-2011	High	23	160.23	0.040000	Regular Air	-85.13	7.990	5.0300
6	32	15-07-2011	High	15	140.56	0.040000	Regular Air	-128.38	8.460	8.9900
7	35	22-10-2011	Not Specified	30	288.56	0.030000	Regular Air	60.72	9.110	2.2500
8	35	22-10-2011	Not Specified	14	1,892.85	0.010000	Regular Air	48.99	155.990	8.9900
9	36	02-11-2011	Critical	46	2,484.75	0.100000	Regular Air	657.48	65.990	4.2000
10	65	17-03-2011	Critical	32	3,812.73	0.020000	Regular Air	1,470.30	115.790	1.9900
11	66	19-01-2009	Low	41	108.15	0.090000	Regular Air	7.57	2.880	0.7000
12	69	03-06-2009	Not Specified	42	1,186.06	0.090000	Regular Air	511.69	30.930	3.9200
13	69	03-06-2009	Not Specified	28	51.53	0.030000	Express Air	0.35	1.680	0.7000
14	70	17-12-2010	Low	48	90.05	0.030000	Regular Air	-107.00	1.860	2.5800
15	70	17-12-2010	Low	46	7,804.53	0.050000	Regular Air	2,057.17	205.990	5.9900
16	96	16-04-2009	High	37	4,158.12	0.010000	Regular Air	1,228.89	125.990	8.9900
17	97	28-01-2010	Medium	26	75.57	0.030000	Regular Air	28.24	2.890	0.5000

Data Source | Sheet 1 | Sheet 2

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Screenshot 2 — Tableau - IA4

File Data Server Window Help

Connections — Add

Sample - Superstore Sales (Microsoft Excel)

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- [ ] Use Data Interpreter
  Data Interpreter might be able to clean your Microsoft Excel workbook.
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Orders (Sample - Superstore Sales)

Connection: ⦿ Live ○ Extract Filters: 0 | Add

Orders ▾ | 21 fields 8390 rows | 100 → rows

Shipping Cost	Customer Name	Province	Region	Customer Segment	Product Category	Product Sub-Category	Product Name
35.0000	Muhammed MacIntyre	Nunavut	Nunavut	Small Business	Office Supplies	Storage & Organization	Eldon Base for stackable stor...
2.5600	Ruben Dartt	Alberta	West	Corporate	Office Supplies	Scissors, Rulers and Trimmers	Kleencut® Forged Office She...
5.8100	Liz Pelletier	Alberta	West	Corporate	Furniture	Office Furnishings	Tenex Contemporary Contur ...
89.3000	Liz Pelletier	Alberta	West	Corporate	Furniture	Tables	KI Conference Tables
5.0300	Liz Pelletier	Alberta	West	Corporate	Technology	Telephones and Communicat...	Bell Sonecor JB700 Caller ID
8.9900	Liz Pelletier	Saskachewan	Prarie	Corporate	Technology	Computer Peripherals	Imation 3.5 IBM Diskettes, 10...
2.2500	Julie Creighton	British Columbia	West	Corporate	Office Supplies	Pens & Art Supplies	Dixon Ticonderoga Core-Loc...
8.9900	Julie Creighton	British Columbia	West	Corporate	Technology	Telephones and Communicat...	CF 688
4.2000	Sample Company A	Alberta	West	Home Office	Technology	Telephones and Communicat...	6162i
1.9900	Tamara Dahlen	Ontario	Ontario	Corporate	Technology	Computer Peripherals	Verbatim DVD-R, 4.7GB, Spin...
0.7000	Arthur Gainer	Alberta	West	Consumer	Office Supplies	Pens & Art Supplies	Newell 340
3.9200	Jonathan Doherty	Saskachewan	Prarie	Corporate	Furniture	Office Furnishings	Advantus Employee of the M...
0.7000	Jonathan Doherty	Saskachewan	Prarie	Corporate	Office Supplies	Pens & Art Supplies	Newell 308
2.5800	Helen Wasserman	Quebec	Quebec	Home Office	Office Supplies	Rubber Bands	Super Bands, 12/Pack
5.9900	Helen Wasserman	Quebec	Quebec	Home Office	Technology	Telephones and Communicat...	3285
8.9900	Keith Dawkins	Manitoba	Prarie	Home Office	Technology	Telephones and Communicat...	SC7868i
0.5000	Craig Yedwab	Yukon	Yukon	Consumer	Office Supplies	Labels	Avery 498

Data Source | Sheet 1 | Sheet 2

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2

Name

Orders

Fields

Type	Field Name	Physical Table	Remote Field...
#	Row ID	Orders	Row ID
#	Order ID	Orders	Order ID
📅	Order Date	Orders	Order Date
Abc	Order Priority	Orders	Order Priority
#	Order Quantity	Orders	Order Quantity
#	Sales	Orders	Sales
#	Discount	Orders	Discount
Abc	Ship Mode	Orders	Ship Mode
#	Profit	Orders	Profit
#	Unit Price	Orders	Unit Price
#	Shipping Cost	Orders	Shipping Cost
Abc	Customer Na...	Orders	Customer Na...
🌐	Province	Orders	Province
Abc	Region	Orders	Region

Name

Orders

Fields

Type	Field Name	Physical Table	Remote Field...
Abc	Ship Mode	Orders	Ship Mode
#	Profit	Orders	Profit
#	Unit Price	Orders	Unit Price
#	Shipping Cost	Orders	Shipping Cost
Abc	Customer Na...	Orders	Customer Na...
🌐	Province	Orders	Province
Abc	Region	Orders	Region
Abc	Customer Se... ▼	Orders	Customer Seg...
Abc	Product Cate...	Orders	Product Categ...
Abc	Product Sub-...	Orders	Product Sub-...
Abc	Product Name	Orders	Product Name
Abc	Product Cont...	Orders	Product Conta...
#	Product Base...	Orders	Product Base ...
📅	Ship Date	Orders	Ship Date

2. Visualization:

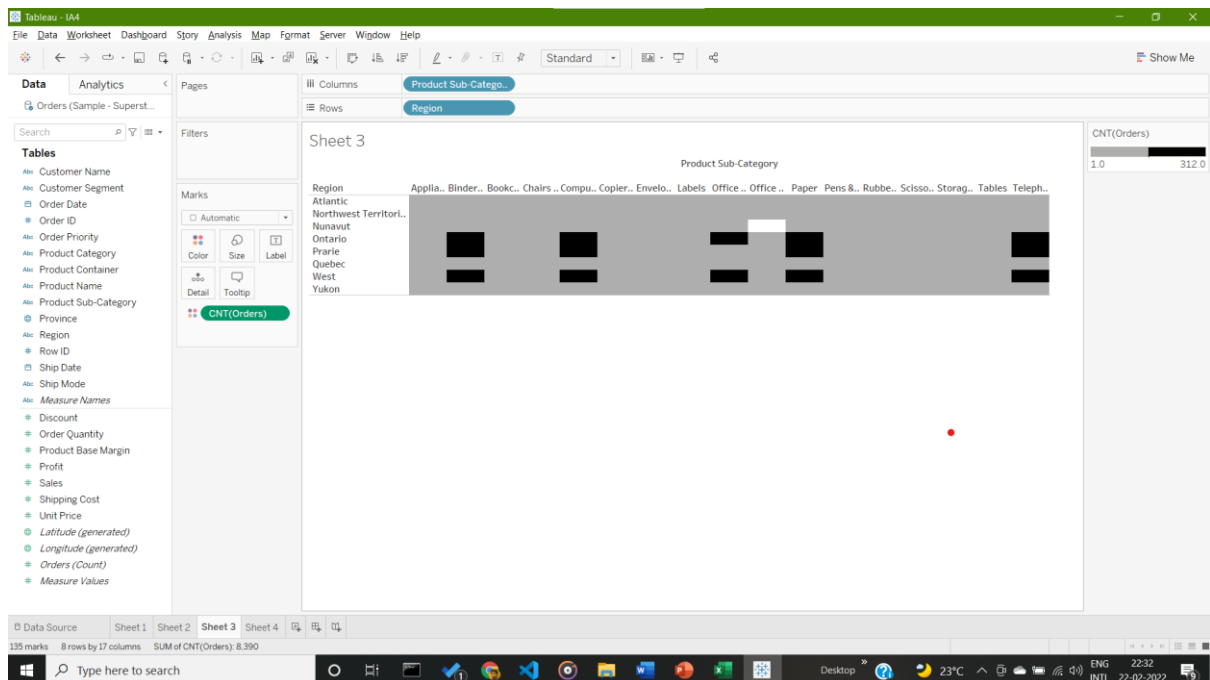### a. Visualization using Luminance Colour Mapping

Generalization based on the three following Categorical Data: Product Sub-Category, Order Priority and SUM(Profits), with data on x axis being Order Priority (Ordinal Data) From Critical to Non-Specified.
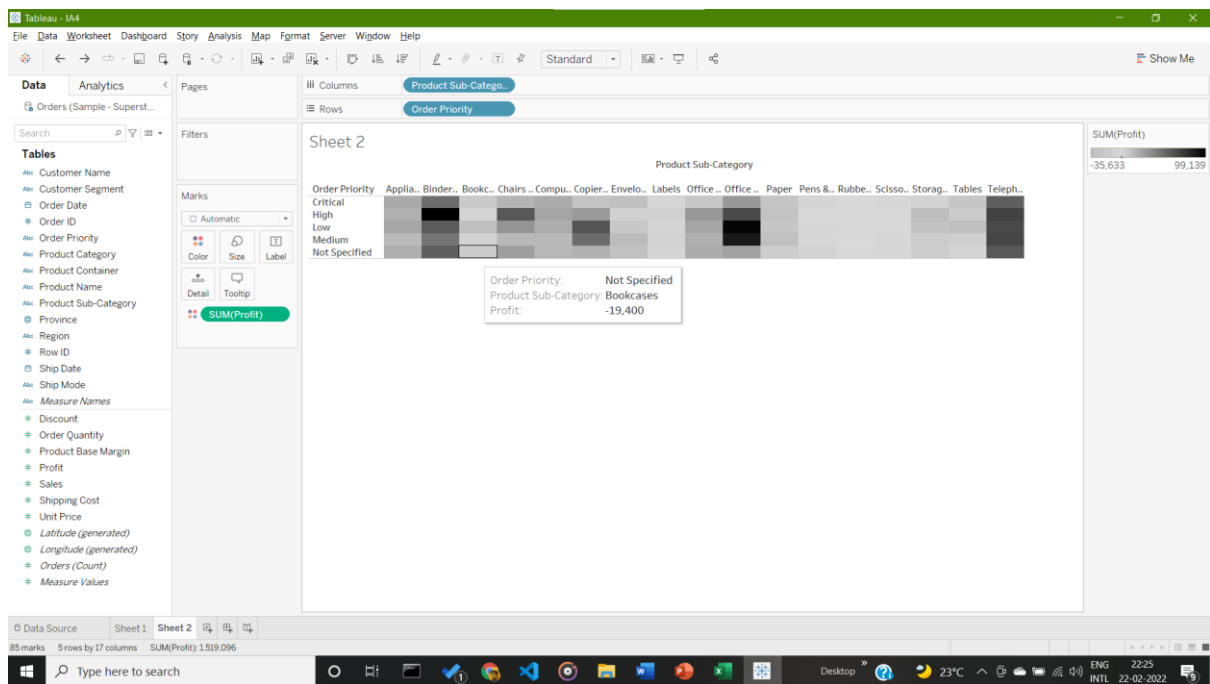
It is given in a Luminance Mapping Format, with SUM(Profit) Ranging from values -35633 (Grey) to 99139 (Black). Highest Profit Margin is seen in High Priority of Binders & Binder Accessories.

b. **Visualization using Zebra Colour Mapping**
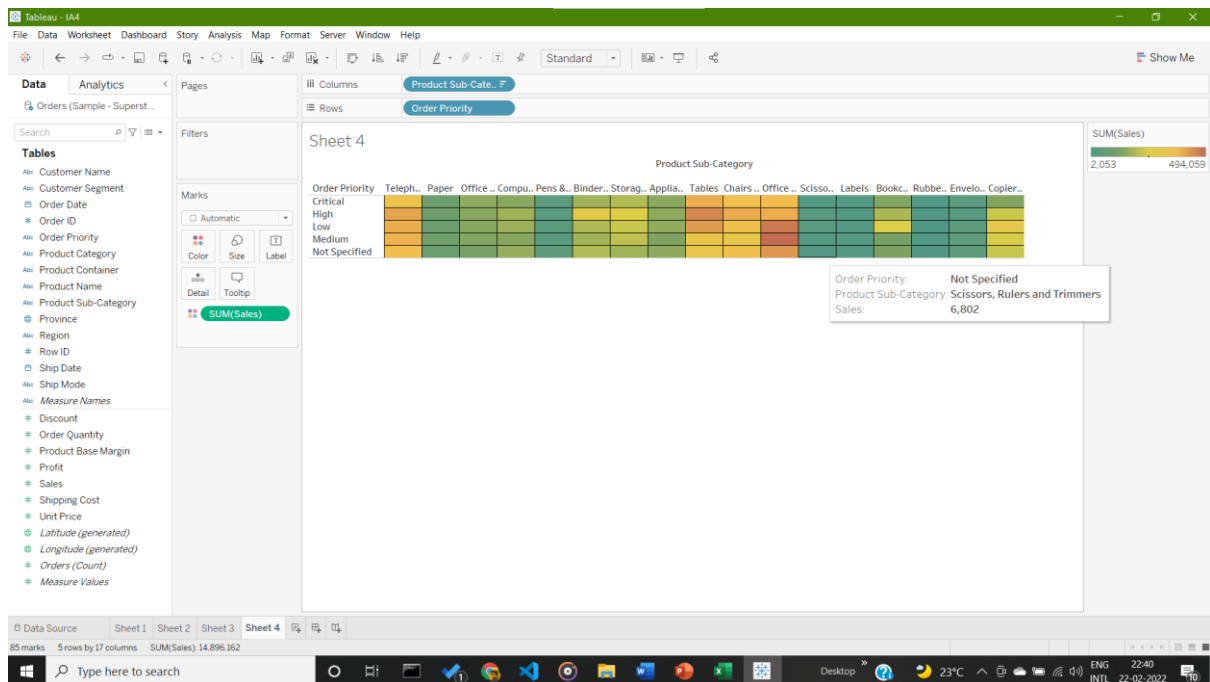
Generalization based on the two following Continuous Data: Product Sub-Categories, Region and Order Count (Ordinal Values) With Count < 155 given in grey and count > 155 in black, in accordance with Zebra type Colour Mapping.

Conclusion from Given Visualization: Highest Count of Orders for Paper from the West, at 312 Orders.

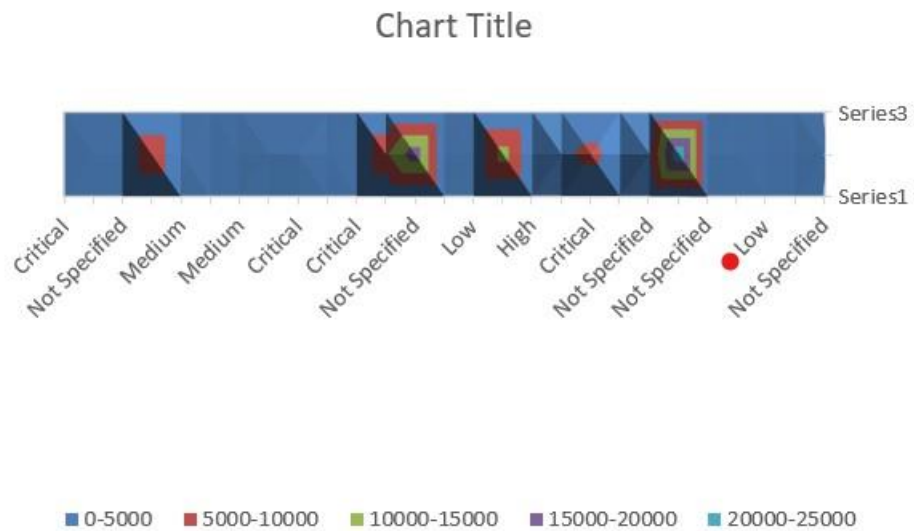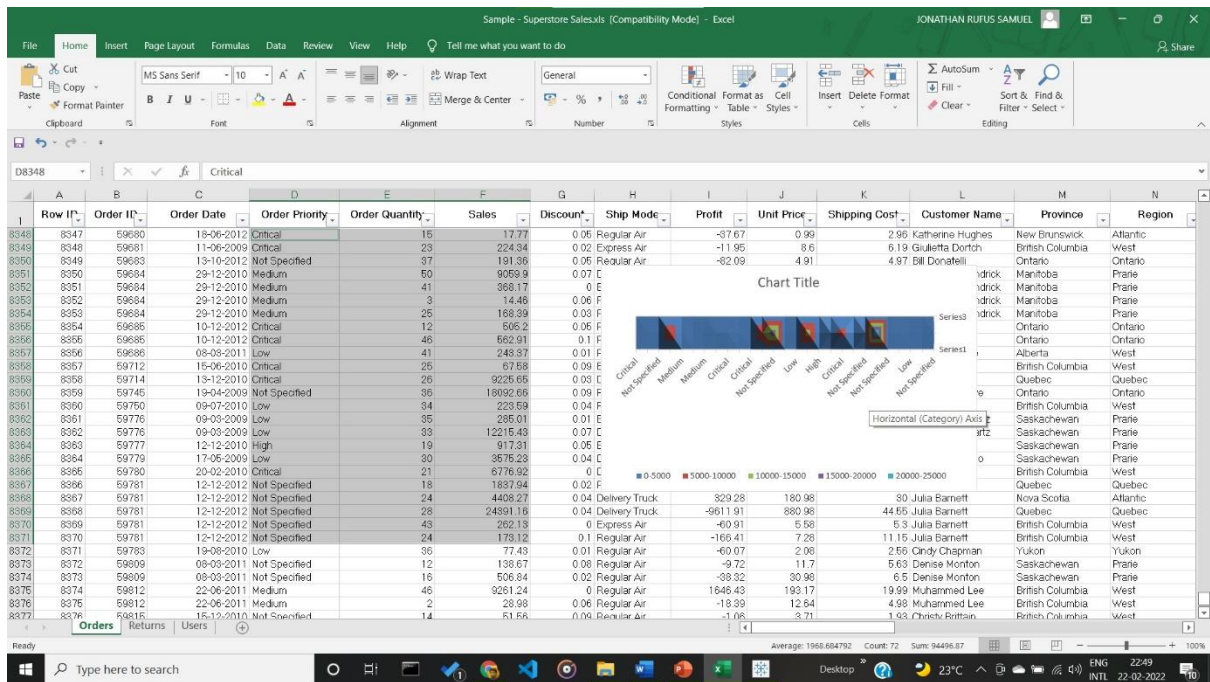c. **Visualization using Rainbow Colour Mapping**

Generalization based on the three following Categorical and Numerical Data: Product Sub-Categories, Order Priority & SUM(Sales). Given in accordance to Rainbow Colour Mapping, with SUM(Sales) ranging from 2000 (blue) to 494000 (red). Follows Rainbow Colour Mapping with 5 stepped Colours (Blue, Green, Yellow, Orange, Red).

Conclusion from Given Visualization: Highest Number of Cumulative Sales – Machines with Medium Priority at 494,059 pieces.

d. **Contouring of Given Data fields**

Generalization based on the 3 following Categorical Data: Order Priority (Ordinal), Order Quantity and Sales (Ordinal, with different colours for different ranges. Done in Excel as Tableau does not support Contour Plots Natively.

Chart Title

Series3

Series1

Critical — Not Specified — Medium — Medium — Critical — Critical — Not Specified — Low — High — Critical — Not Specified — Not Specified — Low — Not Specified

■ 0-5000　■ 5000-10000　■ 10000-15000　■ 15000-20000　■ 20000-25000

Conclusion from Given Visualization: Series 2 received highest sales at 25000.

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