**DATA VISUALIZATION- LAB1**

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**Module 1:**

**a: sales by department**

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Description automatically generated

Anusha recently joined a company as a data Analyst she had a first meeting with superstore retailer, for that she prepared a "Sale by Department " sheet by using data visualization tool tableau, it shows an analysis of profits, sales, and discounts across different departments like Furniture, Office Supplies, and Technology departments, categorized by order date (year) and regions (Central, West, South, East).

She utilized tableau tool to understand the fundamental concepts by creating this visualization adding different values under measures and dimensions using the fields like regions, profit, discount, sales and department. uses sales field as a measure in this view, specifically it is being aggregated as a sum so that she can clearly explain about sales to the retailer. then she Utilizes area charts, this visualization shows variation in sales, profits, and discounts over time for each department. By highlighting recent years that is 2019 and 2020 profit and maximum discount labels, this highlighting labels helps retailers to identify recent maximum discount and profit in different regions and departments so that they can get a clear idea about their sales.

She has chosen lighting color safe color format which have all different colors so that retailers easily identify the regions, central region is shaded in blue color, east in pink, south in green and west in yellow.

She as selected marks card containing additional shelves as most recent one to make sure the visualization is minimal and easy to understand to the retailers.so that they understand that the technology department in central region achieved the highest profit of 90,036 in the year 2020 and a maximum discount rate of 0.10 and the furniture department in the west region have low profit -3540 in the year 2020 with a max discount of 0.10.so her finding helps retailers to understand that maximum discount is same in all the regions in the year 2020 but the profit varies, based on this visualization retailer got insights so that they can take business decisions based this visualization.

**b: Bar chart (stacked)**

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She created another canvas to make easy understating to the retailer by focusing on colors, she utilized tableau tool to understand the fundamental concepts by creating this visualization adding different values under measures and dimensions using the fields like sales, Department and region.

Since sales is a continuous form of data it is selected to be under category column and department and region is discreate hence they are selected under row category. She differentiated different departments by using colors, green to represent technology, blue to represent furniture and orange color to represent office supplies so that retailer can understand in which department which region have highest and lowest sales.

**Module 2: Connect to Google sheets.**

A map of the united states

Description automatically generated

URL: https://docs.google.com/spreadsheets/d/1YUZ1UnryuCX7cwbfNptGuzx0G4yth7i-m9Jrkce9\_PE/edit#gid=793425053

Anusha created another visualization by directly taking raw data of another superstore from google by using above mentioned URL to explain profit of superstore to the retailers for this she created dashboard “Connect to google sheet" it shows an analysis of profit of a superstore across states in USA. Texas state has highest profit of 172,406 sales hence it is shaded in Yale blue and New York takes 2nd highest place with profit of 112,053 which is shaded in Steel blue. Mississippi with the lowest profit of -18,047 is shaded in green. Human Brain identifies and remember color easily then numbers, highest and lowest profit is represented in dark colors so that retailers can Identfiy those states easily.

Based on her explanation and insights, retailers understand in which states they are getting less profit and where they are lagging based on this can take their business decisions to solve their business problems to increases their sales.

**Module 03:**

* 1. **a. Revenue and Patient Visits by Department**:

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* 1. Revenue and patient visits by department is constructed by adding Number of patients visits in rows and Revenue in columns.
  2. Utilizing this visualization, it can be determined that the General Surgery department generated the highest revenue, having the highest number of patient visits.
  3. Conversely, the Neonatal department generated the lowest revenue having the lowest number of patient visits. Departments such as Gastroenterology, Neurology, ICU, Cardiology, ER generated revenue ranging from 2M to 13M where ER recorded highest number of patients around 900 visits while Gastroenterology recorded approximately 700 visits in the comparison made.
  4. **b. Improving design:**

**Before:**

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Description automatically generated

In the above visualization, Line graph was constructed without labels. This may cause obstacles in interpretation of data causing lack of information and communication. In addition, Line graphs without labels may make users feel something is incomplete or unprofessionally done.

**After:**

A screenshot of a computer

Description automatically generated

Hence Labels are added to enhance the level of detail and clarity to the graph, displaying its professionalism. Clear figures for the number of patients visit is labelled which enables user to make comparisons whenever necessary and make business decisions out of it.

Reference: <https://public.tableau.com/app/profile/christopher.salviati/viz/line_chart_2/YoyLine-FORMATTED>