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# Data Visualization on used Car's Dataset using Tableau

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**ABSTRACT:** The "Used Car Sales" dataset provides detailed insights into the secondhand automotive market, including vehicle specifications, seller details, pricing, and sales timelines. This study utilizes Tableau to create visualizations that reveal sales trends, pricing patterns, and market conditions. By analyzing factors such as year, make, model, condition, odometer reading, selling price, and sale date, the study offers valuable insights for optimizing pricing strategies, targeting marketing efforts, and improving customer satisfaction.

## I. INTRODUCTION

The "Used Car Sales" dataset is a valuable resource for understanding the second-hand car market, with information on vehicle specs, seller details, pricing, and sales dates. Key columns include year, make, model, trim, body type, transmission, VIN, state, condition, odometer reading, color, interior, seller, MMR, selling price, and sale date. Using Tableau, this study aims to convert raw data into interactive dashboards that reveal hidden patterns and trends. Prior research highlights the importance of data-driven decisions in the automotive industry.

## II. METHODS AND MATERIALS

### Dataset:

The "Used Car Sales" dataset includes:

- Year, Make, Model, Trim, Body, Transmission, VIN, State, Condition, Odometer, Color, Interior, Seller, MMR, Selling Price, Sale Date.

### Methods:

- **Data Collection:**
  - Obtain dataset from a reputable source.
- **Data Cleaning and Preparation:**
  - Handle missing values, convert data types, create new fields if needed.
- **Data Exploration and Visualization in Tableau:**
  - Import data, conduct exploratory analysis, create visualizations (bar charts, pie charts, bubble charts, etc.).
- **Advanced Tableau Features:**
  - Use filter actions, hyperlinks, tooltips, and highlights.

### Materials:

- **Software:**
  - Tableau Public 2024.1 for data visualization.
- **Hardware:**
  - A computer with sufficient processing power.

### Tableau Public 2024.1

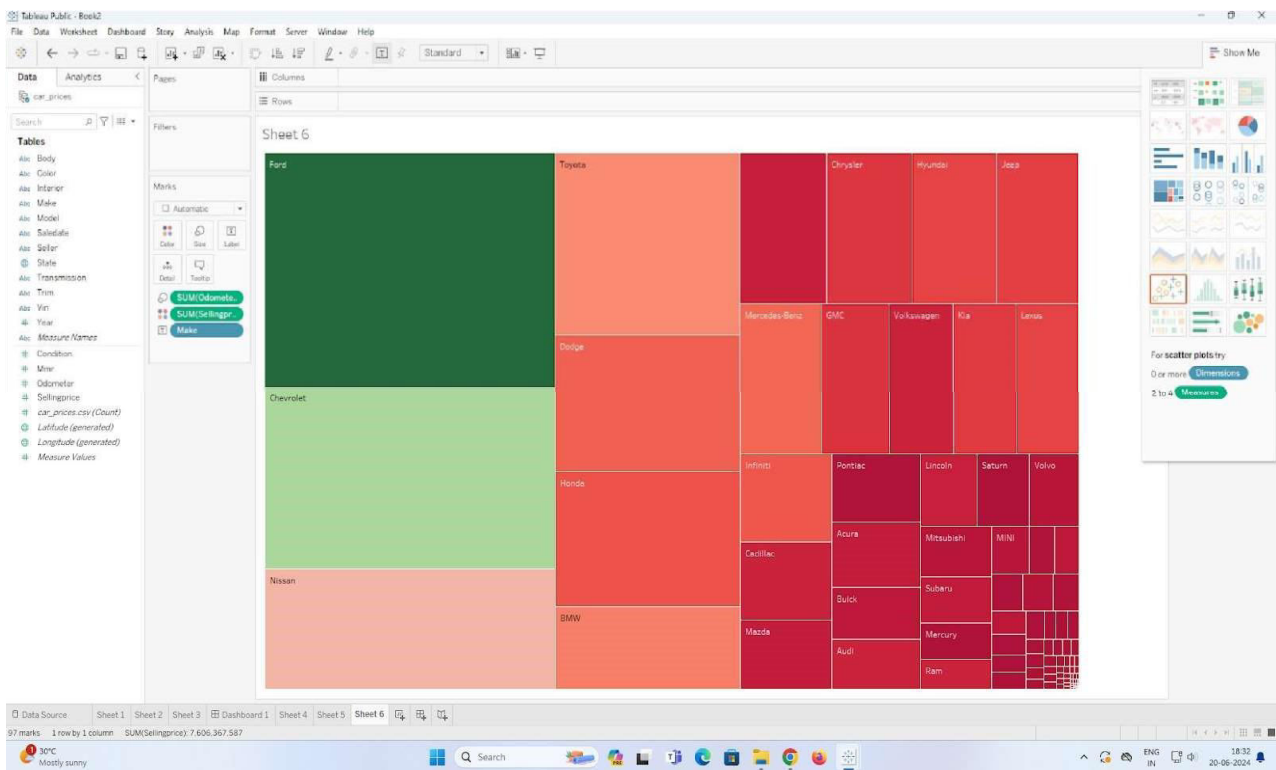
Tableau is a leading data visualization tool that enables users to create interactive and visually appealing dashboards for data analysis. Key features include data connectivity, a drag-and-drop interface, interactive dashboards, real-time data



3.This piechart shows the difference in the make(brand of cars) with respect to the prices.



4.The Tree map visualization in Tableau shows the distribution of used car sales by vehicle make, with each rectangle's size representing the number of sales for each make.



Dashboard:-

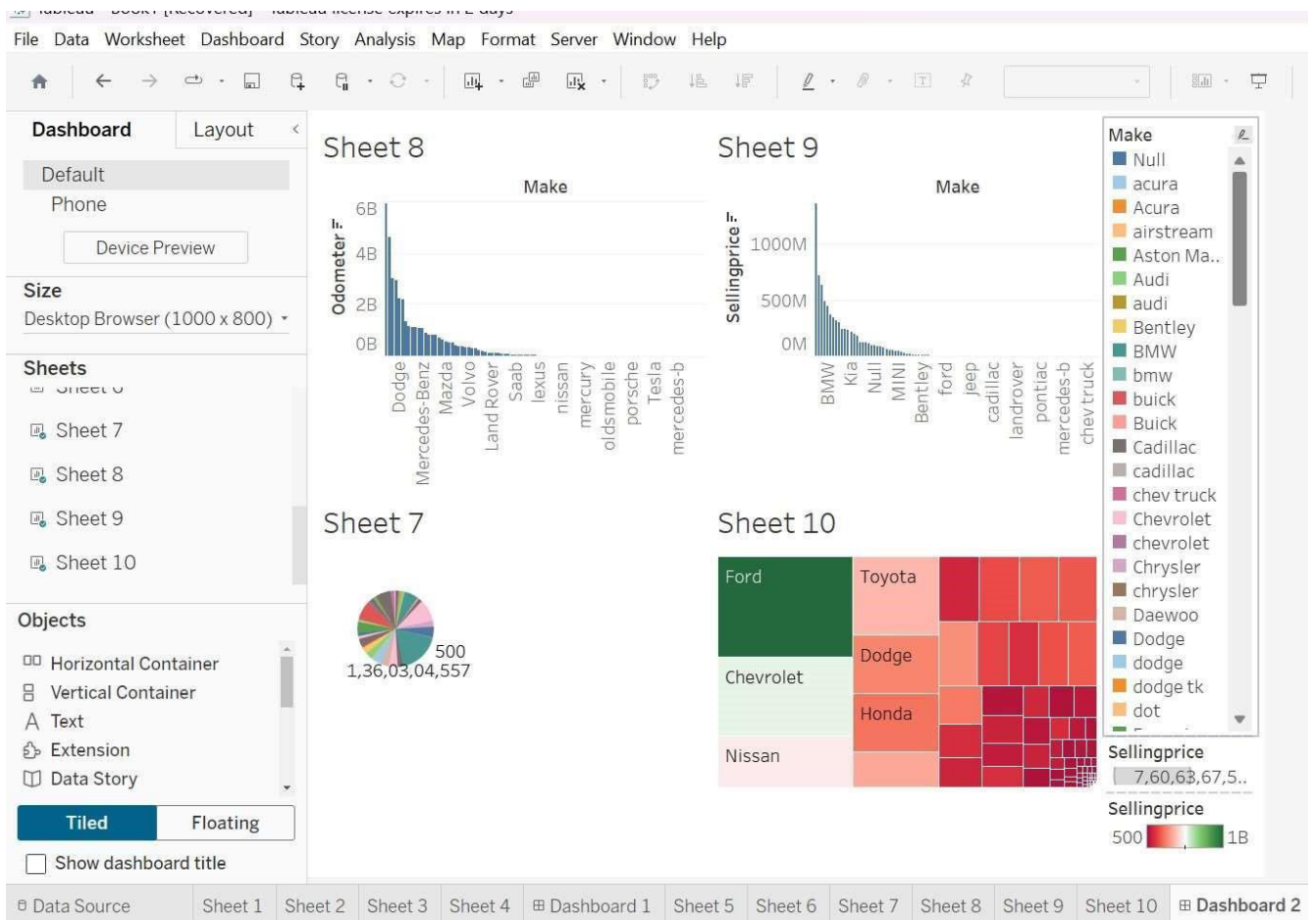
The Tableau visualization contains four sheets showing different metrics by state.

Sheet 1: 1.This graph shows the difference in the make(brand of cars) with respect to the odometer.ford has more among all other brands because of their speed.

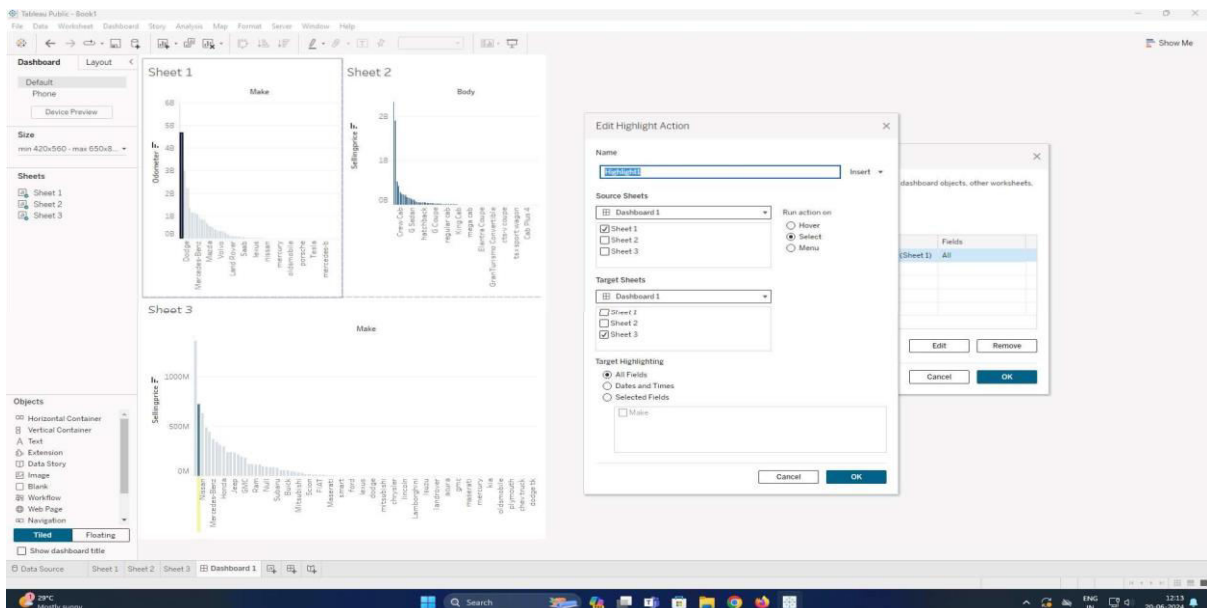
Sheet 2: 2.In above graph we can see for each brand of cars their is selling price and ford has done a great job in selling price of almost \$13M+ and Hyundai has \$24M.

Sheet 3: 3.This pie chart shows the difference in the make(brand of cars) with respect to the prices.

Sheet 4: 3.This pie chart shows the difference in the make(brand of cars) with respect to the prices.

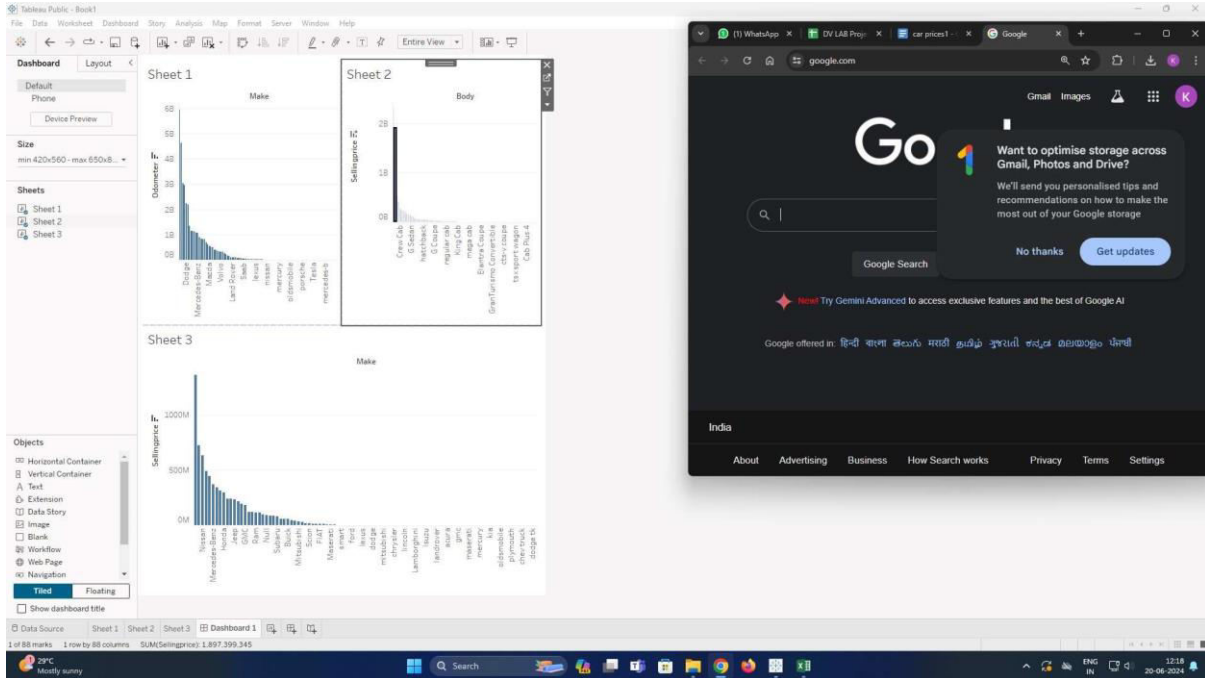


5.filter actions:

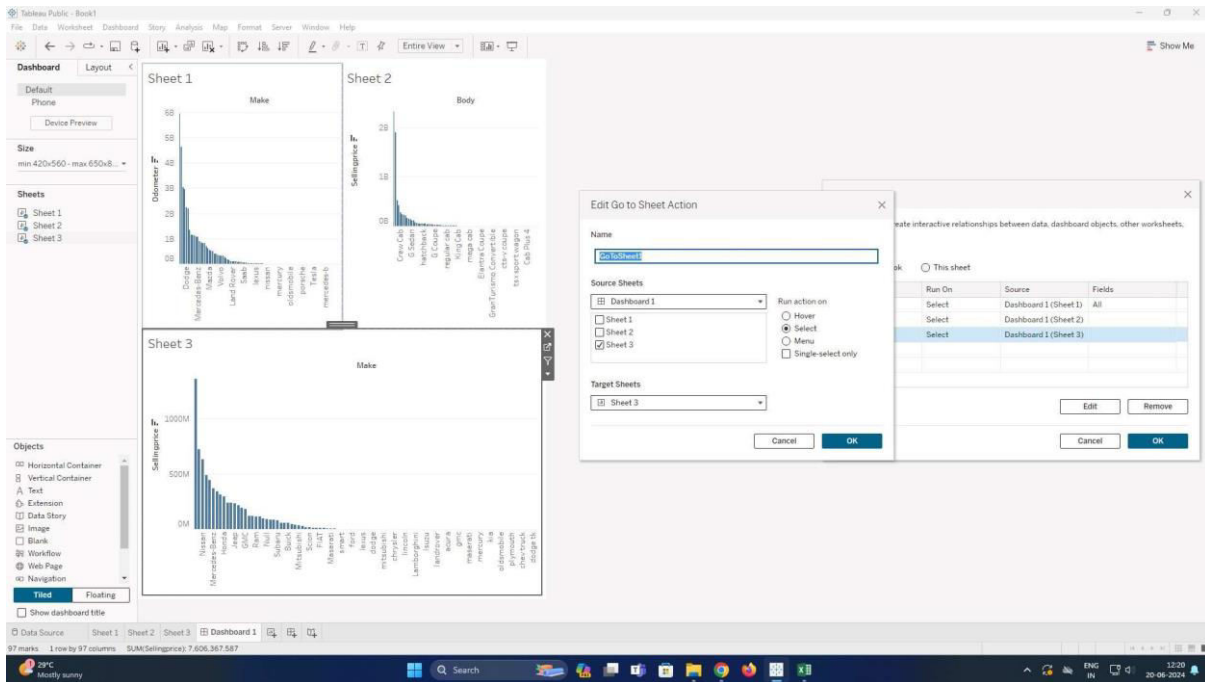


Stacked Bars:-

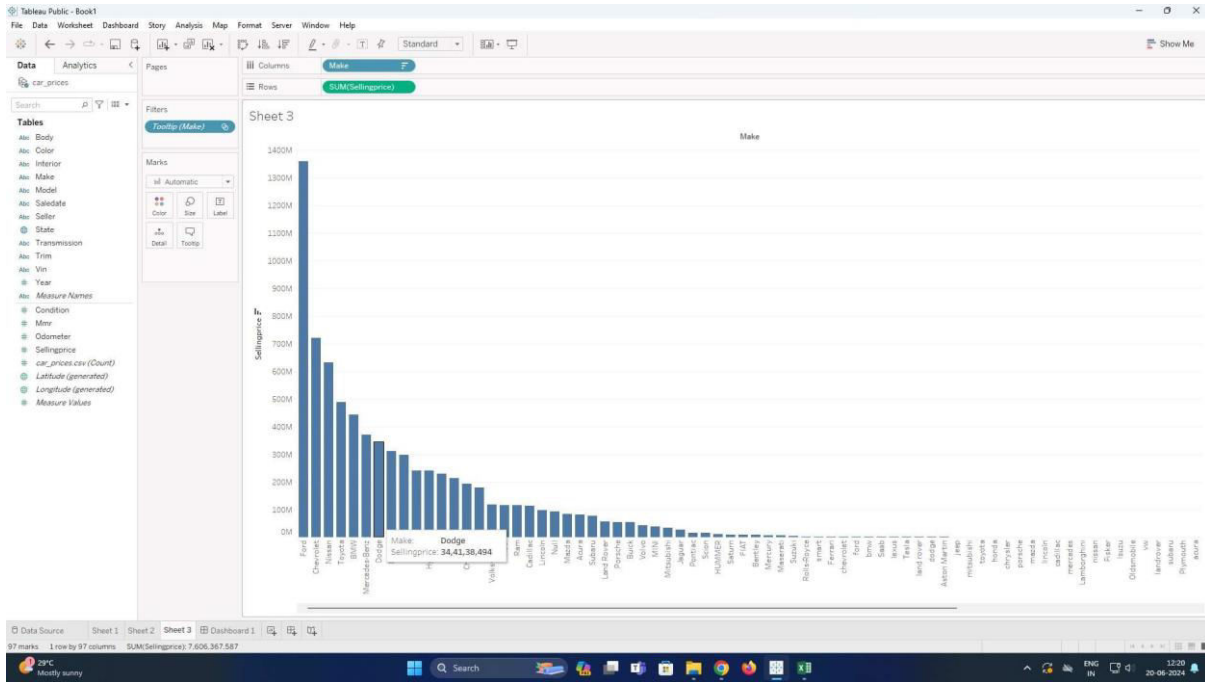
6.Go to URL:



7. Here we had edited go to ac on on dashboard for 3 sheets.As we made sheet 1 and sheet 3 then we took the select op on on 'run ac on on'.

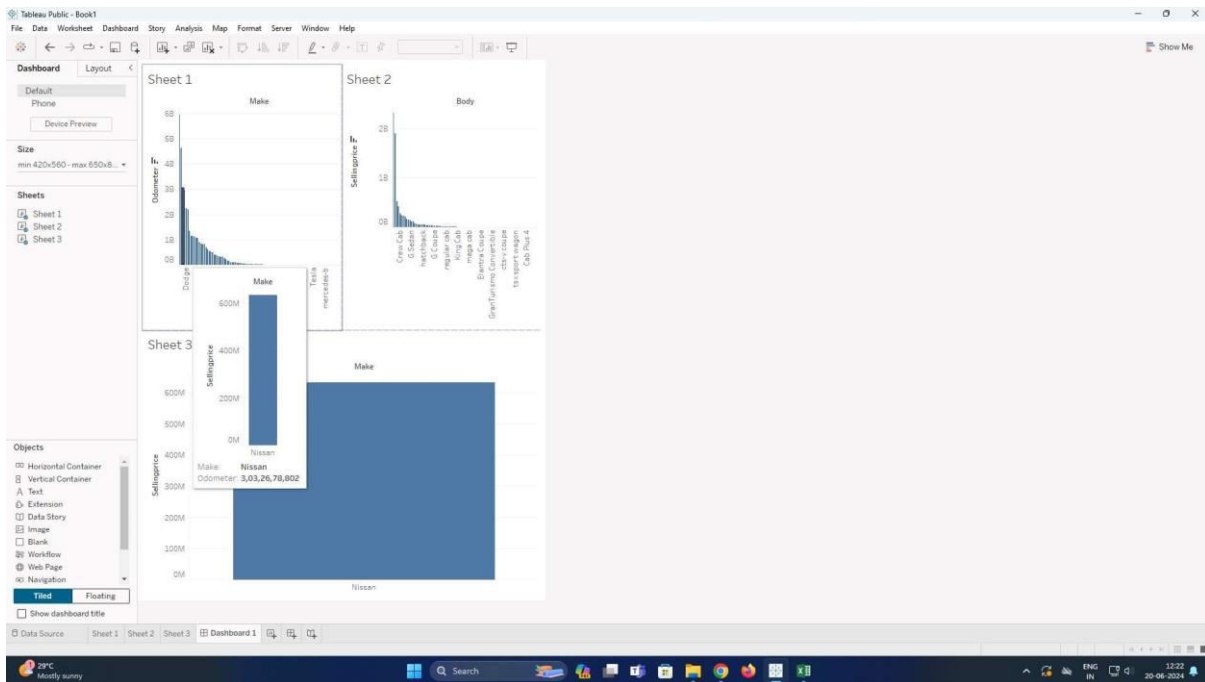


8.Tool p

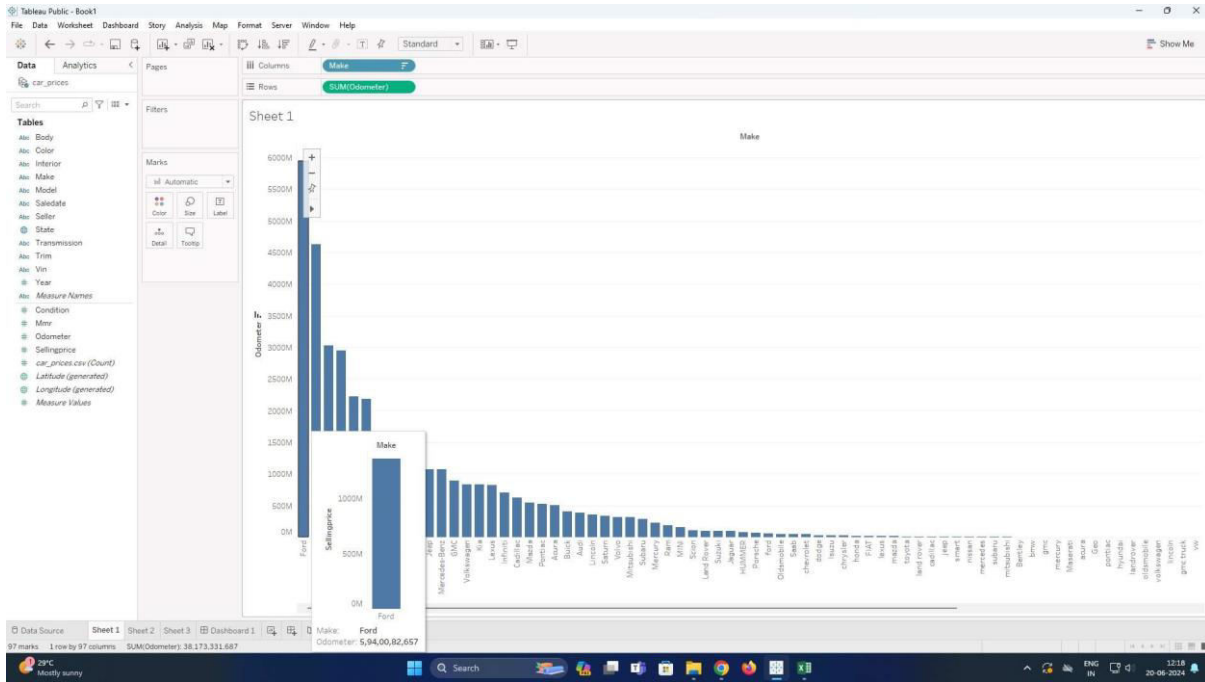


Waterfall Chart:-

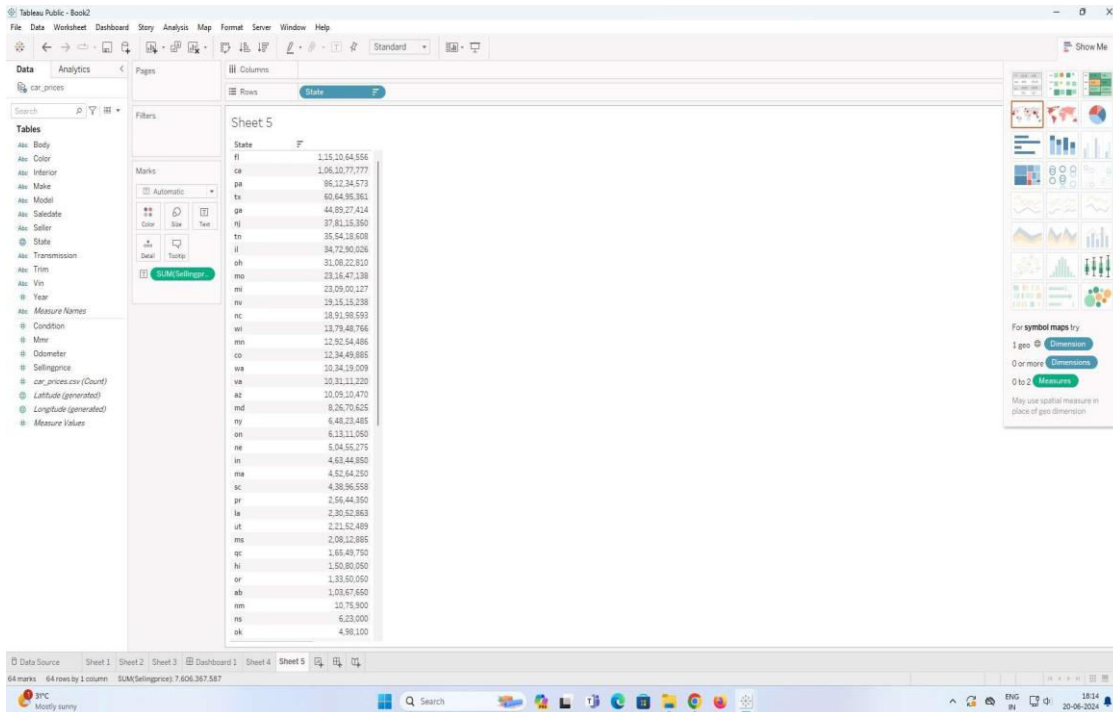
9.Filter in Dashboard:



10.filter in worksheet

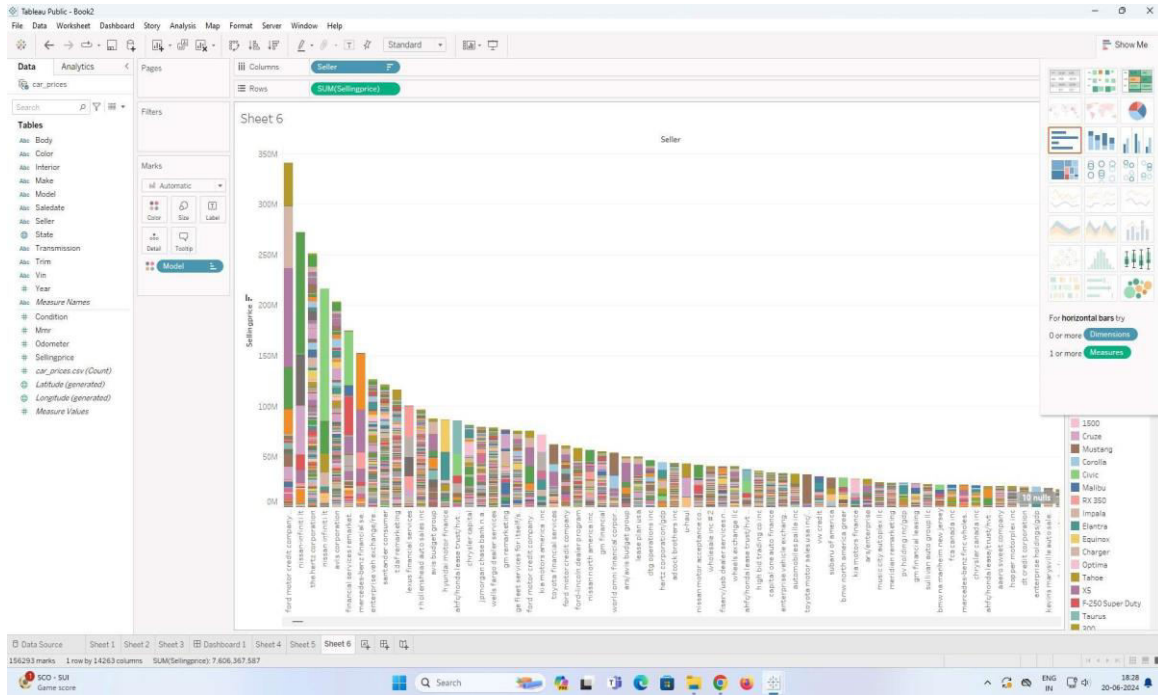


11.Symbol map:





12.Horizontal bars:



13.Highlighted table:

The screenshot shows a Tableau Public interface with a table view. The table is titled 'Sheet 1' and displays the sum of selling prices for various car makes. The columns are labeled 'Make' and the rows are labeled 'SUM(Sellingprice)'. The table is highlighted in green. The interface includes a menu bar at the top, a data pane on the left, and a marks card in the center.

Make	SUM(Sellingprice)
acura	150,900
Acura	82,715,900
airstream	71,000
Aston Martin	1,370,300
audi	132,300
Audi	116,883,675
Bentley	8,626,650
BMW	444,254,638
bmw	2,254,875
Dodge	344,138,494
ford	2,272,525
honda	628,475

#### IV. RESULTS & DISCUSSIONS

##### Summary of the Dataset:

- User attributes: subscription type, monthly revenue, country, age, gender, device, and plan duration.
- Both basic and premium subscriptions.
- Users from US, Canada, UK, Australia, Germany, France, Brazil, Mexico, and Spain.

**Key Observations:**

1. **Dataset Summary:**
  - a. Used car sales data: year, make, model, trim, odometer, selling price, sale date.
  - b. Sales span multiple states, providing a market overview.
2. **Popular Car Models and Sales Trends:**
  - a. Top-selling models: Toyota Camry, Honda Accord, Ford F-150.
  - b. Shift towards SUVs and hybrids.
3. **Pricing Analysis:**
  - a. Prices vary by make, model year, and condition.
  - b. Newer and certified pre-owned cars fetch higher prices.
4. **Regional Insights:**
  - a. Sales concentrated in urban areas.
  - b. Coastal states have higher average prices.
5. **Market Dynamics:**
  - a. Sales peak in summer and year-end holidays.
  - b. Economic changes impact buying decisions.
6. **Demographic Trends:**
  - a. Young adults prefer compact cars; older demographics prefer SUVs/trucks.
  - b. Minimal gender-based differences.

**Insights and Recommendations:**

1. **Marketing Strategies:**
  - a. Tailor campaigns based on regional and demographic insights.
  - b. Use seasonal promotions to maximize sales.
2. **Inventory Management:**
  - a. Adjust inventory based on popular models and seasons.
  - b. Segment inventory by condition.
3. **Pricing Strategies:**
  - a. Monitor trends for competitive pricing.
  - b. Use promotional pricing during slow periods.
4. **Customer Experience:**
  - a. Offer value-added services and improve online presence.

**Discussion and Insights:**

1. **Popular Car Models and Sales Trends:**
  - a. Identify top-selling models and analyze consumer trends.
2. **Pricing Trends and Variations:**
  - a. Explore price variations based on age, condition, and mileage.
3. **Regional Preferences and Market Dynamics:**
  - a. Examine regional differences and economic influences on car preferences.
4. **Impact of Vehicle Condition on Sales:**
  - a. Evaluate how condition affects sales and pricing.
5. **Seasonal Trends and Market Dynamics:**
  - a. Identify and strategize for seasonal sales variations.
6. **Customer Demographics and Preferences:**
  - a. Analyze demographic influences on purchasing decisions.
7. **Future Market Outlook and Recommendations:**
  - a. Provide insights into future market trends and strategies.

**V. CONCLUSION**

The analysis using Tableau revealed key insights into market trends. Visualizations highlighted distribution, sales performance, and critical metrics.

**Key Findings:**

1. **Car Makes Distribution:**
  - a. Dominance of Ford, Toyota, and Chevrolet.

2. **Sales Performance:**
  - a. Identified best-selling and underperforming models.
3. **Geographic Trends:**
  - a. Indicated regional preferences.
4. **Condition and Pricing:**
  - a. Clarified impact of condition and mileage on prices.
5. **Monthly Revenue Analysis:**
  - a. Dashboards showed revenue trends aiding financial planning.

#### REFERENCE

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