A PROJECT REPORT

Unveiling Market Insights – Analyzing Spending Behavior and Identifying Opportunities for Growth

Fundamentals of Data Analytics with Tableau – Smartbridge Project Based Experiential Learning Program-Naan Mudhalvan

Dr. AMBEDKAR GOVERNMENT ARTS COLLEGE

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PROJECT GUIDE
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1. <u>INTRODUCTION</u>

1.1 Over view

Wholesaling or distributing is the sale of goods to retailer to industrial, commercial, institutional or other professional businessman to other wholesalers (wholesale businesses) and related subordinated services. Wholesaling is buying goods in bulk quantity, usually directly from the manufacturer or source, at a discounted rate. The retailer then sells the goods to the end consumer at a higher price making a profit.

The consumption and production of marketed food are spatially separated. Production is primarily in rural areas while consumption is mainly in urban areas. In today's highly competitive business landscape, gaining deep market insights is essential for businesses to thrive and grow. This project aims to analyze customer spending behavior and identify opportunities for growth by leveraging data analytics and data-driven decision-making.

The primary objective of this project is to understand customer spending patterns, preferences, and trends across various dimensions.. By conducting a comprehensive analysis, businesses can optimize their marketing strategies, improve product offerings, and enhance customer engagement to drive revenue growth.

<u>Understanding Consumer Behavior:</u>

- Gain a comprehensive understanding of consumer spending behavior within the target market or industry.
- Explore the factors that influence purchasing decisions, such as preferences, needs, motivations, and external influences (e.g., advertising, social media, economic conditions).

<u>Identifying Spending Patterns and Trends:</u>

- Analyze spending patterns over time to identify trends and seasonal variations in consumer behavior.
- Determine the frequency, volume, and types of purchases made by consumers, including product categories and price points.

Assessing Technology and Channel Preferences:

- **Investigate consumers' preferences regarding shopping channels, including online platforms, physical stores, mobile apps, or social media.**
- **Examine the role of technology in influencing spending behavior, such as the impact of e-commerce, mobile payments, or smart devices.**

Comparative Analysis with Competitors:

- **Benchmark the business against competitors to assess market positioning, pricing strategies, product offerings, and customer engagement tactics.**
- **Identify areas where the business can improve and differentiate itself to gain a competitive advantage.**

Risk Assessment and Mitigation:

- **Evaluate potential risks associated with the identified opportunities, considering factors like market volatility, changing consumer preferences, and competitive challenges.**
- **Develop strategies to mitigate risks and ensure the successful implementation of growth initiatives.**

Measuring and Monitoring Success:

- **Establish key performance indicators (KPIs) to measure the effectiveness of implemented strategies and initiatives.**
- **Implement a monitoring system to track changes in consumer behavior, market dynamics, and the business's performance over time.**

The ultimate goal of this project is to provide actionable insights that enable businesses to align their strategies with consumer needs and market trends, enhancing their competitive edge and fostering sustainable growth within the targeted market or industry.

1.2 Purpose

Enhanced Understanding of Consumer Behavior:

- **To gain a deep and nuanced understanding of how consumers behave in terms of spending within the target market or industry.**

Insight into Spending Patterns and Trends:

- **To identify and analyze spending patterns, trends, and seasonal variations in consumer behavior to make informed strategic decisions.**

Identifying Growth Opportunities:

- **To pinpoint specific areas and approaches where the business can grow, expand market share, introduce new products/services, or optimize existing offerings.**

Improved Communication and Reporting:

- **Facilitate clear and effective communication of insights to stakeholders through interactive Tableau dashboards.**
- **Generate detailed and insightful reports for internal and external stakeholders, aiding in strategic planning and collaboration**

2. PROBLEM DEFINITON & DESIGN THINKING

2.1 Empathy Map
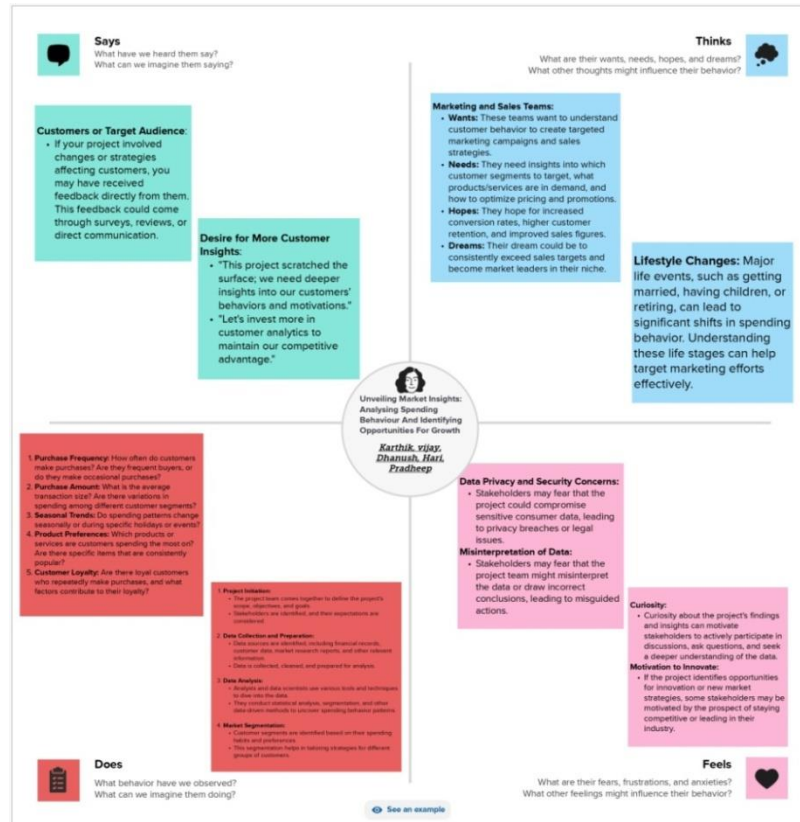
Overall, the project aims to equip businesses with actionable insights derived from in-depth analysis and understanding of consumer behavior and market trends. These insights are intended to inform strategic decision-making, enhance operational efficiency, and drive sustainable growth and success within the chosen market or industry

- **The empathy-mapping process helps distill and categorize your knowledge of the user into one place. It can be used to: Categorize and make sense of qualitative research (research notes, survey answers, user-interview transcripts).**

- **Empathy maps are used to gain a 360-degree perspective on what a user says, thinks, feels, and does. Empathy maps offer a glance into who a user is as a whole, and what they feel is different from what they say, think, or do.**
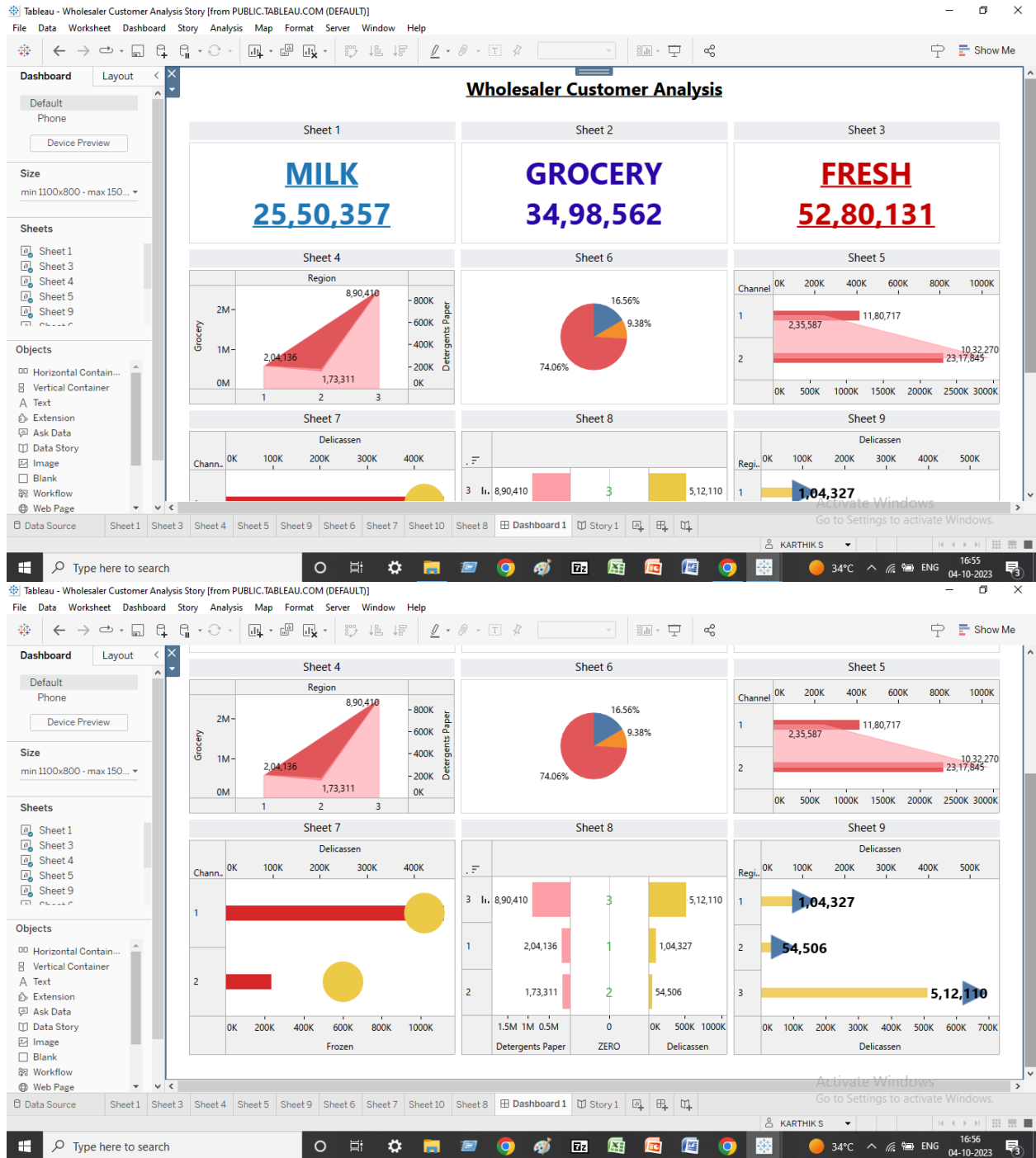
2.2 Ideation & Brainstorming Map
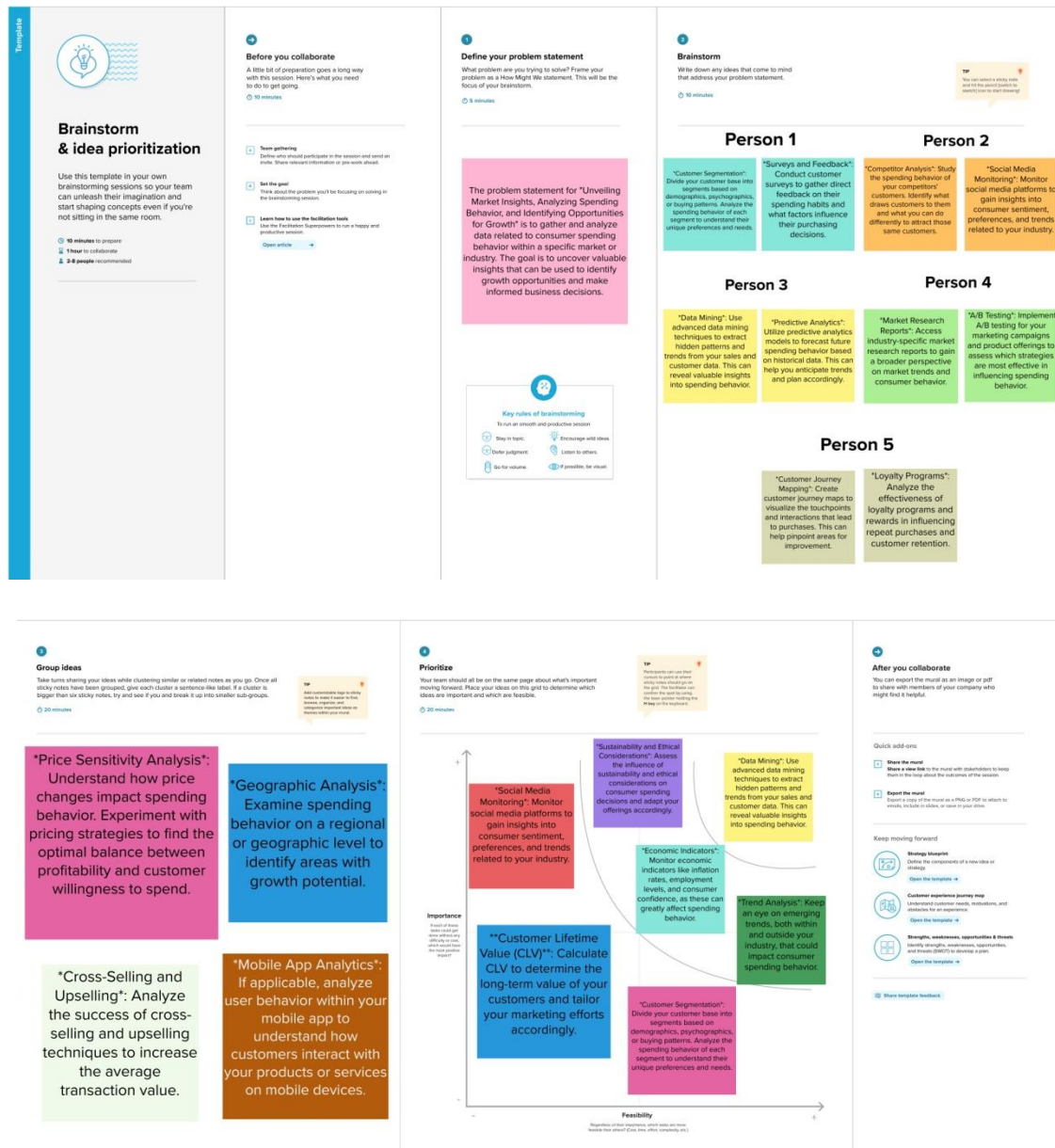
- **Brainstorming gives the class a chance to tap into their previous knowledge and form connections between the current topic and what they have already learned. It also encourages them to listen and consider others' ideas, thereby showing respect for their fellow classmates.**
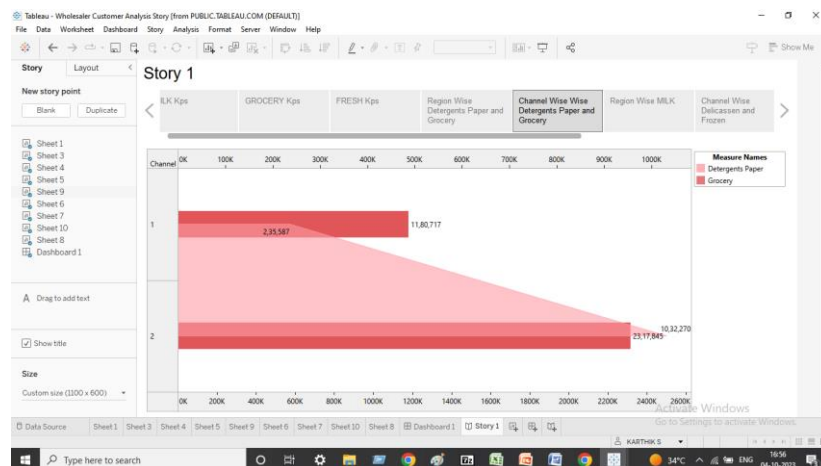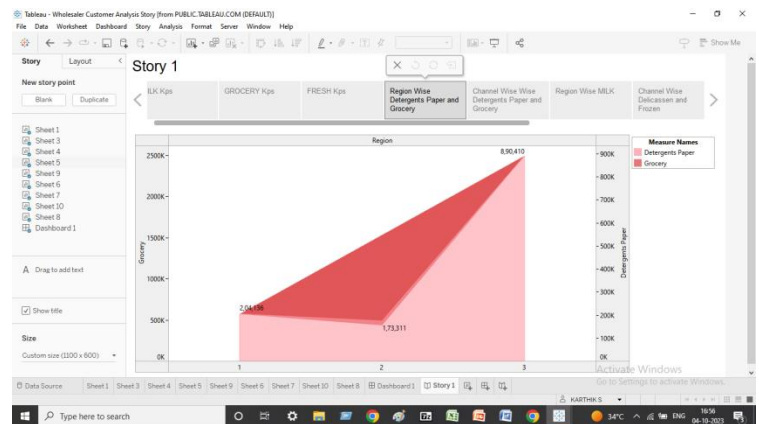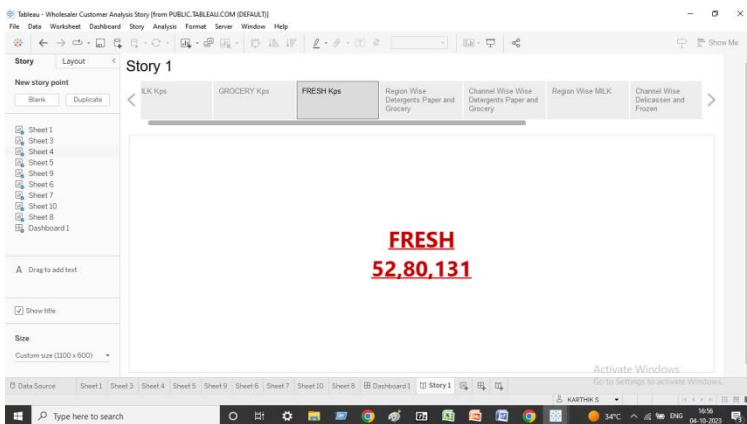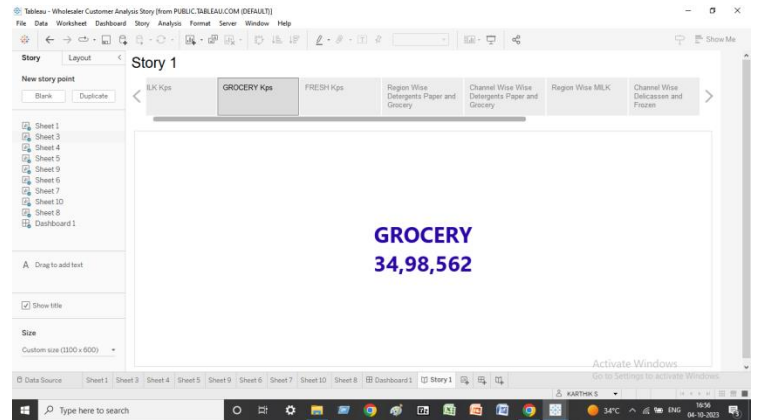
3. <u>RESULT</u>

DASHBOARD IN TABLEAU:

STORY IN TABLEAU:
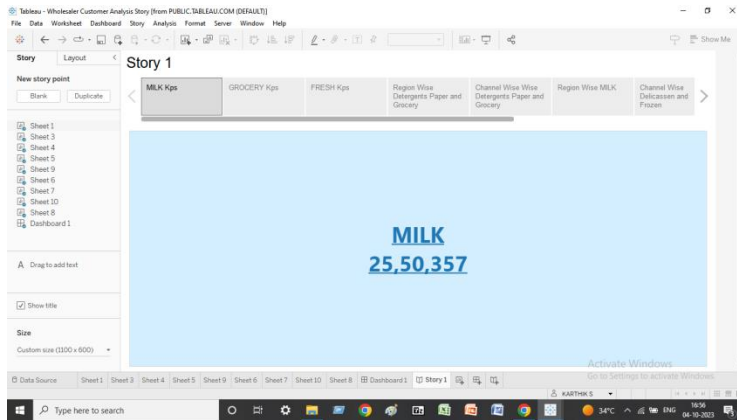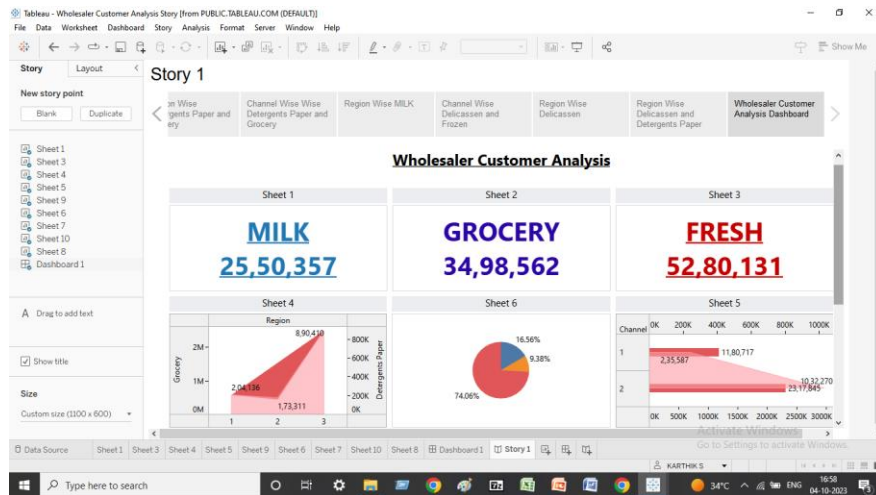
4. <u>ADVANTAGES & DISADVENTAGES</u>

Advantages of Proposed Solution:

<u>Visual Representation of Data:</u>

- **Tableau's powerful visualization capabilities allow for a clear and intuitive representation of complex data. This visual approach makes it easier for stakeholders to grasp trends, patterns, and insights at a glance.**

<u>Interactive Dashboards:</u>

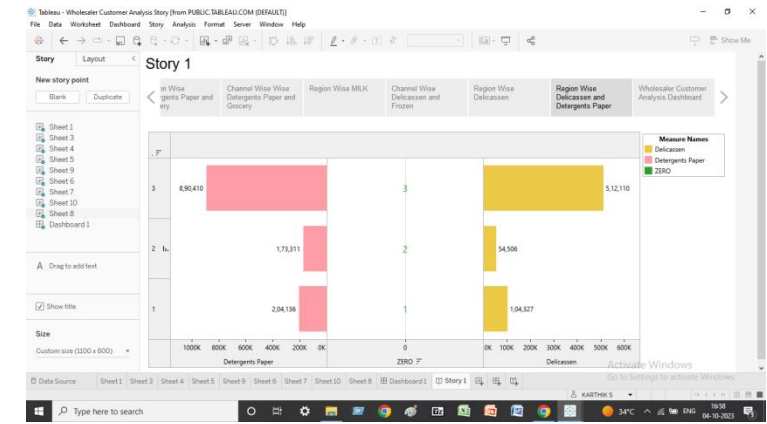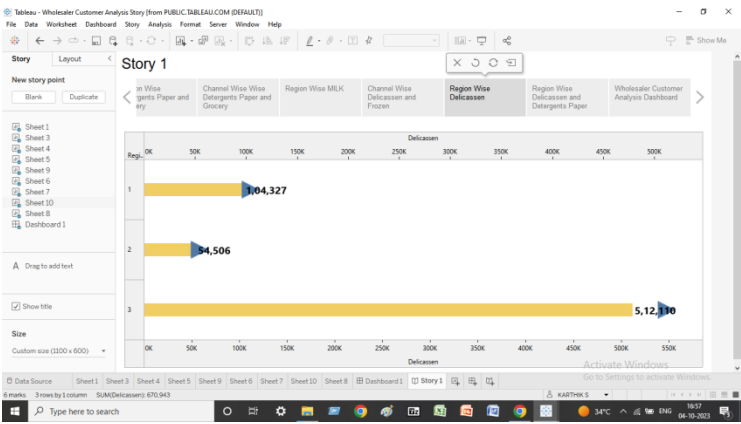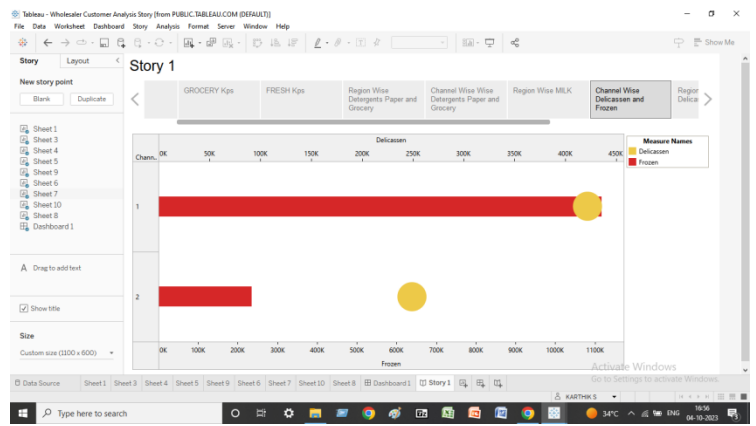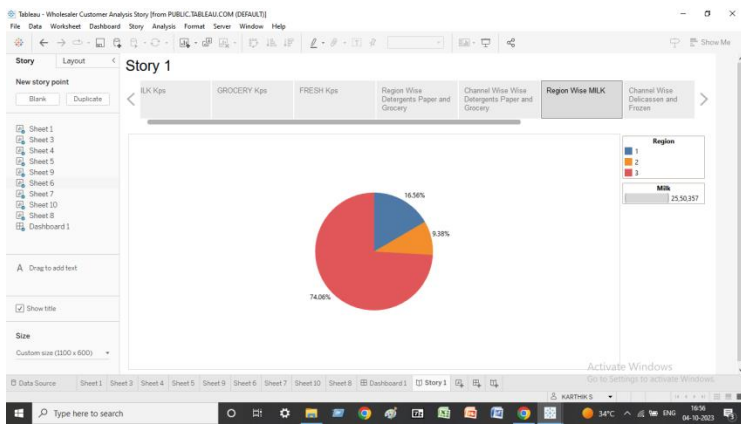- **Tableau enables the creation of interactive dashboards, providing a dynamic and engaging way to explore data. Users can filter, drill down, and interact with the data in real-time, enhancing their understanding and enabling deeper insights.**

<u>Data Integration and Preparation Efficiency:</u>

- **Tableau supports seamless integration with various data sources, simplifying the process of data collection and preparation. It allows for the consolidation of diverse datasets into a unified view for analysis, saving time and effort in data wrangling.**

<u>Real-time Insights:</u>

- **With Tableau, you can connect to live data sources and create real-time dashboards, ensuring that insights and analyses are up-to-date and reflective of the current market conditions and consumer behaviors.**

<u>Quick Decision-making:</u>

- **The visually appealing and easily interpretable insights generated by Tableau expedite decision-making processes. Stakeholders can quickly identify growth opportunities and make informed strategic decisions to capitalize on them.**

Disadvantages of Proposed Solution:

Takes Time to Learn:

- Learning how to use Tableau can be tricky, especially if you're new to it. It could take a while to get good at making fancy charts and using all its features.

Needs Good Data:

- Tableau works best with accurate and good quality data. If the data you put in is wrong or messy, the results and insights you get might be wrong too.

Can Struggle with Lots of Data:

- If you have a lot of data, Tableau might slow down or have a hard time handling it all. It might not be very quick or smooth.

Need Good Computer Stuff:

- To use Tableau well, you need a good computer and a good internet connection. If your computer isn't powerful enough, it might not work so well.

5. <u>APPLICATIONS</u>

<u>Retail and E-commerce:</u>

- **Analyzing consumer spending behavior to optimize product offerings, pricing strategies, and marketing campaigns.**

- **Identifying popular products, seasonal trends, and purchase patterns to enhance inventory management.**

<u>Healthcare:</u>

- **Analyzing healthcare spending patterns to optimize service delivery, resource allocation, and healthcare policies.**

- **Identifying areas for potential healthcare service improvements and cost efficiencies.**

<u>Marketing and Advertising:</u>

- **Analyzing consumer spending on advertising channels to optimize marketing budgets and strategies.**

- **Understanding consumer preferences to target advertising campaigns effectively.**

<u>Manufacturing and Supply Chain:</u>

- **Analyzing spending patterns on raw materials and production costs to optimize supply chain operations and minimize costs.**

- **Identifying trends in procurement and optimizing supplier relationships.**

<u>Education:</u>

- **Analyzing spending patterns in educational services and materials to optimize educational program offerings and pricing models.**

- **Understanding student spending behavior to tailor financial aid options and scholarship offerings.**

6. <u>CONCLUSION</u>

1. <u>The Given Data is Converted into a Tabular Form</u>

Category	Region 1	Region 2	Region 3	Total (Region-wise)	Channel 1	Channel 2	Total (Channel-wise)
Milk	4,22,454	2,39,144	18,88,759	**25,50,357**	10,28,614	15,21,743	**25,50,357**
Grocery	5,70,037	4,33,274	24,95,251	**34,98,562**	11,80,717	23,17,845	**34,98,562**
Fresh	8,54,833	4,64,721	39,60,577	**52,80,131**	40,15,717	12,64,414	**52,80,131**
Frozen	2,31,026	1,90,132	9,30,492	**13,51,650**	11,16,979	2,34,671	**13,51,650**
Detergents/Paper	2,04,136	1,73,311	8,90,410	**12,67,857**	2,35,587	10,32,270	**12,67,857**
Delicatessen	1,04,327	54,506	5,12,110	**6,70,943**	4,21,955	2,48,988	**6,70,943**

2. Region Wise Detergents Paper and Grocery

- **The data reveals regional variations in grocery and detergents/paper expenditures. Region 1 emerges as a significant spender in both categories, with the highest grocery expenditure at 5,70,037 units and a notable detergents/paper expenditure of 2,04,136 units. Region 3 also exhibits substantial spending, particularly in detergents/paper, totaling 8,90,410 units, while its grocery spending stands at 4,33,274 units. Conversely, Region 2 maintains lower expenditure levels for both grocery (24,95,251 units) and detergents/paper (1,73,311 units). These spending patterns highlight varying consumer behaviors across regions and emphasize the importance of tailored marketing and distribution strategies to meet specific regional demands effectively.**

3. Channel Wise Detergents Paper and Grocery

- **The sales data for Detergents Paper and Grocery across two channels, Channel 1 and Channel 2, highlights clear disparities in consumer preferences. In the case of Detergents Paper, Channel 2 stands out with significantly higher sales at 10,32,270 units, while Channel 1 lags behind with 2,35,587 units. This trend is consistent for Grocery sales as well, where Channel 2 dominates with 23,17,845 units sold, compared to Channel 1's 11,80,717 units. Overall, when considering both product categories, Channel 2 emerges as the dominant sales channel with a total of 34,98,562 units sold, highlighting the need for businesses to assess strategies to improve sales performance in Channel 1.**
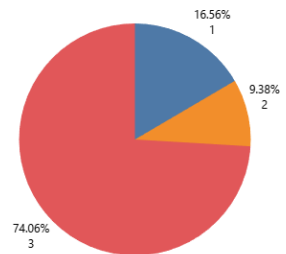
4. Region Wise MILK

- **In the given data, we have information about milk production in three different regions. In region 1, the milk production stands at 4,22,454 units. Region 2 contributes 2,39,144 units of milk. The highest milk production is observed in region 3, where a substantial 18,88,759 units of milk are produced. When we sum up the milk production from all three regions, we find that the total milk production across the regions amounts to an impressive 25,50,357 units. This data underscores the significant contribution of region 3 to the overall milk production.**

5. Region Wise Delicatessen

Certainly! The "Delicatessen" category represents a range of fine or high-quality foods, often prepared or specialty items. Here's an explanation of the Delicatessen expenses in each region in words:

- **Region 1**: In Region 1, the expenditure on Delicatessen products amounts to 1,04,327 units. This suggests that consumers in Region 1 spent a significant amount on high-quality and specialty food items categorized as Delicatessen.
- **Region 2**: In Region 2, the spending on Delicatessen products is 54,506 units. Consumers in this region also showed a notable interest in purchasing premium and specialty food items falling under the Delicatessen category.
- **Region 3**: Region 3 had the highest expenditure on Delicatessen products, totaling 5,12,110 units. This indicates a substantial demand for premium and fine-quality food items in this region, reflecting a preference for specialty and gourmet foods.

In summary, all three regions demonstrated varying levels of spending on Delicatessen products, reflecting the diverse consumer preferences for high-quality and specialty food items. Region 3 stood out with the highest expenditure in this category, showcasing a strong affinity for premium Delicatessen products.

6. Region Wise Delicatessen and Detergents Paper

- **Region 1**:

Detergents/Paper: Sales significantly higher than Delicatessen.
Delicatessen: Sales comparatively lower, indicating a preference for household cleaning and paper products.

- **Region 2**:

Delicatessen: Sales surpass Detergents/Paper, showcasing a preference for gourmet food items.
Detergents/Paper: Sales are comparatively lower, suggesting a lesser focus on household cleaning products.

- **Region 3**:

Delicatessen: Sales notably higher than Detergents/Paper, emphasizing a focus on premium food products.
Detergents/Paper: Sales are relatively lower, indicating less emphasis on household cleaning and paper products.

7. <u>FUTURE SCOPE</u>

<u>Real-Time Data Analysis:</u>
- Implement real-time data streaming and analysis capabilities to provide up-to-the-minute insights into consumer spending behavior.
- Integrate data pipelines that can handle high-velocity data streams for instantaneous updates and decision-making.

<u>Machine Learning Integration:</u>
- Integrate machine learning models within Tableau for predictive analytics, allowing businesses to forecast consumer spending trends and future growth opportunities.
- Develop ML algorithms to dynamically categorize and analyze spending behavior patterns, enabling more accurate insights.

<u>Enhanced Interactivity and User Experience:</u>
- Improve user experience by incorporating advanced interactive features in Tableau, such as natural language processing for querying data and voice-enabled commands.
- Implement augmented reality (AR) or virtual reality (VR) to enhance visualization and engagement, allowing stakeholders to immerse themselves in the data.

<u>Integration with External Data Sources:</u>
- Expand data integration capabilities to seamlessly incorporate external data sources, including social media, economic indicators, and competitor insights, for a comprehensive analysis of consumer behavior.
- Utilize APIs to fetch real-time data from various sources, enhancing the depth and breadth of analysis.

<u>Enhanced Predictive Analytics:</u>
- Develop advanced predictive models to foresee market trends and consumer behavior changes, assisting businesses in proactively adapting strategies.
- Integrate AI algorithms to automatically detect emerging patterns and anomalies in spending behavior, alerting stakeholders for timely actions.

<u>Collaboration and Social Sharing Features:</u>
- Enable collaboration features within Tableau, allowing multiple stakeholders to collaborate, annotate, and share insights seamlessly.
- Integrate social sharing options to promote the sharing of insights across various platforms, fostering collaboration and knowledge dissemination.

PROJECT LINKS

Project Github Link:
https://github.com/karthikstats/Unveiling_Market_Insights_NM2023TMID05733

Tableau Public Dashboard Link:
https://public.tableau.com/views/WholesalerCustomerAnalysis_16963207840330/
Dashboard1?:language=en-US&:display_count=n&:origin=viz_share_link

Tableau Public Story Link :
https://public.tableau.com/views/WholesalerCustomerAnalysisStory_16964164720
490/Story1?:language=en-US&:display_count=n&:origin=viz_share_link

THANKS TO