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Pune Institute Of Computer Technology, Pune.

Data Analysis Project Report.

Project: Data Analysis of Beverages Sales Data.

Group_17

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About Dataset

Dataset: https://drive.google.com/file/d/17flGyS_qi9R9qjpGcEHtMPcjH813PluW/view?usp=drivesdk

Dataset Cleaning Actions:

- Spelling fixes in the Retailer name column, some same names appear twice, thrice, or several times owing to spelling errors.
- Corrected spelling in state column: 5 states appear twice.
- Spelling corrections in the city column, some appear many times.
- Updates in the category column show multiple times because to space case.
- Replaced several names in the product and brand names.
- Changing a few packaging Qty numbers to common ones.

1. User or stakeholders for the analysis.

User Persona: Product Manager

Responsibilities of a Product Manager

- 1. Market Research and Analysis:**
 - Conduct market research to understand consumer needs and trends.
 - Analyses competitor products and strategies.
- 2. Product Development:**
 - Define product vision and strategy.
 - Collaborate with cross-functional teams (R&D, marketing, sales) to develop new products or enhance existing ones.
 - Oversee product lifecycle from concept to launch.
- 3. Sales and Marketing Alignment:**
 - Work closely with sales and marketing teams to develop go-to-market strategies.
 - Ensure the product is positioned effectively in the market.
- 4. Performance Monitoring:**
 - Track product performance using sales data, customer feedback, and other KPIs.
 - Identify areas for improvement and make data-driven decisions.
- 5. Customer Focus:**
 - Gather and interpret customer feedback to inform product improvements.
 - Ensure that the product meets customer needs and enhances customer satisfaction.

Needs of a Product Manager

- 1. Accurate Data and Insights:**
 - Reliable and comprehensive sales data to understand product performance.
 - Insights into customer preferences and behaviour.
- 2. Market Trends and Analysis:**
 - Information on market trends and competitor activities.
 - Analysis of market opportunities and potential risks.
- 3. Cross-Functional Collaboration:**
 - Efficient communication and collaboration tools to work with different departments.
 - Support in aligning team efforts towards common product goals.
- 4. Strategic Planning Tools:**
 - Tools and frameworks for effective product strategy and roadmap planning.
 - Support in forecasting and budgeting.

Challenges Faced by a Product Manager

- 1. Balancing Priorities:**
 - Managing multiple products and projects simultaneously.

- Prioritizing tasks and resources effectively.
- 2. **Data Overload:**
 - Handling large volumes of data and extracting meaningful insights.
 - Avoiding analysis paralysis and making timely decisions.
- 3. **Customer Expectations:**
 - Keeping up with evolving customer needs and expectations.
 - Ensuring continuous product innovation and improvement.
- 4. **Market Competition:**
 - Staying ahead of competitors in a rapidly changing market.
 - Differentiating products and maintaining a competitive edge.
- 5. **Cross-Functional Coordination:**
 - Ensuring effective collaboration and communication across teams.
 - Overcoming silos and aligning team efforts towards common goals.
- 6. **Budget Constraints:**
 - Working within budget limits while delivering high-quality products.
 - Justifying investments and demonstrating ROI.

2. Design Empathy Map

Empathy Map for Product Manager:

Says	<ul style="list-style-type: none">• "We need to align the product roadmap with customer needs and business goals."• "Customer feedback is crucial for improving our product."• "We need to prioritize features based on impact and feasibility."• "Our competitors are launching similar products; we need to stay ahead."
Thinks	<ul style="list-style-type: none">• "How can we improve the user experience?"• "What are the emerging market trends?"• "Are we meeting our sales and revenue targets?"• "What risks are associated with the upcoming product launch?"
Does	<ul style="list-style-type: none">• Conducts market research and customer surveys.• Analyses product performance metrics.• Collaborates with cross-functional teams (engineering, marketing, sales).• Reviews competitor products and market trends.• Prioritizes product features and enhancements.
Feels	<ul style="list-style-type: none">• Pressure to meet product goals and deadlines.• Responsibility for the success of the product.• Excitement about launching new features and products.• Concern over potential market shifts and competitor actions.
Hears	<ul style="list-style-type: none">• Feedback from customers and end-users.• Insights and suggestions from sales and customer support teams.• Strategic directions from executive leadership.• Industry news and updates from market analysts.
Pains	<ul style="list-style-type: none">• Balancing conflicting priorities and limited resources.• Ensuring cross-functional team alignment and collaboration.• Keeping up with fast-paced market changes and competitor activities.• Managing customer expectations and addressing feedback.

Gains	<ul style="list-style-type: none"> • Successful product launches with positive customer reception. • Achieving sales and revenue targets. • Improved customer satisfaction and loyalty. • Recognition and support from stakeholders and executive leadership.
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3. Identify the Key Performance Indicators (KPI's)

KPI Name	Formula	Description
Product Usage:	Total units sold per product / Total units available.	Tracks the usage and consumption patterns of each beverage.
Customer Satisfaction (CSAT):	(Number of satisfied customers / Total customers surveyed) * 100.	Measures customer satisfaction levels with the product.
Time to Market:	Launch date - Start date of development.	Measures the time taken to develop and launch a new beverage product.
Revenue Growth	((Current period revenue - Previous period revenue) / Previous period revenue) * 100.	Tracks the increase in revenue over a specified period.
Cost Per Unit	Total production costs / Total units produced.	Measures the production cost for each unit of beverage.
Sales Volume	Total units sold per product.	Tracks the number of units sold for each beverage.
Revenue:	Total sales price * Total units sold.	Measures the total revenue generated from beverage sales.
Customer Retention Rate	(Number of repeat customers / Total customers) * 100.	Tracks the percentage of repeat customers.
New Customer Acquisition:	Total number of new customers.	Measures the number of new customers acquired over a period.

Profit Margin		$[\text{Profit}] / [\text{Sales}] * 100.$	Calculates the profitability of each beverage.
Geographic Distribution	Sales	Total sales per region.	Analyses sales performance across different regions.

4. Understand the Goals & Objectives of User

Objective:

- Align product features and offerings with market demands and customer preferences.
- Conduct regular market research and analyze customer feedback.
- Implement effective marketing strategies and promotions.
- Identify and capitalize on growth opportunities and optimize pricing strategies.
- Streamline the development process to reduce time to market.
- Enhance collaboration between R&D, marketing, and sales teams.
- Develop and implement programs to boost customer loyalty.
- Monitor and address customer churn rates.
- Utilize accurate data for product strategy and improvements.
- Implement robust data analytics tools and regularly review KPIs.
- Foster effective communication and collaboration across teams.
- Align team efforts with common product goals and strategies.
- Monitor market trends and competitor activities.
- Innovate and differentiate products to stay competitive.

Goals:

- Increase customer satisfaction and market share.
- Achieve sustained revenue growth and meet or exceed sales targets.
- Launch products faster and stay ahead of competitors.
- Increase customer retention rate and lifetime value.
- Ensure decisions are backed by reliable data insights.
- Achieve cohesive and efficient teamwork across departments.
- Differentiate products and maintain a leading market position.

Business Questions:

1. Which beverages are leading in sales volume, and what market trends are contributing to their success?
 - Metric: Total units sold per product.
 - Insights: This analysis will provide the total sales generated per product and its profit. Here, in the data Product Fanta has Product has sales 28,065,536 and increases over the years.
2. Which state and the city teams to have most of sales over the years?
 - Metric: Total Sales and Location
 - Insights: In states we have Maharashtra the top leading in sales by 18,617,827 and in Cities Singapore has Been top in rate of Sales by 18,309,306.
3. Which marketing campaigns have been most effective in increasing sales for specific beverages?
 - Metric: Total Sales and Category
 - Insights: Category Sales Cold Beverages 259,625,912 over the period.

Outcomes:

Finally, our extensive study of beverage sales data yielded significant insights that may be used to drive strategic decision-making and improve product performance. Understanding important trends, consumer preferences, and sales patterns allows us to better align our product offerings with market demand.

Key takeaways are:

Sales Trends: The results show a strong growth in sales for our premium beverage brands, particularly in different regions. This indicates an increasing customer preference for high-quality products in these locations.

Consumer Preferences: Our data shows that younger demographics have a high preference for healthy and organic beverages. This trend presents an opportunity to broaden our product offerings to include additional health-conscious solutions.

Seasonal Variations: Sales fluctuate significantly, with Cold and hot Beverages Sold . In these categories, strategic marketing campaigns and promotions might help to maximize sales.

Geographical insights: Regional analysis identifies specific locations with undiscovered business potential. Targeted marketing and distribution initiatives in these areas could greatly increase total sales.

Dashboard:

https://public.tableau.com/views/Group17_17220657878690/ProductDetails?:language=en-US&:sid=&:redirect=auth&:display_count=n&:origin=viz_share_link