Optimizing Beverage Sales: Placing the Right Beverage in the Right Market

A Proposal report for the BDM capstone Project

Submitted by

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Declaration Statement

I am working on a Project Title “Optimizing Beverage Sales: Placing the Right Beverage in the Right Market”. I extend my appreciation to [**Retailer dataset form GitHub**], for providing the necessary resources that enabled me to conduct my project.

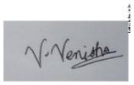
I hereby assert that the data presented and assessed in this project report is genuine and precise to the utmost extent of my knowledge and capabilities. The data has been gathered through primary sources and carefully analyzed to assure its reliability.

Additionally, I affirm that all procedures employed for the purpose of data collection and analysis have been duly explained in this report. The outcomes and inferences derived from the data are an accurate depiction of the findings acquired through thorough analytical procedures.

I am dedicated to adhering to the information of academic honesty and integrity, and I am receptive to any additional examination or validation of the data contained in this project report.

I understand that the execution of this project is intended for individual completion and is not to be undertaken collectively. I thus affirm that I am not engaged in any form of collaboration with other individuals, and that all the work undertaken has been solely conducted by me. In the event that plagiarism is detected in the report at any stage of the project's completion, I am fully aware and prepared to accept disciplinary measures imposed by the relevant authority.

I agree that all the recommendations are business-specific and limited to this project exclusively, and cannot be utilized for any other purpose with an IIT Madras tag. I understand that IIT Madras does not endorse this.

Signature of Candidate: 

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Date:12-06-2025

Optimizing Beverage Sales: Placing the Right Beverage in the Right Market.

Executive Summary

The project is about a beverage distribution company in the United States under a Business-to-Business (B2B) model. The company sells many beverages like Coca-Cola, Sprite, Fanta, Diet Coke, Powerade, and Dasani water to many retailers and commercial customers across different regions in US.

From the dataset we can observe that the company is facing problems like uneven sales across different beverages and regions. Some beverages are having highest sales in one region but lowest sales in another region which is leading to stock imbalance, customer dissatisfaction, and losses. The use of the almost same pricing, promotions and sales strategy over all regions is not good because the people in different regions will have different income levels, spending money is also different, taste are different and many other reasons.

To solve this problem like the sales imbalance, we have to take detailed look at the dataset and analyze the various columns like regions, brands, units sold, and profits. These will help us in more understanding where the problem is coming and where the mistake is happening. People in different regions have different likes, tastes, cultures, spending habits, lifestyles and so on the using of the almost same pricing, marketing is not a good idea and can lead to loss in market. So, there should be a proper plan for each region based on what the customers need and design based on that only. We can make some simple charts to see what is working in which region, like which drink is popular in which region. To analyze the data properly, we can use statistical methods like correlation analysis and visualizations such as histograms to find patterns in unit sales, prices, and profit margins. Tools like R programming language along with packages such as DataExplorer, explore can help in creating automatic EDA reports, interactive dashboards, and data-driven insights. By using this information, we can design the marketing better so the company can make waste less, keep customers happy, and increase profits in the long run.

Organization Background

The dataset is about the beverage distribution company that is a Business to business (B2B) model. The company sells beverages to many retailers and commercial customers across the United States. The dataset has a clear columns like Retailer, Retailer ID, Invoice Date, Quarters, Year, Region, State, City, Beverage Brands, Price per Unit, Units Sold, Total Sales, Operating Profit, and Operating Margin. The beverages which can be manufacture in this beverage company are as follows Coca-Cola, Diet-coke, Sprite, Fanta, Powerade and Dasani water. The dataset shows the sales of the years 2022 and 2023, and it is divided by quarter and year. The sales of the beverages are done geographically across the various regions of US such as Northeast, South, West, Midwest and Southeast. The data also tell the company's earnings and profit percentage for each sale.

Problem Statement

Problem statement-1
The company does not have the equal sales of all the beverages; there is a big gap between the top-selling and low-selling drink

Explanation: Some beverages are selling like crazy and asking for more stock, while the other beverages are not selling properly and getting wasted. This uneven sales trend is causing waste and missing out on profits

Problem statement-2
All the customers are treated equally no matter of their regions which may lead to lower ROI, can hurt customer satisfaction and loss in revenue.

Explanation: Everyone is treated the same, no matter where the people live. But the people are different have different tastes, culture, lifestyle and so on. This may lead to loss in market.

Problem statement-3
The beverages that are available do not always match the needs of people in different regions. Because of this, some beverages have low sales even if people love them in other areas.

Explanation: Not all regions get the beverages they actually need So, even if a drink is loved in one region, it does not mean it will sell properly in all the regions.

Background of the Problem

In the given retail beverage market, the company is having many problems because the sales are not equal for all beverages, Like the sales of some beverage are high but the sales of other beverage are low. This is because the people in different region like different beverages or the promotions or the offers are not working in the same manner everywhere. It looks like customers are not fully happy, cause some drinks are flying off the shelves and some are just stuck.

Also, the customers are treated same in all regions. But every region is different in many ways like based on their income, taste, culture and many other reasons. Still the company is using almost the same prices and same kind of ads everywhere. This can make people unhappy and can lead to loss also and slow down growth of the business.

On top of that, the beverages available in some regions do not always match what the people there actually want. Just because one beverage is having highest sales in one region does not mean it will sell well in all regions. But the company is not making changes based on people needs in that region. That is the reason some beverages are not selling much, even if they are popular in other places.

If the beverages, prices, and offers do not match what local people want, sales will drop. The customers will probably switch to other brands if they feel ignored.

Problem Solving Approach

To find the solution for these problems in the beverage sales data the first and important thing we need to do is to look into the dataset properly. We need to go check all the important columns like brand names, regions, number of units sold, profits, and all the other columns. By doing this we can find out where the actual problems are coming from. For example, some drinks are selling high in a few regions but are not selling well in others. This shows that what the company is offering may not match what people in each region actually want. Since people from different areas have different cultures, tastes, and income levels, it makes sense that their preferences vary. So, instead of treating all regions the same, we need to look at each one separately to see which drinks are popular and which are not.

We will also look into the pricing problems. Now the same price is used across all regions, which is not a good idea. Not everyone earns the same amount, and their type of spend is also different. So changing prices based on how much people can afford in each region could help make the products more accessible and improve sales. To understand the data more bitterly and finding useful patterns, we will do some analysis like Exploratory Data Analysis (EDA). For doing this we will use tools like R language and Excel sheets so they will make it easier to explore the data and quickly spot trends.

We will use R, and Excel for the analysis. In R language, we will use helpful packages like dlookr, DataExplorer, and Expander to easily generate reports and understand the data better. Excel will also come in handy for basic summaries and quick visualizations. These tools will help us see the bigger picture and make smarter choices based on what the data is telling us.

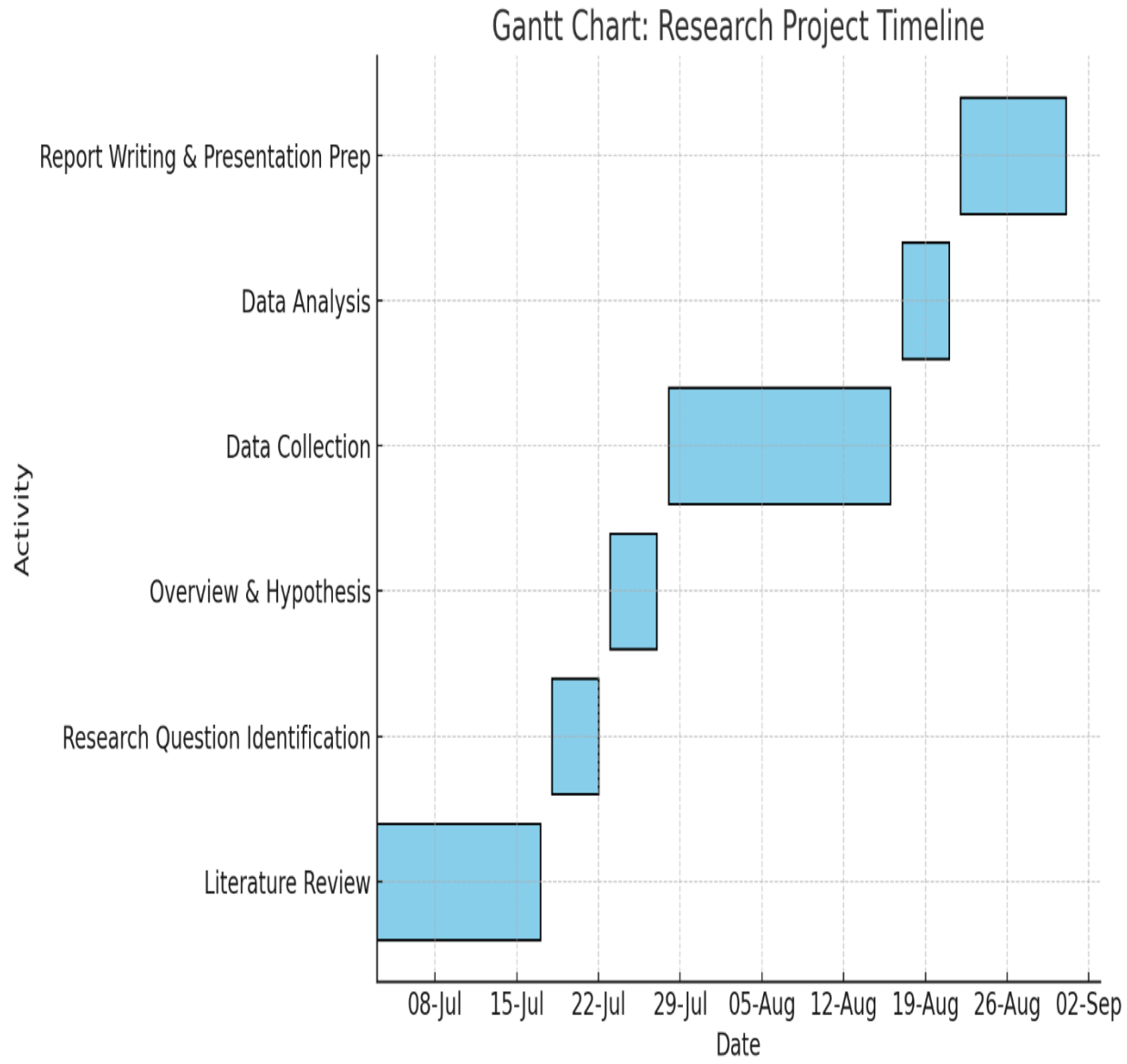
Excel will give us the quick summaries and visualizations. We will use the pie charts, bar graphs, and histograms to show which drinks are going well in which regions and where changes are needed.

Additionally, we will apply time series analysis using R packages like forecast, tseries, and prophet to study how sales patterns change over time and identify any seasonal trends or recurring patterns. We will use methods such as ARIMA (AutoRegressive Integrated Moving Average), Exponential Smoothing (ETS), and Facebook Prophet to model the data, detect seasonality, and make accurate forecasts.

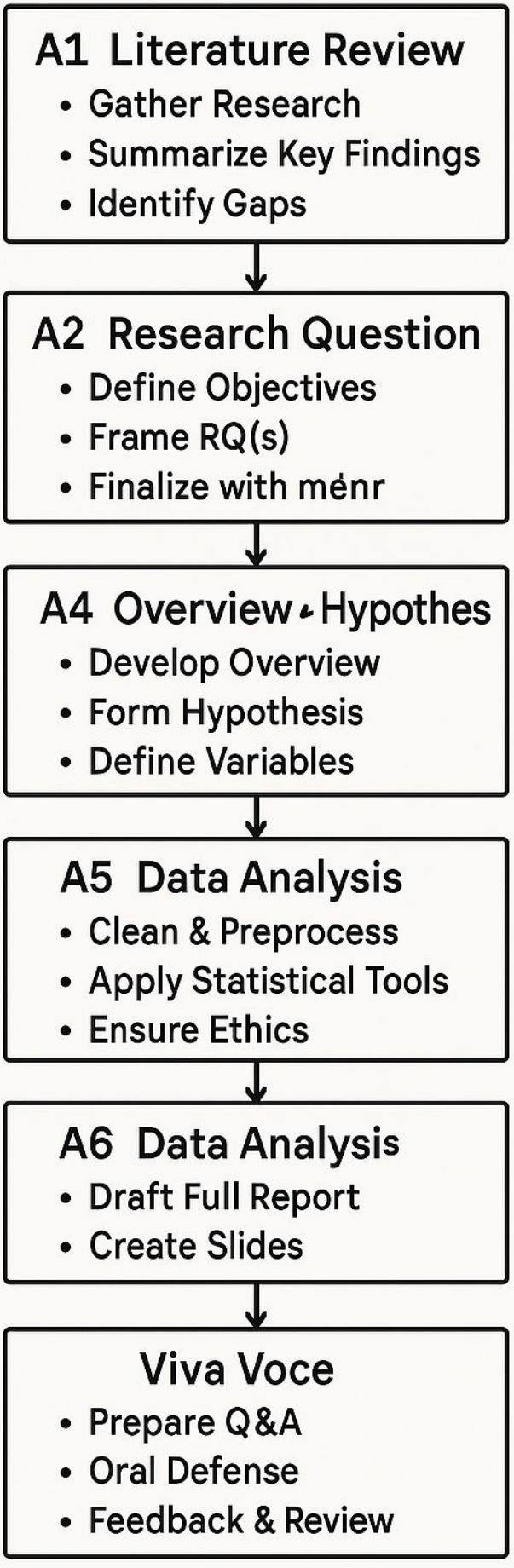
This will help forecast future demand more accurately, spot potential sales slumps or spikes, and support better inventory, pricing, and marketing planning. By following this method, the company can make better decisions for each region—like what to sell more of, how to price it, and how to market it—leading to better profits and happier customers in the long run.

Expected Timeline

Gantt Chart



Work Breakdown Structure (WBS)


A1 Literature Review
• Gather Research
• Summarize Key Findings
• Identify Gaps
A2 Research Question
• Define Objectives
• Frame RQ(s)
• Finalize with mėnr
A4 Overview • Hypothes
• Develop Overview
• Form Hypothesis
• Define Variables
A5 Data Analysis
• Clean & Preprocess
• Apply Statistical Tools
• Ensure Ethics
A6 Data Analysis
• Draft Full Report
• Create Slides
Viva Voce
• Prepare Q&A
• Oral Defense
• Feedback & Review

Expected Outcome

- The company will get a neat idea about what the people in each region actually like to drink.
- The solution can focus on selling more of the popular beverages in each region instead of treating all regions the same.
- Adjusting the prices based on how much the people can spend based on the each region will make the drinks more selling.
- Planning the stock based on demands will reduce wastage from unsold drinks and avoid running out of popular ones.
- Customers will feel more satisfied and loyal when they see that the company is offering what they really want and care about them.
- Using tools like R and Excel will help quickly analyze the data and show the patterns through simple graphs and charts.
- This solution will plan better marketing and offers for each region based on what works best there.
- This solution can increase customer loyalty, save costs, and help the company grow faster.