Strategic Product Placement Analysis: Unveiling Sales Impact with Tableau Visualization

Project Report Format

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INTRODUCTION

1.1 Project Overview

In today's competitive market environment, strategic product placement plays a crucial role in influencing customer purchasing decisions and driving sales performance. Businesses invest significantly in positioning products effectively within retail stores, online platforms, films, television shows, and digital media to maximize visibility and revenue.

The project **"Strategic Product Placement Analysis: Unveiling Sales Impact with Tableau Visualization"** focuses on analyzing the relationship between product positioning, sales performance, and consumer behavior. By leveraging Tableau as a data visualization tool, the project aims to transform raw sales and placement data into meaningful insights. The analysis helps identify which placement strategies are most effective in increasing sales and customer engagement.

Through interactive dashboards and visual analytics, this project demonstrates how data-driven decision-making can optimize product placement strategies and enhance overall business performance.

1.2 Purpose

The primary purpose of this project is to examine how product positioning impacts sales outcomes and consumer behavior using visual analytics.

Specifically, this project aims to:

- Analyze sales data based on different product placement strategies.

- Identify high-performing placement locations (e.g., shelves, end caps, online banners).

- Understand customer demographics and purchasing patterns.

- Provide actionable insights to improve marketing and merchandising strategies.

- Support data-driven decision-making using Tableau dashboards.

Ultimately, the project seeks to help organizations optimize product visibility, improve customer engagement, and drive sustainable revenue growth through strategic placement decisions.

IDEATION PHASE

Define the Problem Statements

Date	17 February 2026
Team ID	LTVIP2026TMIDS90604
Project Name	Strategic Product Placement Analysis: Unveiling Sales Impact with Tableau Visualization
Maximum Marks	2 Marks

Customer Problem Statement Template:

I am a Retail Marketing Manager in a consumer goods company.

I'm trying to understand how different product placements inside stores and on online platforms influence sales performance and customer purchasing behavior.

But I do not have clear visual insights that connect product positioning, sales data, and customer demographics in one place.

Because the data is scattered across multiple systems and not analyzed together using a proper visualization tool like Tableau.

Which makes me feel uncertain about making data-driven decisions to optimize product visibility and maximize revenue growth.

Reference: https://miro.com/templates/customer-problem-statement/

Example:

| Problem Statement (PS)	I am (Customer)	I'm trying to	But	Because	Which makes me feel
PS-1	A Retail Marketing Manager in a consumer goods company	Understand how product placement in stores and online platforms impacts sales performance and customer purchasing behavior	I do not have clear visual insights connectig placemet strategy with sales and demographic data	The data is scattered across multiple systems and not integrated into a centralized Tableau dashboard	Uncertain about making data-driven decisions to optimize product positioning and maximize revenue
PS-2	A Brand Partnership Manager in a film and television production company	Evaluate the effectiveness of product placements in scenes and episodes	I cannot clearly measure audience engagement or sales impact from those placements	There is no structured visualization system linking placement exposure with ROI metrics	Less confident in negotiating sponsorship deals and planning future placement strategies

Empathize & Discover
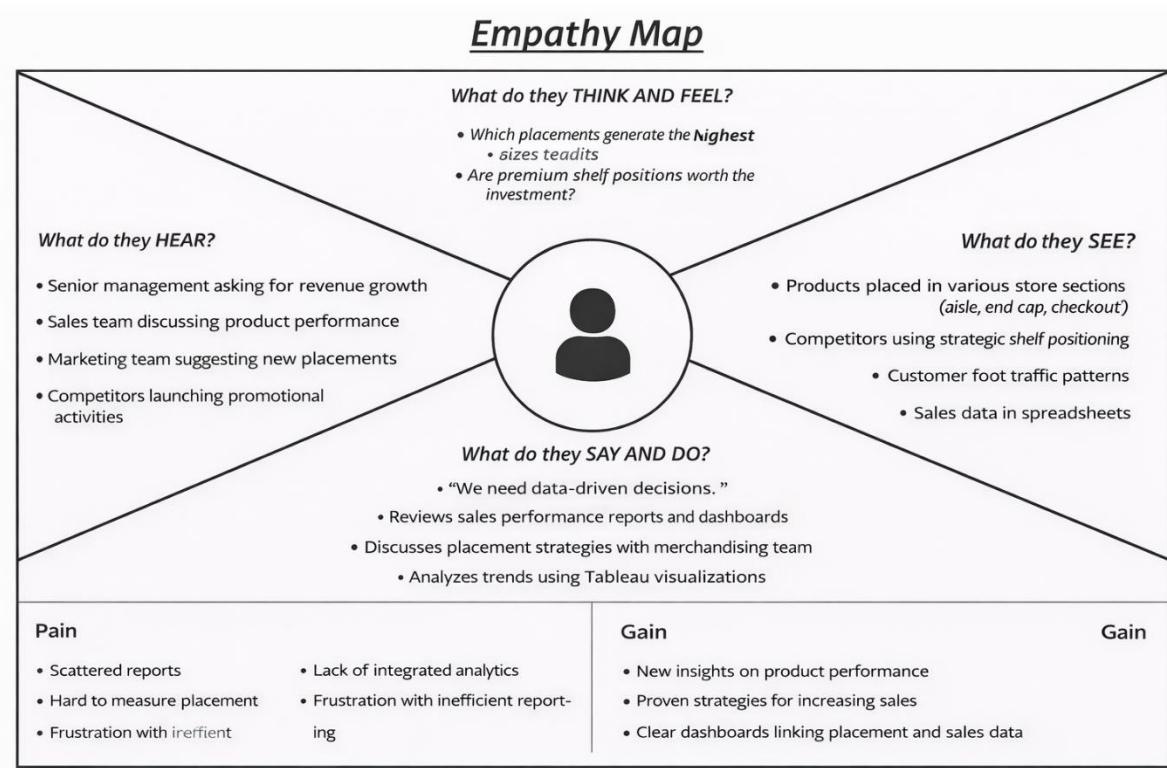
Date	17 Feb 2026
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Maximum Marks	4 Marks

Empathy Map Canvas:

An empathy map is a simple and visual tool used to understand users' behaviors, thoughts, emotions, and challenges. It helps teams gain deeper insight into the user's perspective before designing a solution.

For this project, the primary user considered is a **Retail Marketing Manager** responsible for product placement and sales optimization.

Example:

Reference: https://www.mural.co/templates/empathy-map-canvas
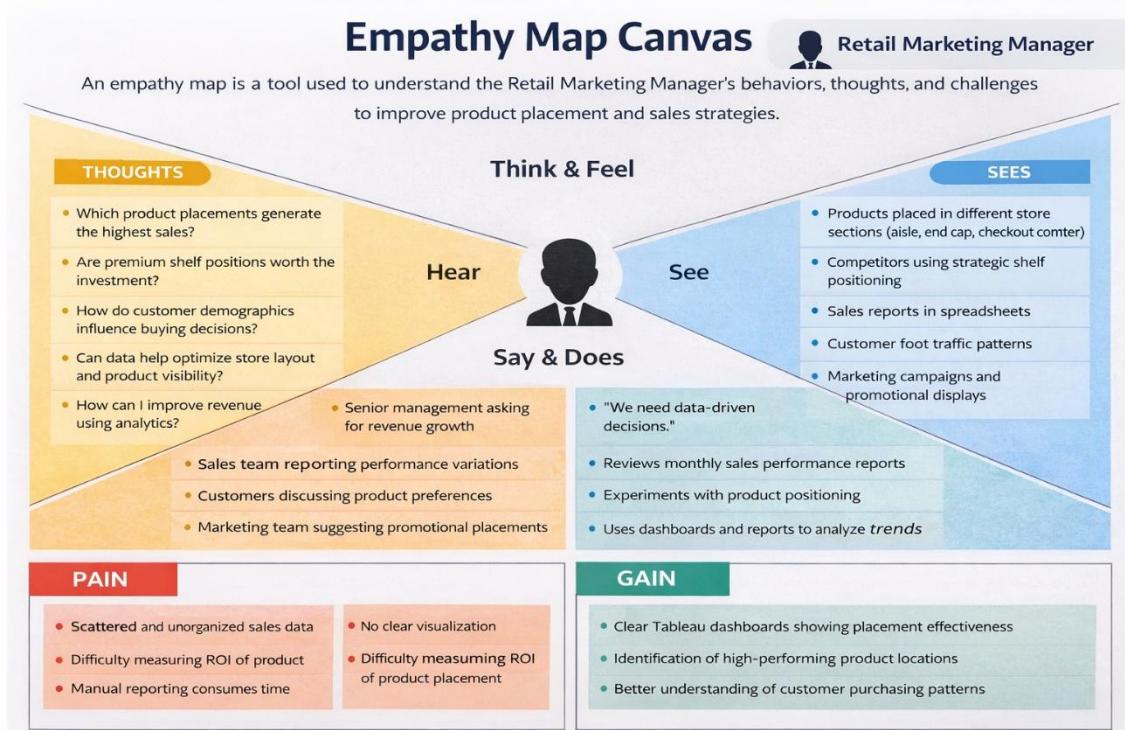
Example: Food Ordering & Delivery Application

Empathy Map Canvas — Retail Marketing Manager

An empathy map is a tool used to understand the Retail Marketing Manager's behaviors, thoughts, and challenges to improve product placement and sales strategies.

Think & Feel

THOUGHTS

- Which product placements generate the highest sales?
- Are premium shelf positions worth the investment?
- How do customer demographics influence buying decisions?
- Can data help optimize store layout and product visibility?
- How can I improve revenue using analytics?

Hear

- Senior management asking for revenue growth
- Sales team reporting performance variations
- Customers discussing product preferences
- Marketing team suggesting promotional placements

See

- "We need data-driven decisions."
- Reviews monthly sales performance reports
- Experiments with product positioning
- Uses dashboards and reports to analyze *trends*

SEES

- Products placed in different store sections (aisle, end cap, checkout comter)
- Competitors using strategic shelf positioning
- Sales reports in spreadsheets
- Customer foot traffic patterns
- Marketing campaigns and promotional displays

Say & Does

PAIN

- Scattered and unorganized sales data
- Difficulty measuring ROI of product
- Manual reporting consumes time
- No clear visualization
- Difficulty measuming ROI of product placement

GAIN

- Clear Tableau dashboards showing placement effectiveness
- Identification of high-performing product locations
- Better understanding of customer purchasing patterns

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Brainstorm & Idea Prioritization Template:

Brainstorming provides a collaborative and open environment where every team member is encouraged to actively participate in the creative thinking process. It focuses on generating a large volume of ideas without immediate judgment, allowing innovative and out-of-the-box concepts to emerge. By prioritizing quantity over initial evaluation, teams can explore diverse perspectives and build upon each other's ideas to develop effective problem-solving solutions.

This template is designed to support structured brainstorming sessions, enabling teams to collaborate efficiently, even in remote settings. It helps organize thoughts, refine concepts, and systematically prioritize ideas to transform creativity into actionable outcomes.

Reference: https://www.mural.co/templates/brainstorm-and-idea-prioritization

Step-1: Team Gathering, Collaboration and Select the Problem Statement

Step-2: Brainstorm, Idea Listing and Grouping

Step-3: Idea Prioritization

REQUIREMENT ANALYSIS

3.1 Customer Journey map

CUSTOMER JOURNEY MAP
Scenario: A Patient Visiting a Large Hospital for Consultation

ENTER	ENGAGE	ENGAGE	EXPERIENCE	EXIT	EXTEND
1 Enter Hospital	2 Open Hospital Navigation App	3 Open Hospital Navigation App	4 Follow Indoor Navigation	5. Exit & Feedback	6 Follow-Up & Reminders
Step 1: Enter Hospital	**Step 2:** Open Hospital app — enters appointment ID.	**Step 3:** Follow Indoor Navigation	**Step 4:** Smart Queue System	**Step 5:** Exit & Feedback	**Step 6:** Follow-Up & Reminders
Goal: Help me find my department quickly.	Help me navigate to my department without confusion.	Help me reach on time.	Help me avoid standing in long queues.	Help me complete. my visit smoothly.	Help me remember my next visit.
Interactions:	Security staff, Reception desk, Signboards	Digital map, QR code scanner, Hospital WiFi	Queue dashboard, SMS notification, Waiting area display	App notification, Digital prescription, Feedback form	SMS, email, App notification
Positive Moments:	Friendly staff guidance	Easy login, Clear digital floor map	Real-time updates, Step-by-step guidance	Quick digital records, Seating comfort	Pharmacy crowd
Negative Moments:	Complex layout, Too many floors	Poor network connectivity	Elevator wait time	Delay in doctor availability	
Areas of Opportunity:	→ Smart mobile navigation	→ Offline indoor navigation	→ Live crowd tracking system	→ Auto-alert system for	→
...Smart Moberssjations	→ Smart mobile navigation system	→ Offline indoor navigation feature	→ Auto-alert system for delays.	→ Smart sharmacy slot booking	→ Ai health assistant integration
Interactions:	Security staff, Reception desk, Signboards	Easy login, Poor network connectivity, Direction arrows	Quick digital records, Seating comfort	Pharmacy crowd	

3.2 Solution Requirement

olution Requirements (Functional & Non-functional)

Date	31 January 2025
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Maximum Marks	4 Marks

Functional Requirements:

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	Data Collection & Integration	Import sales dataset (CSV/Excel/Database) Integrate product, category, and placement data Clean and preprocess raw data
FR-2	Data Transformation & Modeling	Create calculated fields (Profit, Growth %, Conversion Rate) Create relationships between sales, region, and product placement Build KPIs for revenue and performance
FR-3	Tableau Dashboard Development	Create interactive sales dashboard Visualize sales by product category Visualize sales by region/store layout Add filters (Region, Category, Time Period)
FR-4	Product Placement Impact Analysis	Compare high-visibility vs low-visibility placements Analyze seasonal sales trends Identify best-performing product positions

FR-5	Insight Generation & Reporting	Generate summary insights
		Export dashboard reports
		Present strategic recommendations
FR-6	Storytelling with Tableau Stories	Combine dashboards into story format
		Create interactive story points for stakeholders

Non-functional Requirements:

Following are the non-functional requirements of the proposed solution.
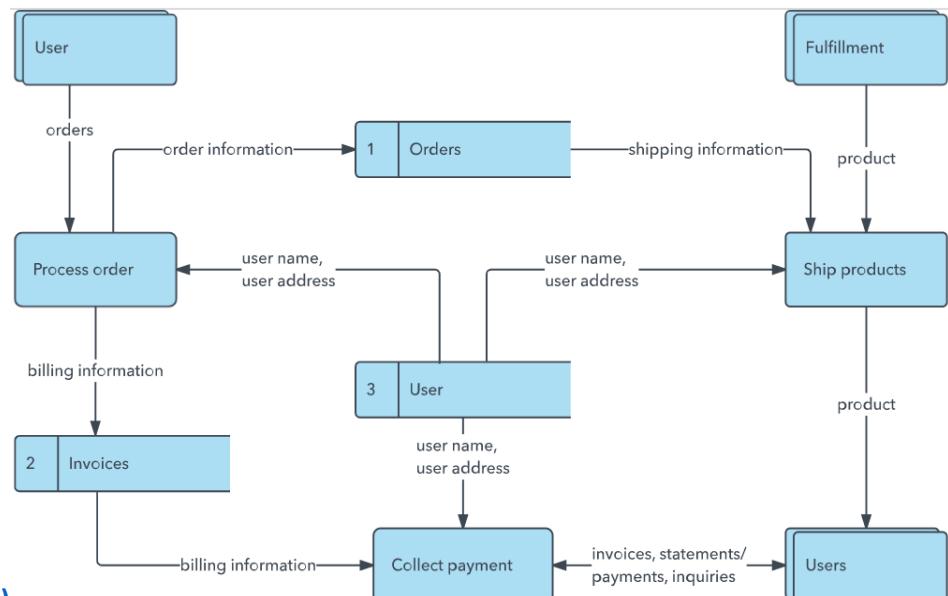
FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	Dashboard must be easy to navigate with clear filters, tooltips, and interactive visuals.
NFR-2	**Security**	Data calculations and KPIs must be accurate and validated.
NFR-3	**Reliability**	Dashboard should load quickly and respond to filters within 2–3 seconds.
NFR-4	**Performance**	System must consistently display correct insights without data loss.
NFR-5	**Availability**	Dashboard should support increasing data size and multiple time periods.
NFR-6	**Scalability**	Data model and dashboard design should allow easy updates with new data.

Data Flow Diagram & User Stories

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Maximum Marks	4 Marks
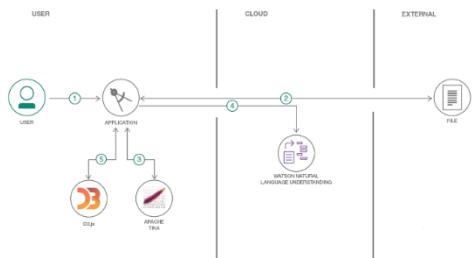
Data Flow Diagrams:

A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirement graphically. It shows how data enters and leaves the system, what changes the information, and where data is stored.

Example: (Simplified)

Flow

1. User configures credentials for the Watson Natural Language Understanding service and starts the app.
2. User selects data file to process and load.
3. Apache Tika extracts text from the data file.
4. Extracted text is passed to Watson NLU for enrichment.
5. Enriched data is visualized in the UI using the D3.js library.

User Stories

Use the below template to list all the user stories for the product.

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Web User	Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	I can access my account / dashboard	High	Sprint-1
Web User	Email Confirmation	USN-2	As a user, I will receive confirmation email once I have registered for the application	I can receive confirmation email & click confirm	High	Sprint-1

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Web User	Login	USN-3	As a user, I can log in using my email and password.	I can access dashboards securely.	High	Sprint-2
Web User	Dashboard Access	USN-4	As a user, I can register for the application through Gmail	I can filter data by region, category, and time period.	High	Sprint-1
Web User	Placement Analysis	USN-5	As a user, I can compare sales performance by different product placements.	I can see charts showing high vs low visibility impact.	High	Sprint-2
Web User	KPI Monitoring	USN-6	As a user, I can view key metrics like Revenue, Growth %, and Conversion Rate.	KPIs update dynamically based on filters.	High	Sprint-2
Data Analyst	Data Upload	USN-7	As a data analyst, I can upload sales and placement data.	Data is stored and reflected in dashboards.	High	Sprint-1
Data Analyst	Data Cleaning	USN-8	As a data analyst, I can preprocess	Cleaned data is validated before visualization.	High	Sprint-1

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
			and clean raw data.			
Data Analyst	Calculated Fields	USN-9	As a data analyst, I can create calculated KPIs in Tableau.	KPIs display correctly in dashboards.	Medium	Sprint-2
Administrator	User Management	USN-10	As an admin, I can manage user accounts.	I can activate/deactivate users.	High	Sprint-1
Administrator	Access Control	USN-11	As an admin, I can assign role-based permissions.	Only authorized users can access sensitive data.	High	Sprint-2
Administrator	Data Security	USN-12	As an admin, I ensure secure data handling.	Data access is restricted and encrypted.	High	Sprint-2

Technology Stack (Architecture & Stack)

Date	31 January 3035
Team ID	LTVIP2026TMIDS90604
Project Name	Strategic Product Placement Analysis: Unveiling Sales Impact with Tableau Visualization
Maximum Marks	4 Marks

Technical Architecture:

⬛ Architecture Type:

3-Tier Data Analytics Architecture

Presentation Layer (UI Layer)

- Web-based Tableau Dashboard

- Interactive Filters & Visualizations

Application / Analytics Layer

- Data Processing & Transformation

- KPI Calculations

- Business Logic Implementation

Data Layer

- Sales Database

- Product Placement Data

- Customer Demographic Data

Data Flow:

Data Source (CSV/Database)
→ Data Cleaning & Preprocessing (Python/Excel)
→ Data Modeling (Tableau Data Model)
→ Dashboard Visualization
→ Strategic Insights & Reports

Reference: https://developer.ibm.com/patterns/ai-powered-backend-system-for-order-processing-during-pandemics/

Strategic Product Placement Analysis: Unveiling Sales Impact with Tableau Visualization
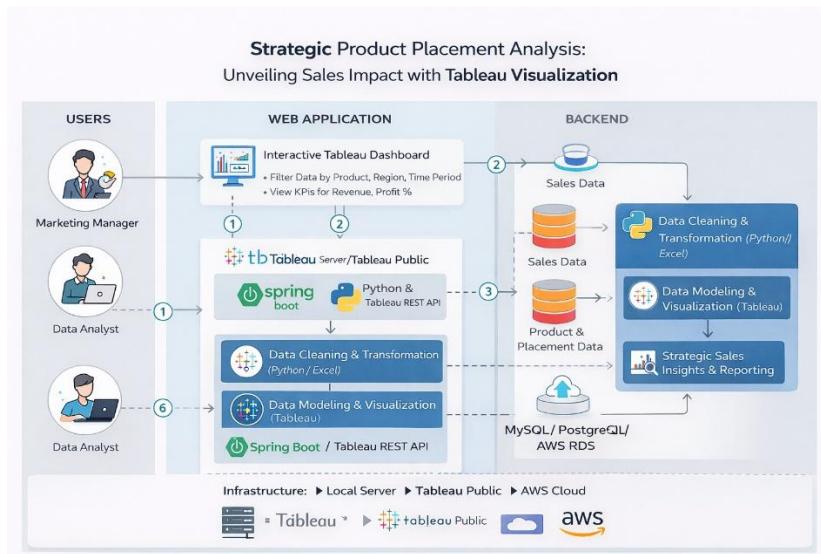
Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	Interactive dashboards for business users	Tableau Desktop / Tableau Public
2.	Application Logic-1	Data cleaning and preprocessing	Python (Pandas, NumPy) / Excel
3.	Application Logic-2	Data transformation & KPI calculation	Tableau Calculated Field
4.	Application Logic-3	Storytelling & insight generation	Tableau Story Feature
5.	Database	Storage of structured sales & placement data	MySQL / CSV / Excel
6.	Cloud Database	Cloud-based data storage (if deployed online)	Google Drive / AWS RDS / Tableau Server
7.	File Storage	Dataset storage (sales, region, placement files)	Local File System / Cloud Storage
8.	External API-1	Optional market data integration	Public Sales API (if applicable)
9.	External API-2	Regional demographic data	Government Open Data API (optional)
10.	Machine Learning Model	(Optional Future Scope) Predict sales trends	Scikit-learn (Regression Model)

			Local System / Tableau Public /
11.	Infrastructure (Server / Cloud)	Dashboard deployment	Tableau Server

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Libraries used for preprocessing and analysis	Python (Pandas, Matplotlib, NumPy)
2.	Security Implementations	Secure data handling & access restrictions	Role-based access (Tableau Server), Password Protection
3.	Scalable Architecture	Supports increasing dataset size & new KPIs	3-Tier Architecture
4.	Availability	Dashboard accessible online anytime	Tableau Public / Tableau Server
5.	Performance	Optimized dashboard with filters & indexed datasets	Extract Data Source in Tableau

References:

https://c4model.com/

https://developer.ibm.com/patterns/online-order-processing-system-during-pandemic/

https://www.ibm.com/cloud/architecture

https://aws.amazon.com/architecture

https://medium.com/the-internal-startup/how-to-draw-useful-technical-architecture-diagrams-2d20c9fda90d

Project Design Phase

Problem – Solution Fit Template

Date	15 February 2025
Team ID	LTVIP2026TMIDS90604
Project Name	Strategic Product Placement Analysis: Unveiling Sales Impact with Tableau Visualization
Maximum Marks	2 Marks

Problem – Solution Fit Template:

The project **"Strategic Product Placement Analysis: Unveiling Sales Impact with Tableau Visualization"** addresses the problem of limited visibility into how product placement affects sales performance. Marketing and sales teams often rely on manual reports or static dashboards, which do not clearly show the relationship between shelf positioning, product categories, and revenue. This leads to slow, assumption-based decision-making and missed revenue opportunities.

The proposed solution is an interactive Tableau dashboard that visualizes placement impact, sales trends, and key performance indicators. It enables quick analysis, comparison across regions and categories, and identification of high- and low-performing products. By transforming complex sales data into clear visual insights, the solution supports faster, data-driven strategic decisions and improves overall business performance.

Purpose:

• Simplifies complex sales data into easy-to-understand visual insights.
• Fits into existing reporting systems using available sales data.
• Improves marketing and placement strategy with data-backed decisions.
• Reduces manual effort and costly errors in planning.
• Helps businesses understand current performance and optimize future strategies.

Template:

References:

1. https://www.ideahackers.network/problem-solution-fit-canvas/

2. https://medium.com/@epicantus/problem-solution-fit-canvas-aa3dd59cb4fe

Proposed Solution Template

Date	17 February 2026
Team ID	LTVIP2026TMIDS90604
Project Name	Strategic Product Placement Analysis: Unveiling Sales Impact with Tableau Visualization
Maximum Marks	2 Marks

Proposed Solution Template:

Project team shall fill the following information in the proposed solution template.

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Retail businesses struggle to understand how product placement affects sales due to scattered data, manual analysis, and lack of visual insights.
2.	Idea / Solution description	Develop an interactive Tableau dashboard that analyzes sales data to evaluate the impact of product placement on revenue, customer behavior, and performance metrics.
3.	Novelty / Uniqueness	Uses interactive visual analytics to directly correlate product placement with sales impact, enabling data-driven decisions instead of intuition-based strategies.
4.	Social Impact / Customer Satisfaction	Helps businesses improve product availability and visibility, leading to better customer experience and informed purchasing decisions.
5.	Business Model (Revenue Model)	Subscription-based access to dashboards, analytics consulting services, and customized reporting solutions for retail businesses.
6.	Scalability of the Solution	Easily scalable across multiple stores, regions, and product categories by integrating additional datasets and expanding dashboard capabilities.

Solution Architecture

Date	15 February 2025
Team ID	LTVIP2026TMIDS90604
Project Name	Strategic Product Placement Analysis: Unveiling Sales Impact with Tableau Visualization
Maximum Marks	4 Marks

Solution Architecture:

The solution architecture bridges the gap between the business problem of unclear product placement impact and a technology-driven analytics solution. The architecture is designed to collect, process, analyze, and visualize sales data efficiently using Tableau as the core business intelligence tool.

The primary goal of this architecture is to transform raw sales data into meaningful insights that help stakeholders optimize product placement strategies and improve revenue performance.

Example - Solution Architecture Diagram:
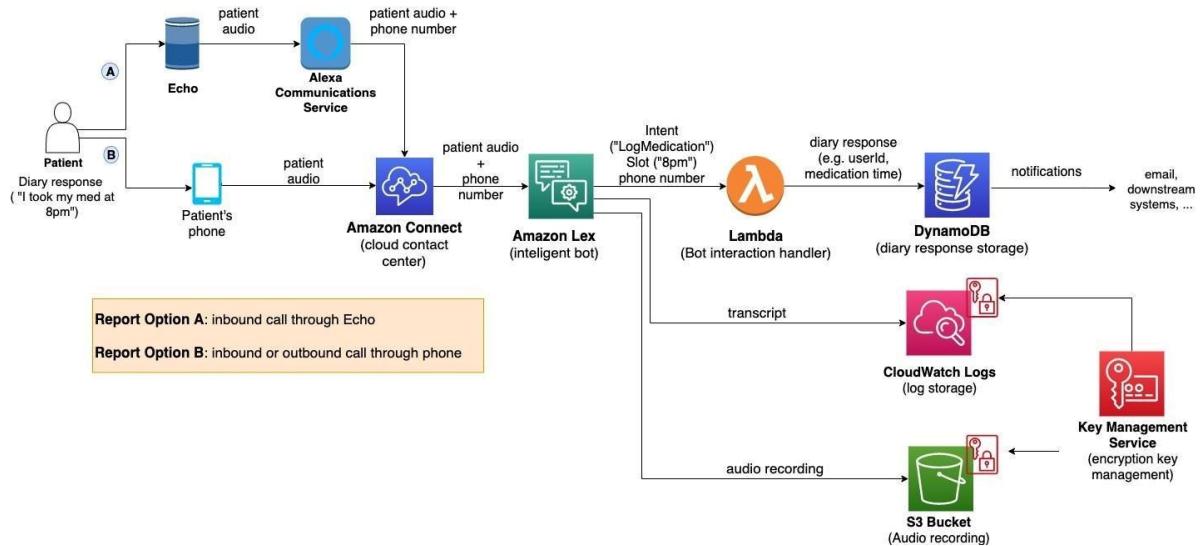
Figure 1: Architecture and data flow of the voice patient diary sample application

Reference: https://aws.amazon.com/blogs/industries/voice-applications-in-clinical-research-powered-by-ai-on-aws-part-1-architecture-and-design-considerations/

PROJECT PLANNING & SCHEDULING

Project Planning Template (Product Backlog, Sprint Planning, Stories, Story points)

| Date	17 February 2026
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Maximum Marks	5 Marks

Product Backlog, Sprint Schedule, and Estimation (4 Marks)

Use the below template to create product backlog and sprint schedule

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Data Collection & Preparation	USN-1	As an analyst, I want to collect sales and product placement data to begin analysis.	3	High	Team
Sprint-1	Data Cleaning	USN-2	As an analyst, I want to clean and preprocess raw sales data for accurate insights.	3	High	Team
Sprint-2	KPI Identification	USN-3	As a business analyst, I want to define key performance indicators (Revenue, Units Sold, Profit Margin).	2	Low	Team
Sprint-1	Dashboard Development	USN-4	As a marketing manager, I want to view placement vs sales comparison in an interactive dashboard.	5	Medium	Team
Sprint-1	Trend Analysis	USN-5	As a sales manager, I want to analyze monthly and yearly sales trends.	1	High	Team

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-3	Regional Analysis	USN-6	As a decision maker, I want to compare sales performance across regions.	3	High	Team
Sprint-3	Product Performance Ranking	USN-7	As a user, I want to identify high-performing and low-performing products.	2	High	Team
Sprint-3	Filter & Drill-down Features	USN-8	As a user, I want to apply filters by category, region, and product type.	3	High	Team
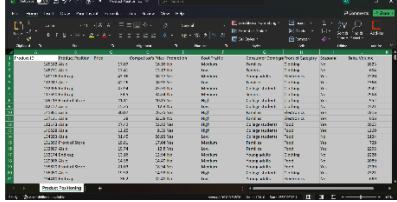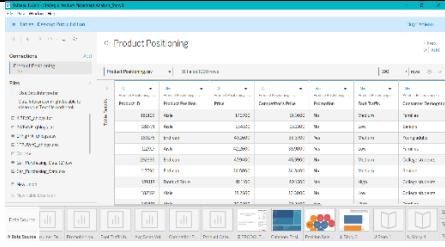
FUNCTIONAL AND PERFORMANCE TESTING

Performance Test

| Date	17 February 2026
Team ID	LTVIP2026TMIDS90604
Project Name	Strategic Product Placement Analysis: Unveiling Sales Impact with Tableau Visualization
Maximum Marks	

Model Performance Testing:
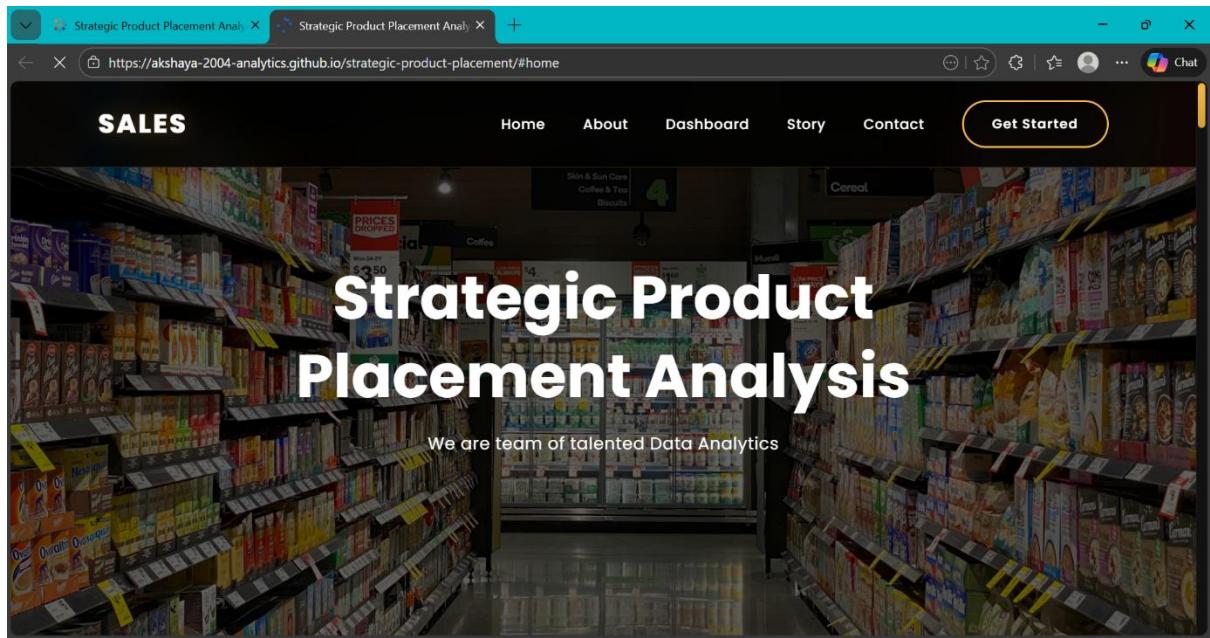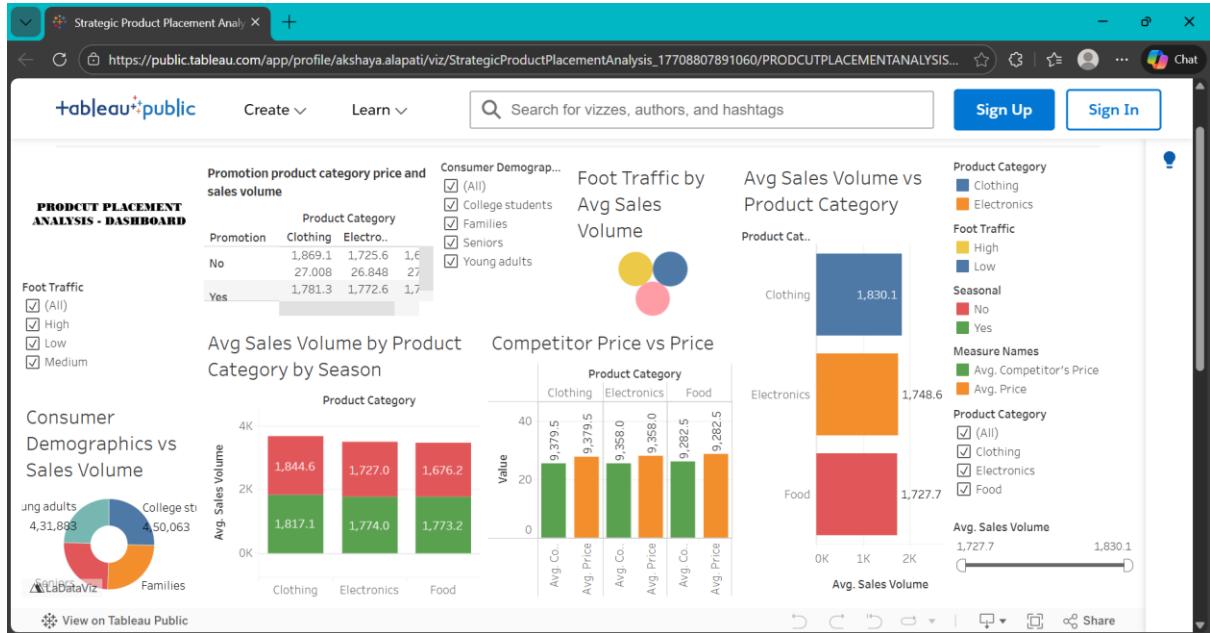
Project team shall fill the following information in model performance testing template.
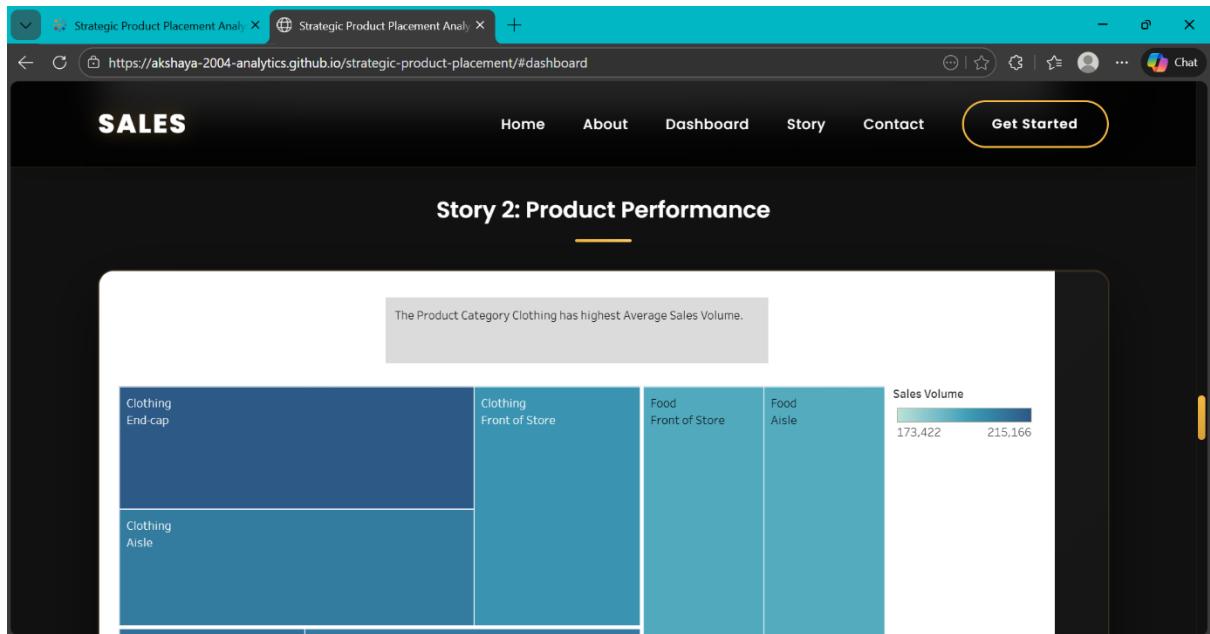
S.No.	Parameter	Screenshot / Values
1.	Data Rendered	
2.	Data Preprocessing	

3.	Utilization of Filters	
4.	Calculation fields Used	
5.	Dashboard design	No of Visualizations / Graphs - 6
6	Story Design	No of Visualizations / Graphs - 3

RESULTS

Output Screenshots –

ADVANTAGES & DISADVANTAGES

Advantages :

1. **Data-Driven Decision Making**
   Enables businesses to make strategic placement decisions based on actual sales data instead of assumptions.

2. **Improved Revenue Optimization**
   Identifies high-performing shelf positions and products to maximize sales.

3. **Interactive Visualization**
   Tableau dashboards provide dynamic filters and drill-down analysis for deeper insights.

4. **Time Efficiency**
   Reduces manual data analysis and reporting time significantly.

5. **Better Strategic Planning**
   Supports marketing and product teams in planning promotions and shelf allocation.

6. **Scalable Solution**
   Can be expanded to multiple stores, regions, and larger datasets.

7. **Easy Integration**
   Connects with Excel, CSV, and SQL databases without complex setup.

Disadvantages -

1. **Dependency on Data Quality**
   Inaccurate or incomplete data may lead to misleading insights.

2. **Limited Predictive Capability (Current Version)**
   Primarily focuses on descriptive analytics unless ML is integrated.

3. **Requires BI Tool Knowledge**
   Users need basic Tableau understanding to modify dashboards.

4. **Performance Issues with Large Datasets**
   Very large datasets may affect dashboard loading time if not optimized.

5. **Initial Setup Effort**
   Data cleaning and preprocessing require time and effort.

CONCLUSION

The project **"Strategic Product Placement Analysis: Unveiling Sales Impact with Tableau Visualization"** successfully demonstrates how data analytics can transform business decision-making. By analyzing sales data and product placement strategies through interactive Tableau dashboards, the system provides clear insights into how placement directly influences revenue and performance.

The solution bridges the gap between raw sales data and strategic planning by converting complex datasets into meaningful visual insights. It enables marketing managers, sales teams, and decision-makers to identify high-performing products, optimize shelf positioning, analyze regional trends, and improve overall business performance.

Through structured data preprocessing, KPI calculations, and interactive visualizations, the project ensures faster, more accurate, and data-driven decisions. Although the current system focuses on descriptive analytics, it lays a strong foundation for future enhancements such as predictive modeling and AI-based recommendations.

Overall, this project highlights the importance of business intelligence tools in modern retail strategy and proves that effective data visualization can significantly enhance revenue optimization and strategic growth.

FUTURE SCOPE

The project **"Strategic Product Placement Analysis: Unveiling Sales Impact with Tableau Visualization"** provides a strong foundation for data-driven retail strategy. In the future, the system can be enhanced in several ways to increase its analytical power and business value.

One major enhancement would be the integration of **predictive analytics and machine learning models** to forecast future sales trends based on historical placement data. This would help businesses proactively plan product positioning and inventory management.

The solution can also be extended by incorporating **real-time data integration**, allowing businesses to monitor live sales performance and make instant strategic decisions. Integration with ERP systems or POS systems would further automate data collection.

Another future improvement is the addition of **AI-based recommendation systems** that automatically suggest optimal shelf placement strategies based on customer buying patterns.

The dashboard can also be deployed on **cloud platforms** such as Tableau Server or AWS to support multi-store and multi-region scalability, ensuring enterprise-level implementation.

Furthermore, advanced analytics such as **customer segmentation, demand forecasting, and promotional impact analysis** can be added to enhance marketing effectiveness and customer satisfaction.

Overall, the project has strong potential to evolve into a comprehensive retail analytics platform that supports intelligent, predictive, and automated decision-making.

APPENDIX

Source Code :

Dataset Link –

https://www.kaggle.com/datasets/amitvkulkarni/impact-of-product-positioning-on-sales

GitHub Link –

https://github.com/Akshaya-2004-Analytics/strategic-product-placement

 Project Link –

[Strategic Product Placement Analysis | SALES](#)

Vedio link –

https://drive.google.com/file/d/1EhxW3dGxiOr8fl-8U9a83__p5e71eVCS/view?usp=sharing