Project Work

Project Name: Cosmetic Insights:Navigating Cosmetic trends & Consumer Insights with Tableau
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Name: Sri Lakshmi Navya

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1. INTRODUCTION

1.1 Project Overview

This project explores consumer behavior and cosmetic industry trends using real-time data analytics and visualization tools. By leveraging Tableau, the project provides insights into what consumers value, emerging product trends, and concerns in the beauty industry. The goal is to use data-driven storytelling to enhance decision-making for both businesses and consumers in the cosmetics sector.

1.2 Purpose

The purpose of this project is to analyze cosmetic product reviews and consumer preferences to uncover patterns, concerns, and popular product features. This analysis aims to assist brands in understanding their audience better, optimizing product offerings, and tailoring marketing strategies accordingly.

2. IDEATION PHASE

2.1 Problem Statement

The cosmetic industry faces challenges in understanding rapidly changing customer preferences and concerns. There's a lack of centralized insights that summarize current trends, leading to misaligned product development and marketing strategies.

Customer Problem Statement Template
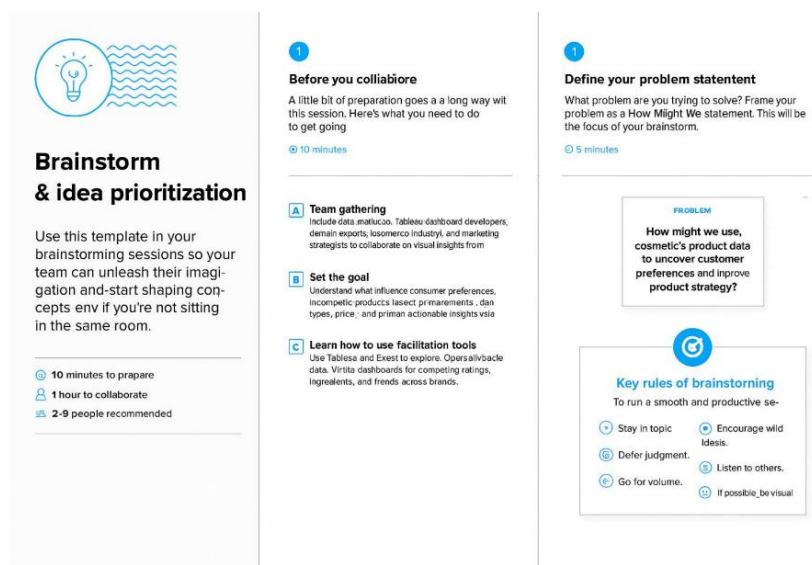
2.2 Empathy Map Canvas

- **Says**: "I want a product that suits my skin and has good reviews."

- **Thinks**: "Are the ingredients safe? Is this product worth the price?"

- **Does**: Frequently searches online reviews, compares products, shares feedback.
- **Feels**: Confused by too many options; frustrated when products don't match expectations.
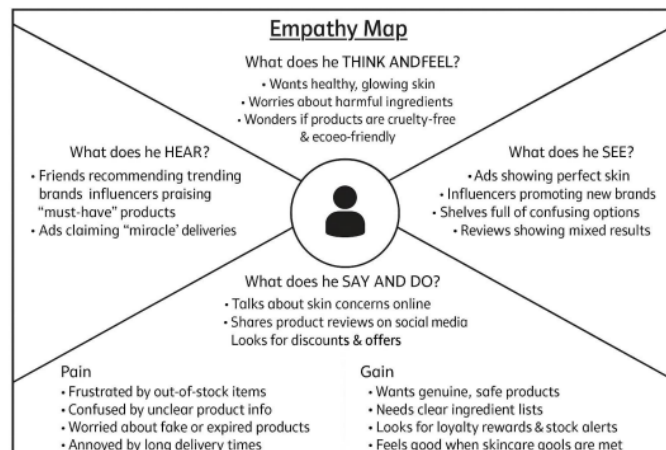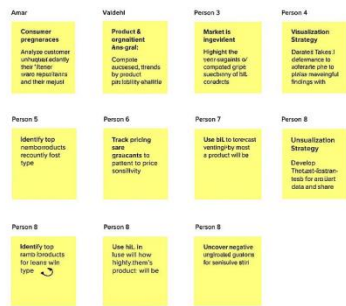

2.3 Brainstorming

Ideas generated:

- Use sentiment analysis on product reviews.
- Categorize reviews based on product type, concern, and satisfaction.
- Track popularity and performance over time.
- Create interactive Tableau dashboards for trend visualization.

Brainstorm

Write down any ideas that come to mind that address problem statement.

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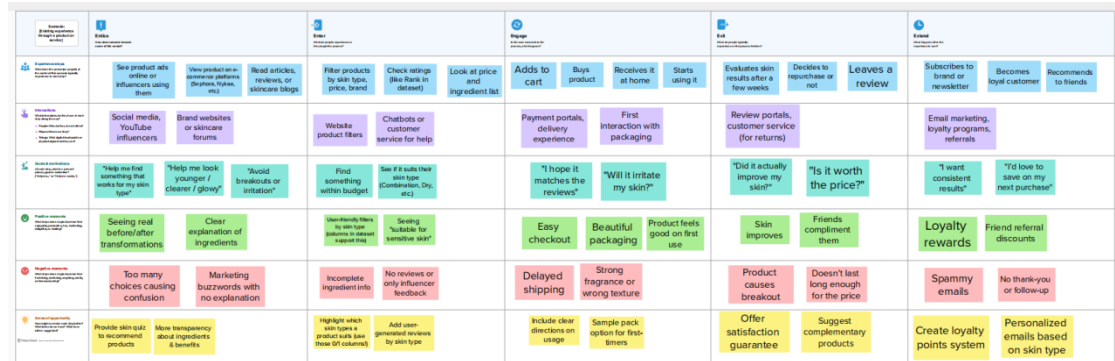
3. REQUIREMENT ANALYSIS

3.1 Customer Journey Map

Identifies need → 2. Searches for products → 3. Reads reviews → 4. Compares options → 5. Makes purchase → 6. Shares feedback

3.2 Solution Requirement

- Well-structured dataset containing product reviews and metadata.
- Tableau for dashboard creation.
- Preprocessing tools (Python, Excel) for data cleanup.
- Internet for real-time trend reference.

Functional Requirements:

Following are the functional requirements of the proposed solution.

| FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	Data Ingestion	Upload dataset from Excel (*cosmetics.xlsx*)
FR-2	Sales Visualization	Dashboard for sales quantity per product, category, and month
FR-3	Profitability Analysis	Visualize cost, selling price, and calculate profit margins per product
FR-4	Inventory Monitoring	Track stock levels and restock alerts
FR-5	Geographical Insights	Map store/branch sales by location
FR-6	Customer Segmentation	Filter data by customer type, region, or purchase frequency
FR-7	Trend Analysis	Line charts for sales and revenue trends over time
FR-8	Product Performance	Identify top-selling and low-performing products

Non-functional Requirements:

Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	Interactive and user-friendly Tableau dashboards with tooltips, filters, and drill-downs
NFR-2	Security	Secure access control with Tableau user permissions
NFR-3	Reliability	Data accuracy ensured by importing validated Excel data
NFR-4	Performance	Fast loading dashboards with optimized extracts
NFR-5	Availability	Hosted on Tableau Public or Server for continuous access
NFR-6	Scalability	Ability to handle additional product lines, stores, or customer segments with minimal changes

3.3 Data Flow Diagram

Raw Dataset → 2. Data Cleaning (Python/Excel) → 3. Analysis & Segmentation → 4. Tableau Visualization

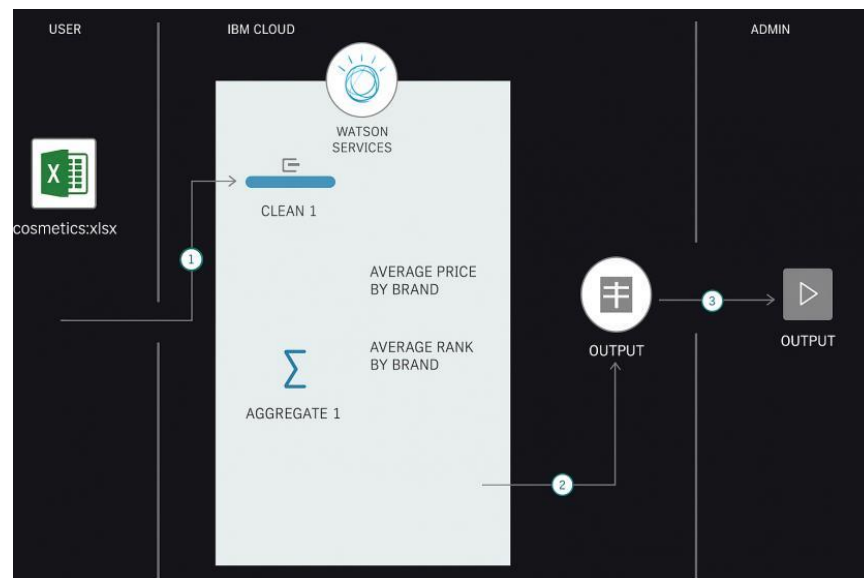Example: DFD Level 0 (Simplified View of Cosmtics Sales System
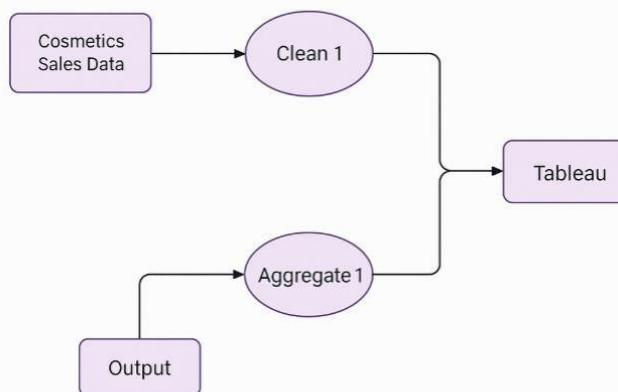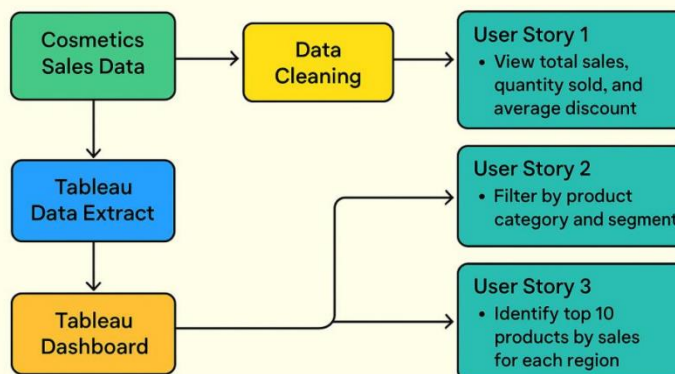
3.4 Technology Stack

- **Data Cleaning**: Excel, Python (optional)
- **Visualization**: Tableau
- **Platform**: Windows
- **Dataset Source**: Kaggle or real-time web-scraped cosmetic product reviews

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4. PROJECT DESIGN

4.1 Problem-Solution Fit

The gap in understanding cosmetic consumer insights is bridged by analyzing data from real user reviews and creating dashboards that highlight current trends and concerns.

4.2 Proposed Solution

To design and deploy interactive Tableau dashboards that highlight:

- Top trending products
- Common concerns (e.g., dryness, acne)
- Sentiment breakdowns (positive/negative reviews)
- Comparative product ratings

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)	What challenge in the cosmetics market your solution targets.
2.	Idea / Solution description	A detailed look at what your solution is and how it works.
3.	Novelty / Uniqueness	What sets your idea apart.
4.	Social Impact / Customer Satisfaction	The value it brings to communities or users.
5.	Business Model (Revenue Model)	How the idea generates revenue.
6.	Scalability of the Solution	How your solution can grow or expand.

4.3 Solution Architecture

Data Source → Data Cleaning → Data Aggregation → Tableau Dashboard (Visual Insights: Filters, Trends, Concerns, Ratings)
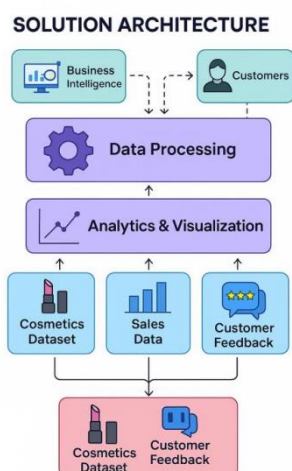
5. PROJECT PLANNING & SCHEDULING

5.1 Project Planning

Week 1: Problem identification and dataset finalization

Week 2: Data cleaning and preprocessing

Week 3: Visualization development in Tableau

Week 4: Dashboard finalization and testing

Week 5: Report and video demo preparation

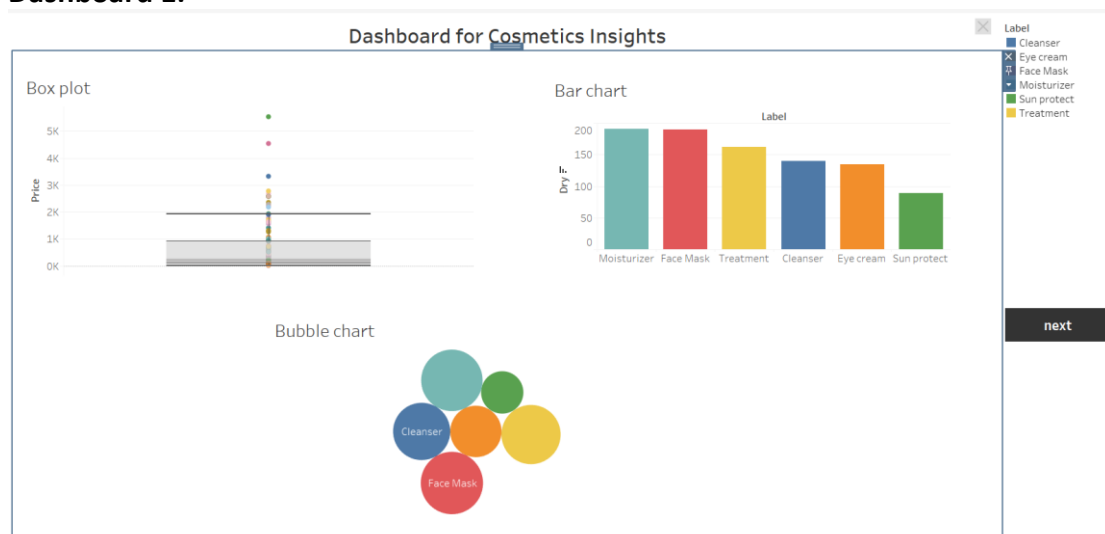## 6. FUNCTIONAL AND PERFORMANCE TESTING

6.1 Performance Testing

The dashboards were tested for performance by checking load time, filter responsiveness, and cross-platform compatibility. Tableau handled large datasets smoothly and displayed real-time filter changes effectively.
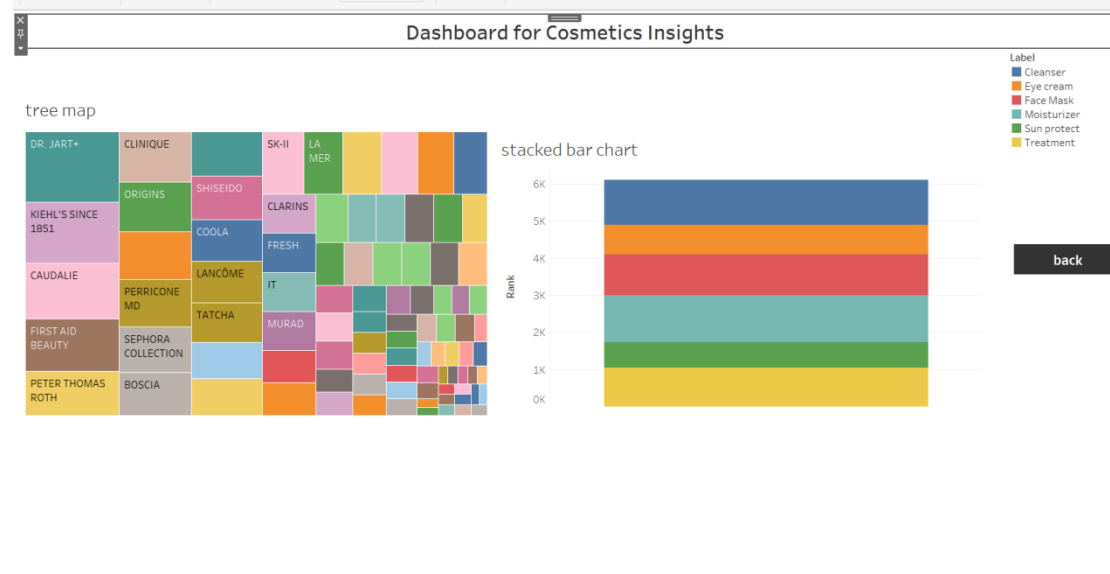
7. RESULTS

7.1 Output Screenshots

Dashboard 1:

Dashboard 2:

8. ADVANTAGES & DISADVANTAGES

Advantages

- Real-time data visualization
- User-friendly and interactive dashboards
- Helps businesses align products with market trends

Disadvantages

- Dataset limitations may affect accuracy
- Requires consistent data updates for real-time insights

9. CONCLUSION

This project successfully demonstrates how Tableau can transform raw data into actionable insights in the cosmetics industry. Businesses can now make informed decisions based on real customer feedback and preferences.

10. FUTURE SCOPE

- Add machine learning-based prediction for future trends
- Expand dataset to include social media insights
- Enable sentiment analysis automation for review classification

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11. APPENDIX

Source Code: Not applicable (Tableau-based project)

Dataset Link: https://www.kaggle.com/datasets/kingabzpro/cosmetics-datasets

GitHub Link:https://github.com/Sri2426-nav/Cosmetic-Insights-Navigating-Cosmetic-trends-Consumer-Insights-with-Tableau

 Project Demo Link: https://drive.google.com/file/d/1SV1jpKicaIHavBc9rYg1md2nSJ9w8RT2/view?usp=sharing