PROJECT REPORT

1. INTRODUCTION:

1.1 Project Overview:

Title: *Cosmetic Insights – Navigating Cosmetics Trends and Consumer Insights with Tableau*

In today's highly competitive beauty and cosmetics industry, understanding consumer behavior and market dynamics is crucial for brand success. The Cosmetic Insights project is designed to address this need by providing an interactive, data-driven platform built using Tableau that visualizes key metrics such as brand performance, pricing trends, product suitability across different skin types, and label effectiveness.

This project transforms raw cosmetic product data into meaningful visual insights, helping stakeholders—including brand managers, marketing teams, and product developers—make informed decisions. By leveraging Tableau's interactive dashboard capabilities, the platform enables real-time filtering, comparative analysis, and the ability to track changes in consumer preferences.

The dashboard includes visualizations like Top Brands, Label Count, Price vs Brand, and Suitability by Skin Type (Sensitive, Normal, Oily, Dry), along with ranking-based analyses. These visual components not only simplify complex datasets but also empower users to extract actionable intelligence that can drive product innovation, personalized marketing, and strategic planning.

Overall, Cosmetic Insights bridges the gap between data and decision-making, offering a smart, scalable solution for navigating trends in the ever-evolving cosmetics market.

1.2 Purpose:

The purpose of the Cosmetic Insights project is to harness the power of data visualization to deliver clear, actionable insights from cosmetic product datasets. In the rapidly changing beauty industry, brands must adapt to evolving consumer preferences, competitive pricing strategies, and performance-based product evaluations.

This project aims to:

- Provide a centralized platform to visualize and interpret cosmetic product data.

- Enable brand managers and marketing professionals to identify top-performing products and brands.
- Support data-driven decision-making for product development and promotional strategies.
- Analyze skin-type suitability to assist in personalized product targeting.
- Enhance visibility into pricing patterns, brand ranking, and label effectiveness.
- Promote real-time insight generation using Tableau dashboards for agile business response.

By turning raw data into interactive visual dashboards, the project serves as a powerful decision-support tool, helping cosmetic companies remain competitive and consumer-focused.

2. IDEATION PHASE:

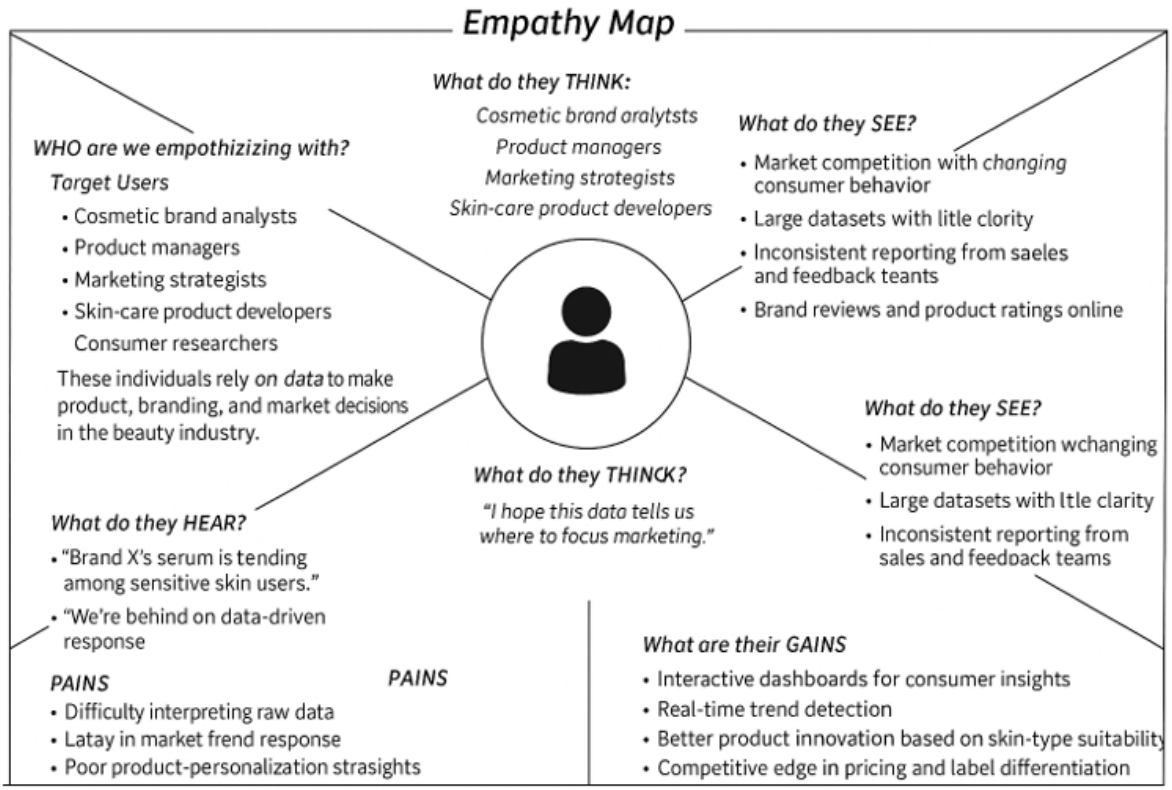
2.1 Problem Statement:

Customer Problem Statement:

I am	A cosmetics brand manager or decision-maker in a beauty company
I'm trying to	Understand market trends, consumer preferences, and product performance using data
but	I struggle with raw or unstructured data that lacks clear visual insights and makes analysis slow or ineffective
because	There is no single, intuitive platform that combines all key metrics (skin suitability, pricing, brand performance, labels, etc.) in one place for easy decision-making
Which makes me feel	Frustrated, delayed in decision-making, and uncertain about how to respond to changing customer demands or negative feedback.

Problem statement (PS)	I am (Customer)	I'm trying to	But	Because	Which makes me feel
PS-1	A cosmetic brand manager	Analyse consumer preferences for different skin types	I lack a centralized visual dashboard	My current data is scattered and unstructured	Frustrated and delayed in making product decisions
PS-2	A marketing strategist in the beauty industry	Track brand rankings, product pricing, and label effectiveness	I can't easily compare trends across brands	There's no easy-to-use tool with comprehensive insights	Uncertain about how to plan campaigns effectively

2.2 Empathy Map Canvas:



2.3 Brainstorming:

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

Problem Statement:

To address the challenges in understanding consumer behaviour, product performance, and market trends in the cosmetic industry by creating an interactive and insightful dashboard using Tableau. The project aims to empower cosmetics

companies with real-time, data-driven insights to support marketing, innovation, and product development strategies.

Step-2: Brainstorm, Idea Listing and Grouping

Ideas Generated:

- Visualize top-performing cosmetic brands.
- Analyze product label frequency.
- Compare pricing patterns across brands.
- Assess product suitability for different skin types (Sensitive, Normal, Oily, Dry).
- Rank brands and labels based on performance or consumer feedback.
- Use visualizations to detect consumer interest patterns.
- Enable real-time insights for quick decision-making.
- Predict consumer trends and adapt product offerings.
- Identify negative trends or product issues quickly.

Grouped Ideas:

A. Consumer Preference Monitoring

- Top Brands
- Skin Suitability (Sensitive, Normal, Oily, Dry)
- Label vs Ranking
- Brand vs Ranking

B. Product Analysis

- Label Count
- Price vs Brand

C. Business Strategy & Forecasting

- Predictive analysis using historical patterns
- Real-time trend identification
- Strategic product innovation

Step-3: Idea Prioritization

Idea	Feasibility	Impact	Priority
Top Brands Visualization	High	High	yes
Skin Type Suitability (All 4 Types)	High	High	yes
Price vs Brand Analysis	High	Medium	yes
Label Count Chart	High	Medium	yes
Brand vs Ranking Chart	Medium	High	yes
Label vs Ranking Chart	Medium	High	yes
Real-Time Trend Detection	Medium	High	Optional (Future Enhancement)
Predictive Analysis	Medium	Very High	Optional (Future Scope)
Product Issue Identification	Medium	High	Optional (Scalable Idea)

3. REQUIREMENT ANALYSIS:

3.1 Customer Journey map:

SCENARIO:

Using a Tableau dashboard to explore cosmetic product trends, consumer preferences, and skin suitability insights.

Steps	What does the user typically experience?	Goals & Motivations	Interactions	Positive Moments	Negative Moments	Areas of Opportunity
1. Enter the Dashboard	User opens the interactive Tableau dashboard	Help me explore cosmetic products visually	Tableau dashboard	Clean layout, easy access to filters and visualizations	Overwhelmed by too many graphs initially	Add a short dashboard guide or tooltip popups
2. Explore Top Brands	Views a chart of top cosmetic brands based on number of products or ratings	Help me choose trusted brands	"Top Brands" bar chart	Recognizing familiar brand names	Less-known brands may seem confusing	Include brief tooltips on each brand with background info
3. Analyze Label Count	User examines product categories	Help me understand product availability	"Label Count" pie or bar chart	Visual diversity of product types	Unclear differences between labels	Add definitions or filter by product function

Steps	What does the user typically experience?	Goals & Motivations	Interactions	Positive Moments	Negative Moments	Areas of Opportunity
	like moisturizer, toner, serum, etc.					
4. Check Price vs Brand	Investigates which brands are affordable vs. premium	Help me compare prices effectively	Scatter plot / Bubble chart	Clear comparison of price clusters	Some prices seem unrealistic (very high)	Add price range filters or highlight average-priced brands
5. Evaluate Skin Suitability	User toggles through suitability charts for sensitive, oily, dry, normal skin	Help me find products for my skin type	Multiple bar/stacked bar charts	Easy comparison across skin types	Redundancy in charts can be tiring	Combine skin suitability into one interactive chart
6. Compare Brand vs Rank	Reviews brand-wise average customer ratings	Help me pick high-performing brands	Bar chart or heatmap	Useful to see high-rated brands	Some ratings seem too close to differentiate	Add rank filters or customer review snippets
7. View Label vs Rank	Looks at how different product types are rated	Help me choose best product types	Label vs Rank bar chart	Simple understanding of what label performs best	Some product types have low sample size	Show product count along with rating for context
8. Draw	Starts	Help me	Filters,	Insights lead	Too much	Provide

Steps	What does the user typically experience?	Goals & Motivations	Interactions	Positive Moments	Negative Moments	Areas of Opportunity
Conclusions	forming insights from combined visualizations	make a decision or recommendation	highlighting, dashboards	to clear decisions (e.g., Best Brand for Dry Skin)	data without guidance	example use-cases or downloadable summary report

3.2 Solution Requirement:

Functional Requirements:

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	Dataset Upload & Integration	Upload CSV/Excel data Connect to live data sources
FR-2	Data Cleaning & Transformation	Handle missing/null values Normalize and categorize data
FR-3	Dashboard Generation	Visualize brand performance Display skin-type suitability
FR-4	User Interaction & Filtering	Filter by brand, skin type, label, price range
FR-5	Insights Export	Export visualizations as image or PDF
FR-6	Real-Time Feedback Loop	Include space for user feedback on visualized insights

Non-functional Requirements:

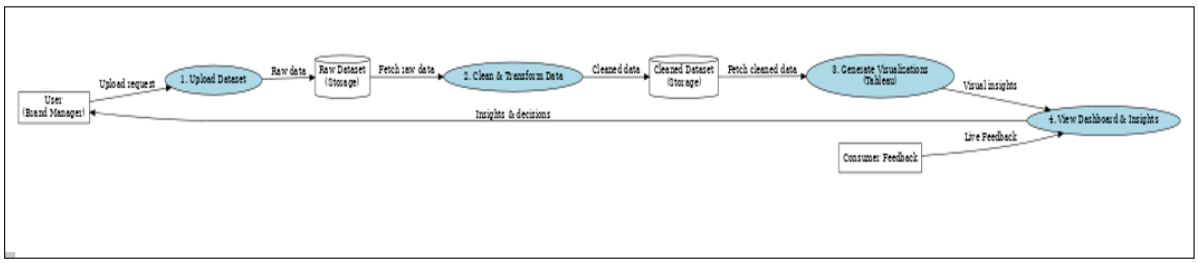
Following are the non-functional requirements of the proposed solution.

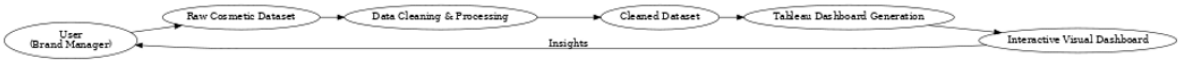
FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	User-friendly Tableau dashboards with intuitive filters and layout
NFR-2	**Security**	Secure data handling within Tableau ecosystem; access control to dashboards
NFR-3	**Reliability**	Visuals load correctly with stable backend data connections
NFR-4	**Performance**	Quick loading time for large datasets; optimized Tableau queries
NFR-5	**Availability**	Dashboards accessible online 24/7 for authorized users
NFR-6	**Scalability**	Ability to add more visualizations or skin types as new data becomes available

3.3 Data Flow Diagram:

The Level 0 DFD for the Cosmetic Insights project represents how cosmetic product data flows from data sources to the Tableau dashboard, enabling decision-making by brand managers and analysts.

Level 0 Data Flow Diagram (DFD) using **standard industry notation:**





1. User (Brand Manager) accesses the Tableau dashboard platform.
2. Raw Cosmetic Dataset is uploaded or connected from source.
3. Data Cleaning & Processing module prepares and transforms the dataset.
4. Cleaned Dataset is stored in a structured format.
5. Tableau Dashboard Generation transforms cleaned data into visual analytics.
6. Interactive Visual Dashboard is presented to the user for insights and decisions.

User Stories:

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Brand Manager	Dashboard Insights	USN-1	As a brand manager, I want to see top-performing brands on the dashboard so that I can make quick marketing decisions.	I can view a ranked list of top brands by performance	High	Sprint-1
	Skin Suitability Insights	USN-2	As a brand manager, I want to analyse product suitability for different skin types so I can target the right consumers.	I can see suitability visuals for Sensitive, Normal, Oily, and Dry skin types	High	Sprint-1
Marketing Strategist	Label Analysis	USN-3	As a marketing strategist, I want to see which labels are most common and effective so I can design better campaigns.	I can view visualizations of label count and rankings	Medium	Sprint-2
Product Analyst	Pricing Trends	USN-4	As a product analyst, I want to compare product prices across brands so I can suggest competitive pricing strategies.	I can see a price vs brand chart	Medium	Sprint-2
I can see a price vs brand chart	Ranking Visualization	USN-5	As a brand manager, I want to see brand and label rankings so I can make performance-based product decisions.	I can view Brand vs Ranking and Label vs Ranking charts	High	Sprint-2

3.4 Technology Stack:

Technical Architecture:

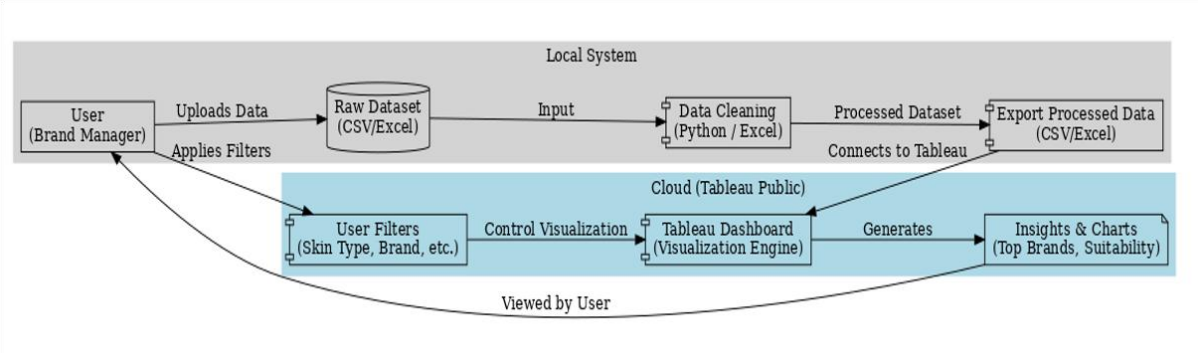


Table-1: Components & Technologies:

S.No	Component	Description	Technology Used
1.	User Interface	Dashboard UI for interacting with visualizations	Tableau Public / Tableau Desktop
2.	Application Logic-1	Data filtering and rendering logic	Tableau Worksheets & Dashboards
3.	Application Logic-2	Data cleaning and transformation	Python (Pandas), Excel preprocessing
4.	Application Logic-3	Data ranking, grouping, suitability mapping	Tableau Calculated Fields
5.	Database	Local dataset storage	CSV / Excel
6.	Cloud Database	Optional for online data access	Google Sheets (optional)
7.	File Storage	Local storage for datasets	Local File System
8.	External API-1	Not used in this project	—
9.	External API-2	Not used in this project	—
10.	Machine Learning Model	Not included in current scope	—
11.	Infrastructure	Run locally or through Tableau Public	Local System / Tableau Cloud

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology Used
1.	Open-Source Frameworks	Data preprocessing, basic plotting (if done before Tableau)	Python (Pandas, Matplotlib)
2.	Security Implementations	File security ensured through local file handling	OS-level controls (local)
3.	Scalable Architecture	Can scale with larger data using Tableau Prep / Tableau Server	Tableau Cloud / Tableau Server
4.	Availability	Published dashboards accessible online via Tableau Public	Tableau Public
5.	Performance	Fast rendering with Tableau optimization and filters	Tableau filters & extract mode

4. PROJECT DESIGN:

4.1 Problem Solution Fit:

Problem Statement:

In the highly competitive and fast-evolving cosmetics industry, stakeholders often lack real time, actionable insights into consumer preferences, product effectiveness, and emerging

market trends. This gap limits their ability to adapt quickly, respond to product concerns, and innovate effectively.

Solution:

The Cosmetic Insights project offers an interactive analytics platform built in Tableau that transforms raw cosmetics data into meaningful, visually compelling dashboards. This allows cosmetic companies, marketers, and analysts to monitor trends, respond to product issues, and explore consumer needs for strategic decision-making.

Purpose:

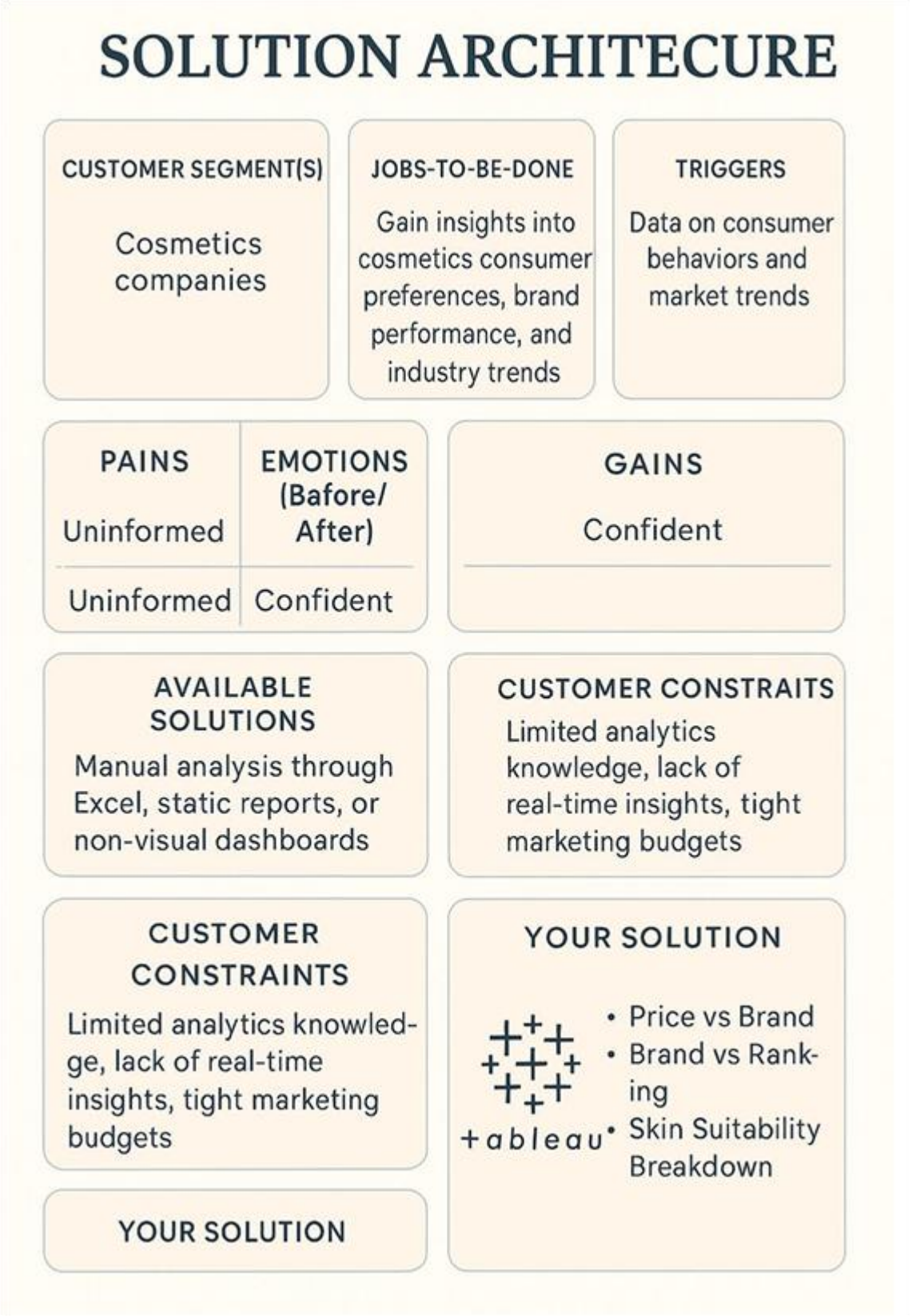
❑ Solve complex industry challenges by delivering consumer and market insights in a dynamic, easy-to-use Tableau interface.

❑ Accelerate data-driven decisions through visualization of real-time behavior patterns, product feedback, and brand performance.

❑ Sharpen marketing efforts by identifying key triggers such as sensitive skin suitability or popular labels.

❑ Foster brand trust and growth through proactive responses to product concerns and trend shifts.

❑ Provide stakeholders with deep visibility into evolving market dynamics and consumer demands.



4.2 Proposed Solution:

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	In the competitive cosmetics industry, stakeholders lack real-time, insightful data to understand consumer preferences, product effectiveness, and market dynamics, which leads to ineffective decisions in product development and marketing.
2.	Idea / Solution description	The proposed solution is a dynamic Tableau dashboard that visualizes key cosmetic product data—such as brand performance, price trends, category distribution, customer suitability by skin type, and ratings—to empower data-driven decision-making.
3.	Novelty / Uniqueness	The dashboard offers a centralized, interactive, and real-time visualization experience that merges product suitability, brand rankings, and consumer behavior insights—something not typically combined in traditional dashboards.
4.	Social Impact / Customer Satisfaction	This solution enables cosmetic companies to produce safer, more targeted products for diverse skin types and customer needs, resulting in increased satisfaction, transparency, and market responsiveness.
5.	Business Model (Revenue Model)	The dashboard can be offered as a SaaS platform to cosmetics firms with a subscription-based model, tiered access for advanced features, and optional consulting services for customization.
6.	Scalability of the Solution	The solution can scale to support global datasets across regions, include additional factors like ingredients or reviews, and integrate with APIs to offer real-time competitive tracking and predictive analytics.

4.3 Solution Architecture:

The solution architecture is built to visualize and analyse cosmetic product data using Tableau. It bridges business needs—like monitoring consumer behaviour and improving product strategy—with real-time, interactive technology.

Goals of the Architecture:

• Find the best BI (Business Intelligence) tools to analyse cosmetics market data.

• Define structure and flow of Tableau dashboard based on product attributes and skin suitability.

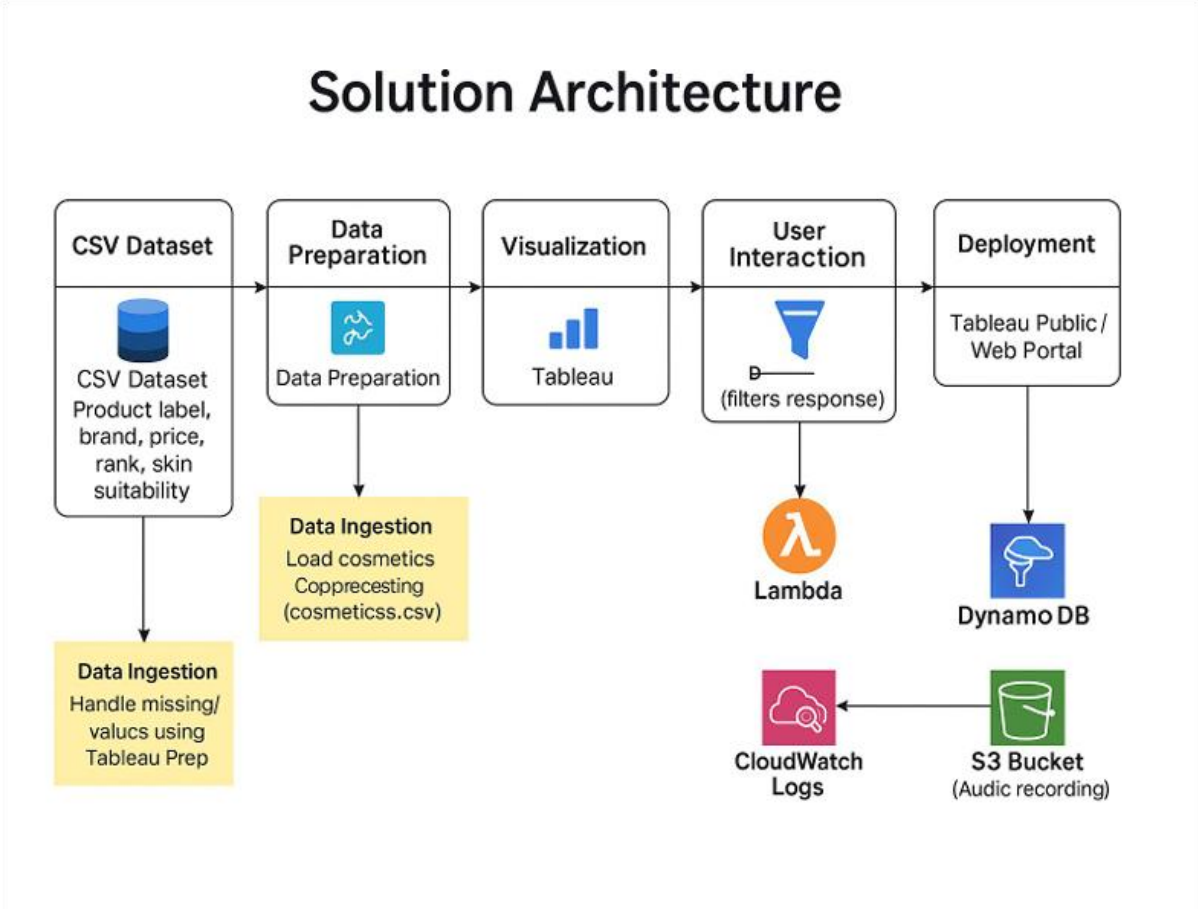
• Describe data ingestion, transformation, and visualization processes.

• Enable scalability and performance for real-time filtering and trend analysis.

Solution Components:

Component	Description
Data Source	CSV Dataset with product label, brand, price, rank, and skin suitability
Data Preparation	Performed in Tableau Prep or directly within Tableau using calculated fields and filters
Dashboard Tool	Tableau Public / Tableau Desktop
Visual Layers	Bar charts, Pie charts, Scatter plots, Filters for skin type, brand, label
Deployment	Shared via Tableau Public or embedded in a web portal
Users	Cosmetics brand teams, data analysts, marketing teams

Solution Architecture Diagram:



5. PROJECT PLANNING & SCHEDULING:

5.1 Project Planning:

Product Backlog, Sprint Schedule, and Estimation:

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Data Preparation	USN-1	As a user, I can clean and preprocess the cosmetics dataset to ensure accurate visualizations.	3	High	B.Chandini
Sprint-1	Data Understanding	USN-2	As a user, I can explore the dataset and identify key metrics like brands, labels, rankings, prices, and skin suitability.	2	High	B.Chandini
Sprint-2	Tableau Visuals	USN-3	As a user, I can create a dashboard showing Top Brands and Label Count.	2	High	B.Chandini
Sprint-2	Tableau Visuals	USN-4	As a user, I can visualize Price vs Brand to understand pricing strategy.	2	Medium	B.Chandini
Sprint-2	Tableau Visuals	USN-5	As a user, I can visualize Brand vs Ranking and Label vs Ranking.	3	Medium	B.Chandini
Sprint-3	Skin Suitability Analysis	USN-6	As a user, I can create visualizations for Sensitive, Normal, Oily, and Dry skin suitability.	4	High	B.Chandini
Sprint-4	Insight Story & Documentation	USN-7	As a user, I can derive insights and create a presentation/story in Tableau.	4	High	B.Chandini

Project Tracker, Velocity & Burndown Chart:

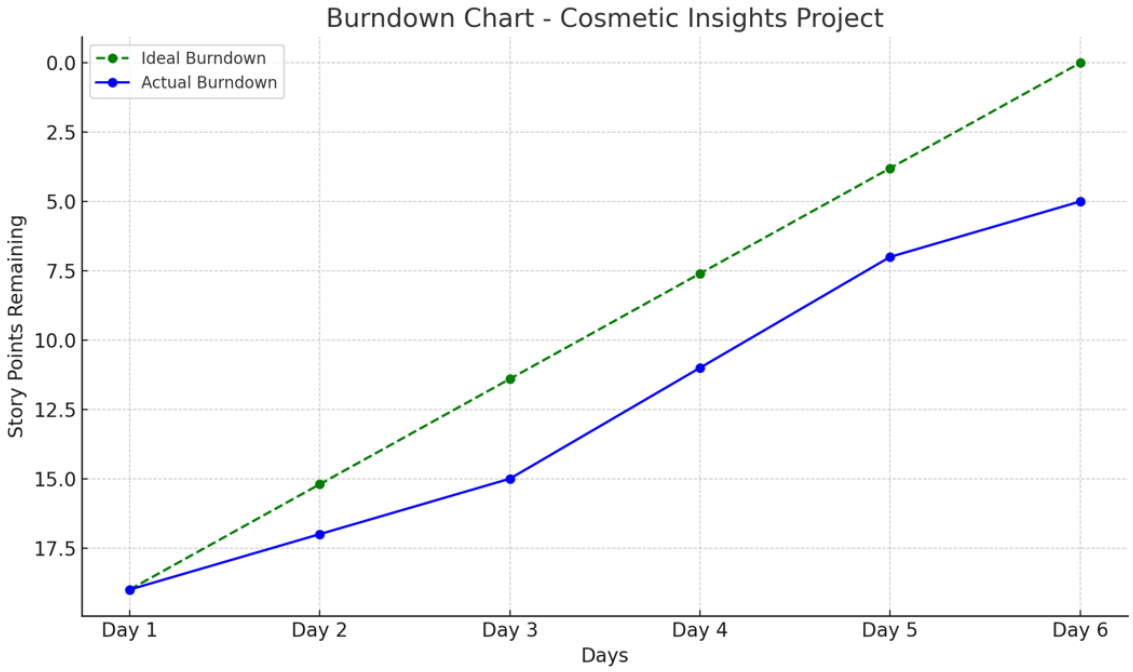
Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint-1	5	6 Days	01 July 2025	06 July 2025	5	06 July 2025
Sprint-2	7	6 Days	07 July 2025	12 July 2025		
Sprint-3	4	6 Days	13 July 2025	18 July 2025		
Sprint-4	3	6 Days	19 July 2025	24 July 2025		

Velocity:

If your Sprint-1 completed 5 points in 6 days:

Average Velocity = 5 / 6 = ~0.83 story points/day

Burndown Chart:



6. FUNCTIONAL AND PERFORMANCE TESTING:

6.1 Performance Testing:

Model Performance Testing:

S.No.	Parameter	Screenshot / Values
1.	Data Rendered	✓cosmetics.csv dataset with 1477 records and attributes such as brand, price, rank, skin suitability, and labels.

	A	B	C	D	E	F	G	H	I	J	K
1	Label	Brand	Name	Price	Rank	Ingredients	Combinati	Dry	Normal	Oily	Sensitive
2	Moisturizer	LA MER	Crème de l	175	4.1	Algae (Sea	1	1	1	1	1
3	Moisturizer	SK-II	Facial Trea	179	4.1	Galactomy	1	1	1	1	1
4	Moisturizer	DRUNK ELEP	Protini™ Pc	68	4.4	Water, Dic	1	1	1	1	0
5	Moisturizer	LA MER	The Moistu	175	3.8	Algae (Sea	1	1	1	1	1
6	Moisturizer	IT COSMETIC	Your Skin E	38	4.1	Water, Snc	1	1	1	1	1
7	Moisturizer	TATCHA	The Water	68	4.2	Water, Sac	1	0	1	1	1
8	Moisturizer	DRUNK ELEP	Lala Retro'	60	4.2	Water, Gly	1	1	1	1	0
9	Moisturizer	DRUNK ELEP	Virgin Mari	72	4.4	100% Unre	1	1	1	1	0
10	Moisturizer	KIEHL'S SINC	Ultra Facia	29	4.4	Water, Gly	1	1	1	1	1
11	Moisturizer	LA MER	Little Miss	325	5	Algae (Sea	0	0	0	0	0
12	Moisturizer	FRESH	Lotus Yout	45	4.3	Water, Gly	0	0	0	0	0
13	Moisturizer	KIEHL'S SINC	Midnight R	47	4.4	Caprylic/C	1	1	1	1	1
14	Moisturizer	BELIF	The True C	38	4.5	Water, Dip	1	0	1	1	0
15	Moisturizer	SUNDAY RILE	Luna Sleep	105	4.1	Persea Gra	1	1	1	1	1
16	Moisturizer	FARMACY	Honeymoo	58	4.6	Water, Lac	1	1	1	1	1
17	Moisturizer	DRUNK ELEP	The Littles'	90	4.4	Beste™ No	1	1	1	1	0
18	Moisturizer	FIRST AID BE	Ultra Repa	30	4.6	Water, Ste	1	1	1	1	0
19	Moisturizer	CLINIQUE	Moisture S	39	4.4	Water, Gly	1	1	1	1	0
20	Moisturizer	FRESH	Rose Deep	40	4.4	Water, Gly	0	0	0	0	0
21	Moisturizer	SK-II	R.N.A. POV	230	4.3	Water, Gly	0	1	1	0	1
22	Moisturizer	LA MER	Crème de l	85	4.1	Algae (Sea	1	1	1	1	1
23	Moisturizer	BAREMINERA	COMPLEXI	30	3.9	Water, Cor	0	0	0	0	0
24	Moisturizer	SHISEIDO	Bio-Perfor	78	4.6	Water, Gly	0	0	0	0	0
25	Moisturizer	FRESH	Black Tea I	92	4.1	Water, Gly	1	1	1	0	0
26	Moisturizer	BELIF	The True C	38	4.6	Water, Gly	0	1	1	0	0
27	Moisturizer	CHARLOTTE	Charlotte's	100	4.4	Water, Hor	0	0	0	0	0

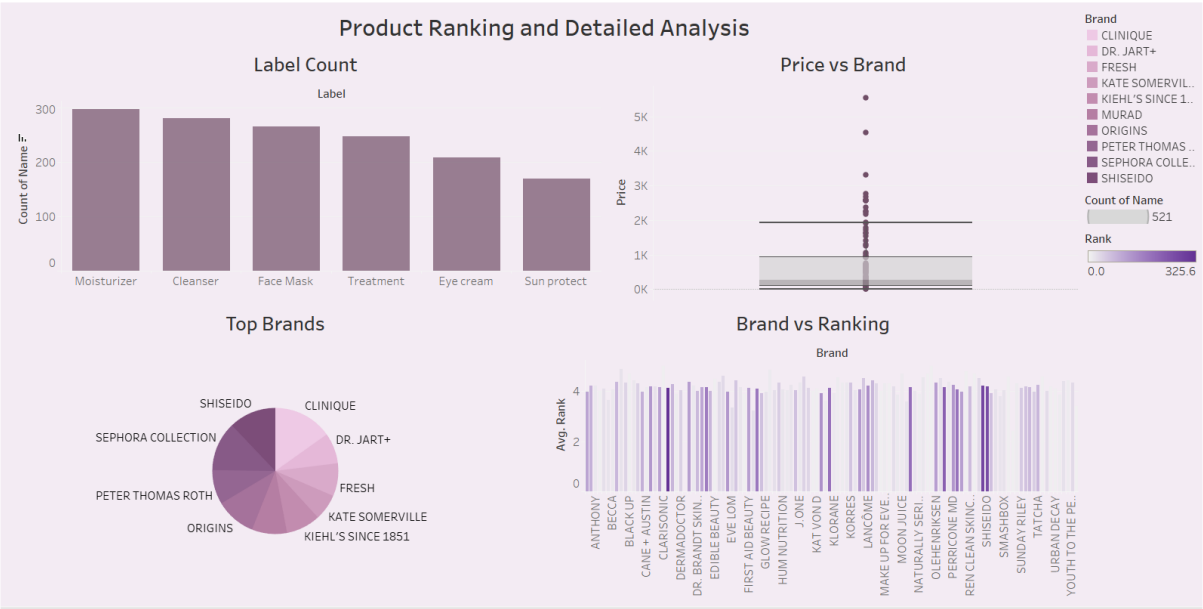
	A	B	C	D	E	F	G	H	I	J	K
1447	Sun protect	MOROCCAN	Sun Oil 15	32	4.9	Octocrylen	1	1	1	0	0
1448	Sun protect	CLINIQUE	Oil-Free Fa	26	3.3	Octinoxate	1	1	1	1	1
1449	Sun protect	PHILOSOPH	Ultimate M	75	3.7	Water, But	1	1	1	1	1
1450	Sun protect	AMOREPACI	Resort Coll	32	3.3	Polyethyle	1	1	1	1	1
1451	Sun protect	BLACK UP	Primer Bro	45	4.7	Water, But	0	0	0	0	0
1452	Sun protect	COOLA	Sport Cont	36	4.5	Alcohol (O	1	1	1	1	1
1453	Sun protect	MOROCCAN	Sun Lotion	32	3.9	Water, Cyc	1	1	1	1	0
1454	Sun protect	CLINIQUE	Virtu-oil Bc	34	4.3	Avobenzor	0	0	0	0	0
1455	Sun protect	MOROCCAN	Sun Lotion	32	4.4	Homosala	1	1	1	1	0
1456	Sun protect	SHISEIDO	Future Solu	260	3	Dipropylen	1	1	1	1	1
1457	Sun protect	COOLA	Mineral Sp	26	3.1	*Certified-	1	1	1	1	1
1458	Sun protect	CANE + AUST	Prime & Pr	56	4.2	Ascorbic A	1	1	1	1	1
1459	Sun protect	MDSOLARSC	Quick Dry I	20	3.9	SD Alcohol	1	1	1	1	1
1460	Sun protect	COOLA	Sport Cont	32	5	Alcohol (O	1	1	1	1	1
1461	Sun protect	MOROCCAN	After-Sun F	28	4.7	Water, Cap	1	1	1	1	0
1462	Sun protect	SUPERGOOF	Perfect Da	19	4.8	-Homosala	1	1	1	1	0
1463	Sun protect	PETER THOM	Oily Proble	30	3.7	Titanium D	0	0	0	0	0
1464	Sun protect	COOLA	Summer D	36	4.8	Visit the CC	0	0	0	0	0
1465	Sun protect	VITA LIBERAT	Passionflo	45	4.2	Prunus Arr	0	0	0	0	0
1466	Sun protect	IT COSMETIC	Anti-Aging	38	4.1	Water, Cyc	1	1	1	1	1
1467	Sun protect	URBAN DECA	Naked Skir	34	4.1	-Peptha* (d	0	0	0	0	0
1468	Sun protect	KATE SOMER	Daily Defle	48	3.9	Water, But	0	0	0	0	0
1469	Sun protect	KORRES	Yoghurt Nc	35	3.9	Water, Alc	1	1	1	1	1
1470	Sun protect	KATE SOMER	Daily Defle	48	3.6	Water, Isoc	0	0	0	0	0
1471	Sun protect	VITA LIBERAT	Self Tan Dr	54	3.5	Water, Dih	0	0	0	0	0
1472	Sun protect	ST. TROPEZ T	Pro Light S	29	1	Water, Dih	0	0	0	0	0
1473	Sun protect	DERMAFLASI	DERMAPRI	45	0	Visit the DI	1	1	1	1	1

2.	Data Preprocessing	✓ Removed missing values in price and rank. ✓ Converted categorical fields like "Label" and "Skin Type" for better filtering.
3.	Utilization of Filters	✓ Used filters on Brand, Label, Skin Type, and Price Range across all dashboards.
4.	Calculation Fields Used	✓ Created calculated fields for normalized rankings, average price per brand, and skin-type counts.
5.	Dashboard Design	✓ 6 Dashboards: • Top Brands • Label Count • Price vs Brand • Skin Suitability (Sensitive, Normal, Oily, Dry) • Brand vs Ranking • Label vs Ranking
6.	Story Design	✓ Combined insights into a cohesive Tableau Story (interactive slides) showing consumer trends, product comparisons, and strategic recommendations. **Visualizations Count**: 9

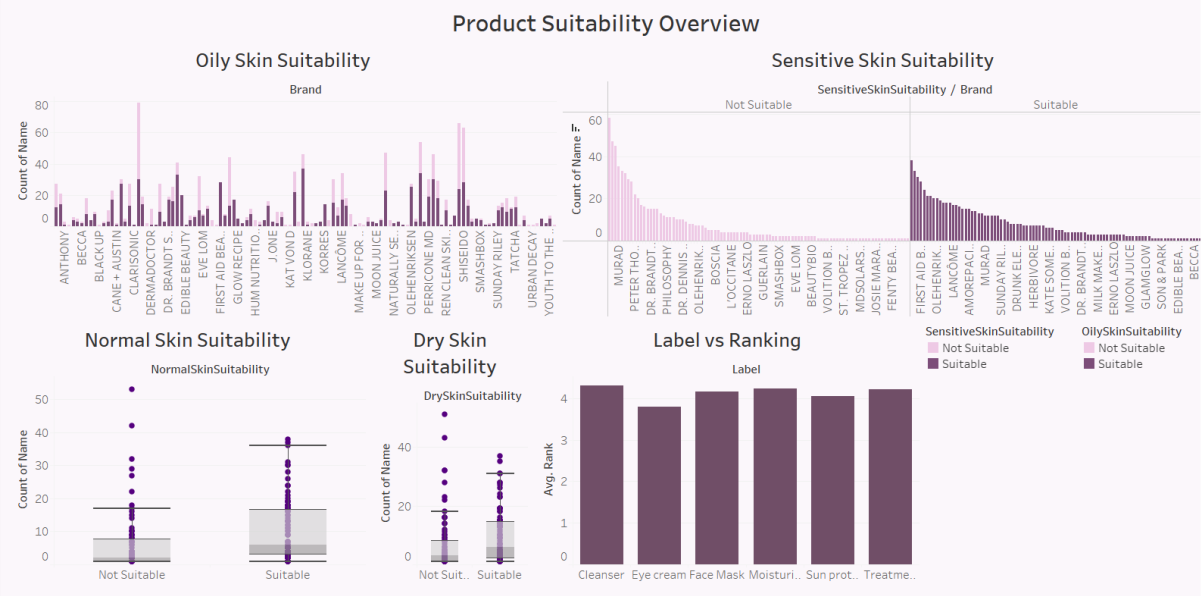
7. RESULTS:

7.1 Output Screenshots:

Dashboard -1: Product Ranking and Detailed Analysis



Dashboard -2: Product Suitability Overview



8. ADVANTAGES & DISADVANTAGES:

Advantages:

1. Interactive Dashboards:
   Users can explore the data through filters and interactive charts, enabling personalized analysis and insights.
2. Improved Decision-Making:
   Stakeholders can quickly identify trends in brand performance, skin-type suitability, and product pricing, leading to more strategic and timely decisions.
3. User-Friendly Visualization Tool:
   Tableau provides a simple and intuitive interface for both technical and non-technical users to navigate and understand complex data.
4. Real-Time Data Insights:
   The platform supports dynamic updates and instant visual feedback, making it easier to track changing market trends.
5. Time Efficiency:
   Automating data cleaning and visualization reduces manual analysis efforts and speeds up the reporting process.

Disadvantages:

1. Limited Predictive Analytics:
   While Tableau is excellent for visualization, it has limited built-in support for advanced predictive modeling compared to tools like Python or R.
2. Data Preparation Dependency:
   Accurate results depend heavily on pre-cleaned and structured data; improper formatting can affect dashboard accuracy.

3. Learning Curve for Advanced Features:
   Although basic features are user-friendly, mastering advanced calculations and dynamic dashboard elements in Tableau may require additional learning.
4. Requires Consistent Data Updates:
   Static datasets may lead to outdated insights unless the data is regularly refreshed or connected to a live source.
5. Performance Limitations with Large Data:
   Tableau Public may experience performance issues or delays when handling very large datasets or complex visualizations.

9. CONCLUSION:

The Cosmetic Insights project demonstrates the effective use of data visualization through Tableau to transform raw cosmetic product data into meaningful and actionable insights. By focusing on key aspects such as brand performance, pricing trends, product suitability for different skin types, and label effectiveness, the project enables data-driven decision-making for stakeholders in the cosmetics industry.

Through the creation of an interactive and user-friendly dashboard, this solution empowers brand managers, marketing teams, and analysts to understand market dynamics, track consumer preferences, and make informed strategic choices. The project not only enhances transparency and efficiency in interpreting cosmetic data but also lays a strong foundation for future scalability and advanced analytics.

Overall, the Cosmetic Insights dashboard serves as a powerful decision-support tool that bridges the gap between data and business impact in the fast-evolving world of beauty and skincare.

10. FUTURE SCOPE:

The Cosmetic Insights project has strong potential for future enhancements and expansion to further support decision-making in the cosmetics industry. The following areas outline possible improvements:

1. Integration with Real-Time Data Sources:
   Connecting the dashboard to live databases or APIs from e-commerce platforms or customer feedback tools will enable continuous, up-to-date insights.
2. Advanced Predictive Analytics:
   Incorporating machine learning models to predict trends in product popularity, consumer behavior, or market shifts based on historical data.
3. Enhanced Personalization:
   Enabling users to customize dashboards based on region, age group, or skin concern to gain more targeted insights.
4. Mobile and Web Deployment:
   Making the dashboard accessible on mobile devices or embedding it into websites for broader and more convenient usage.
5. Automated Alerts and Reports:
   Implementing features that trigger alerts for significant changes in metrics like sales drops or negative feedback can help teams act faster.

6. Product Comparison Tools:
   Adding functionality to compare products side-by-side based on user-defined parameters like price, ingredients, suitability, and rating.
7. Geographical Visualization:
   Introducing map-based views to understand product performance across different regions or countries.
8. Expansion to Other Beauty Categories:
   Extending the dashboard to cover haircare, fragrance, and other beauty segments for a more holistic industry analysis.

11. APPENDIX:

Dataset Link:

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

GitHub & Project Demo Link:

https://github.com/BChandini21/Cosmetic-Insights-Navigating-Cosmetics-Trends-and-Consumer-Insights-with-Tableau/upload/main