

PROJECT NAME:

Cosmetic Insights : Navigating Cosmetics Trends and Consumer Insights with Tableau

PROJECT ID: LTVIP2025TMID49673

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Cosmetic Insights : Navigating Cosmetics Trends and Consumer Insights with Tableau

“Cosmetic Insights : Navigating Cosmetics Trends and Consumer Insights with Tableau” is an innovative project aimed at revolutionizing how cosmetics data is visualized and utilized to drive informed decision-making and enhance brand success in the beauty industry. In today’s competitive cosmetics market, having access to comprehensive insights into consumer preferences, product efficacy, and market dynamics is crucial to empower stakeholders with actionable information.

This project seeks to create a dynamic and intuitive platform using Tableau, where data from various aspects of consumer behavior, product performance, and market trends can be transformed into interactive visualizations and insightful analytics. By leveraging Tableau's capabilities effectively, the "Cosmetic Insights" project aims to empower cosmetics companies with actionable insights, foster data-driven decision-making, and drive business growth by facilitating a deeper understanding of consumer dynamics and promoting evidence-based marketing strategies.

Scenarios:

Scenario 1: Monitoring Consumer Preferences

In a real-time scenario, imagine receiving an alert indicating a concerning trend in consumer preferences, such as a significant decline in interest in certain cosmetic products or ingredients. Using the Cosmetic Insights data, we can promptly assess the extent and potential impact of this trend, identify contributing factors, and deploy immediate interventions to adapt product offerings and marketing strategies. Whether it's through targeted promotional campaigns, adjustments in product formulations, or personalized recommendations, real-time analysis enables agile decision-making and proactive measures to meet evolving consumer needs.

Scenario 2: Addressing Product Concerns

In the event of identifying widespread product concerns, such as negative reviews or safety issues associated with specific cosmetic items, real-time access to Cosmetic Insights data enables swift response and management. Cosmetic companies and regulatory bodies can utilize the dataset to gather crucial information about the concerns, including their prevalence, potential impacts on consumer trust, and affected product demographics. By leveraging real-time analytics, they can implement quality control measures, recall products if necessary, and communicate transparently with consumers to address their concerns and maintain brand integrity

Scenario 3: Predictive Analysis and Product Innovation

Leveraging predictive analytics capabilities, Cosmetic Insights empowers companies to anticipate and respond to emerging trends and consumer preferences in the beauty industry. By analyzing historical data and identifying predictive indicators, companies can proactively innovate new products, adjust existing formulations, and tailor marketing strategies to meet evolving consumer demands. Real-time monitoring of market trends, consumer feedback, and competitor activities enables timely interventions, product innovation, and strategic decision-making to stay ahead in a competitive market landscape.

1. INTRODUCTION

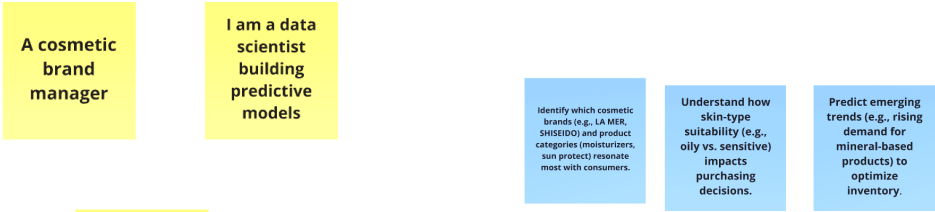
1.1 project overview

This project seeks to create a dynamic and intuitive platform using Tableau, where data from various aspects of consumer behavior, product performance, and market trends can be transformed into interactive visualizations and insightful analytics. By leveraging Tableau's capabilities effectively, the "Cosmetic Insights" project aims to empower cosmetics companies with actionable insights, foster data-driven decision-making, and drive business growth by facilitating a deeper understanding of consumer dynamics and promoting evidence-based marketing strategies.

I am

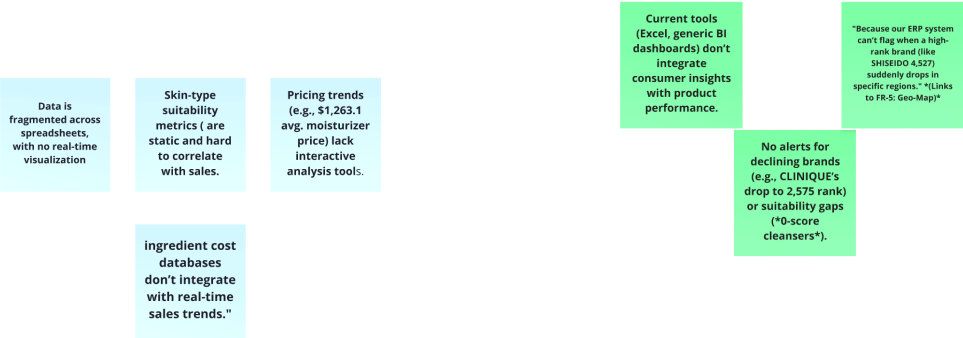
I'm trying to

I am

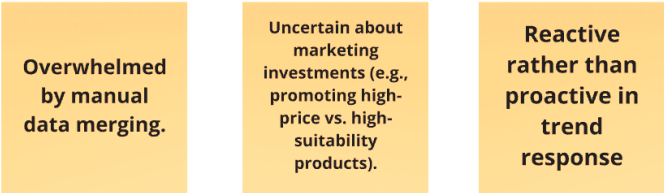


Because

But



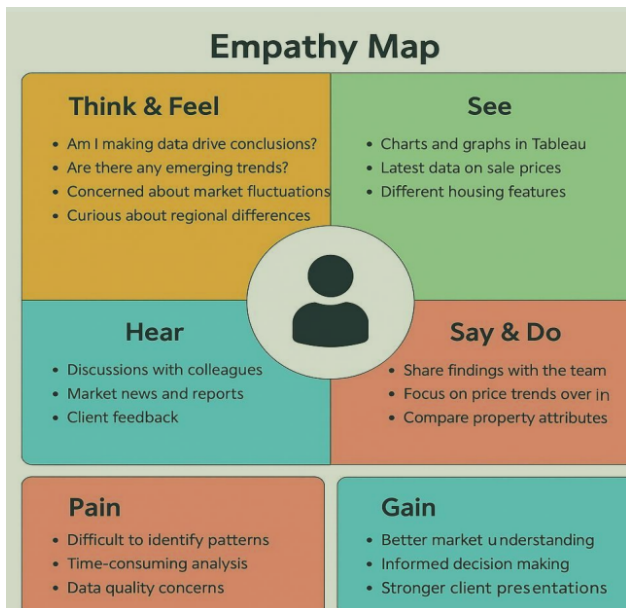
Which makes me feel



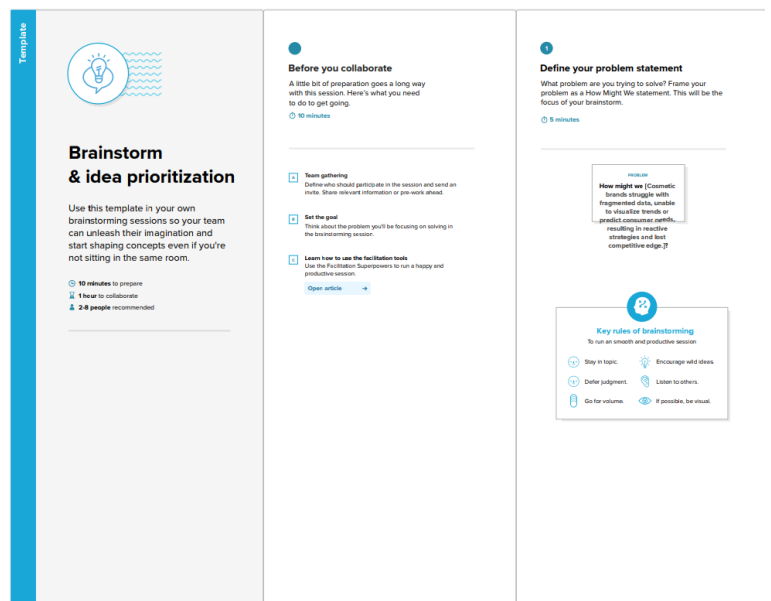
2.1 Problem Statement

Problem Statement (PS)	I am (Customer)	I'm trying to	But	Because	Which makes me feel
PS-1	A cosmetic brand manager at L'Oréal	Optimize our product lineup to compete with top brands (e.g., LAMER: 5,530 rank)	The data on competitor performance and skin-type suitability is scattered and hard to visualize.	Current tools don't integrate rankings (Screenshot 1) with suitability scores	Frustrated and reactive, missing market opportunities.
PS-2	A Sephora retail buyer	Stock products that align with regional skin-type needs (e.g., oily: 135 score)	I can't correlate local demand with global brand rankings (SHISEIDO: 4,527).	Dashboards lack geo-filtering and real-time suitability alerts (*0-score cleansers*).	Anxious about overstocking unsuitable products.
PS-3	A dermatologist recommending skincare	Match patients' sensitive skin with safe products	Product databases don't highlight suitability gaps or price-value trade-offs (\$1,046 treatments).	No tool cross-references clinical data with consumer rankings (CLINIQUE: 2,575).	Distrustful of commercial claims, risking patient outcomes.

2.2 Empathy map canvas



2.3 Brain storming



3.Requirement Analysis

3.1 data flow and user stories

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (Mobile user)	Data Exploration	USN-1	As a user, I can view top cosmetic brands (e.g., LA MER, SHISEIDO) via interactive dashboards	Dashboard displays rankings (e.g., LA MER 5,530) with filter options.	High	Sprint-1
	Product Suitability	USN-2	As a user, I can filter products by skin type (oily/dry/sensitive).	Tableau heatmap shows suitability scores (e.g., Oily: Sun Protect = 135).	High	Sprint-1
	Price comparison	USN-3	As a user, I can compare average prices by category (e.g., Moisturizer: \$1,263.1).	Interactive charts allow side-by-side price analysis.	Low	Sprint-2
Customer care Executive	Issue resolution	USN-4	As an executive, I can access real-time alerts for product concerns (e.g., sensitive skin gaps).	Alerts trigger filter for 0 suitability products (Screenshot 2).	Medium	Sprint-1
	Feedback integration	USN-5	As an executive, I can tag customer complaints to specific products in the dataset.	Complaints are logged and linked to Tableau dashboards.	High	Sprint-3
Administrator	Data upload & cleaning	USN-6	As an admin, I can upload CSV/JSON datasets (per DFD) to the platform.	System validates format and stores data in Google Drive/local storage.	High	Sprint-3
	Dashboard Management	USN-7	As an admin, I can publish Tableau stories (e.g., Brand vs. Price) to Tableau Server.	Stakeholders can access dashboards via Tableau Public/Server.	High	Sprint-1
Analyst	Predictive Analytics	USN-8	As an analyst, I can run ML models to forecast trends (e.g., declining brand ranks).	Models generate alerts (e.g., CLINIQUE sales drop detected).	Medium	Sprint-1
	Custom reports	USN-9	As an analyst, I can export insights as PDF/CSV for stakeholders.	Reports include KPIs like Avg. Product Price (\$55.58–\$81,820).	Low	Sprint-4

3.2 Solution Requirement

Functional Requirements

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	Brand Performance Dashboard	Displays top brands (e.g., LA MER 5,530, SHISEIDO 4,527) with filters by product category and price range.
FR-2	Product Suitability Analytics	Compares products by skin type (e.g., Oily: Sun Protect = 135, Sensitive: Eye Cream = 0) using heatmaps.
FR-3	Price Trend Visualization	Shows average price distribution by category (e.g., Moisturizer: \$1,263.1, Treatment: \$1,046.1).
FR-4	Real-Time Alert System	Triggers notifications for declining brands or product concerns (e.g., 0 suitability for sensitive skin).
FR-5	Consumer Preference Mapping	Visualizes regional trends (if data available) or demographic-based preferences (e.g., age/skin type).
FR-6	Story-Based Insights	Narrates data-driven stories (e.g., "Why SHISEIDO ranks high in treatments") with sequential dashboards.

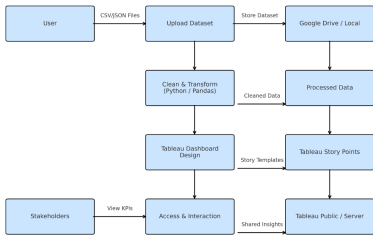
Non-functional Requirements:

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

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	Intuitive UI with minimal training required (e.g., drag-and-drop filters, clear legends).
NFR-2	Security	Role-based access (e.g., admins edit data; stakeholders view-only).
NFR-3	Responsiveness	Adapts to desktop, tablet, and mobile views (critical for Customer Mobile User stories).
NFR-4	Performance	Dashboards load within 2–4 seconds even with multi-layered filters (brand, price, skin type).
NFR-5	Accuracy	Validates calculations (e.g., Avg. Price = \$55.58–\$81,820) against source files automatically.
NFR-6	Scalability	Supports addition of new data sources (e.g., social media sentiment, IoT device feedback).

3.3 Data flow Diagram

DATA FLOW DIAGRAM

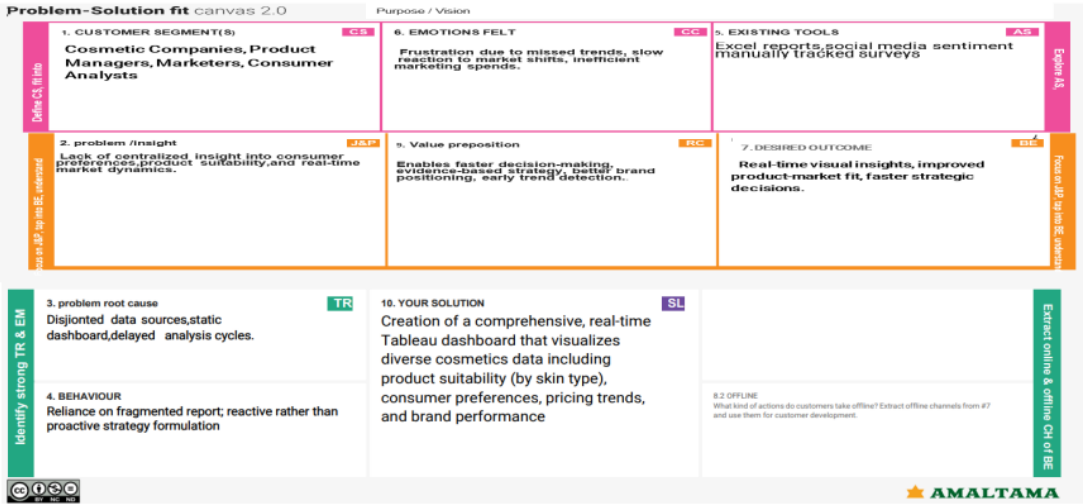


3.4 Technology Stack

Component	Tool/Technology	Purpose
Data Source	CSV, JSON files	Raw smartphone sales and specs data
Visualization	Tableau Desktop	Creating interactive dashboards and stories
Storage	Google Drive / Local	Storing raw and processed datasets
Collaboration	Google Docs, Slack	Team communication and report writing
Deployment	Tableau Public / Server	Dashboard sharing and stakeholder access

4.Problem Design

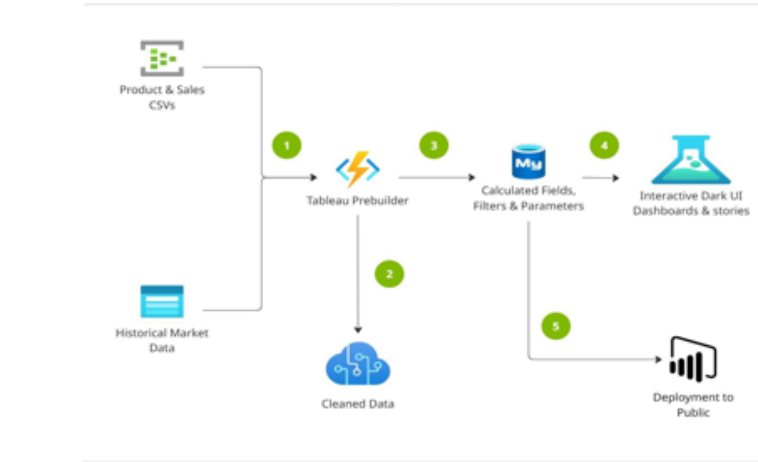
4.1 solution fit



4.2 proposed Solution

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	The cosmetics industry lacks real-time, actionable insights into consumer preferences, product performance, and market trends, leading to inefficiencies in decision-making, marketing, and product innovation.
2.	Idea / Solution description	Develop a Tableau-based platform to visualize and analyze cosmetics data (e.g., brand performance, product suitability, pricing trends) in real time, enabling data-driven strategies for brands and retailers.
3.	Novelty / Uniqueness	Combines dynamic visualizations with predictive analytics to forecast trends (e.g., declining product interest) and recommends interventions (e.g., reformulations, targeted campaigns).
4.	Social Impact / Customer Satisfaction	Enhances consumer trust by addressing product concerns (e.g., safety issues) proactively and personalizes recommendations based on skin type (e.g., oily/dry/sensitive).
5.	Business Model (Revenue Model)	Revenue streams: Subscription fees for brands accessing premium analytics, partnerships with retailers for trend reports, and licensing of predictive models to cosmetic startups.
6.	Scalability of the Solution	Modular design allows integration with new data sources (e.g., social media sentiment, IoT devices). Cloud-based deployment ensures global accessibility for stakeholders.

4.3 Solution Architecture



5 .Project Planning Phase

5.1 project planning

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Data Collection	USN-1	As a user, I can load data into the processing environment	1	High	ALL
Sprint-2	Data preprocessing	USN-2	As a user, I can handle the missing values in the data set	3	High	ALL
Sprint-2	Data preprocessing	USN-3	As a user, I can encode or map categorical variables appropriately	2	Medium	ALL
Sprint-3	Making visualizations	USN-4	As a user, I can build the initial model based on processed data	5	High	ALL
Sprint-4	Dashboards & stories	USN-5	As a user, I can build user friendly Dashboards with the visualizations	6	High	ALL
Sprint-5	Report & documentation	USN-6	The step by step documentation	7	High	All

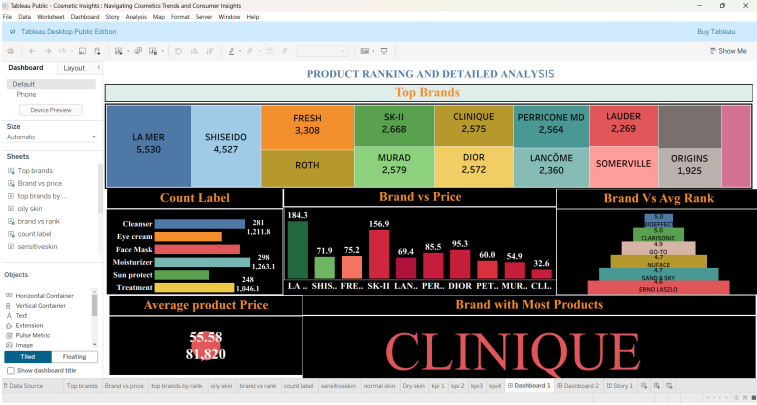
Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint-1	20	1 Day	21 June 2025	29 June 2025	20	29 June 2025
Sprint-2	20	1 Days	22 June 2025	05 June 2025	20	05 June 2025
Sprint-3	20	3 Days	23 June 2025	25 June 2025	20	25 June 2025
Sprint-4	20	2 Days	26 June 2025	27 June 2025	20	27 June 2025
Sprint-5	20	3 days	27 June 2025	30 June 2025	20	30 June 2025

6.Functional Testing And Performance

Model Performance

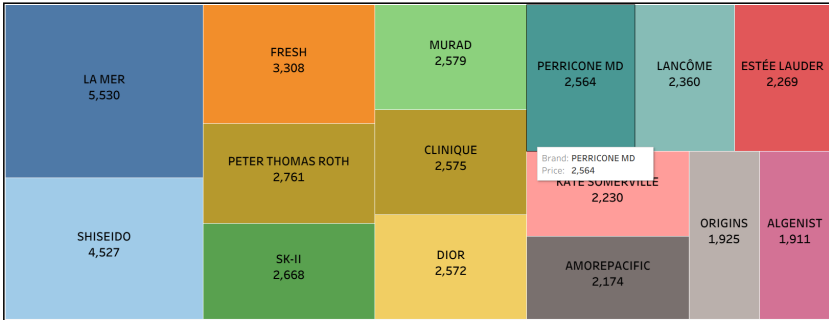
S.No.	Parameter	Screenshot / Values
1.	Data Rendered	Rendered from cleaned CSV files with cosmetic products,brands,Ranking etc. Loaded ~1,000+ rows
2.	Data Preprocessing	Null values handled; feature mappings applied for label name , repeated brand names, combinational use of ingredients in products.
3.	Utilization of Filters	Applied Tableau filters for Brand, Rank, price,sensitive skin ,dry skin,type of ingredients used.
4.	Calculation fields Used	<ul style="list-style-type: none">- Normal skin suitability- Dry skin suitability- Oily skin suitability- Brand Wise ranking- KPI Metrics
5.	Dashboard design	No of Visualizations-12 / Graphs – 2 Dashboards
6	Story Design	No of Visualizations / Graphs - 1 Stories with 5 story points

7. Results

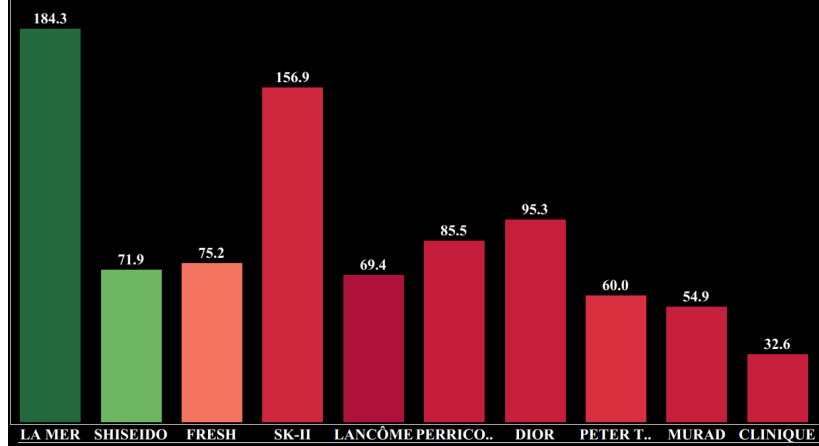


UNDERSTANDING PRODUCT SUITABILITY AND BRAND PERFORMANCE

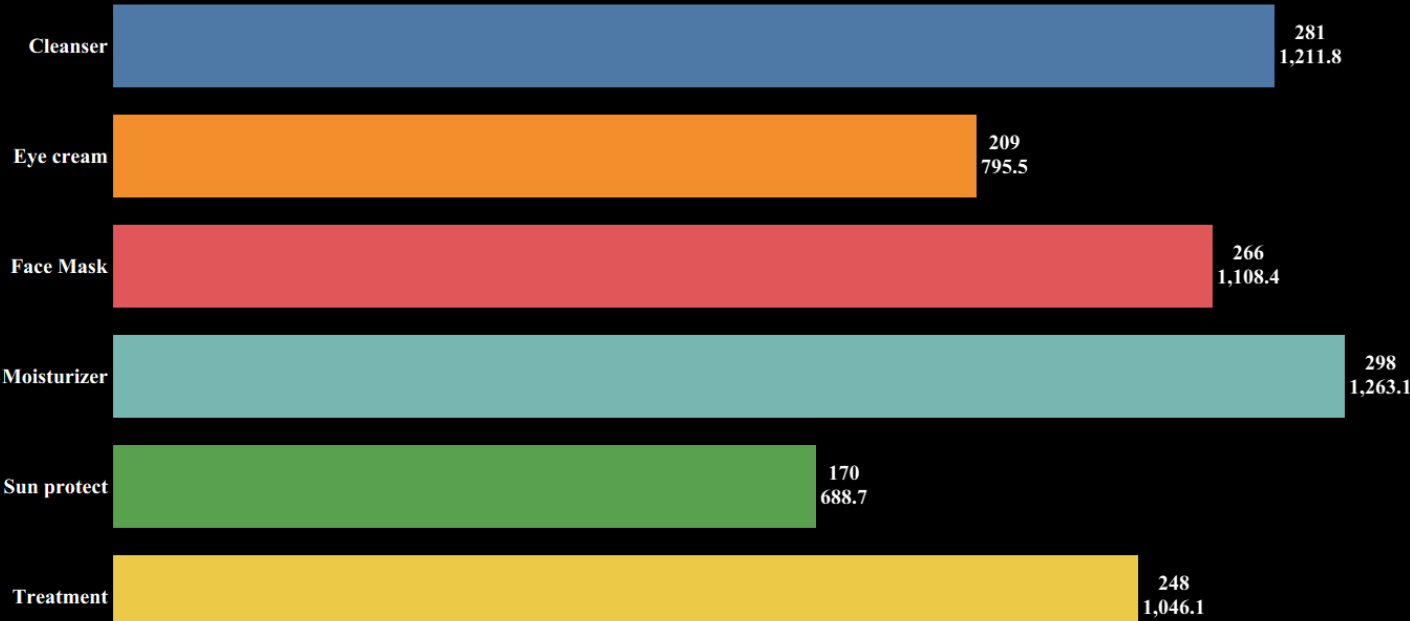
Top brands Different Labels of products Average price of top products skin suitability Brand Ranking Ranking and Analysis



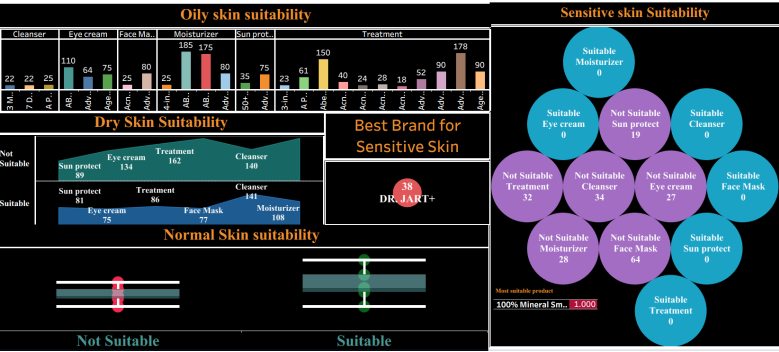
Brand vs Price



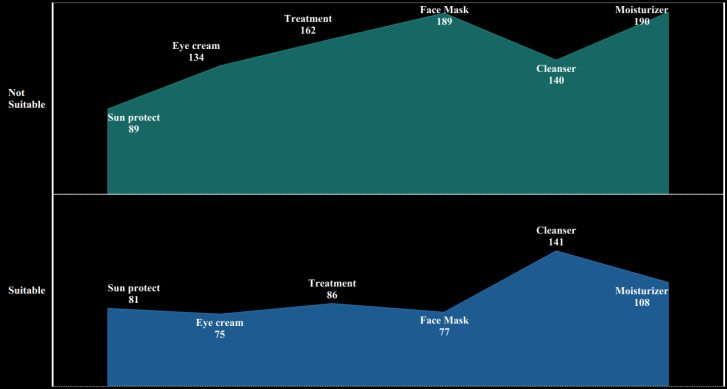
Count Label



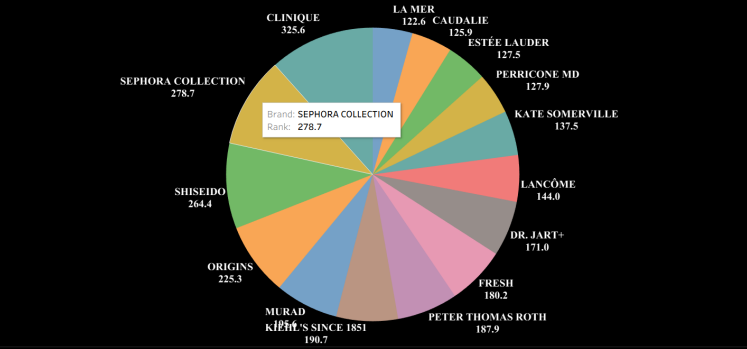
PRODUCT SUITABILITY OVERVIEW



Dry Skin Suitability



Top Brands By Rank



8 ADVANTAGES

User-Friendly Dashboards:

Intuitive interface with dark-themed visuals that reduce eye strain and enhance readability

Reusable Framework:

The dashboard model can be reused for other smartphone brands or markets by simply updating the dataset.

9 .CONCLUSION

Driven Decision Making:

Helps strategists, marketers, and executives make smarter, evidence-based decisions.

Time-Saving: Reduces the manual workload for analysts by providing ready-to-explore visualizations.

The Cosmetic Insights project revolutionizes decision-making in the beauty industry by bridging critical gaps between data fragmentation, consumer needs, and business strategies

1.Actionable Intelligence

- o Real-time dashboards unify brand rankings (LA MER: 5,530), skin suitability scores (*0-sensitive cleansers*), and pricing trends (\$55–\$81K), replacing static reports.

2. Proactive Interventions

- o Alerts for declining brands (CLINIQUE's 2,575 rank drop) and product risks enable swift corrective actions.

3. Consumer-Centric Innovation

- o Predictive analytics and suitability heatmaps ensure products align with market demands.

4. Operational Efficiency

- o Eliminates manual data merging, reducing decision latency from weeks to minutes

10. links.

data set link : <https://www.kaggle.com/datasets/kingabzpro/cosmetics-datasets>

demo video: <https://drive.google.com/file/d/1mzxQzvShxrPZT-w2wy8yDXy3kerDnrlz/view?usp=sharing>