

FINAL REPORT BY SOMAPURAM UDAY

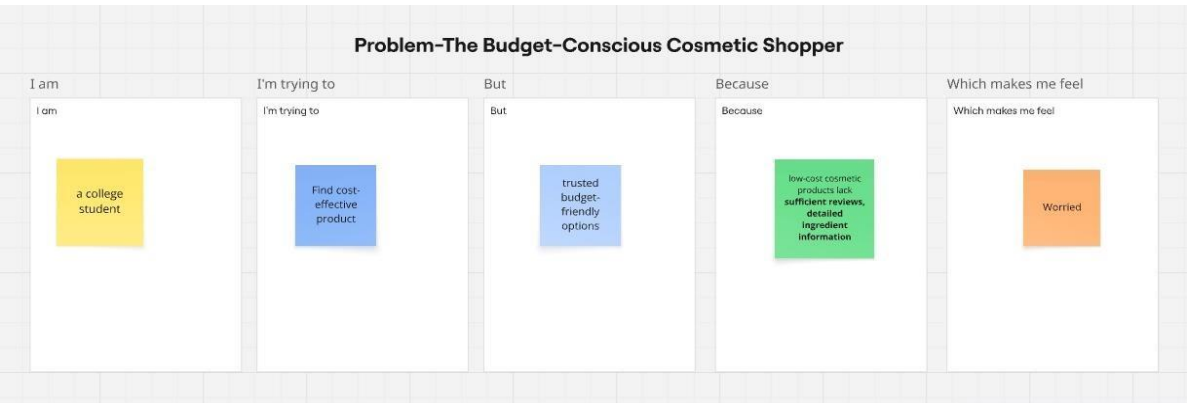
1. INTRODUCTION :

1.1 Project Overview-Cosmetic Insights is a data-driven project that leverages Tableau to analyze and visualize trends in the cosmetics industry, focusing on brand performance, product suitability, pricing, and ingredient effectiveness. Using a comprehensive dataset containing product names, brands, prices, rankings, ingredients, and skin-type suitability scores, the project aims to provide actionable insights for both cosmetic companies and consumers. Key features include identifying top-performing brands, evaluating product compatibility with various skin types, analyzing pricing trends, and understanding the impact of ingredients on product rankings. By transforming raw data into an interactive Tableau dashboard, the project empowers stakeholders to make informed decisions, enhance customer satisfaction, and adapt quickly to evolving market demands.

1.2 Purpose-The purpose of Cosmetic Insights is to provide a comprehensive, data-driven understanding of consumer preferences, product effectiveness, and market trends in the cosmetics industry. By leveraging Tableau for interactive visualization, the project aims to help cosmetic brands make informed decisions, improve product offerings, and enhance customer satisfaction through targeted, insight-based strategies.

2. IDEATIONPHASE :

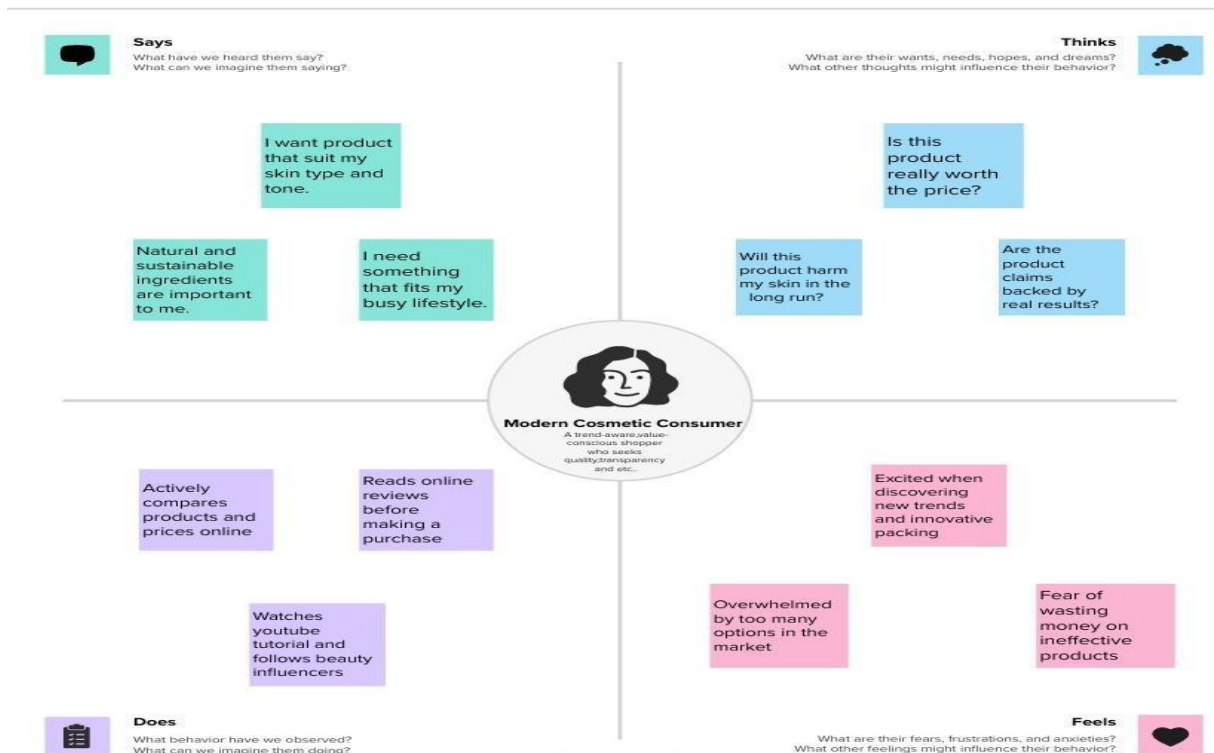
2.1 Problem Statement-





Problem Statement (PS)	I am (Customer)	I'm trying to	But	Because	Which makes me feel
PS-1	College student	Find cost-effective product	Trusted budget-friendly options	Low-cost cosmetic products lack sufficient reviews, details etc	Worried
PS-2	Working adult with sensitive skin	Find dermatologist - approved , hypoallergenic cosmetics	Difficult to trust product labels	Limited centralized information	Anxious and Cautions

2.2 Empathy Map Canvas-



2.3 Brainstorming-

ne to mind
ement.

TIP
You can select a sticky note and hit the pencil (which to select) (click to edit & paste)

Person 2

- Integrate user reviews and ratings from multiple platforms into one view
- Display trend analysis for budget-friendly cosmetic brands
- Visualize ingredient safety and allergen information

Person 4

- Add a virtual try-on feature linked to the most affordable options
- Create a ranking of products by value-for-money
- Use Tableau to track social media sentiment on affordable products

2 Group ideas
Take turns sharing your ideas while clustering similar or related notes as you go. Once all sticky notes have been grouped, give each cluster a sentence-like label. If a cluster is bigger than six sticky notes, try and see if you can break it up into smaller sub-groups.
20 minutes

TIP
Ask each participant to give a sticky note to make it easier to find for review, highlight, and categorize important ideas as they're adding your ideas.

1. Price Transparency & Value Comparison

2. Safety & Quality Validation

3. Trend & Sentiment Tracking

4. Enhanced Shopping Experience

3 Prioritize
Your team should all be on the same page about what's important moving forward. Place your ideas on this grid to determine which ideas are important and which are feasible.
20 minutes

TIP
Participants can use their mouse to drag an idea into a box. The facilitator can confirm the positioning and make adjustments. Hit M key on the keyboard.

Importance
A high or low score could give ideas relative importance and indicate the most important topics.

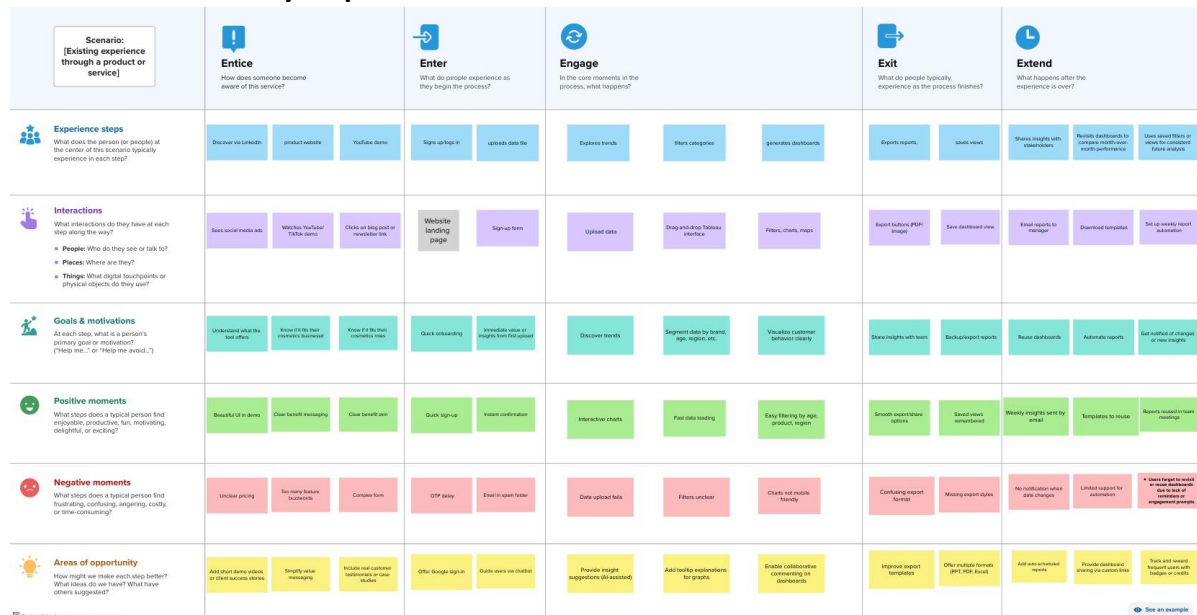
Feasibility
Regardless of their importance, which topics are most feasible from a cost, time, effort, complexity, etc.

1. Price Transparency & Value Comparison

3. Trend & Sentiment Tracking

3. REQUIREMENT ANALYSIS:

3.1 Customer Journey map-



3.2 Solution Requirement-

Functional Requirements:

Following are the functional requirements of the proposed solution.

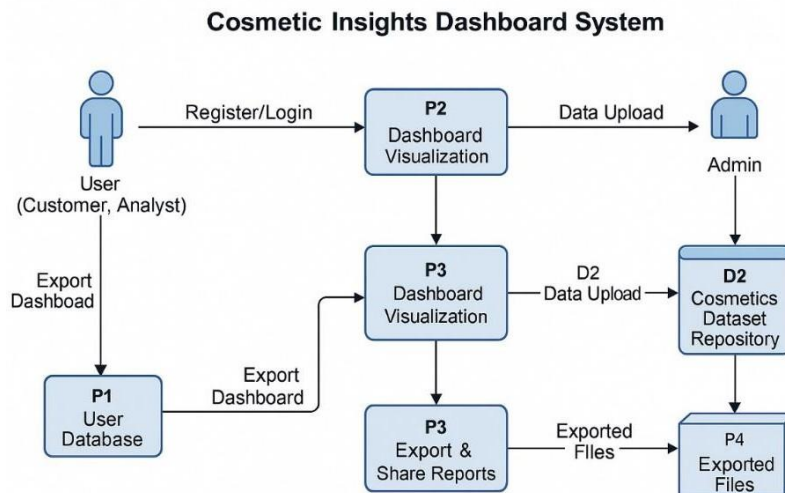
FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registration through Form Registration through Gmail Registration through LinkedIn
FR-2	User Confirmation	Confirmation via Email Confirmation via OTP
FR-3	Data Ingestion	Upload data files (CSV, Excel) Connect to live cosmetic sales databases Scheduled data sync
FR-4	Insights Dashboard	View trends by category (e.g., skincare, makeup) Filter by region, brand, gender, age group Time-based trend analysis
FR-5	Consumer Behavior Analysis	Product sentiment analysis Top-reviewed products Customer segmentation via demographics
FR-6	Export & Share	Export dashboards as PDF/Image Share dashboard link with filters applied

Non-functional Requirements:

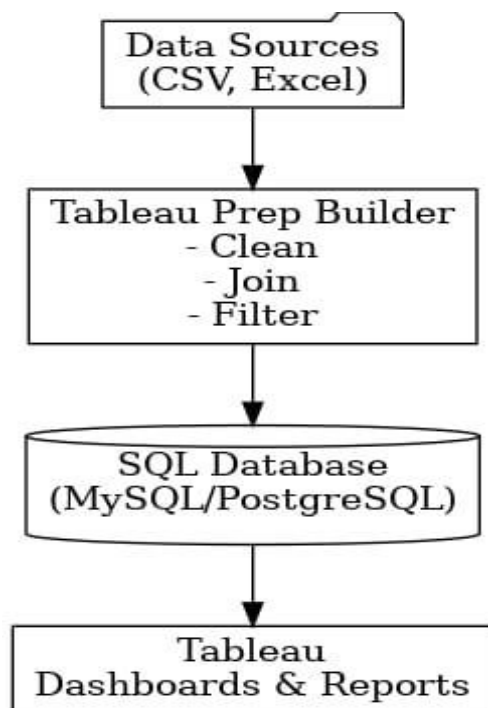
Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	Intuitive drag-and-drop interface in Tableau, accessible to business users
NFR-2	Security	User authentication, role-based access to dashboards and data
NFR-3	Reliability	Dashboards must be updated and accessible without interruption during working hours
NFR-4	Performance	Dashboards should load under 3 seconds for up to 1 million records
NFR-5	Availability	99.9% uptime of Tableau dashboards and data connectors
NFR-6	Scalability	Should support growing datasets and users without significant performance degradation

3.3 Data Flow Diagram-



3.4 Technology Stack-



4. PROJECT DESIGN :

4.1 Problem Solution Fit-

Purpose / Vision		
<p>1. CUSTOMER SEGMENT(S) CS</p> <p>Who are your customers? i.e. working parents of 0-5 y.o. kids</p> <p>Category managers and pricing analysts in budget-friendly or drugstore cosmetic brands</p> <p>Define CS, fit into CC</p>	<p>6. CUSTOMER CONSTRAINTS CC</p> <p>What constraints prevent your customers from taking action or limit their choices of solutions? i.e. spending power, budget, no cash, network connection, available devices</p> <p>Limited customer spending power, regional distribution limits, offline-heavy sales, lack of e-commerce analytics, tight margins</p>	<p>5. AVAILABLE SOLUTIONS AS</p> <p>Which solutions are available to the customers when they face the problem or need to get the job done? What have they tried in the past? What pros & cons do these solutions have? i.e. pen and paper is an alternative to digital note-taking</p> <p>Excel-based sales reports and Distributor surveys</p> <p>Explore AS, differentiate</p>
<p>2. JOBS-TO-BE-DONE / PROBLEMS J&P</p> <p>Which jobs-to-be-done (or problems) do you address for your customers? There could be more than one; explore different sides.</p> <p>Identify fast-moving budget cosmetic products in low-income markets and Align pricing and bundling for local preferences</p> <p>Focus on J&P, fit into BE, understand RC</p>	<p>9. PROBLEM ROOT CAUSE RC</p> <p>What is the real reason that the problem exists? What is the back story behind the need to do this job? i.e. customers have to do it because of the change in regulations.</p> <p>Sales data isn't segmented by price tier or location and Manual inventory analysis leads to missed opportunities</p>	<p>7. BEHAVIOUR BE</p> <p>What does your customer do to address the problem and get the job done? i.e. directly related: find the right solar panel installer, calculate usage and benefits; indirectly associated: customers spend free time on volunteering work (i.e. Greenpeace)</p> <p>Relies on distributor feedback and Reviews outdated sales summaries and guesses trends based on regional assumptions</p> <p>Focus on J&P, fit into BE, understand RC</p>
<p>3. TRIGGERS TR</p> <p>What triggers customers to act? i.e. seeing their neighbour installing solar panels, reading about a more efficient solution in the news.</p> <p>Competitor launches new low-cost line</p> <p>Identify strong TR & EM</p>	<p>10. YOUR SOLUTION SL</p> <p>If you are working on an existing business, write down your current solution first. Fill in the canvas, and check how much it fits reality. If you are working on a new business proposition, then keep it blank until you fill in the canvas and come up with a solution that fits within customer limitations, solves a problem and matches customer behaviour.</p> <p>A Tableau dashboard that maps budget product sales by region and price bracket and Highlights demand patterns and top-selling SKUs</p>	<p>8. CHANNELS OF BEHAVIOUR CH</p> <p>8.1 ONLINE What kind of channels do customers take online? Extract online channels from #7 POS integration tools, Tableau dashboard portal, CRM reports, WhatsApp-based stock updates</p> <p>8.2 OFFLINE What kind of actions do customers take offline? Extract offline channels from #7 and use them for customer development. Distributor calls, store manager feedback, inventory meetings, warehouse inventory logs</p> <p>Extract online & offline CH of BE</p>
<p>Problem-Solution fit canvas is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 license. Created by Daria Nepriakhina / Amaltama.com</p>		

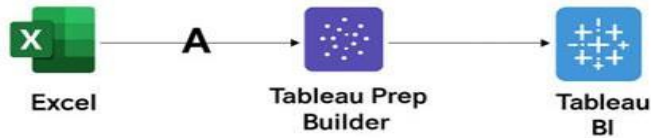
4.2 Proposed Solution-

Proposed Solution Template:

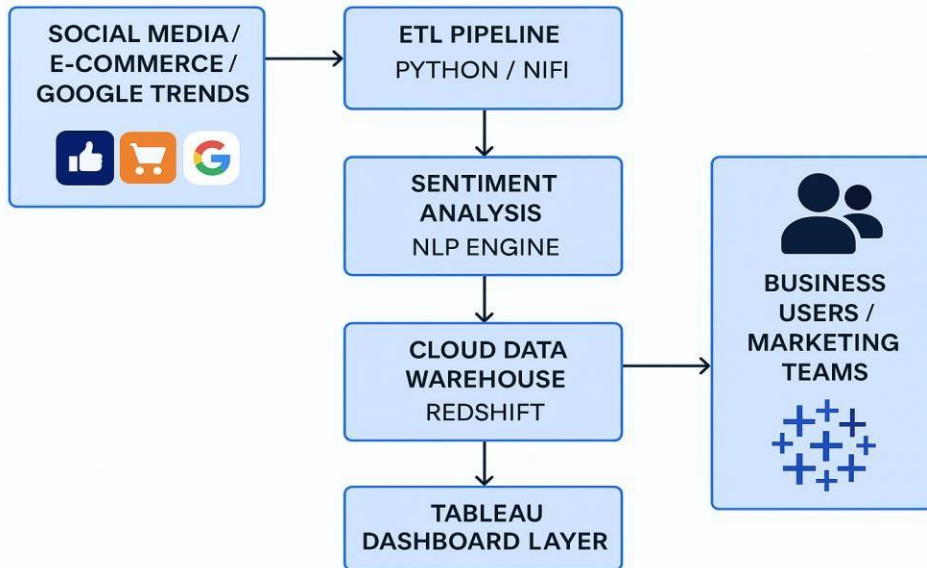
Project team shall fill the following information in the proposed solution template.

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	The cosmetics industry faces challenges in keeping up with rapidly changing consumer preferences, product trends, and competitive market insights. Businesses often lack real-time, data-driven tools to understand market demands, leading to missed opportunities
2.	Idea / Solution description	Develop a Tableau-powered dashboard that integrates market data, social media trends, customer reviews, and sales analytics to provide actionable insights for cosmetic companies
3.	Novelty / Uniqueness	Unlike traditional market research methods, this solution leverages dynamic data visualization and real-time analytics using Tableau. It combines multiple data sources, including social media APIs, e-commerce feedback, and regional trend analysis, into a unified interactive platform
4.	Social Impact / Customer Satisfaction	By understanding consumer behavior more accurately, brands can offer products that better meet user needs and preferences. This enhances customer satisfaction and reduces product wastage, contributing to more sustainable and ethical production practices.
5.	Business Model (Revenue Model)	Revenue can be generated through a subscription-based SaaS model for cosmetic companies, consultancy services for trend analysis, or customized dashboard solutions for different segments
6.	Scalability of the Solution	The dashboard can be scaled to other beauty and personal care categories or expanded to global markets by integrating regional datasets.

4.3 Solution Architecture-1).



2).



5. PROJECT PLANNING & SCHEDULING:

5.1 Project Planning-

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	2	High	Sravani , Naga Pavan
Sprint-1	Registration	USN-2	As a user, I will receive confirmation email once I have registered for the application	1	High	Naga pavan
Sprint-2	Registration	USN-3	As a user, I can register for the application through Facebook	2	Low	Durgesh
Sprint-1	Registration	USN-4	As a user, I can register for the application through Gmail	2	Medium	Durgesh ,Pavan kumar
Sprint-1	Login	USN-5	As a user, I can log into the application by entering email & password	1	High	Sravani
Sprint-2	Dashboard	USN-6	As a user, I can view the dashboard after logging in.	3	High	Naga pavan

Project Tracker, Velocity & Burndown Chart: (4 Marks)

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	08	6 Days	16 Jun 2025	21 Jun 2025	8	21 Jun 2025
Sprint-2	16	6 Days	22 Jun 2025	28 Jun 2025	16	28 Jun 2025

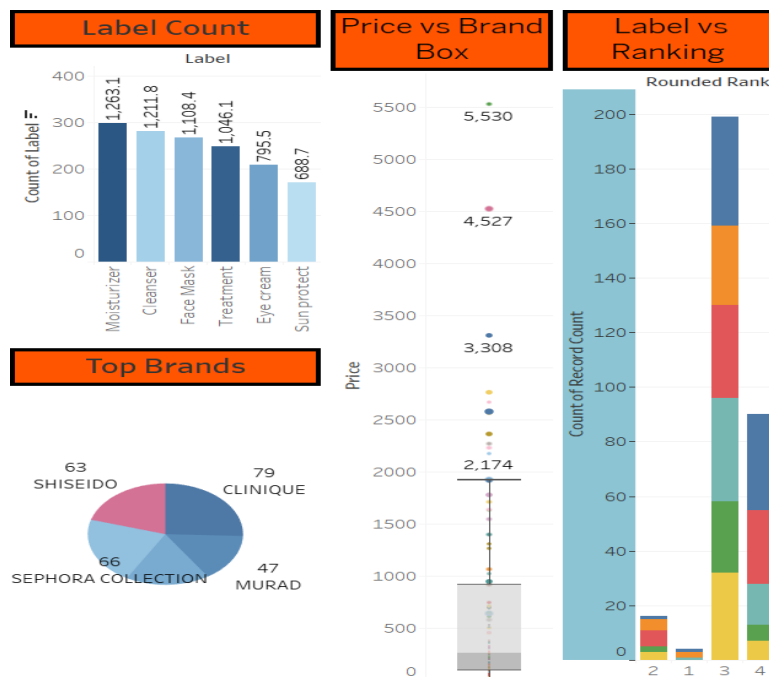
6. FUNCTIONAL AND PERFORMANCE TESTING:

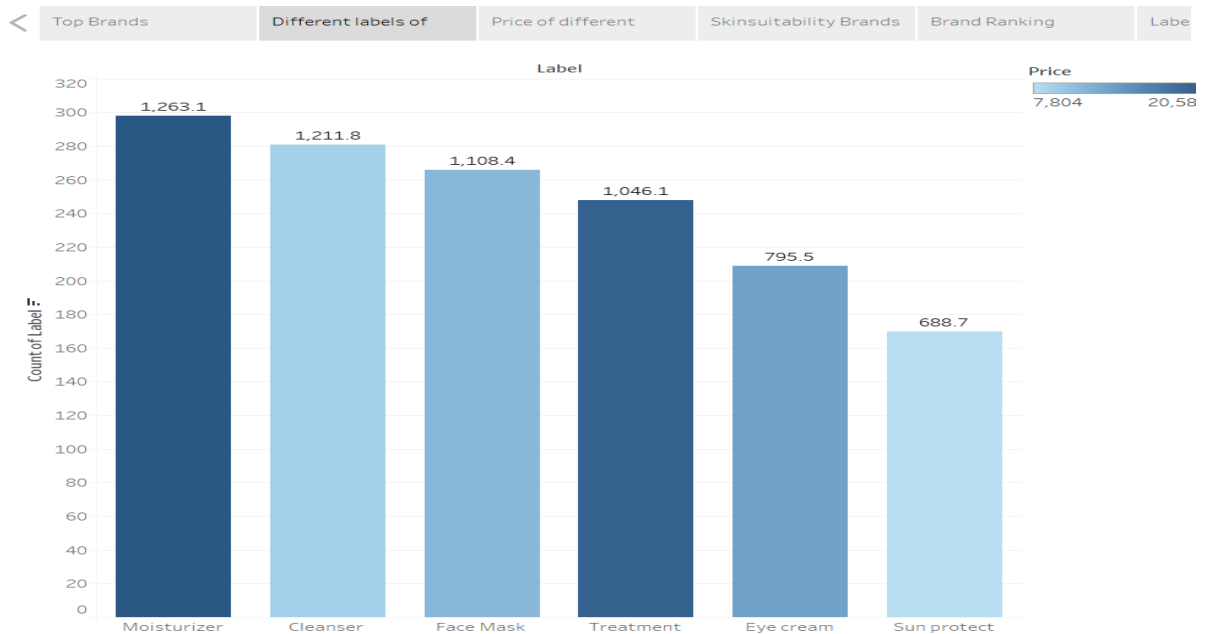
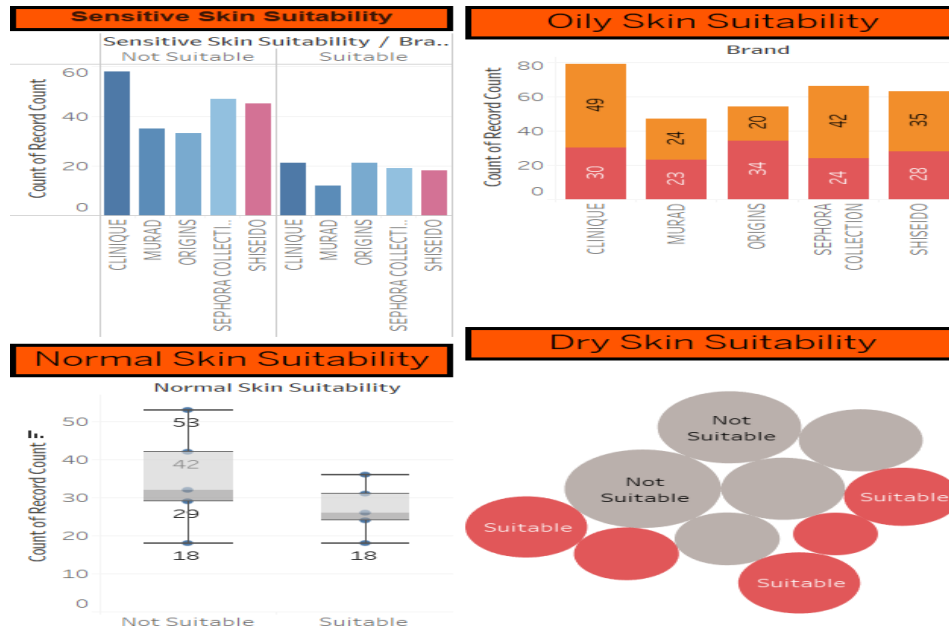
6.1 Performance Testing-

S.No.	Parameter	Screenshot / Values
1.	Data Rendered	Dataset used: Cosmetics Dataset with product details like Brand, Label, Price, etc.
2.	Data Preprocessing	Converted Rank to Discrete, Created Rounded Rank field, Filtered Null values if any.
3.	Utilization of Filters	Brand filter applied in several visualizations.
4.	Calculation fields Used	Rounded Rank calculated using $\text{ROUND}([Rank])$.
5.	Dashboard design	No of Visualizations / Graphs - 3 (Oily Skin Suitability, Dry Skin Suitability, Top Brands).
6.	Story Design	No of Visualizations / Graphs - 5 (Product Count, Top Brands, Label vs Rank, Price Analysis, Skin Suitability).

7. RESULTS:

7.1 Output Screenshots-





8. ADVANTAGES & DISADVANTAGES:

Advantages:

1). Data-Driven Decisions

Helps cosmetic brands make informed product and marketing decisions based on real consumer behavior and trends.

2). Consumer-Centric Insights

Matches products to different skin types and preferences, enhancing personalization and customer satisfaction.

3). Market Trend Identification

Detects rising trends, popular brands, and effective ingredients, helping companies stay competitive.

4). Visual Clarity through Tableau

Interactive dashboards make complex data easy to understand for both technical and non-technical users.

5). Cost Efficiency

Reduces reliance on expensive traditional market research by using readily available data sources.

Disadvantages:

1). Data Quality Issues

Insights are only as reliable as the quality and completeness of the data used.

2). Limited Scope

May not cover all consumer demographics or market regions if data is limited or outdated.

3). Interpretation Dependency

Incorrect interpretation of visual data can lead to misguided business decisions.

4). Privacy and Ethical Concerns

Using consumer data (e.g., from social media or reviews) may raise privacy or ethical issues if not handled properly.

5). Tool Limitations

Tableau is powerful but may require licensing, training, and has limitations for advanced statistical modeling compared to tools like Python or R.

9. CONCLUSION: Cosmetic Insights demonstrates how data visualization with Tableau can turn cosmetic product data into valuable business insights. By analyzing brand performance, pricing, product suitability, and ingredient impact, the project helps companies understand consumer needs and market trends. This leads to smarter decisions, better-targeted products, and improved customer satisfaction—bridging the gap between brand offerings and consumer expectations in a fast-moving beauty industry.

10. FUTURE SCOPE:

The Cosmetic Insights project can be further enhanced by integrating real-time data from social media and e-commerce platforms to monitor emerging trends. Incorporating AI and machine learning can enable personalized product recommendations and predictive analytics for forecasting consumer behavior. Expanding the dataset to cover global markets will help analyze regional preferences, while adding sustainability metrics can support eco-conscious decision-making. Mobile-optimized dashboards and voice or chatbot integration can improve accessibility and user experience, making insights more dynamic and actionable.

11. APPENDIX:

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

Project Demo Link-

https://drive.google.com/file/d/1MsVV5ywteTWxANzCil0Fwcyfkxwhz5z9/view?usp=drive_link

GitHub- <https://github.com/udaycodespace/Cosmetic-Insights-Tableau-Project>