Project Report Format

1. INTRODUCTION:-

1.1 Project Overview

This project analyzes cosmetics data to understand consumer preferences, brand performance, and product suitability acress skin types using Tableau. It provides interactive dashboards to support data-driven decisions in the beauty industry.

1.2 Purpasa

To provide meaningful insights to cosmetic brands by visualizing data on price, skintype suitability, and product trends using Tableau.

2. IDEATION PHASE

2.1 Problem Statement

Example-Cosmetic Insights – Kavigating Cosmetics Trends and Consumer Insights with Tableau



Customer Problem Statement Template for Cosmetic Insights - Navigating Cosmetics Trends and Consumer Insights with tableau:-

Problem Statement (PS)	I am (Customer)	I'm trying to	But	Because	Which makes me feel
PS-1	A skincare enthusiast	Find trending but affordable cosmetic products that suit my skin type	The market has too many products with confusing claims	There's no centralized data that shows real consumer insights or trend patterns	Overwhelmed and unsure about what to buy
PS-2	A cosmetic brand marketer	Understand customer preferences and emerging beauty trends	Traditiona I surveys and social media tracking give incomplet e or biased results	Hey lack realtime, data driven visual insights	Frustrated and uncertain while planning product campaigns

2.2 Empathy Map Canvas

An empathy map is a simple, easy-to-digest visual that captures knowledge about a user's behaviours and attitudes.

It is a useful tool to helps trams better understand their users

Creating an effective solution requires understanding the true problem and the person who is experiencing it. The exercise of creating the map helps participants consider things from the user's perspective alang with his or her goals and challenges.

Example-Cosmetic Insights - Navigating Cosmetics Trends and Consumer Insights with Tableau



2.3 Brainstorning

Problem Understanding haw cosmatic brands and products perfurm acress pricing, skin-type suitability, and popularity using Tableau visualizations.

Step 2:

Brainstorming, Idea Listing and Grouping



Brainstorm & idea prioritization

Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.

1 hour to collaborate

2-8 people recommended



Before you collaborate

A little bit of preparation goes a long way with this session. Here's what you need to do to get going.

♠ 10 minutes

☐ Team gathering
Define who should participate in the session and send an invite. Share relevant information or pre-work ahead.

Set the goal
 Think about the problem you'll be focusing on solving in the brainstorming session.

Learn how to use the facilitation tools
Use the Facilitation Superpowers to run a happy and productive session.

Open article →





Define your problem statement

"How can I use Tableau to uncover trends and consumer preferences in the cosmetics industry through effective visualization?"

♠ 5 minutes

How might we [your problem statement]?



Key rules of brainstorming

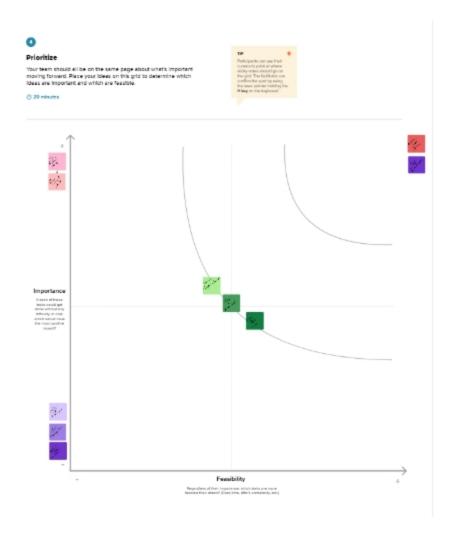
To run an smooth and productive session

Stay in topic. Encourage wild ideas.

Defer judgment.

 Uisten to others.





3. REQUIREMENT ANALYSIS

3.1 Customer Jourmey map

Step	What does the person typically experience?	Interactions	Things (Digital/Physica I Touchpoints)	Places	People	Goals & Motivation	Positive Moments	Negative Moments	Areas of Opportunity
Entice (Awareness	Sees ads or influencer videos about trending products	Scrolls social media, watches beauty videos	Instagram, YouTube, brand- sponsored posts	At home, on phone	Influencers, friends	Help me discover new trending cosmetics	Sees something exciting & trendy	Unsure if product works for them	Offer data- driven trend rankings in Tableau
Engage (Explore)	Researches products online and compares options	Uses search engines, brand sites, reviews	Google, cosmetic websites, blog articles	Phone or PC at home	Beauty bloggers, website authors	Help me find what fits my skin type and budget	Enjoys reading positive reviews	Gets confused with too many choices	Use Tableau to compare by skir type, price, trend score
Evaluate (Shortlist)	Narrow down top products and reads detailed reviews	Clicks reviews, checks ingredients, ratings	Ecommerce sites, comparison charts, reviews	Online stores	No People –solo browsing	Help me pick the safest and best option	Finds a highly rated product with real photos	Fake reviews or misleading claims	Use Tableau visuals to show verified reviews, ingredient data
Purchase (Buy)	Adds product to cart and completes payment	Fills in details, confirms order	Amazon, Nikai, Flipkart, etc.	Website or mobile app	Optional: chats with support	Help me feel sure I bought the right product	Finds coupon or quick delivery	Fears product is fake or won't work	Add verified seller visual cues, ratings in dashboard
xperience (Use product)	Uses the product over a few days/weeks	Applies it, takes selfies, monitors skin	Mirror, phone camera, skincare product	Home, washroom	Self, family, or online community	Help me improve my skin/look without side effects	Sees improvement and feels confident	Breakouts or no visible change	Visual dashboards showing % of users who saw results
eflect & Share (Feedback)	Shares review or photo, sometimes uploads to social	Posts review, star ratings, hashtags	Review platforms, Instagram	Phone or desktop	Online followers, friends	Help me share my experience & guide others	Gets likes or comments on review	Long review process or no response	Allow fast 1- click reviews; highlight visuals for sharing
Re-Engage (Retention)	Gets product recommendatio ns based on past purchase	Clicks on smart suggestions	Email, ecommerce apps, Tableau dashboard	Phone or PC	Brand systems	Help me find my next ideal product	Relevant and personalized suggestions	Generic or wrong suggestions	Use Tableau to show personalized insights & upsel matches

3.2 Solution Requirement

Functional Requirements:-

Following are the functional requirements of the proposed solution

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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 Product Search & Filtering		Filter by skin type Sort by trend score, ruting, price				
FR-4 Trend Analytics Dashboard		View dashboard with top cosmetics See charts by skin type, region				
FR-5 Product Comparison		Compare 2 or more products by price, ruting, ingredients				
FR-6	Feedback Submission	Rate/review products Suhmit quick emaii-based feedback				

Non-functional Requirements:

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

FR No.	Non-Functional Requirement	Description		
NFR-1 Usability		The dashboard should be simple, clean, and intuitive for users of all experience levels.		
NFR-2 Security		All user data, including logins and feedback, must be securely stored and transmitted (eg, HTTPS)		
NFR-3 Reliability		The application should be available 99.5% of the time and handle data errors gracefully.		
NFR-4 Performance		Dashboard and filters should load in under 3 seconds with live datu refresh support		
NFR-5 Availability		The system should support 24/7 access across all devices with no downtime during business hours.		
NFR-6	Scalability	Should scale to handle growing user base and increasing data from new products and reviews.		

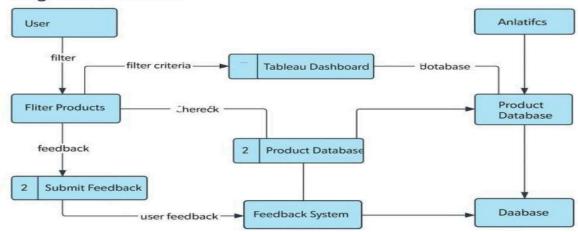
3.3 Data Flow Diagram

A Data Flow Diagram (UFD) is a traditional visual representation of the information flows within a system. & neat and clear IFI 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-DF) Diagram for Cosmetic Insights Insights with Tableaur

Navigating Cosmetics Trends and Consumer

Cosmetic Insights – Navigating Cosmetics Trends and Consumer Insights with Tableau



User Stories:-

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (Web)	View Product Trends	USN-1	As a customer, I can view top-rated cosmetics by trend score	Products are shown in descending trend score	High	Sprint-1
Customer (Web)	Filter by skin type	USN-2	As a customer, I can filter cosmetics based on skin type (dry, cily, etc)	I can apply filters and see relevant products	High	Sprint-1
Customer (Web)	Compare Products	USN-3	As a customer,I can Compare ratings, Prices,and ingredients	Dashboard shows side-byside product data	Medium	Sprint-2
Marketer	View Customer Insights	USN-4	As a marketer, I can view insights about customer preferences and trends	Tableau shows regionwise analytics	High	Sprint-1
Admin	Upload New Product Data	USN-5	As an admin, I can upload new cosmetic product datasets	New data is stored and used in dashboard	High	Sprint-2
(Web)	Submit	USN-6	As a customer, I can rate and review a product	My review is visible and stored	Medium	Sprint-2

3.4 Technology Stack Technical

Architecture:-

Technical Architecture:

S.No	Component	Description	Technology		
1.	User Interface	Web UI for consumers and marketers	HTML, CSS, Bootstrap, JavaScript		
2.	Application Logic-1	Filters, search & dashboard integration	Python or JavaScript		
3.	Application Logic-2	Trend calculation logic	Python (Pardas/Numpy)		
4.	Application Logic-3	Visualization rendering and export	Tablama Public		
5.	Database	Store product data, trends, reviews	MySQL ar Google Sheets		
6.	Cloud Database	Hosting Tableau datu source or CSV	Google Drive/Firebase		
7.	File Storage	Store uploaded product images (if any)	Firebase Storage or local drive		
8.	External API-1	Optional cosmetic product API	Skincare API (if available)		
9.	External API-2	Optional social login (Google)	Google Auth API		
10.	Machine Learning Model	Trend prediction (optional future feature)	(Future) Sentiment Analysis model		
11.	Infrastructure (Server / Cloud)	Hosting & dashboard deployment	Heroku, Tableau Public, AWS EC2		

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Used for frontend/backend	Bootstrup, Flusk, Reuct, etc.
2.	Security Implementations	Protect users data &feedback	Google Auth, SHA-256, Firebase IAM
3.	Scalable Architecture	Can scale with new users/products	3-tier (frontend-backend-data)
4.	Availability	Always accessible with Tableau Public or Heroku	Tableau Public, load-balanced hosting
5.	Performance	Fast dashboard load, filtered views	Caching, Google Sheets connected to Tableau

4. PROJECT DESIGN

¥1 Problem Solution Fit

Problem Solution Fit Template:

Customer Segment

Young adults (18-35), especially women, who are skincare-conscious and follow beauty trends online. They actively browse cosmetic sites, follow influencers, and buy based on peer reviews and trends.

Problem Statement

Users are overwhelmed by too mamy cosmetic product options, uncertain reviews, and no clear insight into what actually works for their skin type and budget. Marketers also struggle to understand real-time customer trends.

Existing Alternatives

They rely on Instagram influencers, You Tube reviews, brund blogs, and e-commerce reviews, which are often biased, scattered, and not datu-backed.

Your Solution

An interactive Tableau dashboard that displays real-time cosmetic product trends, filters by skin type, budget, popularity, and allows users/marketers to visualize data-driven insights.

Unique Value Proposition (UVP)

First-of-its-kind visual analytics tool for cosmetics trends that helps consumers make informed choices and gives marketers real-time behavioral insights.

Key Features / Functions

Product filtering by skin type, price, and region

- Popular product trends shown in graphs
- -Compare ratings and reviews vismily
- -Customer feedback tracking
- Markater insights dashboard

User Benefits

Users can confidently choose the right cosmetics, avoid misinformation, and save money. Marketers can design better campaigns using real data.

Solution Validation

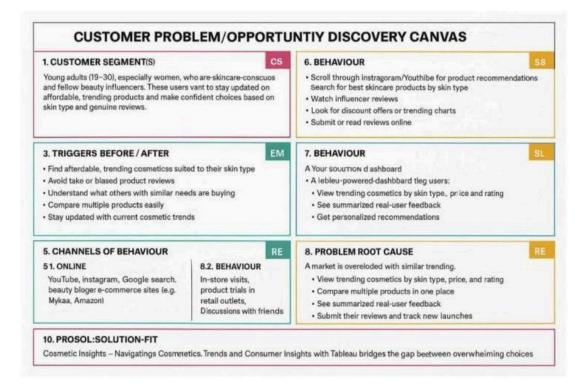
Validated through problem statements, user stories, and dashboards built in Tableau which showcasa real-time filtering, review visundizations, and customer behavior tracking.

Purpose:

- Solve complex problems in a way that fits the state of your customers.
- Succeed faster and increase your solution adoption by tapping into existing mediums and channels of behavior.
- Sharpen your communication and marketing strategy with the right triggers and messaging
- Increase touch-points with your company by finding the right problem-behavior fit and building

trust by solving frequent annoyances, or urgent or costly problems. Understand the existing situation in order to improve it for your target group

Template:-



4.2 Proposed Soltrtion Proposed Solution Template:

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Consumers are overwhelmed by the vast number of cosmetic products available online. There is a lack of a centralized, datadriven tool that allows users to compare trending cosmetics based on their skin type, budget, and real consumer insights. Marketers also lack access to real-time trend analytics.
2.	Idea / Solution description	The project proposes an interactive Tableau dashboard that lets consumers explore and filter cosmetic products by trend score, reviews, ingredients, skin type compatibility, and price. The dashboard also allows marketers to view consumer behavior, top-trending categories, and feedback patterns.
3.	Novelty / Uniqueness	Unlike static product lists or biased influencer reviews, this dashboard provides real-time data visualization and comparison of cosmetics. It empowers users to make informed decisions through verified insights and trend patterns. It's also personalized for skin type and budget something few tools offer.
4.	Social Impact / Customer Satisfaction	This solution boosts consumer confidence by reducing the confusion and stress of online product choices. It also promotes transparency in cosmetic marketing. Marketers can better align their products

4.3 Solution Architecture

Solution Architecture:

Solution architecture is a complex process – with many sub-processes – that bridges the gap between business problems and technology solutions. Its goals are to:

- Find the best tech solution to solve existing business problems.
- Describe the structure, characteristics, behavior, and other aspects of the software to project stakeholders.
- Define features, development phases, and solution requirements.
- Provide specifications according to which the solution is defined, managed, and delivered.

KEY ASPECTS OF YOUR SOLUTION ARCHITECTURE

1. User Layer (Entry Point)

Users include:

Cosmetic consumers: use filters to discover products

Marketers analyze trends and user behavior Interact via a simple, responsive web

interface with embedded Tableau dashboard

- 2. User Interface (Frontend) Technologies: HTML, CSS, Bootstrup, JavaScript
 - Features:

Filters: skin type, budget, brand, rating
Search and comparison interface
Embedded Tableau dashboards for data visuals

 Application Layer (Bacland). Technologies: Python (Flask/Streamlit) JavaScript (Node.js)

Functions

Pass user inputs (filters) to Tableau

Handle login/auth (if used)

Process and fetch data from review/product databases submission

4. Visualisation Layer (Dashboard)

Tool: Tableau Public or Tableau Server o Displays

Top trending cosmetic product

Charts by skin type, rating, region, category

Comparison visuals for price, review score, ingredients

5. Data Sources

Sources:

Product Data: CSV/MYSQL/ Google Sheets

Review Data: Customer ratings & feedback o Features

Structured datasets allow filtering and charting Can be updated regularly or live connected

6. Feedback Engine (Optional)

- Collects product ratings/reviews from users o Stores in review repository
- Feeds into Tableau to update user satisfaction visuals

7. Hosting & Storage

 Tableau Public: for hosting dashboards • GitHub Pages / Herokuz for weh app or frontend. Google Drive / Firebase for storing files and datasets

8. Datu Flow

. User UI- Backend-Tableau-Visualization

· Optionally, Feedback-Stared-Updates Dashboard

9. Scalability

· Add more product datasets

2/3

 Support multi-category expansion skincare, makeup, fragrance. Add Al/ML trend prediction module in future

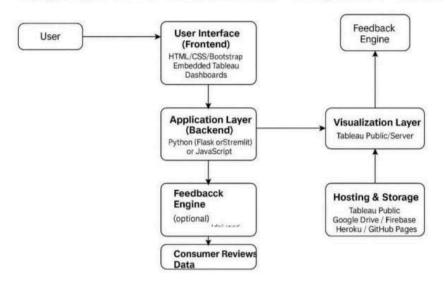
10. Security (Optional/fAdvanced)

- OfAuth for secure login (Google, LinkedIn)
- · Backend validation for data inputs and review authenticity

Example - Solution Architecture Diagram:

Cosmetic Insights:

Navigating Cosmetics Trends and Consumer Insights with Tableau



5. PROJECT PLANNING & SCHEDULING

5.1 Project Planning

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	Registration	USN-1	As a user, I can register with email and password	2	High	Geethali Priyamvadha
Sprint-1	Registration	USN-2	As a user, I receive a confirmation email upon registration	1	High	Geethali Priyamvadha
Sprint-1	Login	USN-3	fis a user, I can log in using my email and password	2	Low	Geethali Priyamvadha
Sprint-1	Dashboard (view Product)	USN-4	As a user, I can view trending cosmetic products in the dashboard	2	Medium	Geethali Priyamvadha
Sprint-1	Dashboard (Filter)	USN-5	As a user, I can filter	1	High	Geethali Priyamyadha
Sprint-1	Feedback system	USN-6	AS a user ,I can rate and write reviews for product	3	Medium	Geethali Priyamvadha
Sprint-1	Product comparison	USN-7	As a user, I can compare two or more products side-by-side	3	Medium	Geethali Priyamyadha
Sprint-1	Marketer Dashboard	USN-8	As a marketer, I can view consumer insight and	3	Medium	Geethali Priyamvadha

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	5	3 Days	21 june 2025	21 june 2025	5	21 june 2025
Sprint-1	5	1 Days	22 june 2025	22 june 2025	5	22 june 2025
Sprint-1	5	1 Days	23 june 2022	23 june 2025	5	23 june 2025
Sprint-1	5	1 Days	24 june 2022	24 june 2025	5	24 june 2025

Velocity: Average Velocity = $25/6 = $166 \approx 4.2$ story points/day

Burndown Chart:

A burn down chart is a graphical representation of work left to do versus time. It is often used in agile software development methodologies such as Scrum. However, burn down charts can be applied to any project containing measurable progress over time.

Model Performance Testing:

Project team shall fill the following information in model performance testing template.

Parameter	Screenshot / Values
Data Rendered	Data from cosmetics.xlsx loaded successfully in Tableau. Data included product Name, Brand, Price, Ingredients, Label, Skin Suitability metrics.
Data Preprocessing Cleaned ingredient data using Excel for word cloud visualization. Removed nulls and merged cells for c Created a secondary cleaned dataset.	
 Utilization of Filters Used filters in dashboards to select by Skin Type (I Normal, Sensitive), Brand, and Label. Filtered data ranking and category views. 	
Calculation fields Used	Created calculated fields for Suitability status (eg., IF (Dry] = 1 THEN "Suitable" ELSE "Not Suitable" END) and for Label vs Rank.
Dashboard design	No of Visualizations/Graphs - Label Count - Top Brands - Price vs Brand - Sensitive Skin Suitability - Normal Skin Suitability - Oily Skin Suitability - Dry Skin Suitability - Brand vs Ranking - Label vs Ranking
	Data Rendered Data Preprocessing Utilization of Filters Calculation fields Used

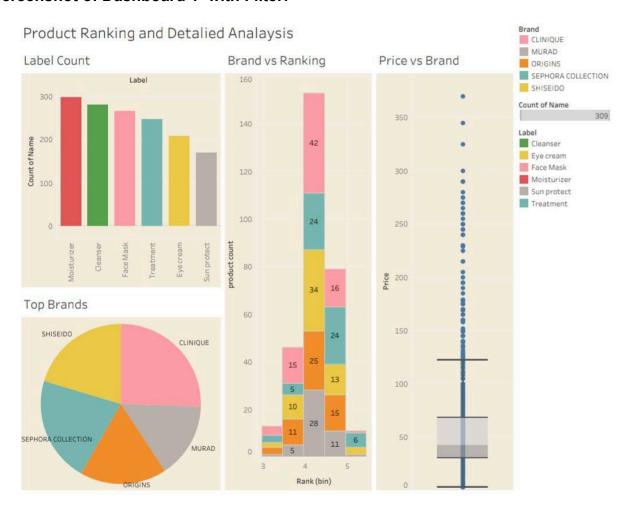
6. FUNCTIONALAND PERFORMANCE TESTING:-

6.1 Performance Testing Model

Performance Testing:-

Project team shall fill the following information in model performance testing template

Screenshot of Dashboard 1 with Filter:-



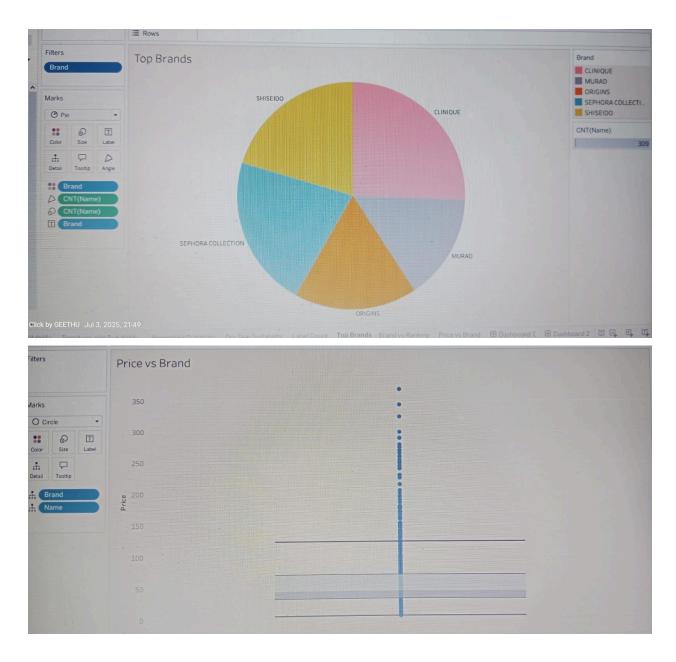
Screenshot of Dashboard 2 with Filter:-



7. RESULTS:-

7.1 Output Screenshots Scenarios 1 and 3:



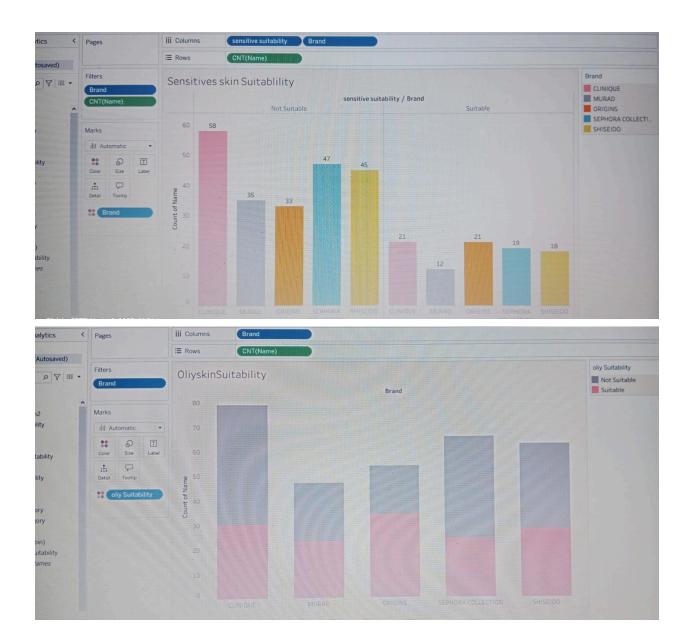


Belongs to all scenarios1, 2 and 3:

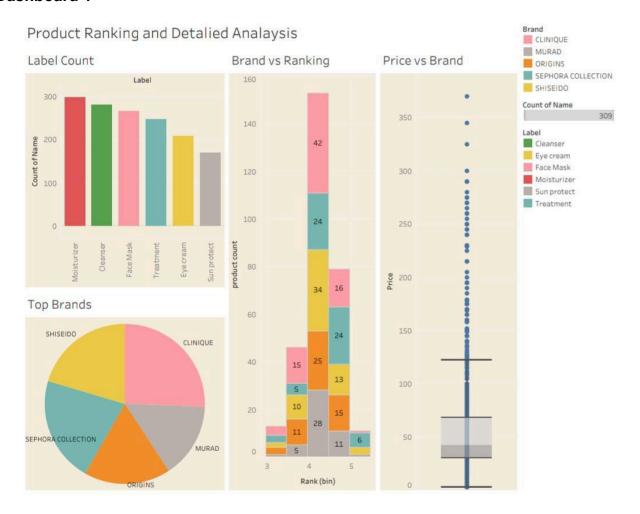




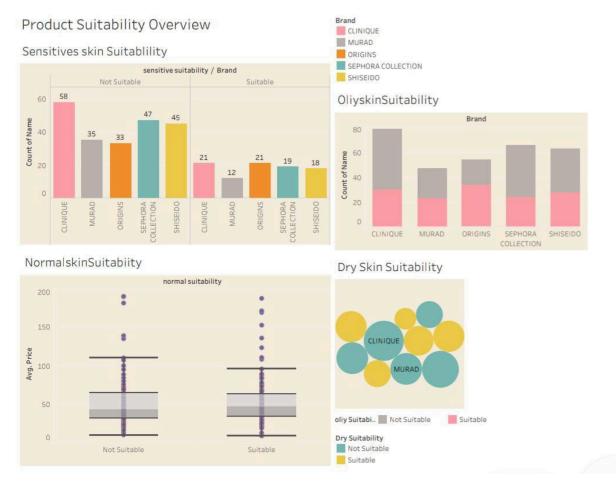




Dashboard 1



Dashboard 2



8. Advantages & Disadvantages

Advantages:

Visual Clarity: Tableau offers interactive visualizations that help in quickly understanding cosmetic brand trends and customer preferences.

Real-time Filtering: Dashboards allow filtering by brand, price, skin suitability, etc., giving personalized insights.

Advanced Charts: Inclusion of funnel, word cloud, and waterfall charts adds depth to data analysis.

User-Friendly Interface: Drag-and-drop features simplify dashboard creation even for non-coders.

Predictive Analysis: Helps identify best-selling products and future demand patterns.

Disadvantages:

Data Preprocessing Needed: Raw data often needs cleaning before importing into Tableau.

Limited Custom Design: Compared to graphic tools like Canva, aesthetic customization is limited.

Free Version Limitations: Tableau Public has limited storage and does not support live data connections.

Learning Curve: Advanced features require time to learn for beginners.

9. Conclusion

The project "Cosmetic Insights – Navigating Cosmetics Trends and Consumer Insights with Tableau" provides a comprehensive view of cosmetic product data. Through visually rich dashboards, users can analyze brand performance, price ranges, skin suitability, and category popularity. The interactive insights derived from Tableau empower businesses and marketers to make data-driven decisions, understand customer preferences, and optimize inventory and marketing strategies.

10. Future Scope

Machine Learning Integration: Predict future cosmetic trends using ML models.

Real-time Analytics: Connect live APIs for up-to-date data from sources like beauty e-commerce websites.

Mobile-Friendly Dashboards: Enhance responsiveness for smartphone users.

Sentiment Analysis: Incorporate customer review data for deeper analysis.

Geographical Trends: Add maps to analyze regional popularity of brands.

11. Appendix

Dataset Link:

https://public.tableau.com/app/profile/geethali.priyamvadha/viz/CosmeticInsihtsNavigatingCosmeticsTrendsAndConsumerInsightsWithTableau/Story1?publish=yes

GitHub & Project Demo Link:

GitHub Repository:



https://github.com/priyamvadha2922/Cosmetic-Insights-Navigating-Cosmetics-Trends-and-Consumer-Insights-with-Tableau-project

Tableau Dashboards:

Dashboard 1 – Product Ranking and Detailed Analysis

Dashboard 2 – Product Suitability Overview

Story Dashboard – Summary View