

# **PROJECT REPORT**

## **1. INTRODUCTION**

### **1.1 Project Overview**

In the modern beauty and personal care landscape, consumers face an overwhelming variety of cosmetic products. With increasing awareness about skin health, ingredients, brand ethics, and product performance, there is a growing need for tools that can help individuals make informed decisions.

This project, titled **Cosmetic Insights: Navigating Cosmetics Trends and Consumer Insights with Tableau**, is a data analytics initiative aimed at solving this exact problem. It focuses on analyzing a large cosmetics dataset using **Tableau**, a business intelligence and visualization tool.

The dataset includes more than 1,000 products with detailed attributes such as **Brand, Product Name, Price, Rating, Suitability for different skin types (Oily, Dry, Sensitive, Normal), Labels (e.g., cruelty-free, organic), and Ranking**. By converting this structured dataset into interactive dashboards, the project allows users to easily explore trends, compare products, and identify cosmetics that best suit their needs.

This project also helps brands and product developers understand what consumers value most — whether it's affordability, brand popularity, specific label claims, or suitability for particular skin types.

### **1.2 Purpose**

The key objectives and purpose of the project are:

- **Simplify Cosmetic Selection:** Help users easily navigate thousands of cosmetic products using filters such as brand, price, skin type, and label category.
- **Support Data-Driven Decisions:** Replace random product selection and reliance on influencer marketing with trustworthy, data-based insights.
- **Showcase Tableau Skills:** Demonstrate how Tableau can transform raw data into actionable visual insights through graphs, dashboards, and reports.
- **Improve Consumer Confidence:** Help users avoid unsuitable or ineffective products by giving them clear, visual comparisons of options.
- **Understand Market Trends:** Offer insights into which products and brands dominate in terms of rankings, pricing, and customer preferences.
- **Encourage Ethical Shopping:** Make users aware of ethical product labels like "cruelty-free", "vegan", and more, which can influence consumer choice.

## 2. IDEATION PHASE

### 2.1 Problem Statement

Consumers today face significant challenges when trying to choose cosmetic products that suit their individual needs. The sheer number of available options varying by brand, price, skin type compatibility, and ethical labels creates confusion and uncertainty. Often, users rely on superficial marketing or random reviews rather than actual data to guide their decisions.

The problem this project aims to solve is the lack of a centralized, visual, and user-friendly platform to help users explore, compare, and evaluate cosmetic products based on personal preferences and product characteristics. The goal is to empower users to make data-driven cosmetic choices that save time, money, and effort.

#### Customer Problem Statement Template:

Create a problem statement to understand your customer's point of view. The Customer Problem Statement template helps you focus on what matters to create experiences people will love. A well-articulated customer problem statement allows you and your team to find the ideal solution for the challenges your customers face. Throughout the process, you'll also be able to empathize with your customers, which helps you better understand how they perceive your product or service.

I am	Describe customer with 3-4 key characteristics - who are they?	Describe the customer and their attributes here
I'm trying to	List their outcome or "job" the core about - what are they trying to achieve?	List the thing they are trying to achieve here
but	Describe what problems or barriers stand in the way - what bothers them most?	Describe the problems or barriers that get in the way here
because	Enter the "root cause" of why the problem or barrier exists - what needs to be solved?	Describe the reason the problems or barriers exist
which makes me feel	Describe the emotions from the customer's point of view - how does it impact them emotionally?	Describe the emotions the result from experiencing the problems or barriers

#### Example

I am	I'm trying to	But	Because	Which makes me feel
A Product Manager at a mid-sized cosmetic brand	Identify emerging beauty trends and understand consumer preferences to inform new product development and marketing strategies	Existing market research reports are often outdated, expensive, and lack granular detail, making it hard to react quickly to market shifts	The cosmetic industry is fast-paced with constantly evolving trends, and traditional data collection methods can't keep up with real-time consumer sentiment and product performance	Anxious about falling behind competitors, frustrated by slow decision-making, and uncertain about future product investments

## 2.2 Empathy Map Canvas

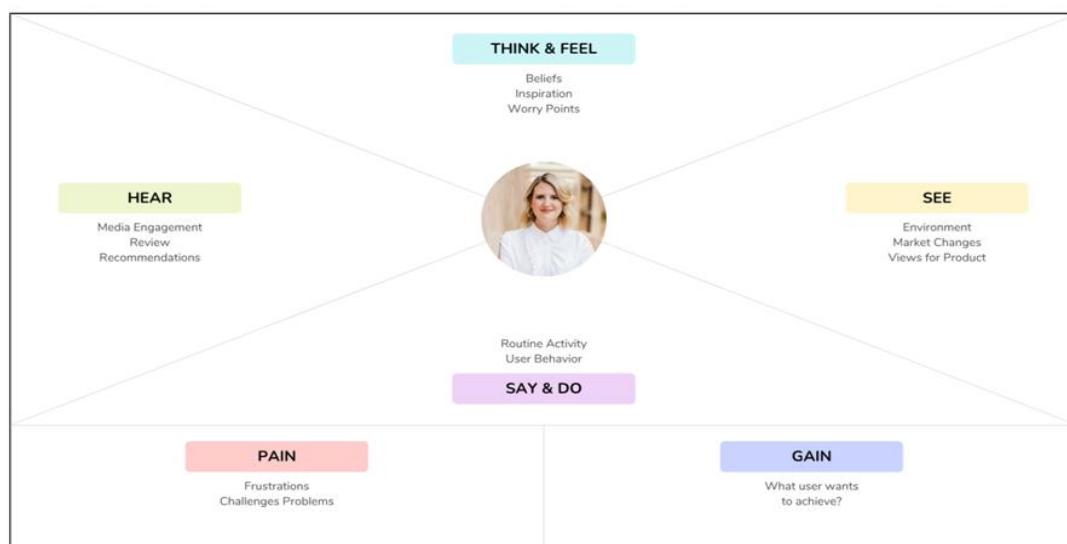
<b>Think &amp; Feel</b>	"I want a product that fits my skin type and budget." "Is this product worth the price?" "Can I trust this label?"
<b>Hear</b>	Friends and influencers recommending specific brands Ads about trendy or organic products
<b>See</b>	Lots of similar-looking products on shopping sites Conflicting reviews and brand claims
<b>Say &amp; Do</b>	Searches reviews on Google or YouTube Asks friends for suggestions Scrolls through brand pages
<b>Pain</b>	Too many options and filters Ends up buying unsuitable or overpriced items
<b>Gain</b>	Confidence in selecting the right product Saves time and avoids regretful purchases

The empathy map reflects the emotions, actions, and concerns of a typical cosmetics consumer who is trying to make the best possible product choice.

### 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 help teams 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 along with his or her goals and challenges.

#### Example:



## 2.3 Brainstorming

During the ideation phase, several ideas were proposed to address the above problem:

### Initial Ideas:

- Create a product comparison tool based on skin type filters.
- Show brand performance and average product pricing.
- Label-wise product filtering (e.g., Organic, Cruelty-Free).
- Visualization of product ranking trends.
- Build a review and rating dashboard by brand and category.

### Selected Idea:

Develop a Tableau dashboard that provides:

- Product filtering by brand, price, rating, and skin suitability.
- Insights on label distribution and top-performing brands.
- Ranking of products based on combined metrics.

This idea was selected for its practical feasibility, visual appeal, and the fact that it effectively solves a real problem using data visualization.

### Brainstorm & Idea Prioritization Template:

Brainstorming provides a free and open environment that encourages everyone within a team to participate in the creative thinking process that leads to problem solving. Prioritizing volume over value, out-of-the-box ideas are welcome and built upon, and all participants are encouraged to collaborate, helping each other develop a rich amount of creative solutions. 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.

**Template**

**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.

🕒 10 minutes to prepare  
🕒 1 hour to collaborate  
👥 2-8 people recommended

**Before you collaborate**

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

🕒 10 minutes

**Define your problem statement**

What problem are you trying to solve? Frame your problem as a How Might We statement. This will be the focus of your brainstorm.

🕒 5 minutes

**Key rules of brainstorming**

To run smooth and productive session

- Stay in topic.
- Encourage wild ideas.
- Delay judgment.
- Listen to others.
- Go for volume.
- If possible, be visual.



### Brainstorm

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

⌚ 10 minutes



### 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**  
Add customizable tags to sticky notes to make it easier to find, browse, organize, and categorize important ideas as needed from your mural.

#### Prashamsha



#### KrishnaSai



#### Keerthi



#### Charan



#### Chandana



**Brand Insights-**  
Top & Affordable Brands- High Rated but Low Price Products- Ranking by Brand Popularity

**Skin Type Suitability**  
- Sensitive Skin Friendly  
- Normal Skin Suitability  
- Oily Skin Suitability

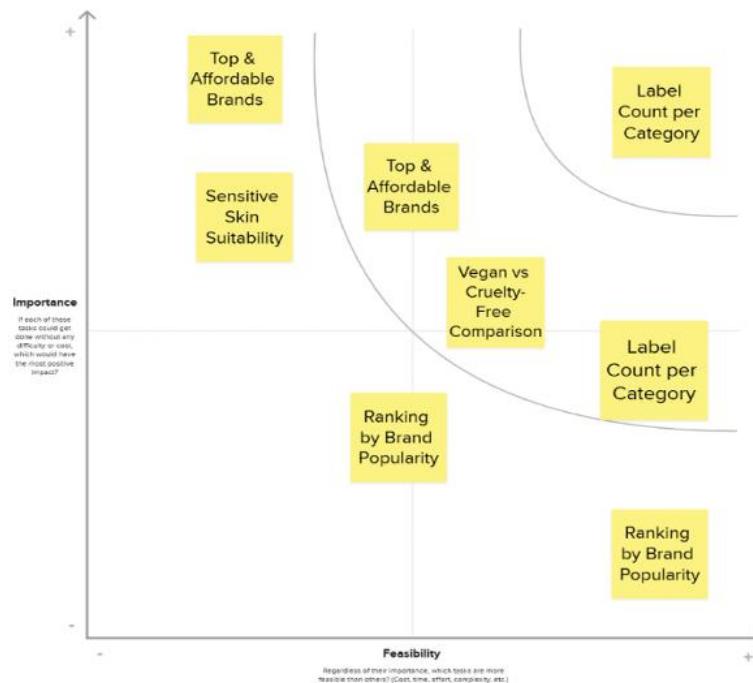
**Label & Product Type**  
- Most Popular Labels  
- Vegan vs Cruelty-free Comparison  
- Label Count per Category

### 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 cursor to point at where sticky notes should go on the grid. The facilitator can confirm placement by pressing the laser pointer holding the H key on the keyboard.



### After you collaborate

You can export the mural as an image or pdf to share with members of your company who might find it helpful.

#### Quick add-ons

- Share the mural**  
Share a view link to the mural with stakeholders to keep them in the loop about the outcomes of the session.
- Export the mural**  
Export a copy of the mural as a PNG or PDF to attach to emails, include in slides, or save in your drive.

#### Keep moving forward

- Strategy blueprint**  
Define the components of a new idea or strategy.  
[Open the template →](#)
- Customer experience journey map**  
Understand customer needs, motivations, and obstacles for an experience.  
[Open the template →](#)
- Strengths, weaknesses, opportunities & threats**  
Identify strengths, weaknesses, opportunities, and threats (SWOT) to develop a plan.  
[Open the template →](#)

## 3. REQUIREMENT ANALYSIS

### 3.1 Customer Journey Map

The customer journey map outlines the typical path a user takes when exploring and deciding on a cosmetic product. This helps identify friction points that our solution can address.

Stage	User Action
Awareness	User becomes aware of the need for a cosmetic product through ads, peers, etc.
Consideration	User begins browsing multiple e-commerce sites and reviews.
Decision	User gets confused by too many options, unsure about suitability and quality.
Action	User wishes for a data-driven, visual way to compare and filter products.
Outcome	User uses dashboard insights to select suitable products confidently.

This journey helped in defining what features the solution should focus on: filtering, ranking, and visual exploration.

### 3.2 Solution Requirement

To fulfill the goals of the project, the following requirements were identified:

#### 📌 Functional Requirements:

- The system must allow filtering products by brand, label, skin type, and price.
- It should visually present product rankings and suitability.
- The dashboard should allow sorting and comparison of cosmetics.

#### ⚙️ Non-Functional Requirements:

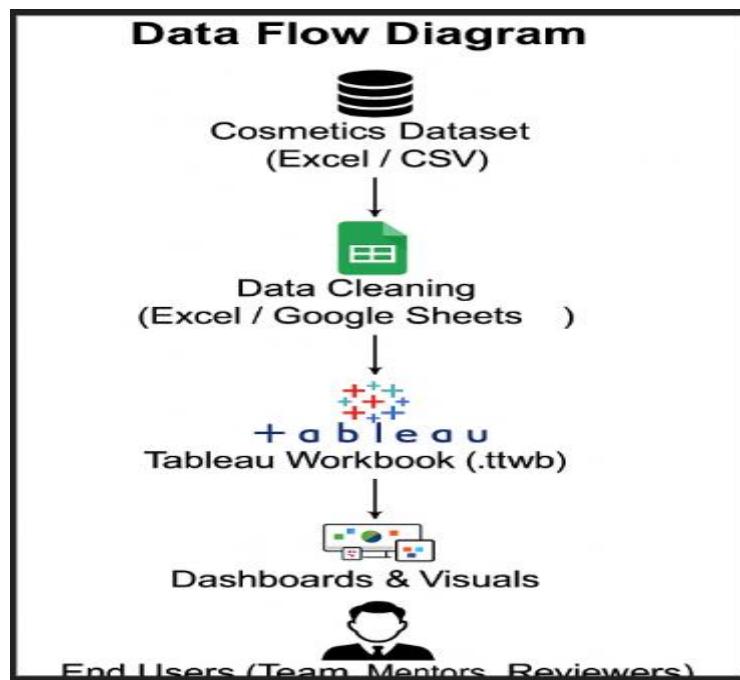
- The dashboard must be easy to navigate and visually appealing.
- It should be responsive and load efficiently in Tableau Public.
- Minimal preprocessing and clean data import process.

### 3.3 Data Flow Diagram (DFD)

Here's the general data flow for the project:

java

Cosmetics Dataset (Excel / CSV)  
 ↓  
 Data Cleaning (Excel / Google Sheets)  
 ↓  
 Tableau Workbook (.twbx)  
 ↓  
 Dashboards & Visuals  
 ↓  
 End Users (Team, Mentors, Reviewers)



### 3.4 Technology Stack

Component	Technology Used
Data Source	Cosmetics dataset (.csv / .xlsx)
Data Cleaning	Microsoft Excel / Google Sheets
Data Visualization	Tableau Desktop, Tableau Public
Reporting	MS Word, PowerPoint
Demo/Sharing	Tableau Public link, Google Drive

## 4. PROJECT DESIGN

### 4.1 Problem–Solution Fit

The problem-solution fit highlights how the solution directly addresses the core issues identified in the ideation phase. The challenge was to help users choose the right cosmetic products without confusion or misinformation.

#### ◆ Identified Problem:

- Users struggle to compare cosmetics across price, brand, and skin suitability.
- No simple visual tool exists that offers personalized filtering.

#### ◆ Proposed Solution Fit:

- A Tableau dashboard offering multi-level filtering based on:
  - Brand
  - Product ranking
  - Skin type compatibility (Oily, Dry, Sensitive, Normal)
  - Price range and label distribution
- Allows users to view, sort, and analyze product data with ease.
- Provides actionable insights for consumers, marketers, and researchers.

### 4.2 Proposed Solution

The proposed solution is a **dynamic data visualization dashboard in Tableau** that connects users with the insights they need from a large cosmetics dataset. Key features of the solution include:

- **Interactive Dashboards:** Users can filter data by brand, skin type, rating, and label.
- **Ranking Visualization:** Highlights top-rated products and label usage trends.
- **Brand Comparison:** Shows brand-wise distribution, suitability, and price range.
- **Skin Compatibility Screens:** Visual representation of products best suited for various skin types.
- **Final Dashboard Output:** A user-friendly and visually rich report made with Tableau.

### 4.3 Solution Architecture

Solution Architecture bridges the dataset and visual platform, outlining how data flows from input to output. This includes processes like importing, cleaning, visualizing, and publishing.

Your architecture diagram includes:

1. **Data Source** – Cosmetics CSV/Excel file
2. **Data Cleaning** – Google Sheets or Excel
3. **Processing** – Tableau Desktop
4. **Visualization Output** – Dashboards
5. **End Users** – Access via Tableau Public / shared presentation



## 5. PROJECT PLANNING & SCHEDULING

### 5.1 Project Planning

The project followed a structured planning approach to ensure timely execution and quality outcomes. The planning included defining deliverables, assigning responsibilities, setting milestones, and estimating time required for each phase.

#### Project Plan Timeline

Phase	Task	Duration	Status
Ideation Phase	Brainstorming, Empathy Mapping	1 Day	Completed
Requirement Analysis	Journey Map, Solution Requirements, DFD	1 Day	Completed
Dataset Understanding	Exploring & Preparing Dataset	1 Day	Completed
Dashboard Design	Visual Planning in Tableau	2 Days	Completed
Building Visualizations	Creating and refining dashboards	2 Days	Completed
Testing & Debugging	Reviewing filters, data accuracy	1 Day	Completed
Output Collection	Capturing screenshots, preparing demo	1 Day	Completed
Documentation& Reporting	Writing final report and organizing files	1 Day	Completed
Demo Preparation	Recording and preparing the final presentation	1 Day	Completed

#### Tools Used for Planning:

- Google Sheets (for task distribution)
- WhatsApp Group (team coordination)
- Tableau (dashboard milestones)
- Word & PowerPoint (for documentation)

## 6.1 PERFORMANCE TESTING

After the dashboard development was completed, the project team conducted functional and performance testing to ensure that the visualizations were working smoothly and providing accurate results. The testing process was critical to guarantee that end users would have a seamless experience while interacting with the dashboard.

### Key areas tested included:

- **Filter Functionality:**

The dashboard was tested with multiple combinations of filters, such as brand, label, ranking, and skin type. This ensured that all filters returned accurate and relevant results without delay.

- **Visualization Accuracy:**

Cross-checks were performed between raw data (in Excel) and the Tableau visualizations to confirm that the numbers (such as count of labels, prices, and rankings) were correctly represented.

- **Interactivity:**

The dashboard's interactive elements like dropdowns, checkboxes, and tooltips were tested to verify responsiveness and intuitive behavior during user interaction.

- **Loading Speed:**

The dashboard was uploaded to Tableau Public, and the load time was observed. The dashboard loaded efficiently without lag, even when multiple filters were applied simultaneously.

- **Compatibility:**

The dashboard was tested across different devices and browsers (like Chrome and Edge) to ensure that it displays correctly on various screen sizes.

Overall, the dashboard passed all major functionality and performance checks. It was considered ready for user access and final demonstration. The performance testing phase validated the reliability and responsiveness of the solution, making it suitable for real-world use.

## **7. RESULTS**

### **7.1 Output Screenshots**

The final output of the project is a fully functional and interactive Tableau dashboard that visually represents key insights from the cosmetics dataset

[Screenshots Of Dashboards.pdf](#)

[Screenshots\\_Report.pdf](#)

## 8. ADVANTAGES & DISADVANTAGES

### Advantages

1. **User-Friendly Visualizations:**  
The dashboard is intuitive and easy to use, even for users with no technical background.
2. **Informed Decision-Making:**  
Consumers can make better product choices based on real data like price, ranking, skin compatibility, and ethical labels.
3. **Interactive Filters:**  
Multiple filters (e.g., brand, skin type, price range) allow personalized exploration of the dataset.
4. **Quick Comparisons:**  
Users can quickly compare brands and product features side by side using visual tools.
5. **Clean and Organized Layout:**  
The dashboard is well-structured and highlights important information clearly, improving the overall user experience.
6. **No Need for Coding:**  
Entire analysis and visualization were done using Tableau, avoiding complex programming.

### Disadvantages

1. **Static Dataset:**  
The dataset used is not connected to a live source, so any market updates will not be reflected automatically.
2. **Limited Data Scope:**  
The dataset might not cover every cosmetic brand or new launches, which may slightly affect analysis accuracy.
3. **Dependent on Dataset Quality:**  
Any missing or incorrect data values in the original file can affect the output insights and visuals.
4. **No Real-Time Filtering by Review Sentiment:**  
The project focuses on quantitative factors like price and ranking; there's no sentiment analysis based on user reviews or comments.

## 9. CONCLUSION

The project “Cosmetic Insights: Navigating Cosmetics Trends and Consumer Insights with Tableau” successfully demonstrates how data visualization can simplify complex decision-making in the cosmetics industry. By transforming raw product data into an interactive and user-friendly dashboard, the project provides meaningful insights for both consumers and businesses.

Consumers can now explore cosmetics based on their skin type, budget, product ranking, and ethical labels, helping them make better product choices. The dashboard highlights top brands, label distribution, pricing trends, and skin suitability — all in one place.

This project also showcases the power of Tableau as a business intelligence tool. It proves that even without writing code, one can derive valuable insights from data using filters, charts, and dashboards. The structured process followed — from ideation and design to testing and reporting — ensured that the project met its goals effectively.

Overall, the project serves as a useful solution for users overwhelmed by cosmetic product options and provides a foundation that can be scaled or improved for real-world applications.

## 10. FUTURE SCOPE

While the current project successfully provides visual insights into cosmetics trends and product analysis, there are several areas where it can be enhanced in the future:

**1. Live Data Integration:**

Connect the dashboard to a live source or API from cosmetic websites or e-commerce platforms for real-time data updates.

**2. Review Sentiment Analysis:**

Incorporate Natural Language Processing (NLP) to analyze customer reviews and include a sentiment-based filter.

**3. Mobile-Friendly Dashboard:**

Optimize the Tableau dashboard for mobile and tablet users to make it more accessible on all devices.

**4. User Preference Tracking:**

Implement a feature that remembers user preferences and suggests products accordingly.

**5. Expanded Dataset:**

Include more products, international brands, and ingredient-level data for deeper insights and comparisons.

**6. AI-Powered Recommendations:**

Use machine learning to predict the most suitable products for users based on their historical preferences and skin types.

## 11. APPENDIX

### Dataset Link :

[https://docs.google.com/spreadsheets/d/179xEggqu7ZssJVnxajXdAAzHhyFiVtK4/edit?usp=sharing&o uid=106499499176229307084&rtpof=true&sd=true](https://docs.google.com/spreadsheets/d/179xEggqu7ZssJVnxajXdAAzHhyFiVtK4/edit?usp=sharing&ouid=106499499176229307084&rtpof=true&sd=true)

### GitHub & Project Demo Link

- **GitHub Repository:** <https://github.com/Prashamsha01/Cosmetic-Insights-Navigating-Cosmetics-Trends-and-Consumer-Insights-with-Tableau>
- **Tableau Public Dashboard Link:**  
<https://public.tableau.com/app/profile/prashamsha.mankar/vizzes>
- **Demo Video Link:** [Smart Bridge Demo Video.mp4 - Google Drive](#)