COSMETIC INSIGHTS

1. Introduction

1.1 Project Overview

The Project titled "Cosmetic Insights" aims to analyze various skincare and cosmetic brands using Tableau. The dataset includes Product Name, Rating, Skin Type Suitability, Price Range and Brand Performance. The goal is to help consumers choose suitable products based on skin type and brand quality.

1.2 Purpose

The purpose of this project is to uncover patterns in cosmetic product is to uncover patterns in cosmetic product offerings, understand consumer preferences, and offer recommendations through interactive visualizations.
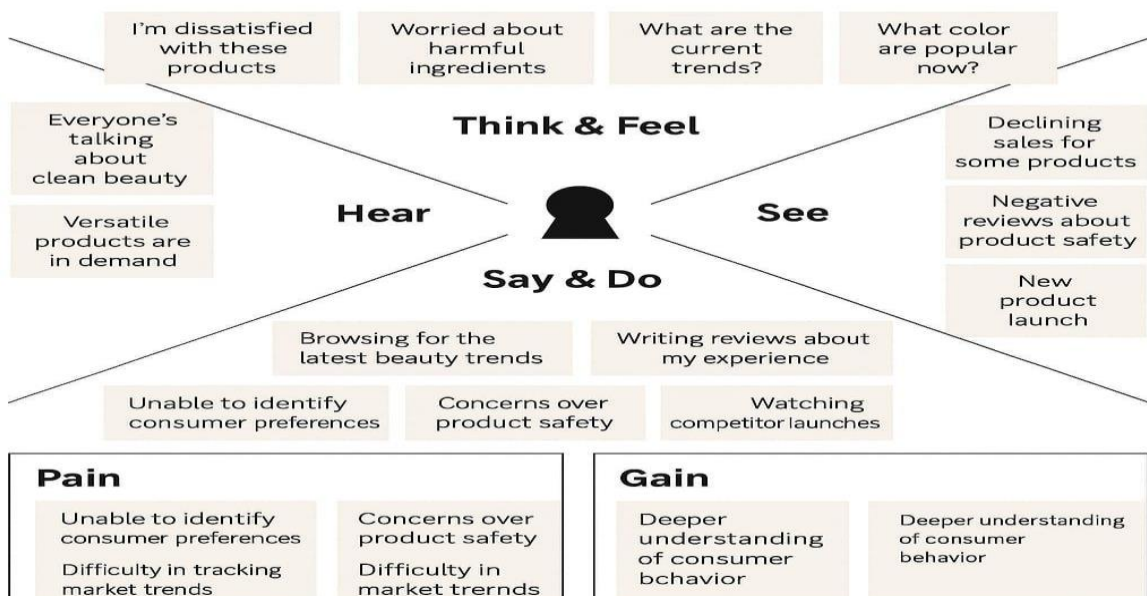
2. Ideation Phase

2.1 Problem Statement

Consumers often find it challenging to select appropriate skincare products due to a lack of comparative insights based on skin suitability and product effectiveness.

2.2 Empathy Map Canvas

Example: Cosmetics Data Visualization

2.3 Brainstorming

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.

Step-1: Team Gathering, Collaboration and Select the Problem Statement
Step-2: Brainstorm, Idea Listing and Grouping
Step-3: Idea Prioritization

3. Requirement Analysis

3.1 Customer Journey Map

| Scenario A customer discovering, exploring, and purchasing cosmetic products – online or in-store	Entice		Enter		Engage		Exit		Extend	
Steps What does the person (or group) typically experience	Scrolls through social media and sees beauty influencer content.		Clicks on the product link or brand website/app	Browses the website or app to explore product categories	Zooms into product images or watches demo videos	Compares similar products or alternative brands	Applies final promo codes, gift cards, or reward points	Receives confirmation email or SMS.	Receives the product via delivery or in-store pickup.	Subscribes for restocks, limited editions, or beauty tips.
	Clicks on promotional email from a beauty brand.	Sees a new product in-store while browsing casually	Reads product descriptions, ingredients, and benefits.	Checks ratings and customer reviews	Reads through Q&A, FAQs, or ingredients list for suitability.		Abandons cart due to high shipping costs or second thoughts.		Leaves a review or rating on the website	Posts about the product on social media
Interactions What interactions do they have at each step along the way? People: Who do they see or talk to? Places: Where are they? Things: What digital touchpoints or physical objects would they use?	Customer sees influencer posts or makeup tutorials on Instagram	Friends or peers recommend trending cosmetic products	Customer visits brand website or mobile app after seeing an ad or recommendation		Customer views detailed product pages with images, ingredients, and reviews		Customer reviews cart items and selects preferred delivery or pickup option	Applies discount codes, reward points, or gift cards at checkout	Customer receives delivery and unboxes the product	Uses the product and evaluates its quality, suitability, and results
	Customer notices sponsored ads or product tags while scrolling social media	Interacts with digital ads, stories, reels	Engages with homepage banners, navigation menus, and product tiles		Uses virtual try-on tools or shade match features	Compares similar products across tabs or through comparison tools	May face issues like cart errors, login prompts, or payment failure popups		Might share their experience on social media or write a review	Gets personalized recommendation based on previous purchase
			Customer is typically at home or in a relaxed setting while exploring products							
Goals & motivations At each step, what is a person's primary goal or motivation? ("Help me…" or "Help me avoid…")	Stay updated with beauty trends and seasonal product launches	Discover new or hyped cosmetic product	Find specific products that match their needs	Ensure the product is available, affordable, and easy to access	Validate purchase decisions through reviews, demos, or peer opinions	Gain confidence before moving to checkout	Complete the purchase smoothly and securely	Ensure payment is successful without issues	Receive the product on time and in perfect condition	Share honest feedback or reviews to help others
Positive moments What steps does a typical person find enjoyable, productive, fun, motivating, delightful, or exciting?	Sees a relatable or inspiring beauty look by an influencer	Engages with content that makes beauty feel accessible and fun	Filters help them quickly narrow down to exactly what they want	Spots a special offer or bundle deal right away.	Finds glowing reviews that boost confidence in the product	Comparison tools or FAQs answer their doubts clearly	Successfully applies a discount or promo code	Feels satisfied and excited after completing the purchase	Gets a thank-you message, review request, or loyalty reward	Feels appreciated and remembered by the brand

3.2 Solution Requirement

Functional Requirements:

| FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	Sales Dashboard	View Total Sales, Revenue & Profit Filter by Product Category & City
FR-2	Customer Insights	View Customer Preferences Highlight Top Products by Gender & Age Group
FR-3	Trend Analysis	Show Monthly & Seasonal Trends Display Line/Area Charts by Product Type
FR-4	Text Analytics	Generate Word Cloud from Tags/Reviews Filter Keywords by Category
FR-5	Funnel Analysis	Visualize Customer Journey Stages Track Drop-offs at Each Stage

Non-functional Requirements:

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	The system should be easy to use and navigate, even for first-time users, with a user-friendly interface.
NFR-2	Security	The system must ensure data confidentiality, integrity, and access control to prevent unauthorized access.
NFR-3	Reliability	The system should operate consistently without failures and recover gracefully from unexpected issues.
NFR-4	Performance	The system should provide quick response times and handle high volumes of data and user interactions efficiently
NFR-5	Availability	The system should be accessible and operational 24/7 with minimal downtime.

3.3 Data Flow Diagram
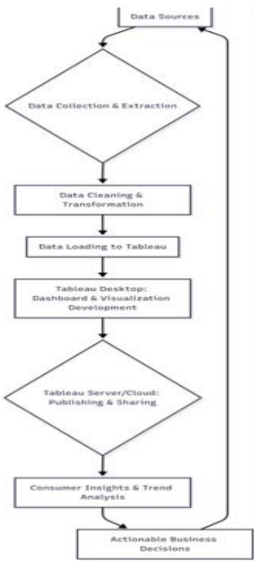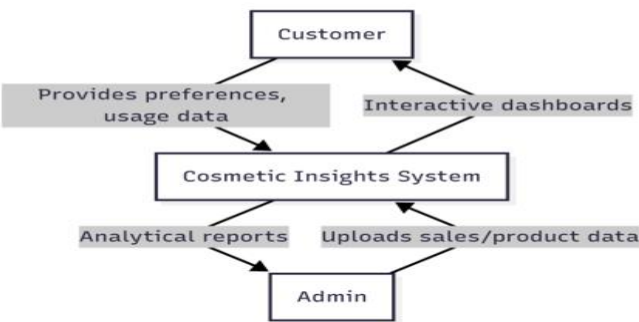
3.4 Technology Stack

S.No	Component	Description	Technology
1	User Interface	How user interacts with application e.g., Web UI, Mobile App, Chatbot	HTML, CSS, JavaScript / AngularJS / ReactJS etc
2	Application Logic-1	Logic for a process in the application	Java / Python
3	Application Logic-2	Logic for a process in the application	IBM Watson STT service
4	Application Logic-3	Logic for a process in the application	IBM Watson Assistant
5	Database	Data Type, Configurations etc.	MySQL, NoSQL, etc
6	Cloud Database	Database Service on Cloud	IBM DB2, IBM Cloudant etc.
7	File Storage	File storage requirements	IBM Block Storage or Other Storage Services
8	API Gateway	Manages and routes API calls between client and backend	IBM API Connect, AWS API Gateway, Postman
9	Authentication Service	Handles login, registration, and access control	Firebase Auth, OAuth 2.0, JWT, IBM App ID
10	Notification Service	Sends alerts/notifications to users	Firebase Cloud Messaging, Twilio, SendGrid, IBM Push Notifications

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1	Data Ingestion & Storage	How raw cosmetic data (e.g., product reviews, ingredient lists, social media trends, sales data) is collected, processed, and stored efficiently for analysis	e.g., Apache Kafka, AWS S3, Google Cloud Storage, PostgreSQL, MongoDB, Snowflake, Databricks
2	Data Processing & ETL	The methods and tools used for cleaning, transforming, and loading raw data into a format suitable for analysis and model training.	e.g., Apache Spark, Pandas, SQL, AWS Glue, Google Dataflow, Azure Data Factory
3	Machine Learning Models	The types of AI/ML models employed for tasks like sentiment analysis, trend prediction, product recommendation, image recognition (for product attributes), or ingredient analysis. Justify model choices.	e.g., TensorFlow, PyTorch, Scikit-learn, XGBoost, Hugging Face Transformers, AWS SageMaker, Google AI Platform

4	Scalable Analytics	Justify the scalability of the analytics infrastructure to handle growing datasets and increasing query loads for real-time or batch insights.	e.g., Distributed computing frameworks (Spark), Cloud-native analytics services (BigQuery, Redshift)
5	API & Integration	How the cosmetic insights are exposed to other applications or front-end interfaces, including data retrieval and model inference endpoints.	e.g., REST APIs, GraphQL, FastAPI, Django REST Framework, Flask, AWS API Gateway, Google Cloud Endpoints

4.Project Design

4.1 Problem Solution Fit

4.2 Proposed Solution

S.No	Parameter	Description
1	Problem Statement (Problem to be solved)	Cosmetics companies lack a centralized, real-time platform to analyze consumer preferences, product performance, and market trends, leading to delayed decisions and missed opportunities.

| 2	Idea / Solution description	Cosmetic Insights is a Tableau-powered dashboard solution that provides interactive, real-time analytics on customer behavior, product feedback, and industry trends, helping businesses make informed decisions.
3	Novelty / Uniqueness	Unlike traditional BI tools, this solution combines consumer sentiment, product sales, and predictive analysis into a single visualization platform tailored specifically for the cosmetics industry.
4	Social Impact / Customer Satisfaction	By understanding and responding to consumer preferences swiftly, brands can improve product offerings, address safety concerns early, and enhance customer satisfaction and trust.
5	Business Model (Revenue Model)	Subscription-based model for cosmetics companies, offering tiered pricing based on data volume, dashboard features.

4.3 Solution Architecture
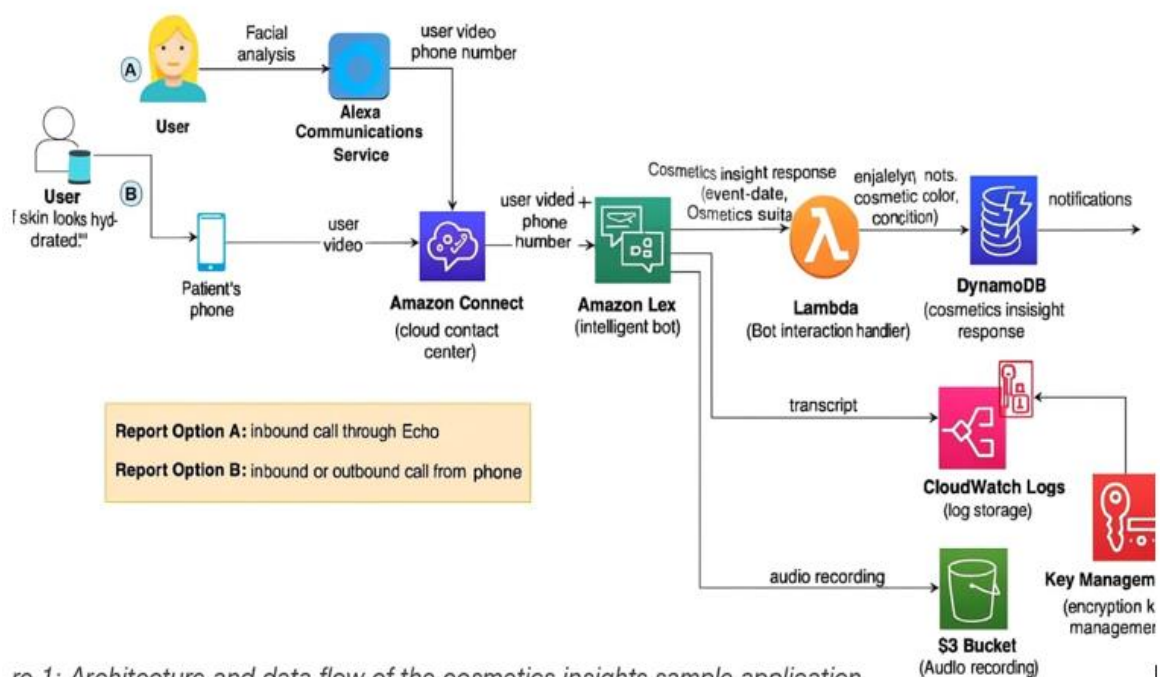
re 1: Architecture and data flow of the cosmetics insights sample application

5. Project Planning & Scheduling
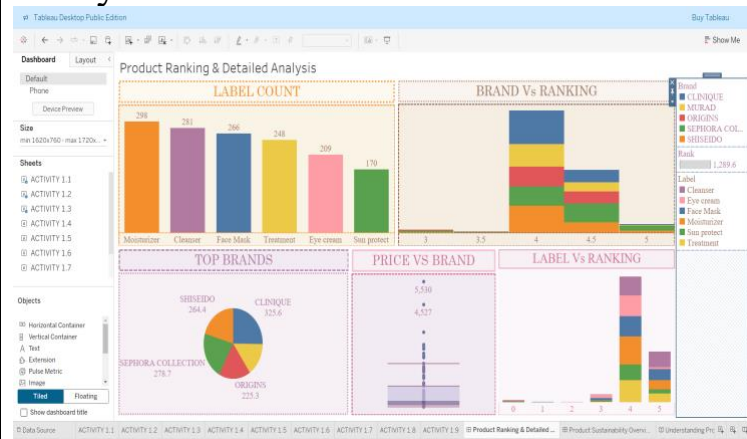
5.1 Project Planning

| Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
US01	The system shall import and preprocess cosmetics data	US01	As a data analyst, I want to clean and preprocess cosmetics sales data	5	High	Hima Sri N, Gajula Anjani, Daram Lowkya, Garre Vagdevi
US02	The system shall allow users to visualize consumer preferences	US02	As a dashboard user, I want to filter sales data by city, product, and date	8	High	Hima Sri N, Gajula Anjani, Daram Lowkya, Garre Vagdevi
US03	The dashboard shall display product-wise and category-wise sales performance over selected time periods.	US03	As a marketer, I want to view consumer preferences in a word cloud	5	Medium	Hima Sri N, Gajula Anjani, Daram Lowkya, Garre Vagdevi
US04	The system shall identify and highlight negative feedback trends using charts and sentiment-based indicators.	US04	As a QA lead, I want to identify spikes in negative product reviews	8	High	Hima Sri N, Gajula Anjani, Daram Lowkya, Garre Vagdevi
US05	The dashboard shall provide interactive visualizations	US05	As a strategist, I want to analyze product success trends using forecasts	8	Medium	Hima Sri N, Gajula Anjani, Daram Lowkya, Garre Vagdevi

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	6	2 days	15-06-25	17-06-25	5	25-06-25
Sprint-2	8	1 day	17-06-25	18-06-25	5	25-06-25
Sprint-3	10	3 days	19-06-25	21-06-25	6	25-06-25
Sprint-4	5	2 days	23-06-25	25-06-25	5	25-06-25

6.Functional and Performance Testing

6.1 Performance Testing

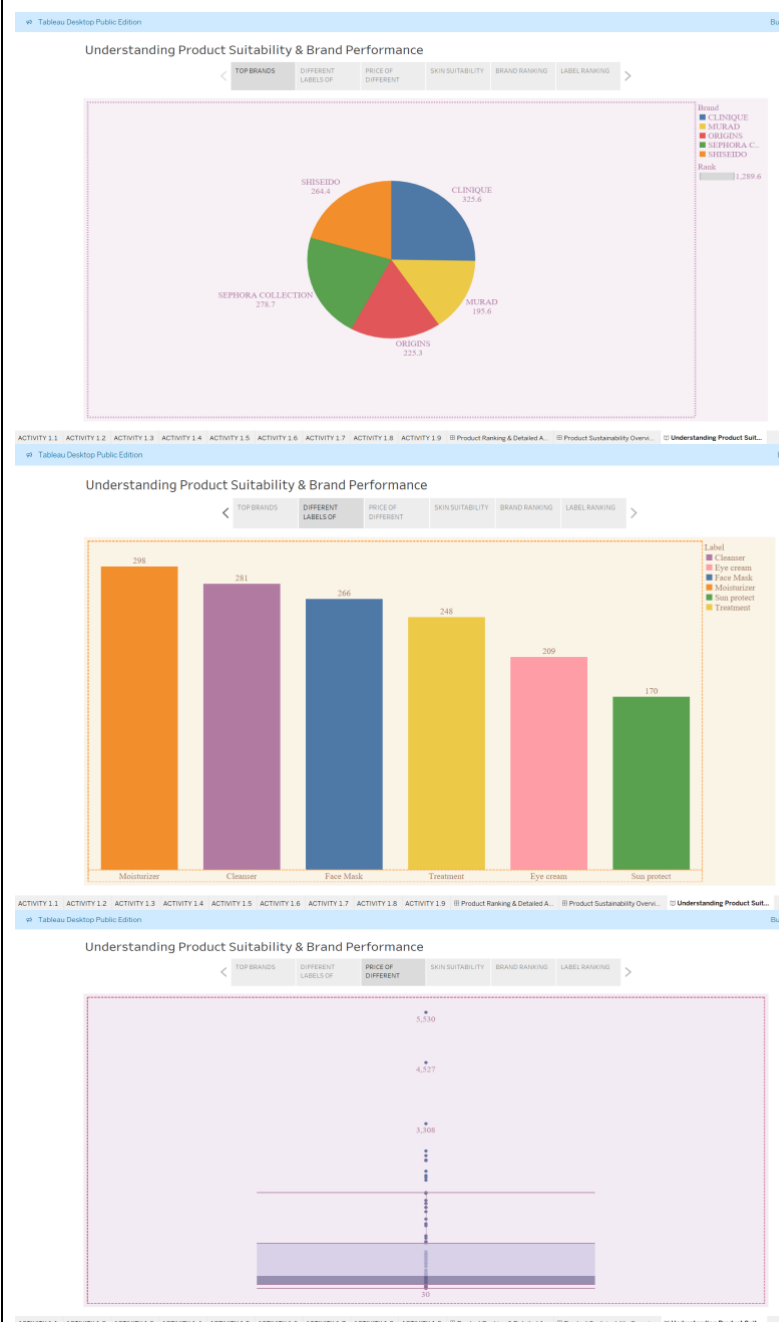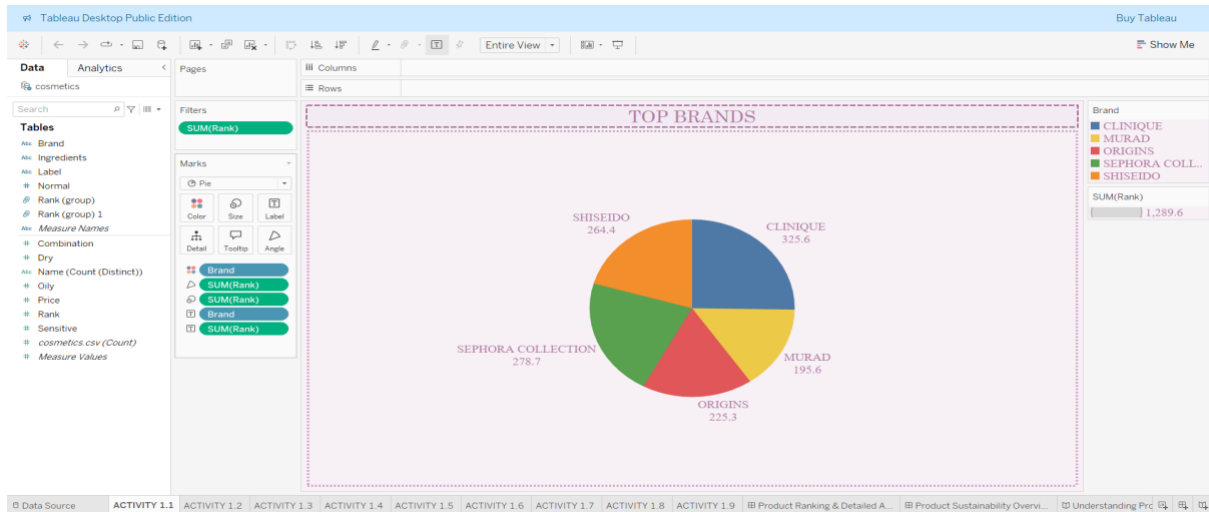| S.No	Parameter	Screenshot / Values
1	Data Rendered	Used cosmetics.csv containing Label, Brand, Name, Price, Rank, Ingredients, Combination, Dry, Normal, Oily, Sensitive as Fields.
2	Data Preprocessing	Checked for Null values, Missing Values and ensured proper formatting for Tableau Ingestion.
3	Utilization of Filters	Filters used: Rank, Brand, Name, Dry.
4	Calculation Fields Used	Used to derive suitability counts and average ranks. Used Distinct count of Product Name.
5	Dashboard Design	Designed Dashboard with 9 Visualizations. Dashboard1: Product Ranking & Detailed Analysis. Dashboard2: Product Sustainability Overview.
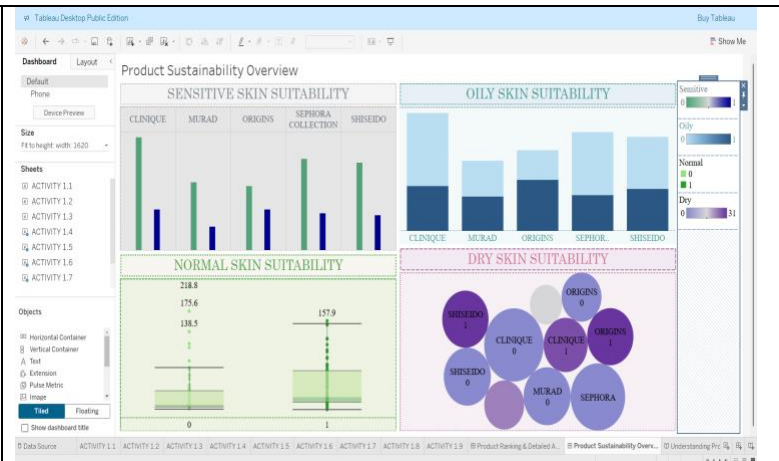
6	Story Design	Designed Story with 6 story points.

Understanding Product Suitability & Brand Performance

| TOP BRANDS | DIFFERENT LABELS OF | PRICE OF DIFFERENT | SKIN SUITABILITY | BRAND RANKING | LABEL RANKING | > |

Product Sustainability Overview

Understanding Product Suitability & Brand Performance

| TOP BRANDS | DIFFERENT LABELS OF | PRICE OF DIFFERENT | SKIN SUITABILITY | BRAND RANKING | LABEL RANKING | > |

Understanding Product Suitability & Brand Performance

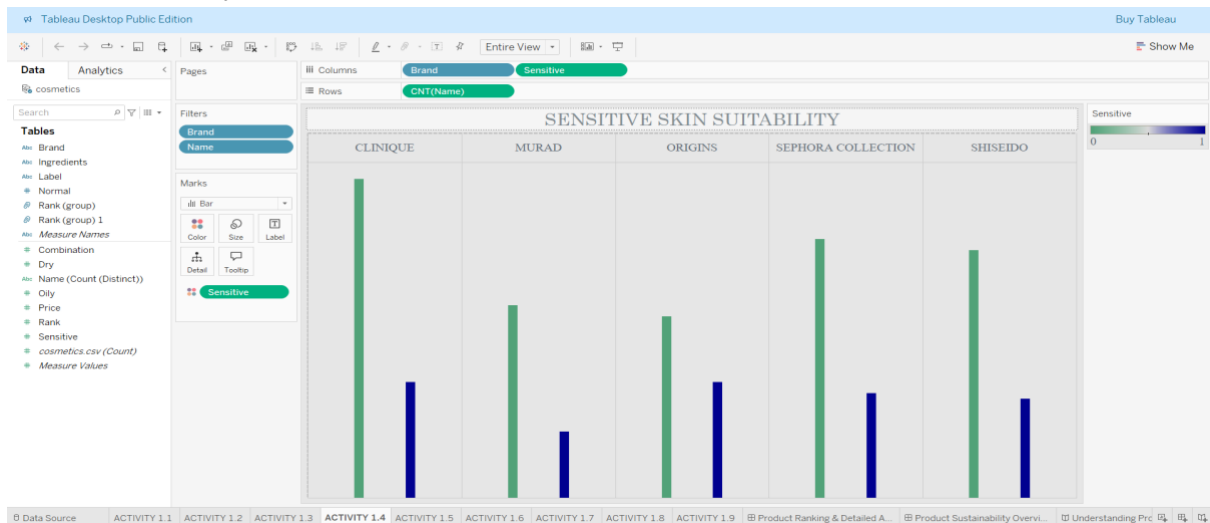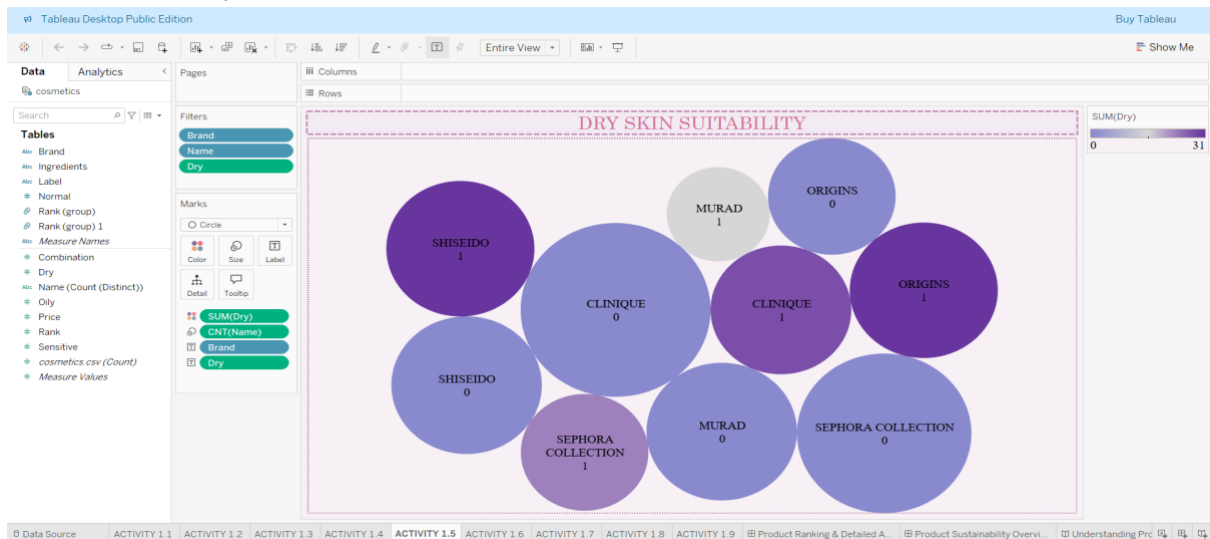| TOP BRANDS | DIFFERENT LABELS OF | PRICE OF DIFFERENT | SKIN SUITABILITY | BRAND RANKING | LABEL RANKING | > |

7. Results

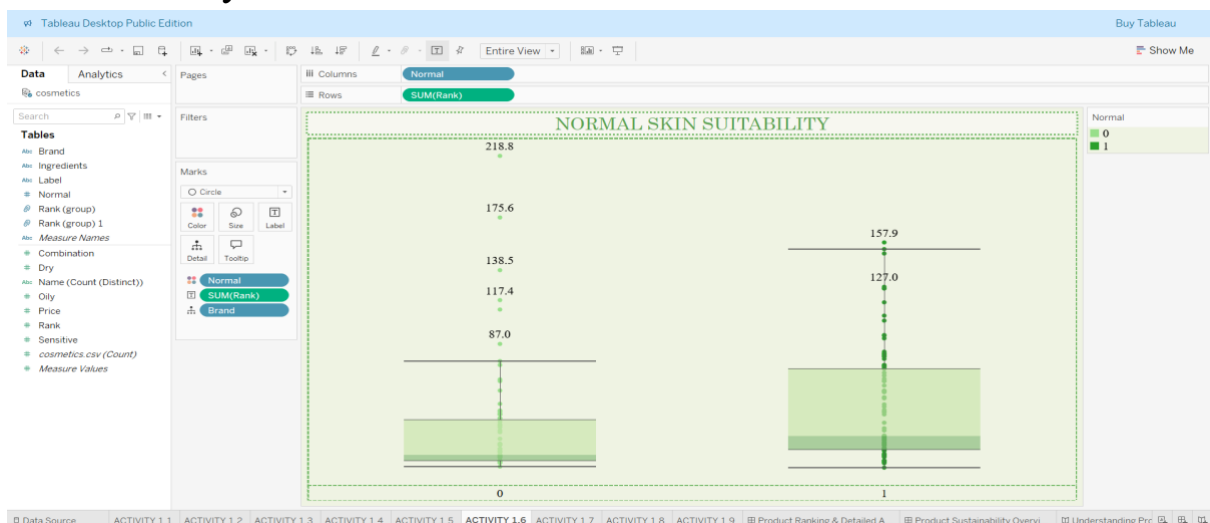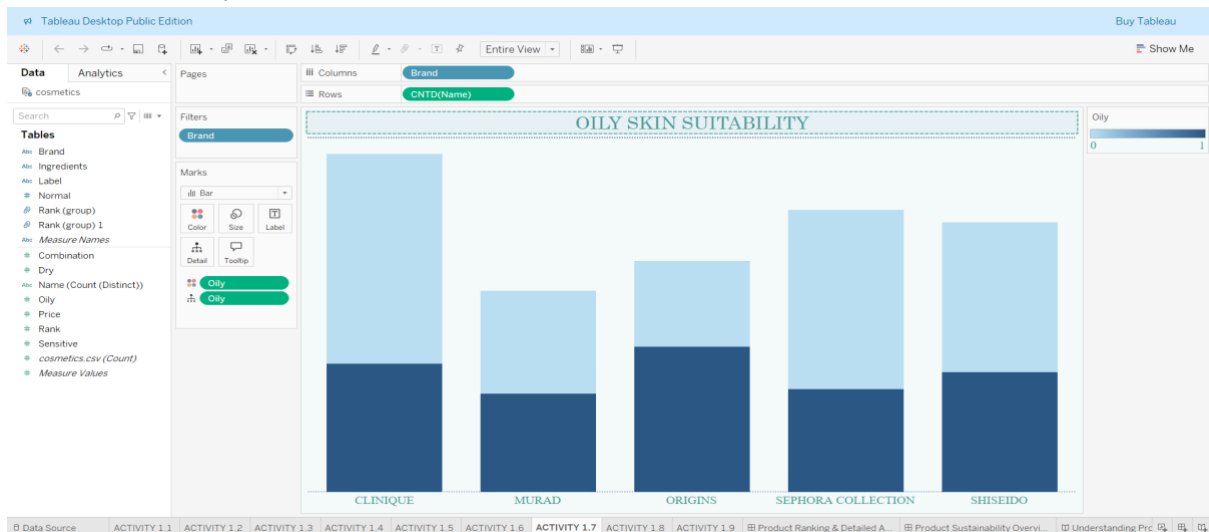## Activity 1.1

Activity 1.2
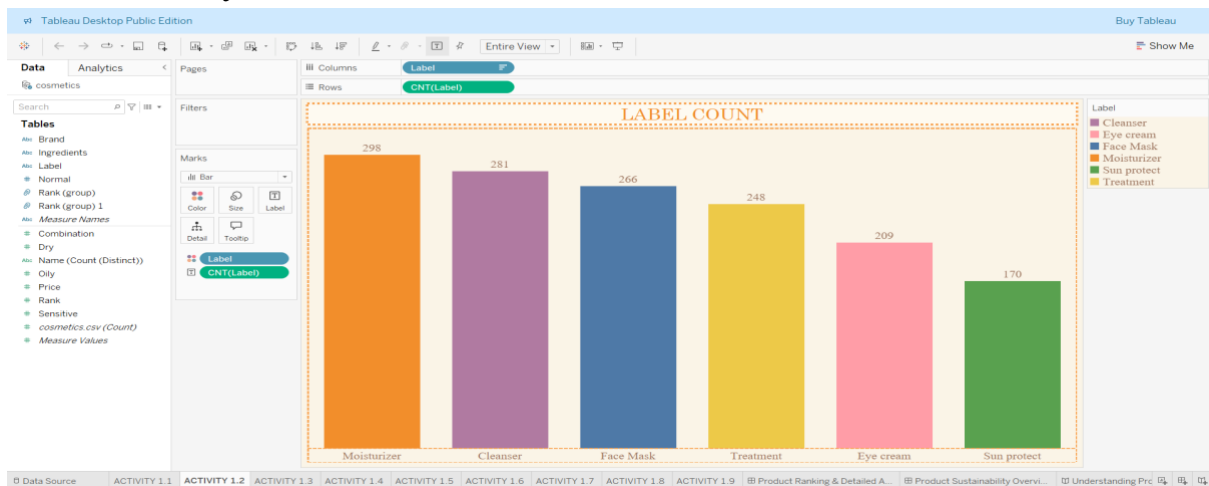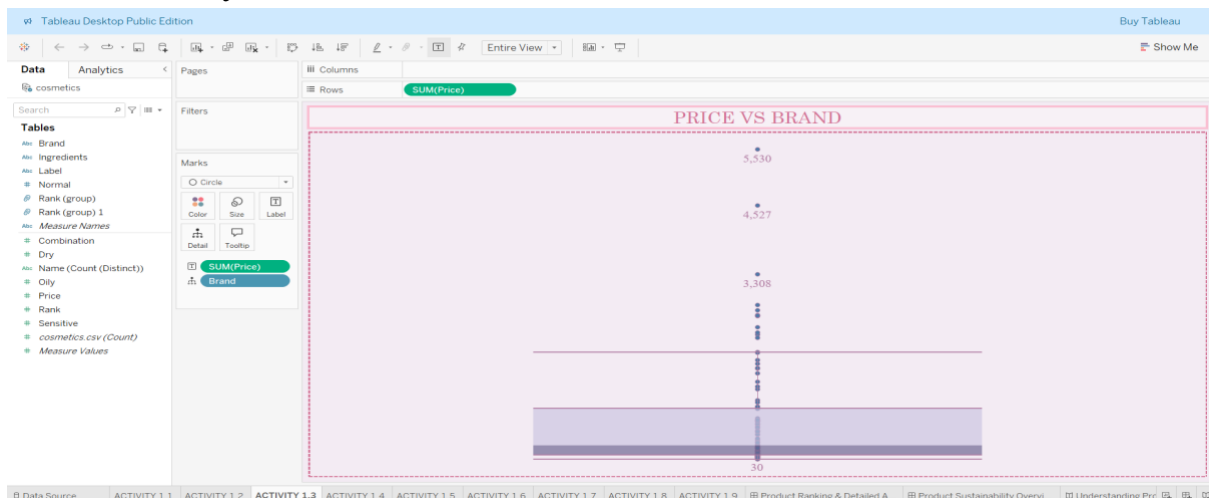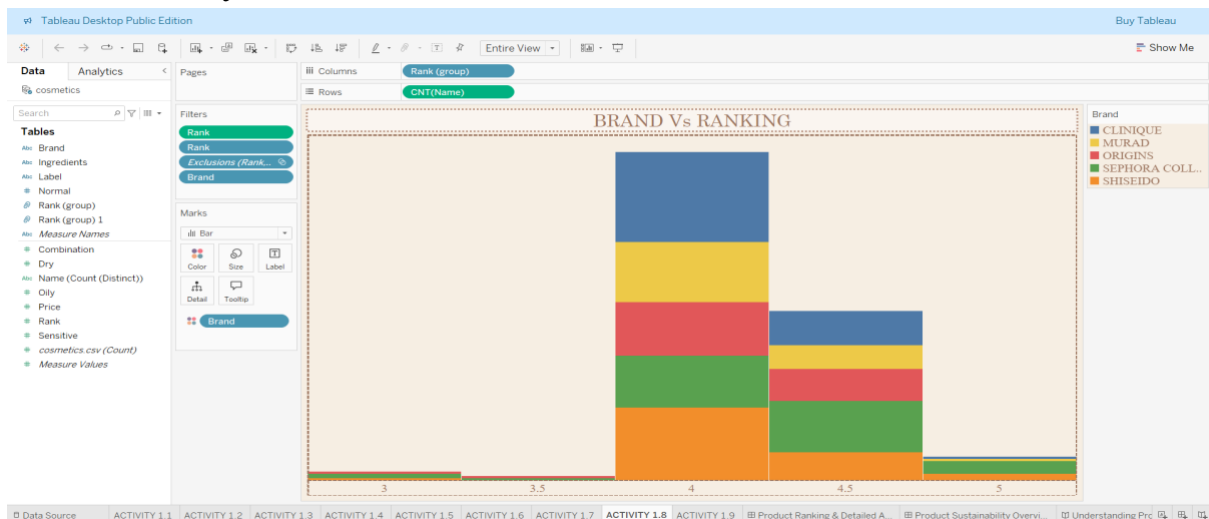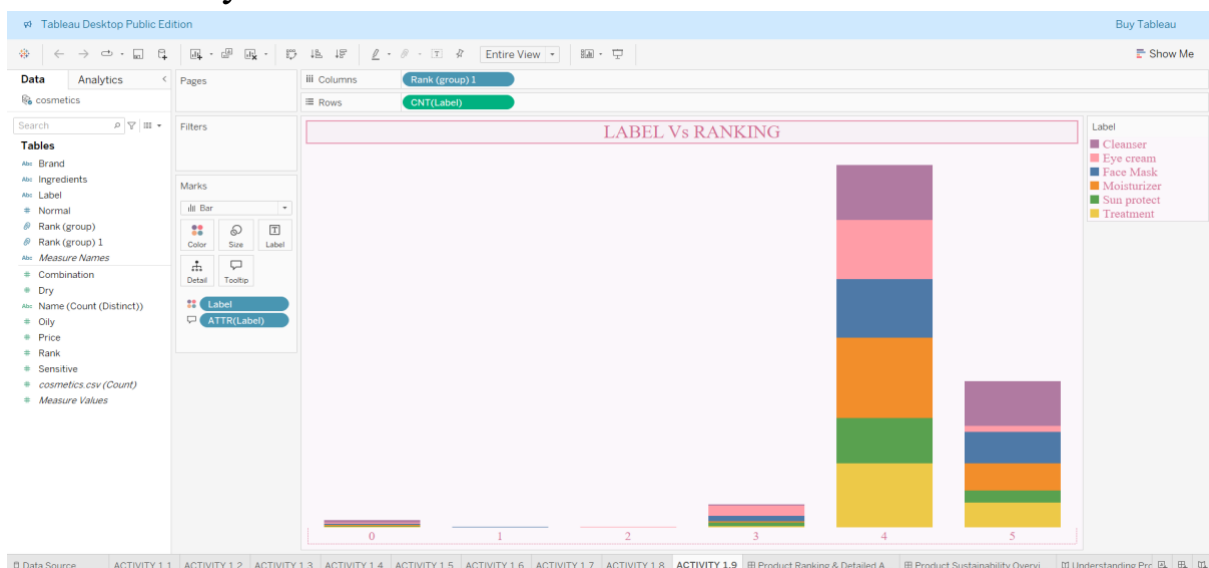

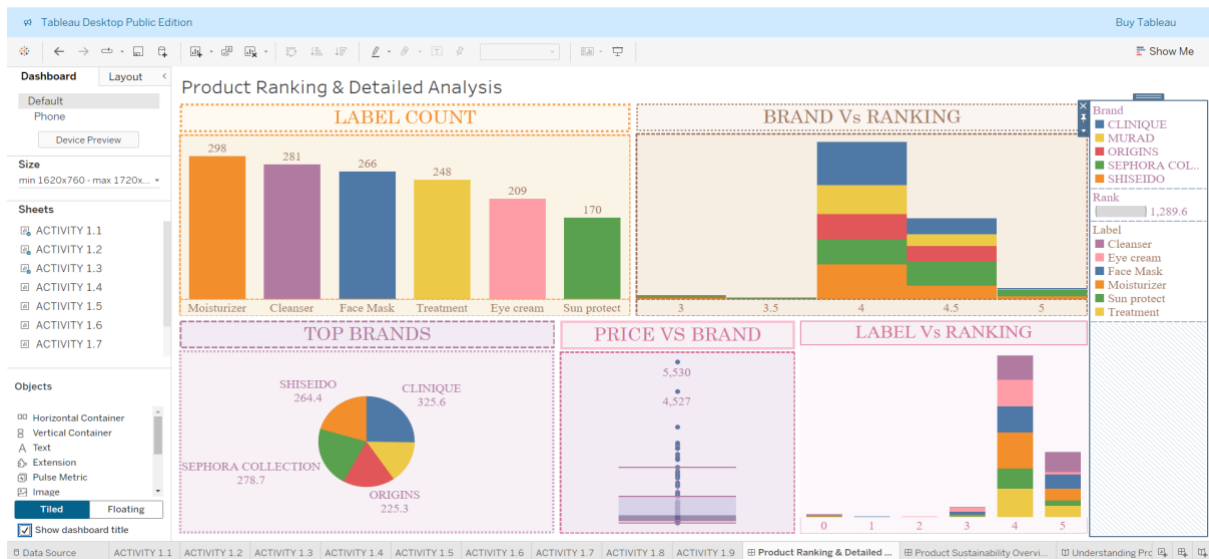## Activity 1.3

Activity 1.4

Activity 1.5

Activity 1.6

Activity 1.7

Activity 1.8

Activity 1.9

Dashboard 1

Product Ranking & Detailed Analysis

LABEL COUNT
- Moisturizer 298
- Cleanser 281
- Face Mask 266
- Treatment 248
- Eye cream 209
- Sun protect 170

BRAND Vs RANKING

TOP BRANDS
- SHISEIDO 264.4
- CLINIQUE 325.6
- SEPHORA COLLECTION 278.7
- ORIGINS 225.3

PRICE VS BRAND
- 5,530
- 4,527

LABEL Vs RANKING

Dashboard 2

Product Sustainability Overview

SENSITIVE SKIN SUITABILITY
- CLINIQUE, MURAD, ORIGINS, SEPHORA COLLECTION, SHISEIDO

OILY SKIN SUITABILITY
- CLINIQUE, MURAD, ORIGINS, SEPHOR..., SHISEIDO

NORMAL SKIN SUITABILITY
- 218.8
- 175.6
- 138.5
- 157.9

DRY SKIN SUITABILITY
- ORIGINS 0
- SHISEIDO 1
- CLINIQUE 0
- CLINIQUE 1
- ORIGINS 1
- SHISEIDO 0
- MURAD 0
- SEPHORA

Story [6 Story Points]

Understanding Product Suitability & Brand Performance

TOP BRANDS | DIFFERENT LABELS OF | PRICE OF DIFFERENT | SKIN SUITABILITY | BRAND RANKING | LABEL RANKING

- SHISEIDO 264.4
- CLINIQUE 325.6
- SEPHORA COLLECTION 278.7
- ORIGINS 225.3
- MURAD 195.6

Understanding Product Suitability & Brand Performance

| TOP BRANDS | DIFFERENT LABELS OF | PRICE OF DIFFERENT | SKIN SUITABILITY | BRAND RANKING | LABEL RANKING |

Label
- Cleanser
- Eye cream
- Face Mask
- Moisturizer
- Sun protect
- Treatment

| 298 | 281 | 266 | 248 | 209 | 170 |
| Moisturizer | Cleanser | Face Mask | Treatment | Eye cream | Sun protect |

Understanding Product Suitability & Brand Performance

| TOP BRANDS | DIFFERENT LABELS OF | PRICE OF DIFFERENT | SKIN SUITABILITY | BRAND RANKING | LABEL RANKING |

5,530

4,527

3,308

30

Understanding Product Suitability & Brand Performance

Product Sustainability Overview

SENSITIVE SKIN SUITABILITY
CLINIQUE · MURAD · ORIGINS · SEPHORA COLLECTION · SHISEIDO

OILY SKIN SUITABILITY
CLINIQUE · MURAD · ORIGINS · SEPHOR... · SHISEIDO

NORMAL SKIN SUITABILITY
218.8
175.6
138.5
157.9
0 · 1

DRY SKIN SUITABILITY
SHISEIDO 1 · ORIGINS 0 · CLINIQUE 0 · ORIGINS 1 · SHISEIDO 0 · MURAD 0 · SEPHORA

Sensitive 0 — 1
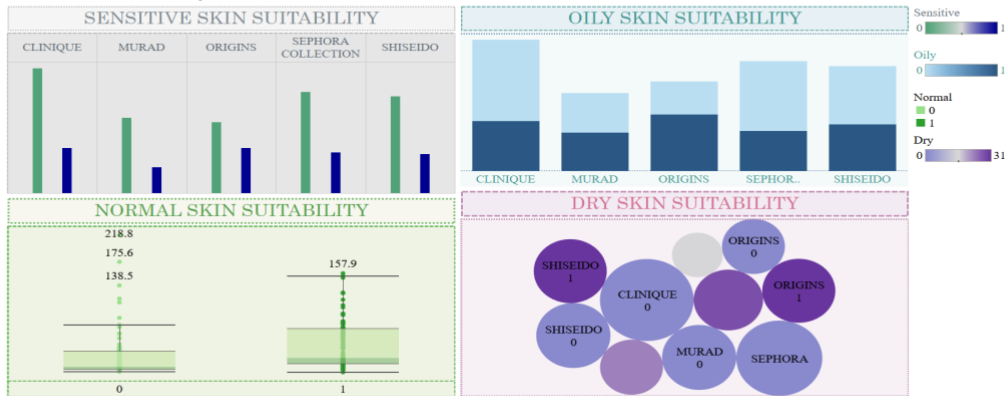Oily 0 — 1
Normal 0 / 1
Dry 0 — 31

ACTIVITY 1.1 | ACTIVITY 1.2 | ACTIVITY 1.3 | ACTIVITY 1.4 | ACTIVITY 1.5 | ACTIVITY 1.6 | ACTIVITY 1.7 | ACTIVITY 1.8 | ACTIVITY 1.9 | ⊞ Product Ranking & Detailed A... | ⊞ Product Sustainability Overvi... | ⚏ **Understanding Product Suit...**

Understanding Product Suitability & Brand Performance

Brand
- CLINIQUE
- MURAD
- ORIGINS
- SEPHORA C..
- SHISEIDO

3 · 3.5 · 4 · 4.5 · 5

ACTIVITY 1.1 | ACTIVITY 1.2 | ACTIVITY 1.3 | ACTIVITY 1.4 | ACTIVITY 1.5 | ACTIVITY 1.6 | ACTIVITY 1.7 | ACTIVITY 1.8 | ACTIVITY 1.9 | ⊞ Product Ranking & Detailed A... | ⊞ Product Sustainability Overvi... | ⚏ **Understanding Product Suit...**

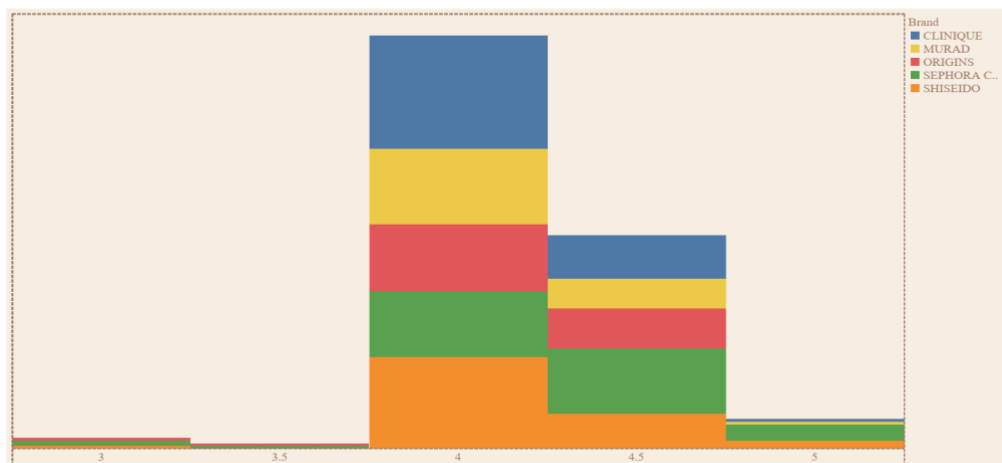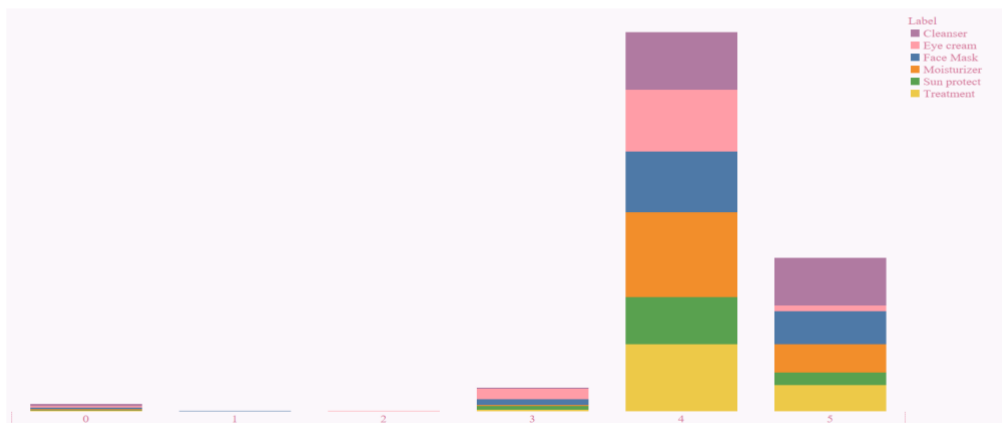# Understanding Product Suitability & Brand Performance

Label
- Cleanser
- Eye cream
- Face Mask
- Moisturizer
- Sun protect
- Treatment

0 · 1 · 2 · 3 · 4 · 5

ACTIVITY 1.1 | ACTIVITY 1.2 | ACTIVITY 1.3 | ACTIVITY 1.4 | ACTIVITY 1.5 | ACTIVITY 1.6 | ACTIVITY 1.7 | ACTIVITY 1.8 | ACTIVITY 1.9 | ⊞ Product Ranking & Detailed A... | ⊞ Product Sustainability Overvi... | ⚏ **Understanding Product Suit...**

8.ADVANTAGES & DISADVANTAGES

Advantages

- ✓ User-friendly interface

- ✓ Interactive and visually engaging

- ✓ Helps identify trends and consumer-friendly products

  Disadvantages

- Limited to data available

- Doesn't account for real-time customer reviews or ingredients

9.CONCLUSION

This project demonstrates how Tableau can be used effectively to uncover insights in the cosmetic industry, guiding users towards better product decisions based on skin type and brand rankings.

10.Future Scope

- ➢ Include ingredient analysis for allergic reactions
- ➢ Add real-time user review tracking
- ➢ Expand dataset to include more brands and international markets