PROJECT REPORT

Team ID: LTVIP2025TMID48322
Project Title: Cosmetic Insights : Navigating Cosmetics Trends and Consumer Insights with Tableau

1.INTRODUCTION

1.1 **Project Overview**

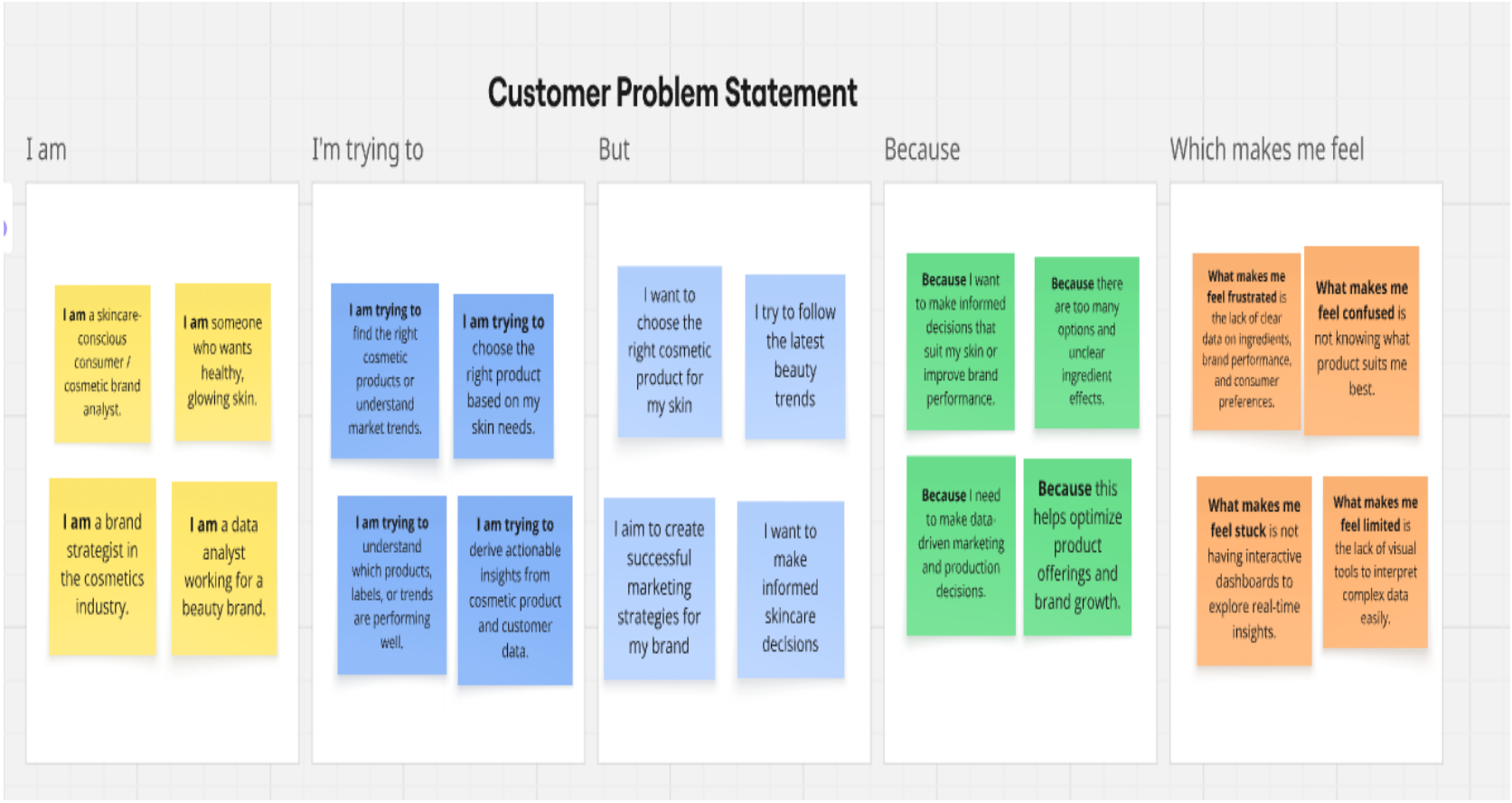
Cosmetic Insights is a data visualization project built using **Tableau**.
It analyzes cosmetic product data, including **ingredients, labels, prices**, and **reviews**.
The goal is to help **consumers choose better products** and **brands understand trends**.
Interactive dashboards display top brands, label counts, and ingredient patterns.
The insights support **data-driven marketing and personalized skincare choices**.
Data is sourced from **Kaggle's Cosmetics Dataset** and processed for clarity and impact.

1.2 **Purpose**

The purpose of this project is to **analyze and visualize cosmetics industry data**.
It aims to provide **insights into product ingredients, brand performance, and trends**.
Consumers can make **informed skincare choices** based on data, not guesswork.
Brands gain **strategic insights into customer preferences and market direction**.
It simplifies complex data using **interactive Tableau dashboards and stories**.
Overall, it bridges the gap between **raw data and actionable beauty insights**.

2. IDEATION PHASE

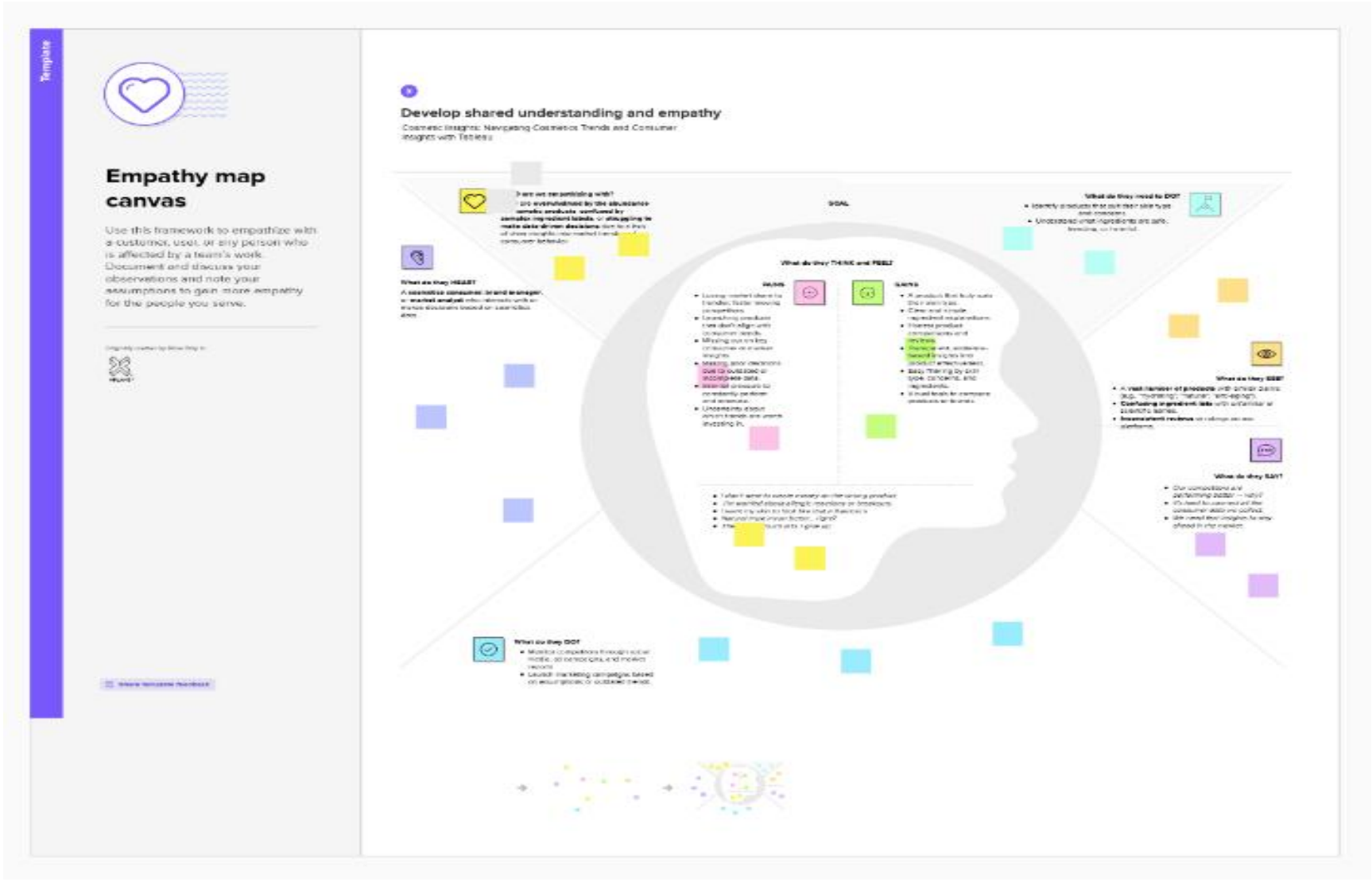
2.1 Problem Statement



Problem Statement (PS)	I am	I'm trying to	But	Because	Which makes me feel
PS-1	a product strategist	find products suitable for my skin type	ingredient info is unclear and scattered	there's no dashboard that explains product effects	confused and hesitant to choose

PS-2	a marketing lead	identify top-performing cosmetic categories and trends	I can’t compare brand or ingredient trends easily	dashboards are not integrated across data dimensions	frustrated and data-blind
PS-3	Senior executive	present consumer trends to support product campaigns	visuals are generic and not beauty-industry focused	there's no narrative-driven dashboard in cosmetics	disconnected from insights
PS-4	market analyst	analyze which ingredients drive customer satisfaction	I can't filter by review sentiment or ingredient usage	tools are not interactie or customizable	stuck and unable to dig deeper

2.2 Empathy Map Canvas



2.3 Brainstorming

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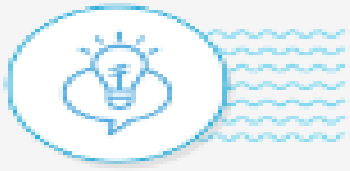


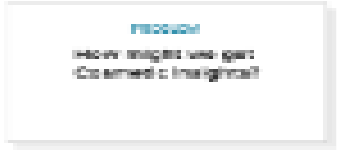
Brainstorm & idea prioritization

Cosmetic Insights : Navigating Cosmetics Trends and Consumer Insights with Tableau

1

Define your problem statement

Cosmetics companies struggle to track changing consumer preferences, identify product issues early, and predict market trends due to scattered data and lack of real-time insights. The **"Cosmetic Insights"** project solves this by creating an interactive Tableau dashboard that visualizes consumer behavior, product feedback, and trend data — enabling faster, data-driven decisions for marketing, innovation, and quality control.



3

Brainstorm

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

Interactive Dashboard – Build a real-time Tableau dashboard showing trends, reviews, and ingredient usage.

Consumer Sentiment Analysis – Use NLP to analyze customer reviews and detect satisfaction or concerns.

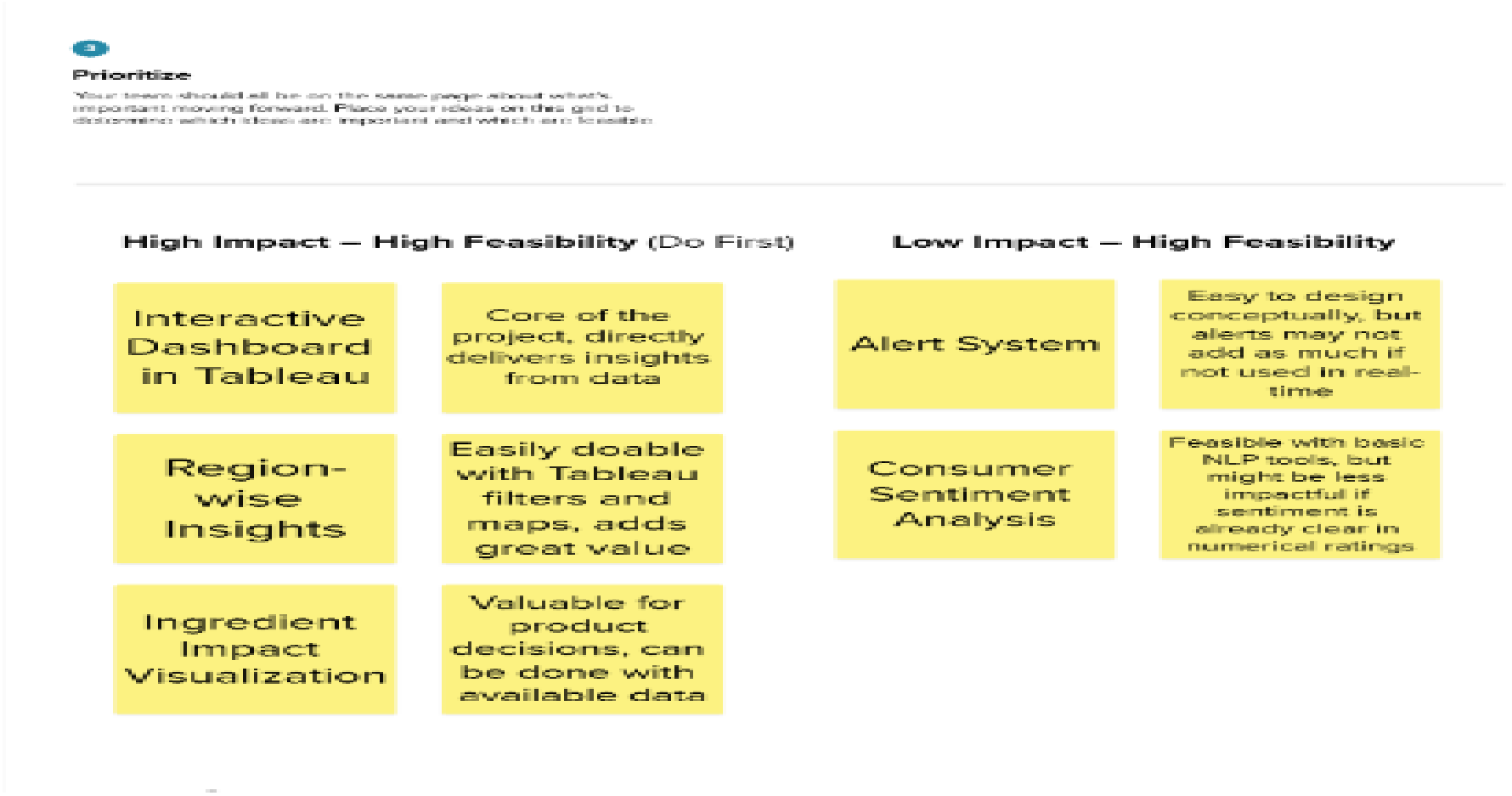
Alert System – Trigger alerts for declining product interest or rising negative feedback.

Trend Forecasting –Apply predictive analytics to forecast upcoming cosmetic trends and demands.

Ingredient Impact Visualization – Map ingredients to effects and popularity for better formulation decisions.

Competitor Benchmarking Compare product performance and consumer response across brands.

Region-wise Insights Analyze consumer preferences and product performance across different locations.



3. REQUIREMENT ANALYSIS

3.1 Customer Journey map

Customer Journey Map

This map represents how a product strategist or analyst interacts with the Cosmetics Insights dashboard from need to insight.

Stage	Need	Action	Touchpoint	Pain Point	Opportunity

Discover	Wants real & market trends	Searches Excel/market data	Emails, Files	Data is scattered	Single dashboard entry point
Explore	Needs regional & feature insights	Browses charts manually	Spreadsheets, BI tools	Time-consum ing	Filter-enable d Tableau dashboard
Engage	Wants to compare Brand vs pricing	Tries custom visualizations	Excel formulas	Lacks interactivity	Pre-built price/spec dashboard
Decide	Prepares Trending products	Screenshots graphs	Presentations	Dry data storytelling	Use Tableau story points with captions

3.2 Solution Requirement

Functional Requirement

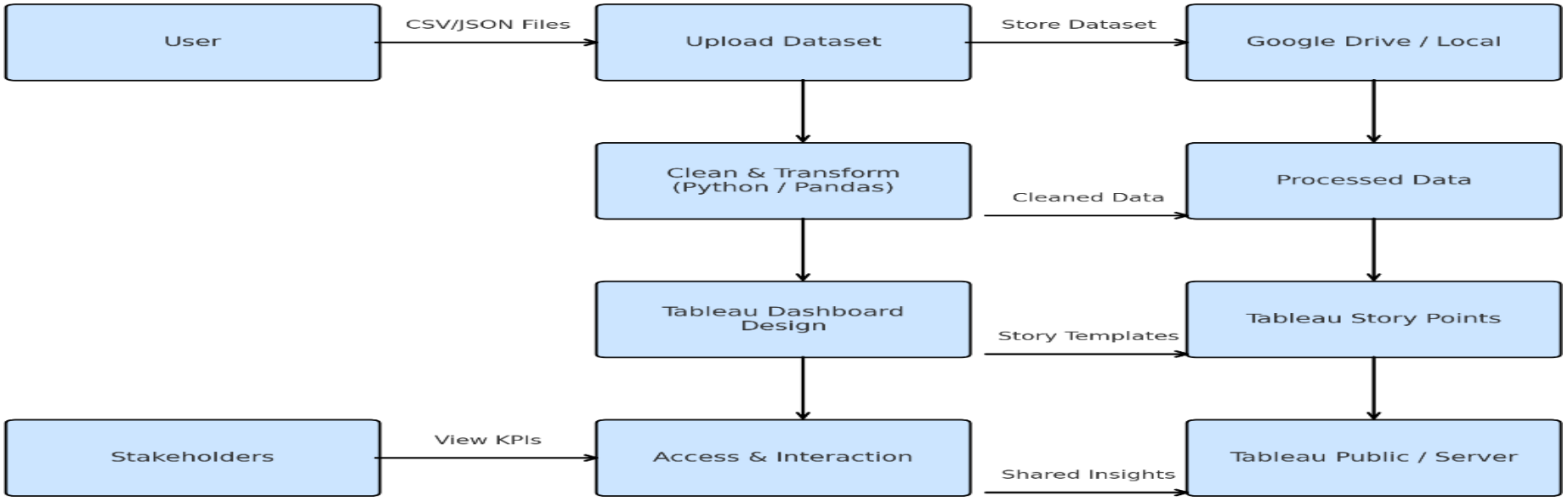
FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	Interactive KPI Dashboard	Displays key metrics like top brands, number of products, active ingredients, and consumer rating trends, filterable by product type and region.
FR-2	Model & Spec Analytics	Allows users to compare cosmetic products based on features like ingredient type, skin compatibility, price range, and popularity.
FR-3	Quarterly Market Share Visualization	Shows brand-wise performance trends across four quarters using bar charts and pie/donut charts..
FR-4	Pricing Pattern Insights	Visualizes average price distribution and customer feedback patterns based on product category and ingredient composition
FR-5	Geo-Map Representation	Displays regional preferences and product popularity across different Indian states using interactive maps.

FR-6	Story-Based Dashboard Navigation	Provides a guided, story-driven dashboard experience explaining shifts in consumer preferences, product trends, and market dynamics with narrative captions.

3.3 Non Functional Requirement

FR No.	Non-Functional Requirement	Description
NFR-1	Performance	Dashboards should load within 3–5 seconds, even when filters (e.g., product type, region, brand) are applied.
NFR-2	Scalability	The solution must support addition of new cosmetic products, ingredients, regions, and time periods in future datasets.
NFR-3	**Responsiveness**	Dashboard layout should be optimized for both laptops and projectors for smooth use during presentations.
NFR-4	**Performance**	The interface must be intuitive, clean, and easily understandable without requiring a technical background.
NFR-5	**Usability**	Use a visually comfortable theme (light/dark) with soft colors, legible fonts, and clear legends to reduce eye fatigue..
NFR-6	**Data Accuracy**	All KPIs, ratings, and visual summaries must be validated against source datasets to ensure accuracy.

3.4Data Flow Diagram

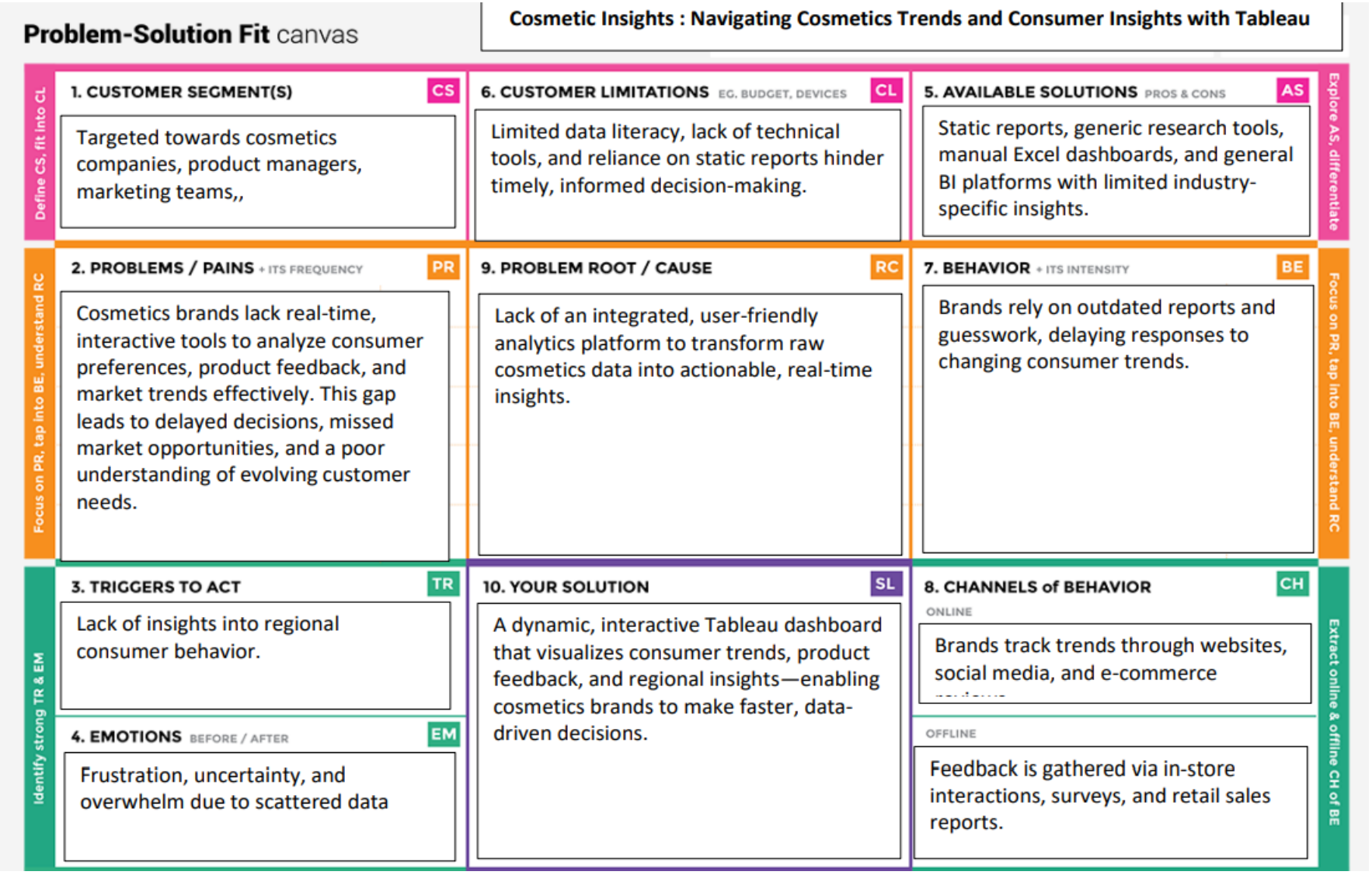


3.5Technology Stack

Component	Tool/Technology	Purpose
Data Source	CSV, JSON files	Cosmetics data and Brand,Price
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. PROJECT DESIGN

4.1 Problem Solution Fit



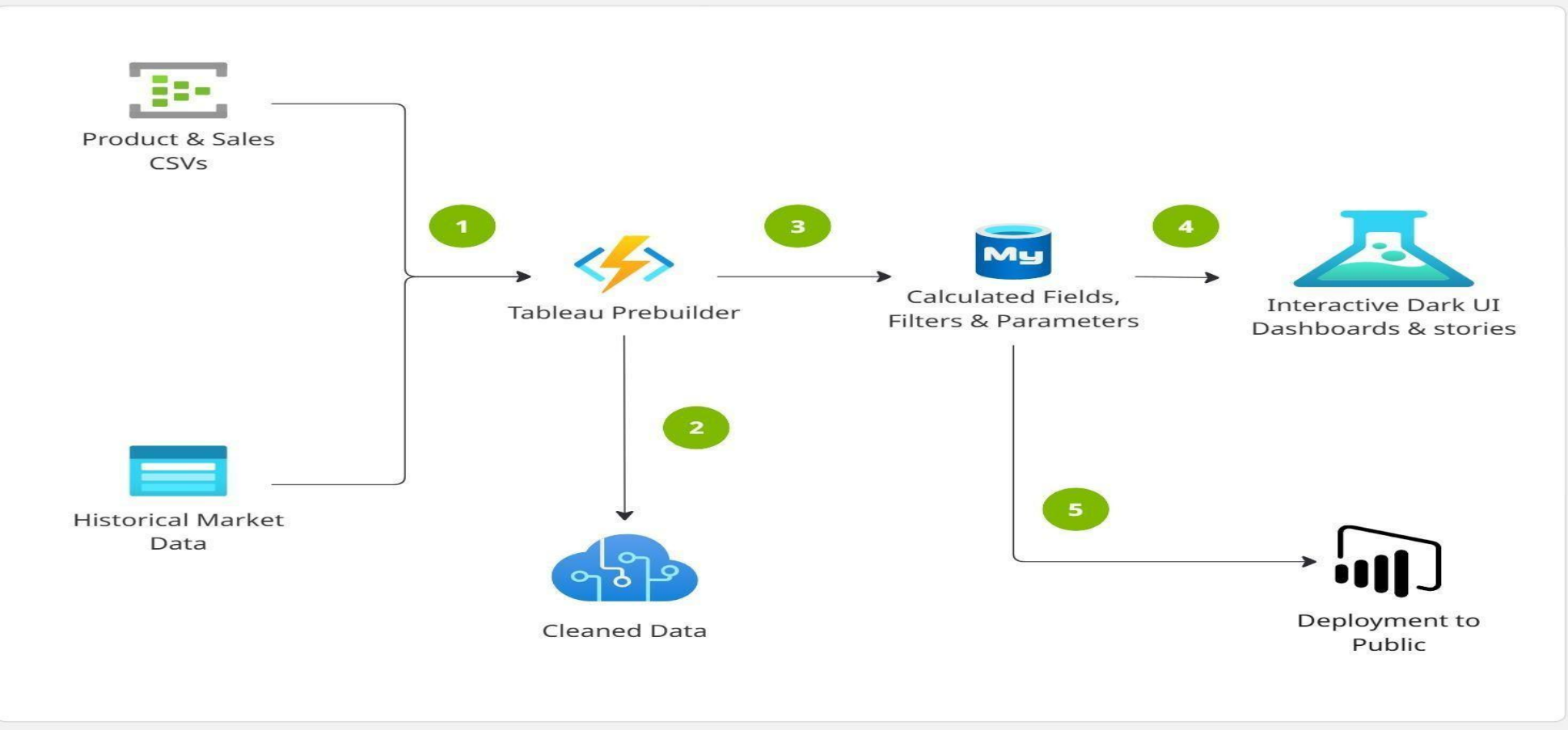
4.2 Proposed Solution

5.

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Cosmetics companies lack a centralized, interactive, and story-driven platform to analyze consumer preferences, ingredient impacts, regional trends, and product feedback. This limits timely, data-backed decisions.
2.	Idea / Solution description	Develop an intuitive, visually rich Tableau dashboard with a clean or dark UI for eye comfort. Incorporate interactive filters (region, brand, ingredient, product type) and dynamic charts to allow easy exploration of data.
3.	Novelty / Uniqueness	Unlike static market reports, this solution uses real-time, story-driven dashboards with user- controlled filters. The interface is optimized for visual comfort and the KPIs update dynamically based on user selections, enabling a more engaging and analytical experience.
4.	Social Impact / Customer Satisfaction	Helps cosmetics brands understand consumer behavior across regions, make data-driven product decisions, and improve customer satisfaction by aligning offerings with market trends. Reduces analysis time and promotes a data-first approach.
5.	Business Model (Revenue Model)	The solution can be provided as a data visualization service or subscription dashboard framework to cosmetics brands, market researchers, or digital agencies. It can be customized for different product lines or geographies.

6.	Scalability of the Solution	The dashboard framework is scalable across other beauty brands, international markets, and skincare or haircare product categories. Only the dataset and filters need updating — the dashboard logic and layout remain consistent and reusable.

4.3 Solution Architecture



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	Data Collection	USN-2	As a user, I can load data into the processing environment	1	High	ALL
Sprint- 2	Data Preprocessing	USN-3	As a user, I can handle missing values in the dataset	3	Medium	ALL
Sprint- 2	Data Preprocessing	USN-4	As a user, I can encode or map categorical variables appropriately	2	Medium	ALL
Sprint- 3	Making Graphs/Visualizations	USN-5	As a user, I can build the initial model based on processed data	5	High	ALL

SPRINT - 4	Dashboard & STORIES	USN - 6	Dark ui with eye feasted color palette	6	HIGH	ALL
SPRINT - 5	Report & documentation	USN - 7	The step-by-step guide documentation	7	MEDIUM	ALL

6. FUNCTIONAL AND PERFORMANCE TESTING

6.1Performance Testing

S.No.	Parameter	Screenshot / Values
1.	Data Rendered	Rendered from cleaned CSV files with Product Brands, prices, Sensitive skin Suitability etc. Loaded ~1,000+ rows
2.	Data Preprocessing	Null values handled; feature mappings applied for type of skin, label, Rating, and Product classification.
3.	Utilization of Filters	Applied Tableau filters for Brand, Ranking, Year, Type of skin, Label, sensitive, and Pricing. Responsive under 3 seconds.
4.	Calculation fields Used	- Total Products - Top-rated Brands - Active Ingredients Used - Average Customer Rating - Region-wise Product Count
5.	Dashboard design	No of Visualizations / 9 Graphs - 2Dashboards
6	Story Design	No of Visualizations / Graphs - 1 Stories with 9 story points each

7. RESULTS

7.1 Output Screenshots

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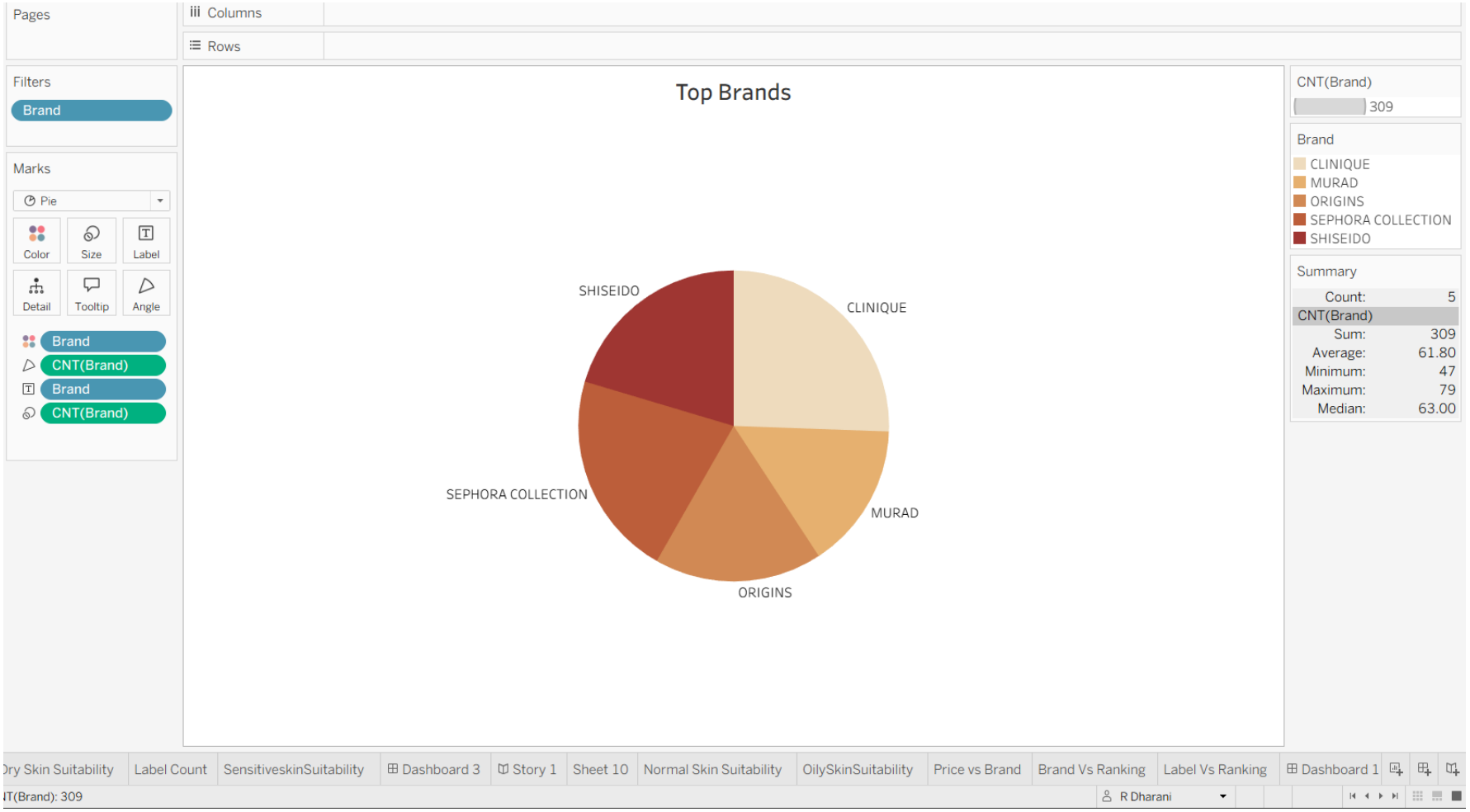


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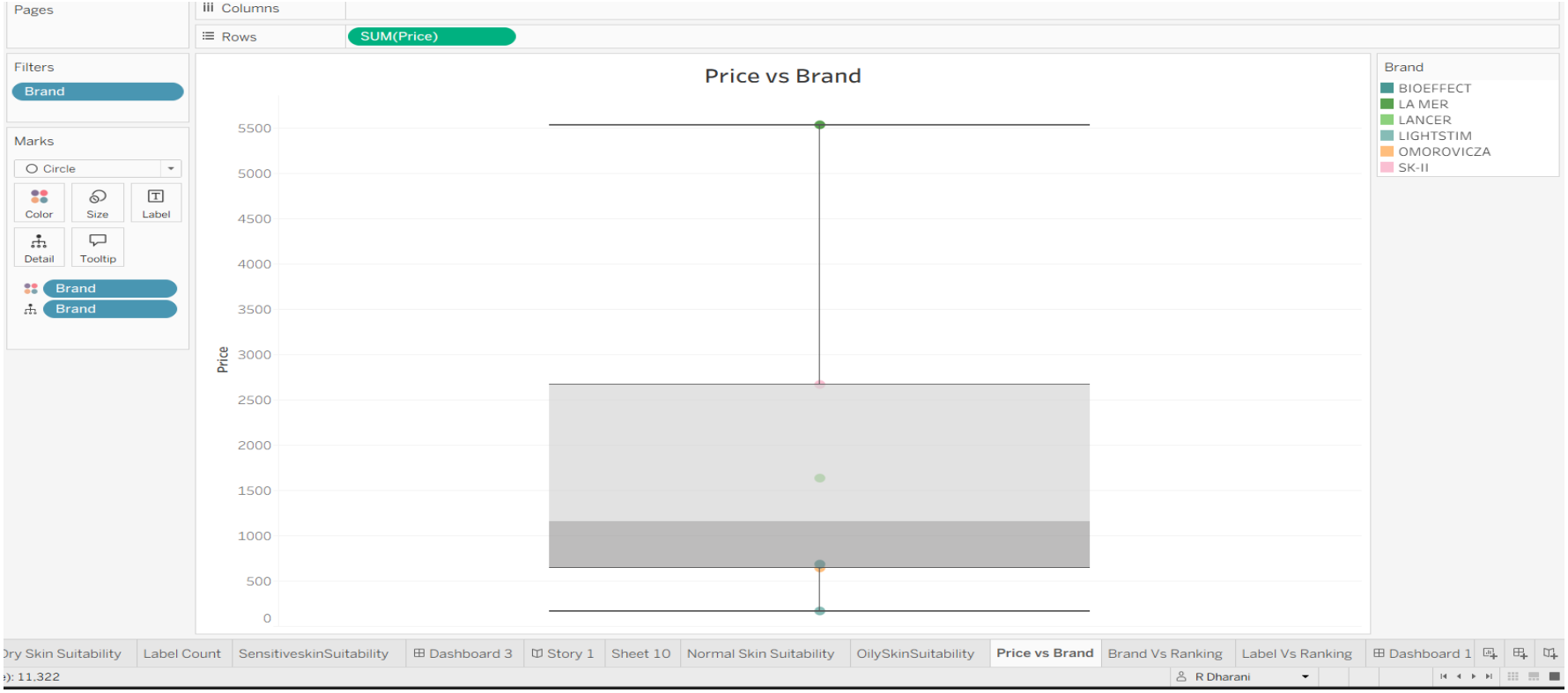
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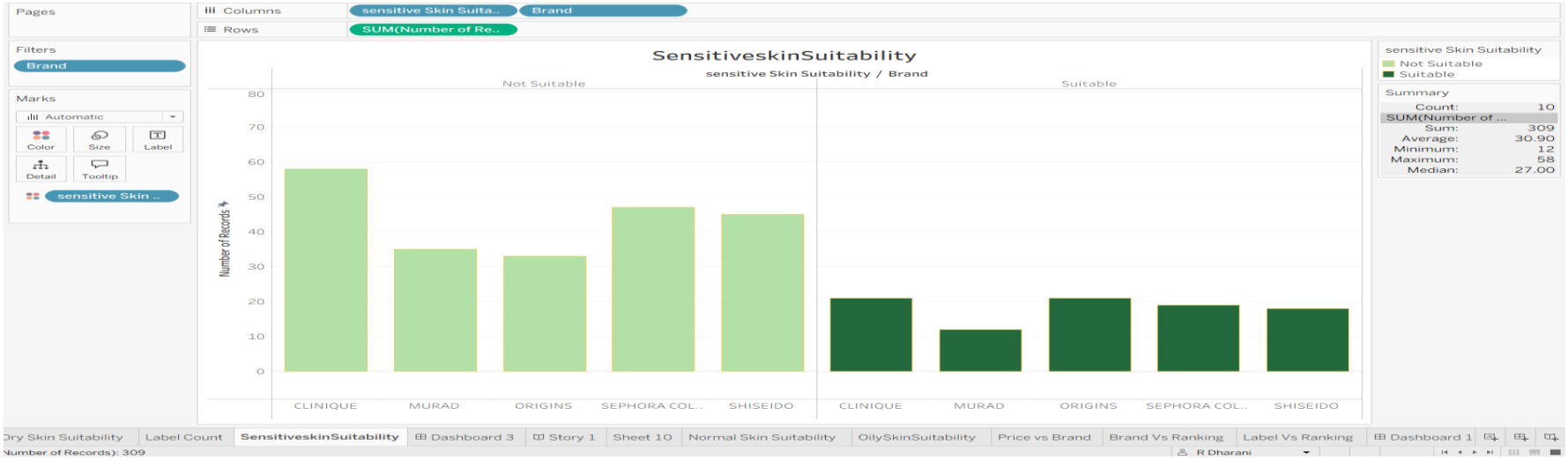
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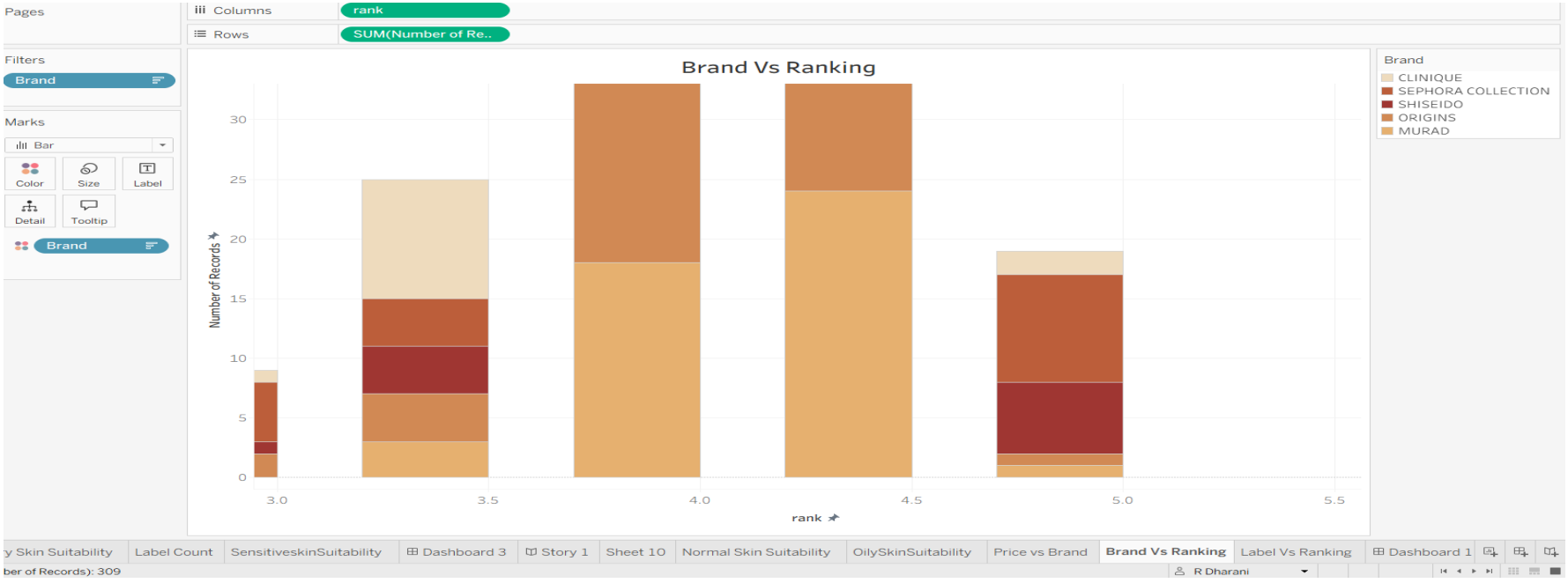
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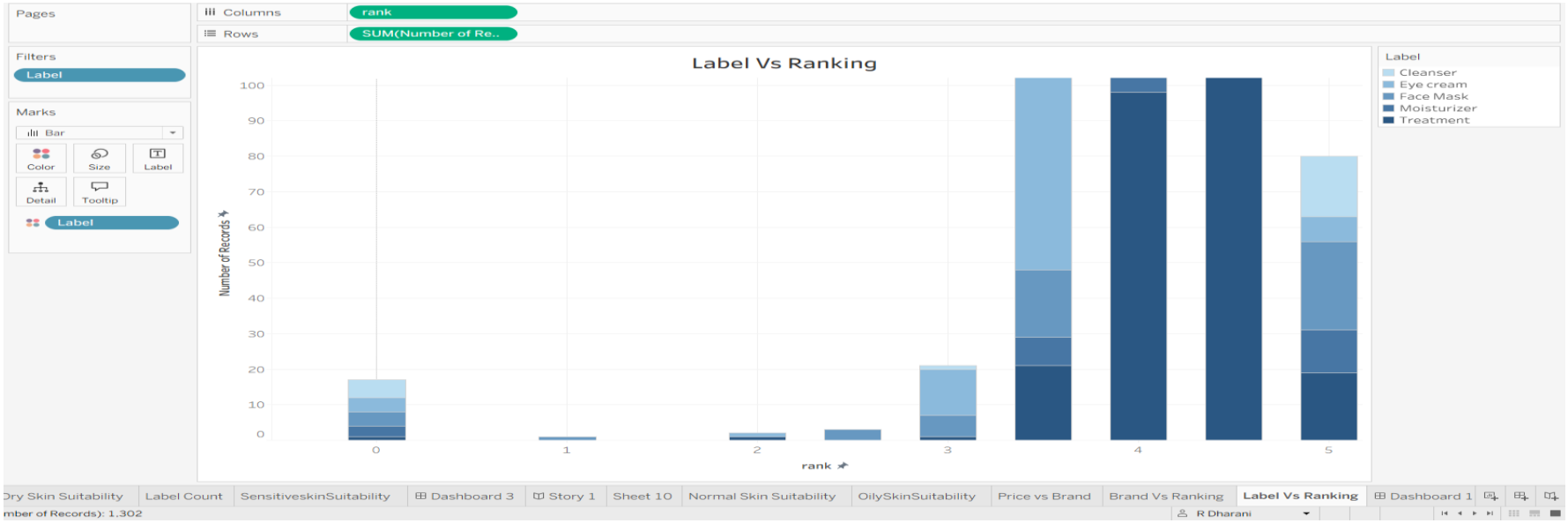
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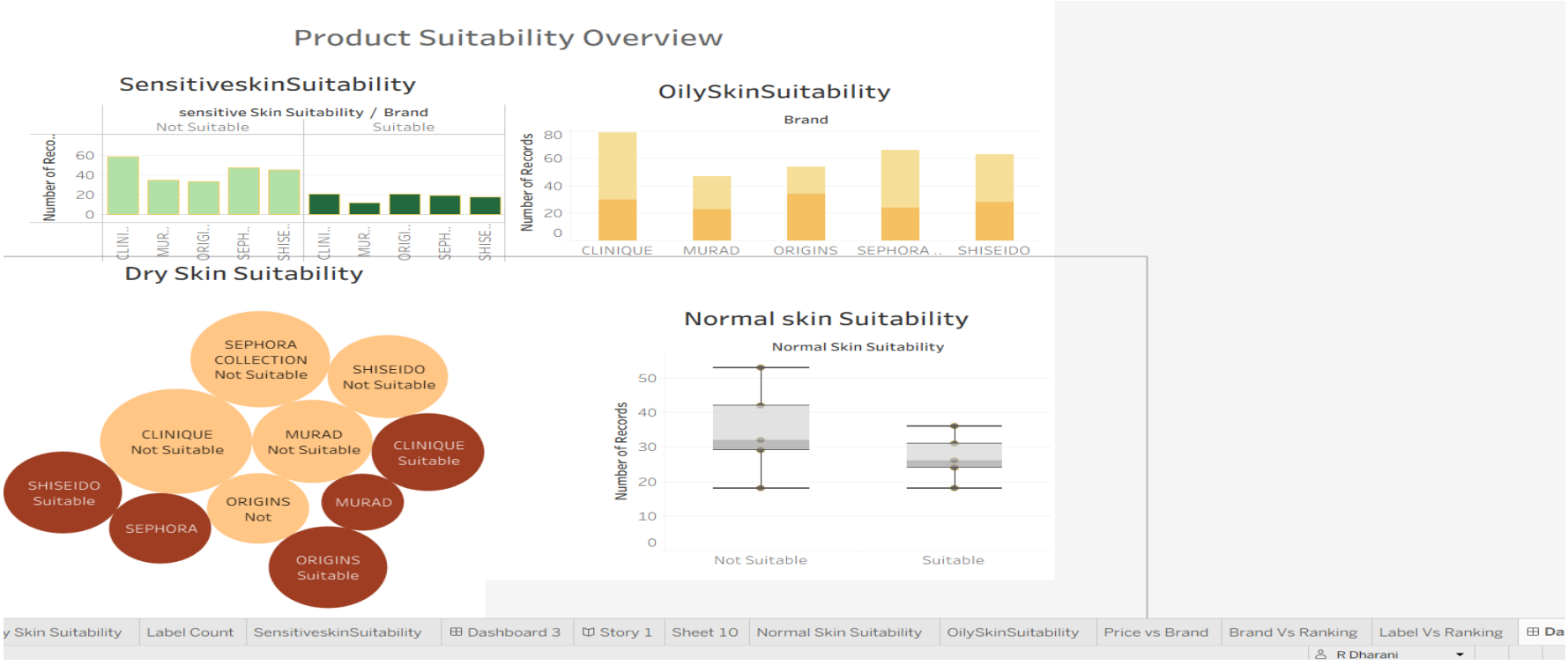
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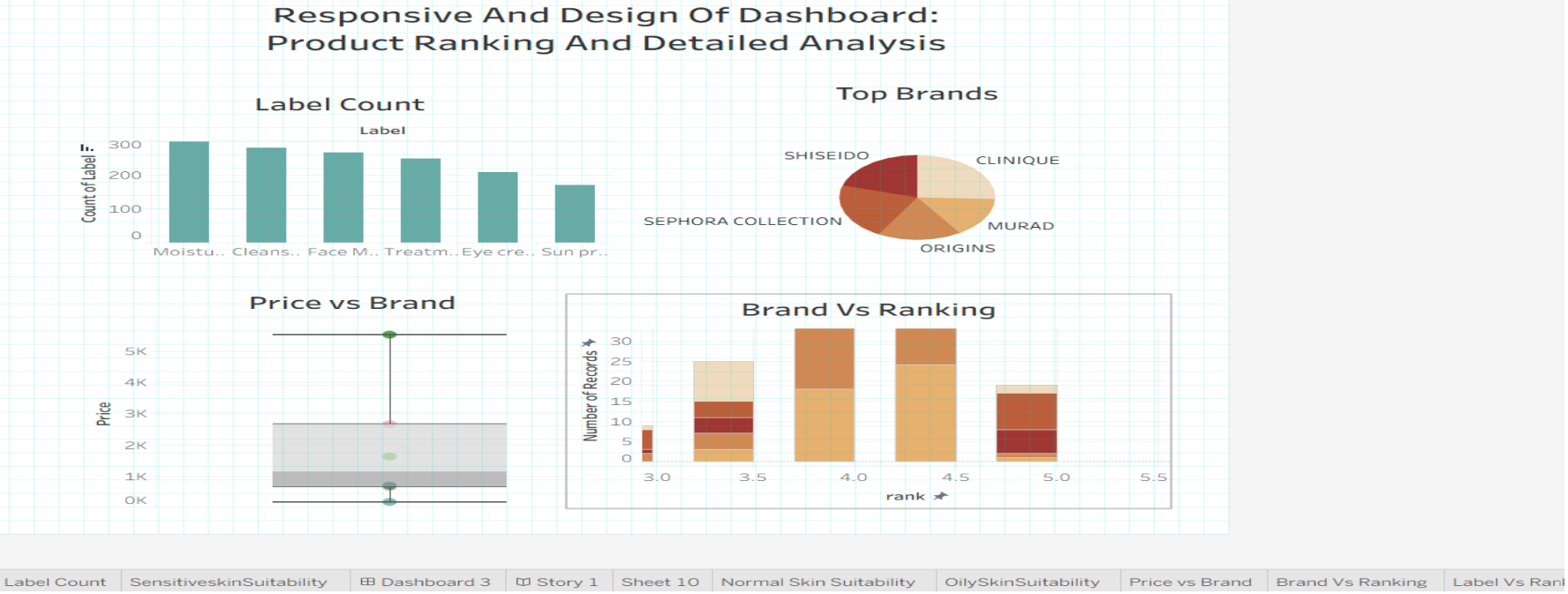
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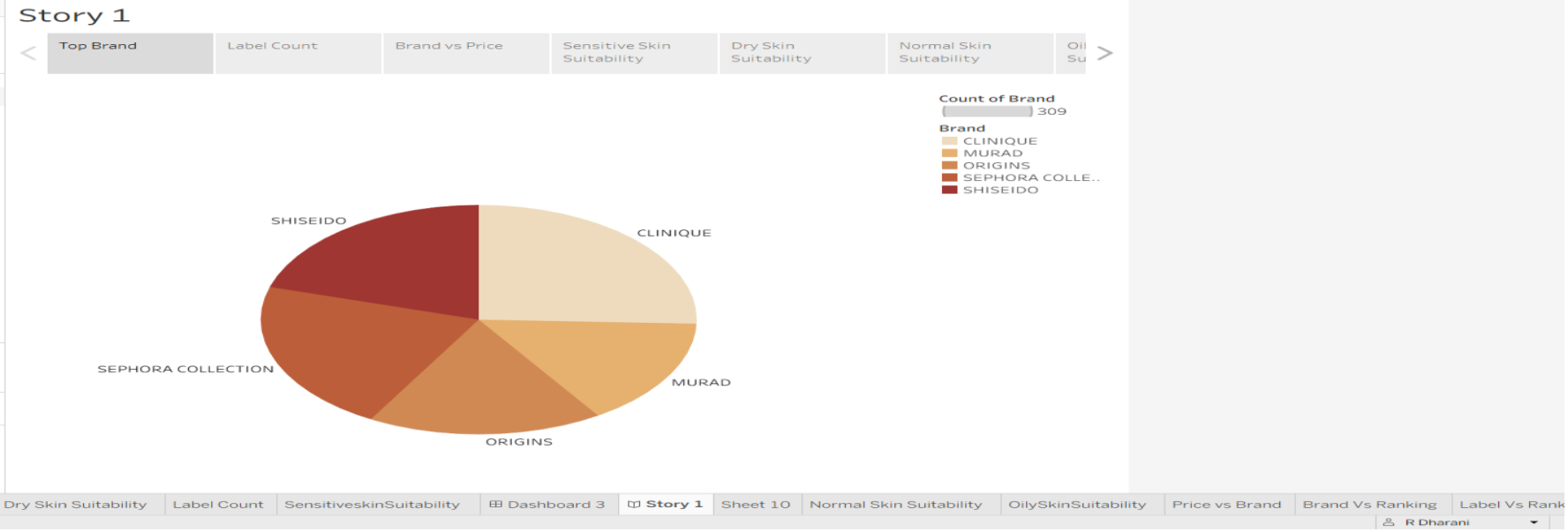
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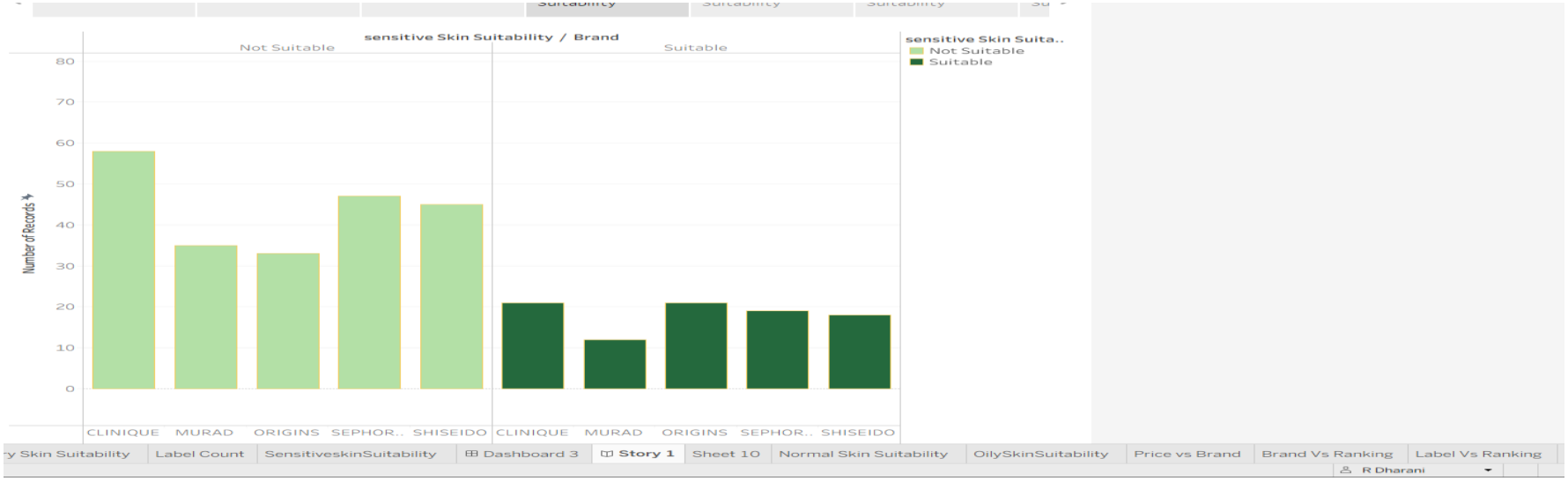
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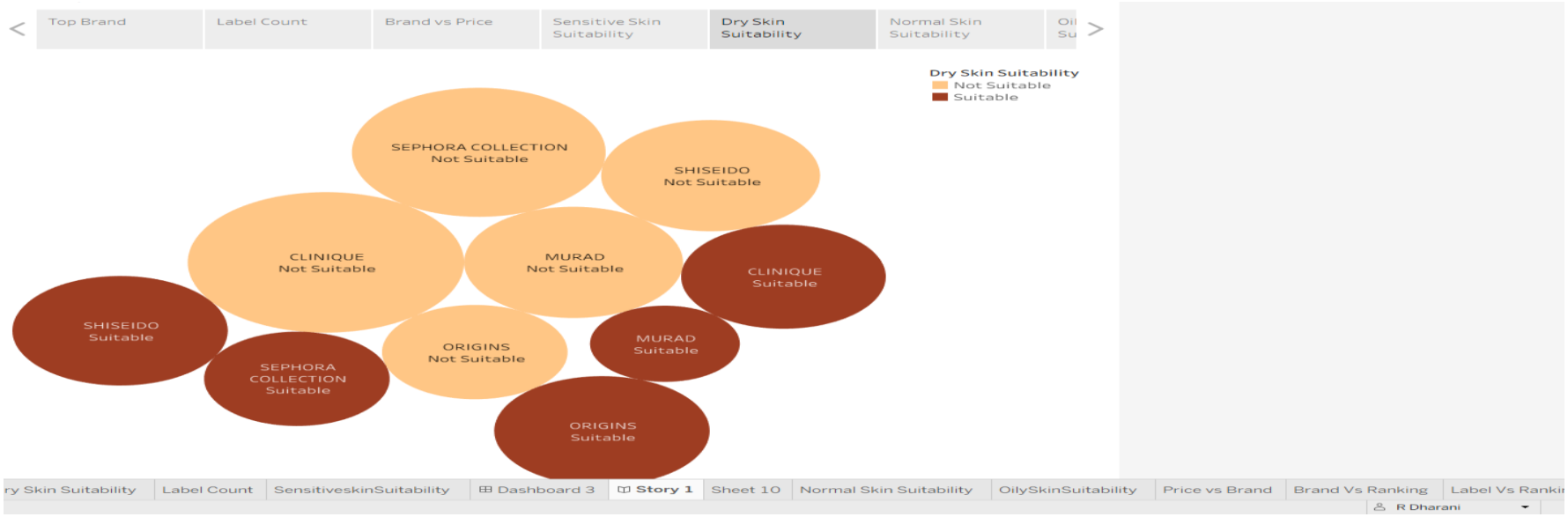
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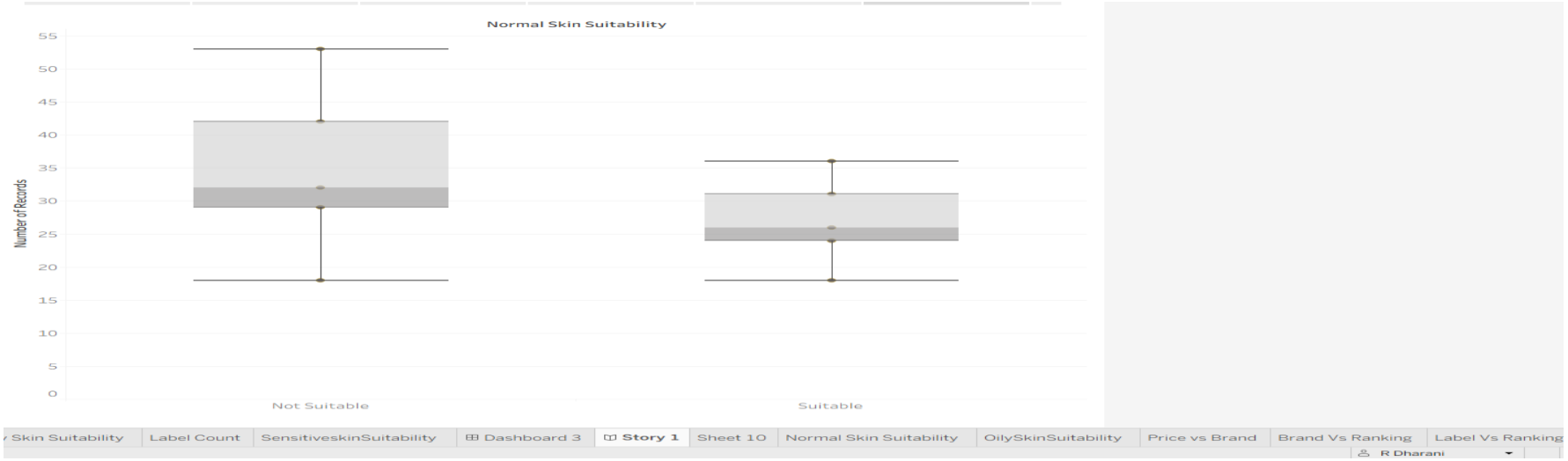
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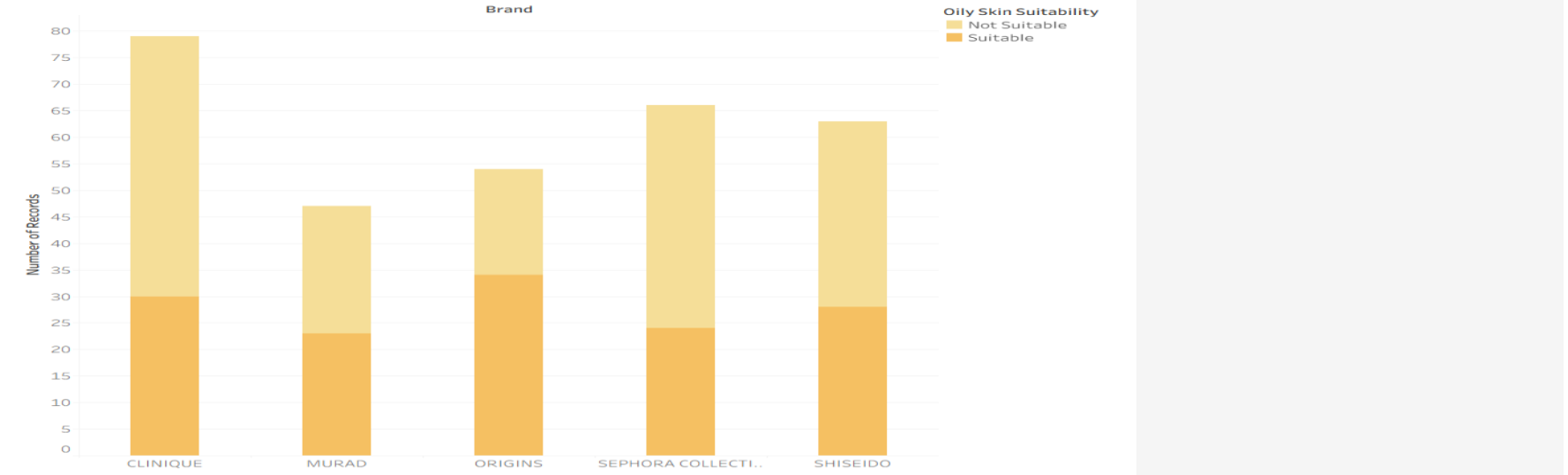
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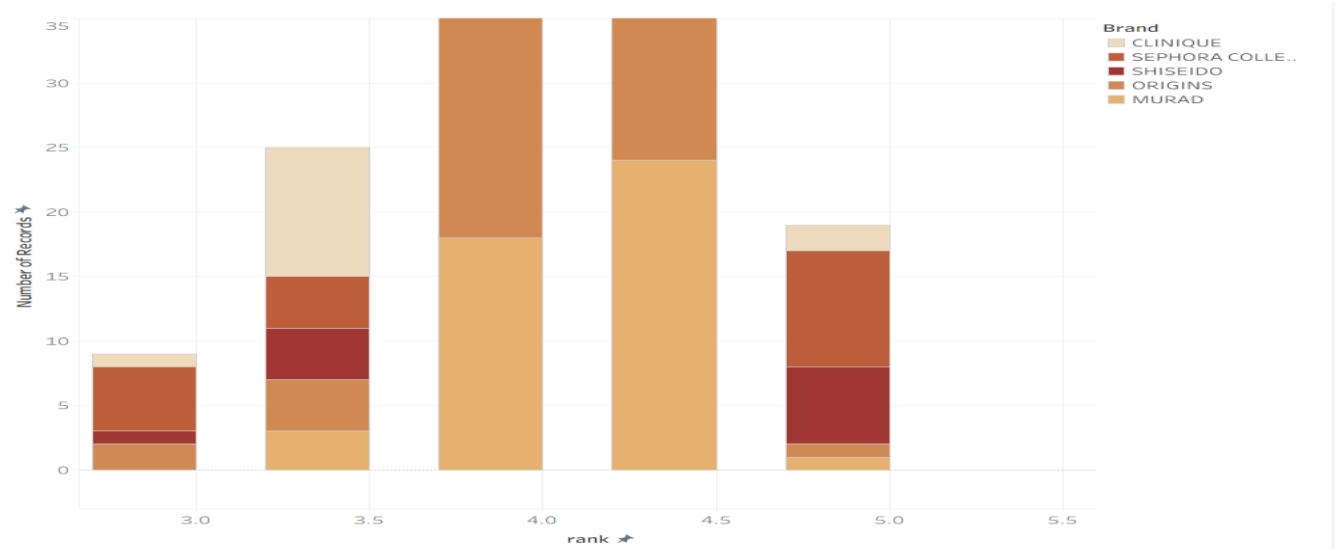
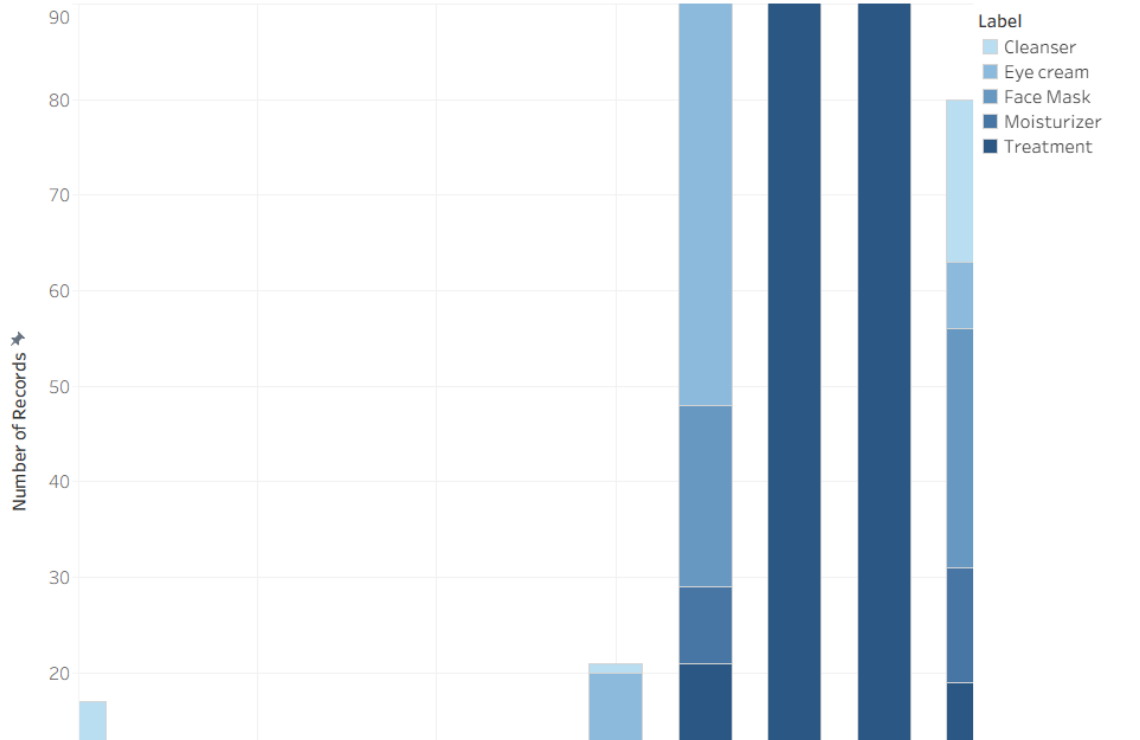
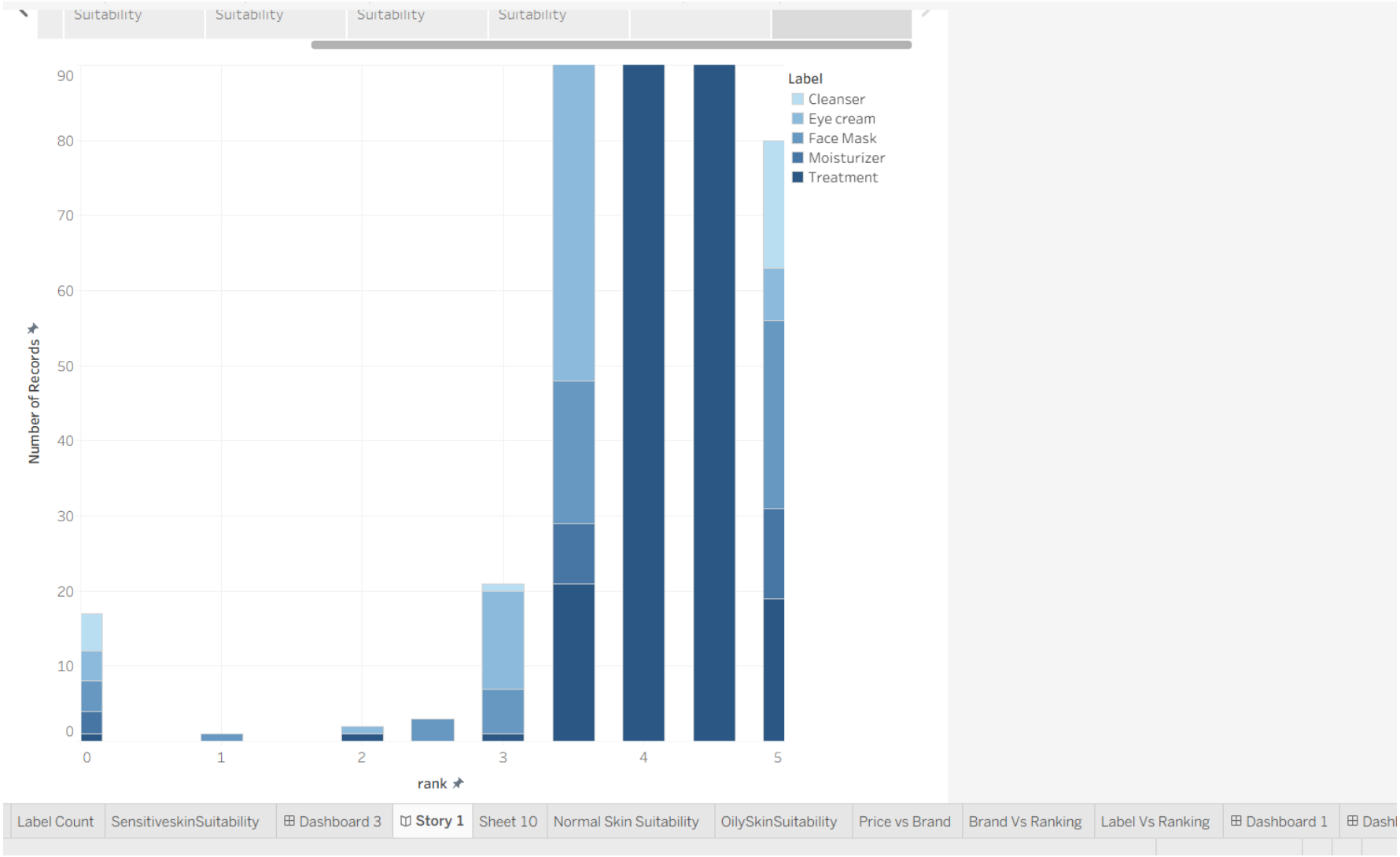


Label Count | SensitiveskinSuitability | Dashboard 3 | Story 1 | Sheet 10 | Normal Skin Suitability | OilySkinSuitability | Price vs Brand | Brand Vs Ranking | Label Vs Ranking | D

Suitability | Suitability | Suitability | Suitability




Suitability
Suitability
Suitability
Suitability
Label
Cleanser
Eye cream
Face Mask
Moisturizer
Treatment
Number of Records
90
80
70
60
50
40
30
20
10
0
0
1
2
3
4
5
rank

8. ADVANTAGES & DISADVANTAGES

ADVANTAGES:

- **User-Friendly Dashboards:**
  Intuitive and visually engaging dashboards with a **modern, dark-themed interface** that reduces eye strain and enhances focus on insights.
- **Interactive Insights:**
  Users can apply **real-time filters** by product type, ingredient, label, or brand, enabling deep dives into specific cosmetic trends **without manual analysis**.
- **Reusable Framework:**
  The dashboard architecture can be easily **repurposed for other beauty categories** (e.g., skincare, haircare) or global markets by updating the dataset.
- **Data-Driven Decision Making:**
  Equips **brand managers, marketers, and analysts** with meaningful, **data-backed insights** to support product launches, marketing campaigns, and strategic planning.
- **Time-Saving:**
  Saves time for analysts by eliminating the need for raw data processing — **ready-to-use visualizations** provide quick insights.

DISADVANTAGES:

- **Platform Limitation:**
  Using **Tableau Public** may restrict some advanced functionalities like **live data integration** or **privacy controls** for confidential business data.

- **Dependence on Data Accuracy:**
  Insights are only as good as the source — **inaccurate, incomplete, or outdated datasets** can lead to misleading interpretations.
- **Static Structure in Stories:**
  Tableau Stories are **less flexible** than dashboards for dynamic storytelling; they offer limited interaction beyond predefined flows.

9. CONCLUSION:

The **Cosmetic Insights** project demonstrates how **data visualization and user-centric dashboard design** can transform raw cosmetic data into **actionable insights**. By integrating brand, ingredient, label, and consumer behavior data into a single visual platform, the project simplifies complex analytics and empowers stakeholders to make **confident, strategic decisions**. From concept to execution, this project showcases the power of **data storytelling and visual intelligence in the beauty industry.**

10. FUTURE SCOPE:

Multi-Brand Expansion:
Extend the current framework to **analyze and compare multiple cosmetic brands** across different price points and categories.

Real-Time Data Connection:
Integrate **live datasets** via APIs or Google Sheets to **keep dashboards automatically updated** with the latest market trends.

Mobile Optimization:
Redesign dashboards to be **responsive on mobile and tablet screens** for better access during meetings or on-the-go analysis.

AI-Powered Forecasting:
Incorporate **machine learning models** to predict future trends in product demand, price shifts, or popular ingredients.

Sentiment Analysis Layer:
Add a **review-based text analysis component** to capture customer sentiment alongside quantitative product data.