

# 1. Introduction

## 1.1 Project Overview

"Cosmetic Insights" is a data analytics project focused on analyzing trends, customer preferences, and market insights in the cosmetics industry. The project leverages Tableau for data visualization to uncover patterns in consumer behavior, product performance, and brand popularity.

## 1.2 Objectives

- Identify top-performing cosmetic products based on sales, reviews, and customer demographics.
  - Analyze consumer preferences for ingredients, packaging, and pricing.
  - Provide data-driven insights for cosmetic brands to improve marketing strategies.
  - Track industry trends and emerging beauty product categories.
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# 2. Project Initialization and Planning Phase

## 2.1 Define Problem Statement

The cosmetic industry is highly competitive, and understanding consumer behavior is crucial for business success. Many brands struggle with identifying key trends and optimizing their product strategies.

## 2.2 Project Proposal (Proposed Solution)

The project will analyze sales data, customer reviews, and market trends using Tableau dashboards to provide clear insights for decision-making.

## 2.3 Initial Project Planning

- Data Collection from multiple sources, including online stores, reviews, and market reports.
  - Preprocessing and cleaning of raw data.
  - Developing interactive Tableau dashboards for visualization.
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# 3. Data Collection and Preprocessing Phase

## 3.1 Data Collection Plan and Raw Data Sources Identified

- Data from e-commerce platforms (Amazon, Sephora, Nykaa, etc.).
- Customer reviews and ratings.
- Social media trends and influencer marketing impact.
- Market reports and sales records.

### **3.2 Data Quality Report**

- Checking for missing values in sales and reviews data.
- Standardizing product categories and brands.
- Removing duplicate entries.

### **3.3 Data Exploration and Preprocessing**

- Filtering out irrelevant data.
  - Handling outliers in pricing and ratings.
  - Creating calculated fields for sentiment analysis (positive, negative, neutral reviews).
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## **4. Data Visualization**

### **4.1 Framing Business Questions**

- What are the top-selling cosmetic products and why?
- How do consumer preferences vary by age group and location?
- What ingredients are most preferred or avoided?
- How do price and brand reputation influence purchasing decisions?

### **4.2 Developing Visualizations**

- Sales trends over time (line charts).
  - Customer sentiment analysis (word cloud, bar chart).
  - Geographic heatmaps of cosmetic product demand.
  - Brand comparison (stacked bar charts, pie charts).
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## **5. Dashboard**

### **5.1 Dashboard Design File**

- A Tableau dashboard featuring real-time insights, trends, and KPIs in the cosmetic industry.
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## **6. Report**

### **6.1 Story Design File**

- A structured Tableau Story that guides viewers through key findings, insights, and recommendations.
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## **7. Performance Testing**

### **7.1 Utilization of Data Filters**

- Filters for category, brand, price range, and customer rating.

### **7.2 No of Calculation Field**

- Metrics such as total revenue, average rating, product popularity score.

### **7.3 No of Visualization**

- Multiple charts, KPIs, and interactive maps.
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## **8. Conclusion/Observation**

- Consumers prefer natural and organic ingredients.
  - Pricing and influencer marketing have a significant impact on sales.
  - Skincare products are growing faster than traditional makeup.
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## **9. Future Scope**

- Expanding the dataset with real-time social media trends.
  - AI-based recommendation systems for personalized cosmetic product suggestions.
  - Predictive analytics for future beauty trends.
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## **10. Appendix**

### **10.1 Source Code (if any)**

- Python scripts for data cleaning and preprocessing.
- SQL queries for extracting and transforming data.

### **10.2 GitHub & Project Demo Link**

*(To be added after completion.)*