Final Project Report Template

1. Introduction:

Navigating the cosmetics landscape requires understanding both emerging trends and consumer behaviors. This introduction aims to equip you with insights into the evolving world of cosmetics, focusing on key trends and consumer preferences to help you make informed decisions.

1.1. Project overviews:

This project, "Cosmetic Insights: Navigating Cosmic Trends and Consumer Insights," aims to explore and understand the evolving beauty and cosmetics industry, focusing on emerging trends and consumer behavior in the Adoni, Andhra Pradesh context, with a particular focus on the Indian market's growth and unique characteristics.

1.2. Objectives:

- To identify and analyze what consumers desire in cosmetic products, including specific ingredients, formulations, and product types.
- To decipher consumer buying behaviors and the factors influencing their purchasing decisions.
- To monitor and predict emerging trends in the beauty industry, such as shifts towards natural ingredients, sustainable packaging, or specific product categories.
- To stay informed about evolving consumer preferences and adapt to rapid changes in the market.
- To use consumer feedback and market analysis to guide the development of new cosmetic products that meet the needs and desires of the target audience.
- To ensure that new product launches align with current market demands.
- To assess the strengths and weaknesses of competitors, their product offerings, and their marketing strategies.

2. Project Initialization and Planning Phase:

To effectively initialize and plan a project focused on "Cosmetic Insights: Navigating Cosmic Trends and Consumer Insights", you need to define clear objectives, identify key stakeholders, conduct thorough research, and develop a detailed project plan.

2.1. Define Problem Statement:

Problem Statement (PS)	I am (Customer)	I'm trying to	But	Because	Which makes me feel
PS-1	As a consumer	I struggle to keep up with rapidly Changing cosmetic trends.	I often feel overwhelmed by the sheer volume of new products and information.	It difficult to know what's truly effectivefor me.	Confused.
PS-2	As a consumer	Lack of personalized cosmetic Recommendations.	Consider my unique skin type, concerns, and preferences.	Resulting in a trail-and-error approach that's both costly and time consuming.	I'm frustrated
Ps-3	As a consumer	I struggle to find Reliable information	As someone With sensitive	I'm constantly Worried about	Struggle.

		About ingredient Safey.	Skin.	Allergic reactions to new cosmetic products.	

2.2. Project Proposal (Proposed Solution):

3. Project Overview

Objective	The objective is to leverage Tableau to analyze cosmetics market data, identify key trends, and gain valuable insights into consumer behaviour.
Scope	Defines the boundaries and areas of focus for this analytical project.

Problem Statement

Description	The problem is that businesses in the cosmetics industry struggle to effectively leverage data to understand trends and consumer behavior, hindering their ability to make informed decisions and remain competitive.
Impact	The impact is to transform a cosmetics business from relying on assumptions to making data-driven decisions, leading to increased efficiency, profitability, and customer satisfaction.

Proposed Solution

Approach	The approach involves a systematic process of gathering, cleaning, analyzing, and visualizing data using Tableau to uncover actionable insights into cosmetic trends and consumer behavior.
Key Features	The key features of a well-defined problem statement for "Cosmetic Insights: Navigating Cosmetics Trends and Consumer Insights": Relevance, Specificity, Impact-Oriented, Data-Focused etc…

Resource Requirements

Resource Type	Description	Specification/Allocation
Hardware		
Computing Resources	Laptop	e.g., 2 x NVIDIA V100 GPUs
Memory	RAM specifications	16.0 GB (15.7 GB usable)
Storage	Disk space for data,	1 TB SSD
Software		

Frameworks	Python frameworks	Flask
Libraries	Additional libraries	scikit-learn, pandas, numpy
Development Environment	IDE, version control	Jupyter Notebook, Git
Data		
Data	online, 1.3MB, Excel	Kaggle dataset

2.3. Initial Project Planning:

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members	Sprint Start Date	Sprint End Date (Planned)
Sprint-1	Data Collection & Extraction from Database	SCRUM-1	Collect the Data from Database.	2	High	P. Venkatesh (TM)	3/3/2025	4/3/2025
Sprint-1	Downloading the dataset	SCRUM-2	Downloading the Dataset using specific resources.	1	High	P. Venkatesh (TM)	3/3/2025	4/3/2025
Sprint-2	Data Preparation	SCRUM-3	Prepare the Data for visualization	2	Low	P. Venkatesh (TM)	5/3/2025	6/3/2025
Sprint-2	Explanation video links	SCRUM-4	Watch the given Reference link	2	Medium	P. Venkatesh (TM)	5/3/2025	6/3/2025
Sprint-3	Data Visualization	SCRUM-5	Creating the No Of visualization Given in the project.	1	High	B. Khadar Basha (TL)	7/3/2025	11/3/2025
Sprint-3	No. of Unique Visualizations	SCRUM-6	Creating the No Of visualization Given in the project.	2	Medium	B. Khadar Basha (TL)	7/3/2025	11/3/2025
Sprint-3	Visualizations	SCRUM-7	Creating the No Of visualization Given in the project.	1	Medium	B. Khadar Basha (TL)	7/3/2025	11/3/2025

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members	Sprint Start Date	Sprint End Date (Planned)
Sprint-4	Dashboard	SCRUM-8	Creating the Dashboard.	2	Medium	B. Khadar Basha (TL)	12/3/2025	14/3/2025
Sprint-4	Responsive and Design of Dashboard	SCRUM-9	Creating the Dashboard.	2	Medium	B. Khadar Basha (TL)	12/3/2025	14/3/2025
Sprint-4	Product Suitability Overview	SCRUM-10	Creating the Dashboard.	1	Medium	P. Venkatesh (TM)	12/3/2025	14/3/2025
Sprint-5	Story	SCRUM-11	Creating the Story.	2	Medium	B. Khadar Basha (TL)	15/3/2025	16/3/2025
Sprint-5	No of Scenes of Story	SCRUM-12	Creating the Story.	1	Medium	B. Khadar Basha (TL)	15/3/2025	16/3/2025
Sprint-6	Performance Testing	SCRUM-13	Amount of Data Loaded	2	Medium	M. Praveen Teja	17/3/2025	18/3/2025
Sprint-6	No of Visualizations/ Graphs	SCRUM-14	Brief Description of visualization	2	High	M. Praveen Teja	17/3/2025	18/3/2025
Sprint-7	Web integration	SCRUM-15	Create web integration.	1	High	B. Shilpa	19/3/2025	20/3/2025
Sprint-7	Go to Dashboard/story, click on share button on the top ribbon	SCRUM-16	Create web Dashboard/story.	2	High	B. Shilpa	19/3/2025	20/3/2025
Sprint-7	Dashboard and Story embed with UI With Flask	SCRUM-17	Create Dashboard/story embed UI with flask.	1	High	P. Venkatesh (TM)	19/3/2025	20/3/2025

3. Data Collection and Preprocessing Phase:

To effectively collect and preprocess data for cosmetic insights, focus on gathering both internal and external data sources, ensuring data quality and consistency, and then cleaning and transforming the data for analysis, focusing on consumer trends, preferences, and market dynamics.

3.1. Data Collection Plan and Raw Data Sources Identified

Section	Description
Project Overview	This dataset represents a collection of skincare products, including moisturizers, cleansers, treatments, face masks, eye creams, and sun protection. Each product is characterized by its brand name, price, user rating (Ranking), key ingredients (Ingred Combination), and suitability for different skin types (Dry, Normal, Oily, Sensitive). To develop an interactive Tableau dashboard that provides actionable insights into cosmetic trends and consumer behavior, enabling businesses to make informed decisions regarding product development, marketing strategies, and sales optimization.
Data Collection Plan	The Data is collected from the "KANGGLE". Cosmetic Insights: Navigating Cosmetics Trends and Consumer Insights with Tableau. LINK **https://www.kaggle.com/datasets/kingabzpro/cosmetics-datasets**
Raw Data Sources Identified	By gathering and integrating these raw data sources, you'll have a comprehensive foundation for building insightful Tableau dashboards that reveal cosmetics trends and consumer behaviors. This raw data potential sources contain Sales & Transactional Data, E-commerce Platforms, Distributor/Wholesale Data, Customer Demographics & Behavior, Social Media Analytics, Market Research Surveys, Product & Inventory Data, External Market Data etc..

Raw Data Sources Template

Source Name	Description	Location/URL	Format	Size	Access Permissions
Cosmetic Insights: Navigating Cosmetics Trends and Consumer Insights with Tableau.	This dataset contains 185 barnds,6 Label with provide a rich foundation for exploring skincare product characteristics and consumer preferences.	Link of Dataset	CSV	13 MB	Public

3.2. Data Quality Report:

Data Source	Data Quality Issue	Severity	Resolution Plan

Cosmetics datasets	Inconsistent Data Types	Moderate	• **Price:** Should ideally be numeric (e.g., float or integer). While it appears to be numeric, it's worth confirming that there are no non-numeric character's present. • **Rank:** Should be numeric (float or decimal) to represent rating values. Verify that all values are within a reasonable range (e.g., 1-5 or 0-5). • **Combination, Dry, Normal, Oily, Sensitive:** These are likely intended to be boolean (True/False or 1/0). The data appears consistent with 1/0, but it should be explicitly verified.
Cosmetics datasets	Missing Values and Incomplete Data	Low	• **Ingredients:** The "Ingredients" column is truncated in many entries (e.g., "Algae (Sea...", "Galactomy...", "Water, Dic..."). This makes it difficult to fully understand the product's composition. • **Brand Names:** Some brand names are abbreviated (e.g., "DRUNK EL" instead of "Drunk Elephant"). Consistency is needed.
Cosmetics datasets	Data Inconsistency and Typos	High	• **Inconsistent Capitalization:** Brand and product names show inconsistent capitalization (e.g., "LA MER" vs. "la Mer" or "Truth Seru" vs. "Truth Serum").
Cosmetics datasets	Data Cleaning	High	• **Standardize Brand and Product Names:** Ensure consistent capitalization and full names. • **Correct Typos:** Fix errors like "Bι" and ensure consistent spelling. • **Complete Ingredient Lists:** If possible, obtain the full ingredient lists for each product. • **Remove Special Characters:** Replace or remove special characters as needed.
Cosmetics datasets	Data Validation	High	• **Verify Rank Values:** Ensure all ranks are within the expected range. • **Confirm Data Types:** Explicitly define the data types for each column (numeric, boolean, string).

3.3. Data Exploration and Preprocessing:

Section	Description
Data Overview	Cosmetic is defined as a product that is applied to the human body for cleansing, beautifying, promoting attractiveness, or altering the appearance without affecting the body structure or functions. Cosmetics are substances used to enhance the appearance or Odor of the human body. Cosmetics include skin-care products, fingernail and toe nail polish, eye and facial makeup, and permanent wave

	solution. To develop a comprehensive analytical framework using data analysis and visualization techniques, specifically leveraging Tableau, to provide actionable insights into current and emerging cosmetic trends and consumer behaviors.
Data Cleaning	When diving into cosmetic insights using Tableau, robust data cleaning is paramount focused look at handling missing values, duplicates, and errors. We grid the data to remove the null values. We removed the duplicate rows to ensure each record represents a unique entity. We find the errors and removed those errors to represent the quality data to present the prefect visualization.
Data Transformation	**Filter Name**: "Brand" **Purpose**: To categorize and compare brands based on their suitability for sensitive skin. **Calculation field:** SUM(Rank) **Purpose:** This indicates that the "Rank" field is being aggregated using the SUM function.
Data Type Conversion	cosmetics trends and consumer insights, brands should focus on data-driven personalization, leveraging AI for insights, and understanding emerging consumer preferences like sustainability and inclusivity. When we working with cosmetic insights and consumer trends in Tableau, data conversions are crucial for accurate analysis and visualization. • Tracking trends over time requires proper date/time datatype, to convert the data string into datetime format to create time-series charts to analyzing the time-of-day consumer purchased. • Converting text data into numerical data for sentiment analysis. • Transforming image data into numerical data for facial recognition or skin analysis. • Organizing raw sales numbers into usable reports.
Column Splitting and Merging	We never used Column splitting and merging because website original data is prefect to create visualization so we did not used this column splitting and merging.
Data Modeling	When working with "Cosmetic Insights: Navigating Cosmetics Trends and Consumer Insights with Tableau," defining relationships between tables is crucial for accurate and insightful analysis. Tableau offers powerful features to manage these relationships. Those are Connect to Your Data, Drag Tables to the Canvas, Define Relationship Conditions etc.
Save Processed Data	Save the Tableau workbook (.xls) file. This file contains all your data connections, worksheets, dashboards, and formatting. Publish the Workbook to Tableau Server This allows you to share the workbook with others and collaborate on the analysis in real-time. saving our data depends on our specific needs and how we are intending to use the data in the future. Considering factors such as accessibility, collaboration, and the need for ongoing updates when making your decision.

4. Data Visualization:

Data visualization plays a critical role in navigating the complex and ever-changing landscape of the cosmetic industry. By effectively visualizing data, businesses can gain valuable

insights into consumer behavior, market trends, and competitive landscapes. This allows them to make informed decisions, develop targeted marketing campaigns, and ultimately achieve sustainable growth in the competitive world of cosmetics.

4.1. Framing Business Questions:

The process involves defining specific business questions to guide the creation of meaningful and actionable visualizations in Tableau.

1. *Which skincare brands have the highest number of products deemed 'not suitable' for sensitive skin?*
2. *What is the price distribution for each skincare brand?*
3. Which brands are most suitable for dry skin?
4. *Which product category has the highest number of records?*
5. What factors contribute to a brand's high ranking?
6. Which brands have the highest number of products NOT suitable for oily skin?
7. How does the average rank of different brands compare to each other?
8. Which skincare product category has the highest average rank and how does it compare to other categories?

4.2. Developing Visualizations:

Visualization development refers to the process of creating graphical representations of data to facilitate understanding, analysis, and decision-making. The goal is to transform complex datasets into visual formats that are easy to interpret, enabling users to gain insights and make informed decisions. Visualization development involves selecting appropriate visual elements, designing layouts, and using interactive features to enhance the user experience. This process is commonly associated with data visualization tools and platforms, and it plays a crucial role in business intelligence, analytics, and reporting

5. Dashboard:

A "Dashboard of Cosmetic Insights" aims to provide a centralized view of key trends and consumer behavior in the cosmetics industry, helping businesses make informed decisions by analyzing data on emerging trends, consumer preferences, and market dynamics.

5.1. Dashboard Design File:

Dashboard Design.pdf

6. Report:

This report analyzes data related to top cosmetic brands, focusing on label counts, price vs. demand, skin suitability (sensitive, dry, oily), and brand ranking. The primary visualization is a pie chart representing the distribution of selected top brands, accompanied by a list of brands with checkboxes and a numerical ranking.

6.1. Story Design File:

Story.pdf

7. Performance Testing:

Performance testing in Tableau for a "Cosmetic Insights: Navigating Cosmetics Trends and Consumer Insights" project is crucial to ensure that dashboards and reports are responsive and efficient, especially when dealing with large datasets or complex visualizations.

7.1 Utilization of Data filters:

* Filtering Brands: In multiple dashboards, there's a prominent list of brands (example-AMOREPACIFIC, BELIF, CAUDALIE, etc.) with checkboxes next to them. This indicates the use of a filter that allows the user to select or deselect specific brands, dynamically changing the data displayed in the visualizations.

* Filtering Categories: Some visualizations include categories like "Treatment," "Sun protect," "Face Mask," "Eye cream," "Cleanser," and "Moisturizer". While not always with checkboxes, these likely function as filters, enabling users to focus on specific product types.

7.2 No of Calculation Field:

The following are the sum of Calculation Field used in project, while creating the visualization.

1. Top Brands:

Calculation Type: Likely a Rank Calculation.

Example:

RANK(SUM([Sales], 'desc')

2. Label Count:

Calculation Type: Likely a COUNTD (Count Distinct) Calculation.

Example:

COUNTD([Label/Attribute Field])

3. Price vs Demand:

Calculation Type: Creating parameter to select a specific price range and then use a calculated field to filter data based on that range.

Example:

SUM([Demand]) / SUM([Price])

4. Brand vs Ranking;

Calculation Type: Likely a Rank Calculation.

Example:

RANK(SUM([Performance Metric]), 'desc')

5. Pie Chart Values :

Calculation Types : Likely an Aggregation Calculation.

Example :

SUM([Sales])

7.3 No of Visualization
- *Visualization*: Side by side bar.
- *Visualization*: Box&whisker Plot.
- *Visualization*: Packed Bubble Chart.
- *Visualization*: Bar Graph.
- *Visualization*: Pie chart.
- *Visualization*: Stacked Bars.
- *Visualization*: Stacked Bars.
- *Visualization*: Horizontal bar chart.

8. Conclusion/Observation:
8.1 Conclusion:

The project identified key user archetypes within the online astrology market, providing valuable insights into consumer preferences and behaviors. It explored how astrological trends can be used to understand consumer preferences, predict market trends,

and inform business decisions. The project emphasized the importance of data-driven decision-making, combining astrological insights with traditional market research and analytics.

8.2 Observation:

In essence, "Cosmic Insights" in either context involves observing and analyzing trends to gain a deeper understanding of consumer behavior.

☐ The influence of digital technology and social media on consumer behavior.

☐ The impact of sustainability and ethical consumption on purchasing decisions.

☐ The effects of demographic changes and cultural shifts on consumer preferences.

☐ What global events, and societal changes, alter consumer purchasing decisions.

9. Future Scope:

In essence, the future of cosmetic insights lies in leveraging technology, understanding evolving consumer values, and embracing a more personalized, sustainable, and inclusive approach to beauty.

Future Scope Implications:

- **Data-Driven Decision Making:** Cosmetic companies will rely heavily on consumer insights to inform product development, marketing strategies, and customer experiences.

- **Enhanced Customer Engagement:** Brands will use technology to create personalized and engaging experiences for consumers.

- **Increased Transparency:** Consumers will demand greater transparency from brands regarding ingredients, sourcing, and ethical practices.

- **Focus on Holistic Beauty:** The industry will shift towards a holistic approach to beauty that encompasses physical and mental well-being.

10 Appendix:

The "appendix" in "Cosmetic Insights: Navigating Cosmetics Trends and Consumer Insights" typically refers to supplementary materials like Source code, GitHub link and Project Demo Link.

10.1. Source Code (if any):

10.2. GitHub & Project Demo Link:

LINK:

https://github.com/Khadeerunnisa/Cosmetic-Insights-Navigating-Cosmetics-Trends-And-Consumer-Insights-with-tableau

LINK:

https://drive.google.com/file/d/1aCWwS6BDSNymlLiQ5Zw0xuxwtA3Y8X80/view