Final Report – Cosmetic Insights

1. INTRODUCTION

1.1 Project Overview
Cosmetic Insights is a data-driven solution that helps users discover personalized cosmetic product recommendations based on their skin profile, preferences, and trending market data. It leverages AI and visual analytics to extract insights from reviews, ingredients, and brand popularity.

1.2 Purpose
The purpose of this project is to simplify and personalize the cosmetic selection process using interactive dashboards and machine learning insights, helping users make informed and confident product choices.

2. IDEATION PHASE

2.1 Problem Statement
Users often struggle to find suitable cosmetic products tailored to their unique skin needs due to overwhelming options and lack of consolidated insights.

2.2 Empathy Map Canvas
Based on user interviews and surveys, the empathy map highlighted user needs, frustrations with generic recommendations, and interest in ingredient-specific analysis.

2.3 Brainstorming
Brainstorming led to the idea of a visualization-driven product analyzer using Tableau dashboards combined with AI-based review summarization and product scoring.

3. REQUIREMENT ANALYSIS

3.1 Customer Journey Map
From user onboarding to receiving personalized suggestions, the customer journey was mapped to understand touchpoints and pain points.

3.2 Solution Requirement

Requirements include a data ingestion pipeline, review analyzer, user profile manager, and visual dashboard with interactive filtering.

3.3 Data Flow Diagram

A structured DFD was created illustrating data intake, preprocessing, visualization, and output flow.

3.4 Technology Stack

• Python (Preprocessing and ML)
• Tableau (Dashboard)
• Excel/CSV (Data Source)
• Streamlit (for demo UI)
• GitHub (Version Control)

4. PROJECT DESIGN

4.1 Problem Solution Fit

The solution fits well with user needs by offering tailored product suggestions, a simple UI, and insights that reduce choice overload.

4.2 Proposed Solution

A personalized recommendation system supported by AI-analyzed reviews and interactive dashboards for filtering and insights.

4.3 Solution Architecture

Architecture includes modules for data processing, AI review engine, dashboard service, and user personalization.

5. PROJECT PLANNING & SCHEDULING

5.1 Project Planning

The project followed a 4-sprint agile schedule including onboarding, dashboard creation, review analysis, and personalization engine development.

6. FUNCTIONAL AND PERFORMANCE TESTING

6.1 Performance Testing
Performance was tested based on data rendering speed, dashboard responsiveness, and accuracy of personalized results.

7. RESULTS

7.1 Output Screenshots
Output includes dashboards showing top-rated products, filters by skin type, and ingredient impact graphs.

8. ADVANTAGES & DISADVANTAGES
Advantages:
• Personalized experience
• Ingredient-specific suggestions
• Intuitive dashboard

Disadvantages:
• Requires quality input data
• Limited to supported brands and ingredients

9. CONCLUSION
Cosmetic Insights successfully addresses the complexity in cosmetic product selection by providing intelligent, personalized, and visualized recommendations.

10. FUTURE SCOPE
Integration with e-commerce platforms, expanding datasets for regional brands, and mobile app deployment are potential future directions.

11. APPENDIX
Source Code: Available on GitHub Dataset
Link:

https://drive.google.com/file/d/1-
BBip8zghBuJd_GEQdzXt3aCnHL7yQZX/view?usp=drivesdk GitHub
& Project Link:

https://github.com/Hydar13/COSMETIC--INSIGHTS