Project Design Phase Solution
Architecture

Date	19 June 2025
Team ID	LTVIP2025TMID47706
Project Name	Cosmetic Insights – Navigating Cosmetics Trends and Consumer Insights with Tableau
Maximum Marks	4 Marks

Solution Architecture:

Solution architecture is a complex process – with many sub-processes – that bridges the gap between business problems and technology solutions. Its goals are to:

- Find the best tech solution to solve existing business problems.

- Describe the structure, characteristics, behavior, and other aspects of the software to project stakeholders.

- Define features, development phases, and solution requirements.

- Provide specifications according to which the solution is defined, managed, and delivered.

KEY ASPECTS OF YOUR SOLUTION ARCHITECTURE

1. User Layer (Entry Point)

  o Users include:
    Cosmetic consumers: use filters to discover products
    Marketers: analyze trends and user behavior o Interact via a simple, responsive web interface with embedded Tableau dashboard

2. User Interface (Frontend) o Technologies: HTML, CSS, Bootstrap, JavaScript
  o Features:
    Filters: skin type, budget, brand, rating
    Search and comparison interface
    Embedded Tableau dashboards for data visuals

3. Application Layer (Backend) o Technologies: Python (Flask/Streamlit) or JavaScript (Node.js)
  o Functions:
    Pass user inputs (filters) to Tableau

Handle login/auth (if used)

Process and fetch data from review/product databases   Optional: route feedback submission

4. Visualization Layer (Dashboard)

o Tool: Tableau Public or Tableau Server o Displays:

Top trending cosmetic products

Charts by skin type, rating, region, category

Comparison visuals for price, review score, ingredients

5. Data Sources

o Sources:

Product Data: CSV / MySQL / Google Sheets

Review Data: Customer ratings & feedback o Features:

Structured datasets allow filtering and charting   Can be updated regularly or live connected

6. Feedback Engine (Optional)

o   Collects product ratings/reviews from users o Stores in review repository

o   Feeds into Tableau to update user satisfaction visuals

7. Hosting&Storage

o Tableau Public: for hosting dashboards o GitHub Pages / Heroku: for web app or frontend o Google Drive / Firebase: for storing files and datasets

8. Data Flow o User → UI → Backend → Tableau → Visualization

o Optionally, Feedback → Stored → Updates Dashboard

9. Scalability

- o **Add more product datasets**
- o **Support multi-category expansion: skincare, makeup, fragrance o Add AI/ML trend prediction module in future**

10. Security (Optional/Advanced)

- · **OAuth for secure login (Google, LinkedIn)**
- · **Backend validation for data inputs and review authenticity**

Example - Solution Architecture Diagram:

Cosmetic Insights:
Navigating Cosmetics Trends and Consumer Insights with Tableau