

Solution Architecture

Date	19 June 2025
Team ID	LTVIP2025TMID48889
Project Name	Cosmetic Insights – Navigating Cosmetics Trends and Consumer Insights with Tableau
Maximum Marks	4 Marks

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)

○ Users include:

- Cosmetic consumers: use filters to discover products ▪

Marketers: analyze trends and user behavior

○ Interact via a simple, responsive web interface with embedded Tableau dashboard

2. User Interface (Frontend)

○ Technologies: HTML, CSS, Bootstrap, JavaScript ○

Features:

- Filters: skin type, budget, brand, rating
- Search and comparison interface
- Embedded Tableau dashboards for data visuals

3. Application Layer (Backend) ○ Technologies: Python (Flask/Streamlit)

or JavaScript (Node.js)○ 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)

- Tool: Tableau Public or Tableau Server
- Displays:
 - Top trending cosmetic products
 - Charts by skin type, rating, region, category
 - Comparison visuals for price, review score, ingredients

5. Data Sources

- Sources:
 - Product Data: CSV / MySQL / Google Sheets
 - Review Data: Customer ratings & feedback
 - Features:
 - Structured datasets allow filtering and charting
 - Can be updated regularly or live connected

6. Feedback Engine (Optional)

- Collects product ratings/reviews from users
 - Stores in review repository
 - Feeds into Tableau to update user satisfaction visuals

7. Hosting & Storage

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

8. Data Flow

- User → UI → Backend → Tableau → Visualization
- Optionally, Feedback → Stored → Updates Dashboard

9. Scalability

- Add more product datasets
- Support multi-category expansion: skincare, makeup, fragrance
- 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

Solution Architecture Diagram

Cosmetic Insights:

Navigating Cosmetics Trends and Consumer Insights wwith Tableau

