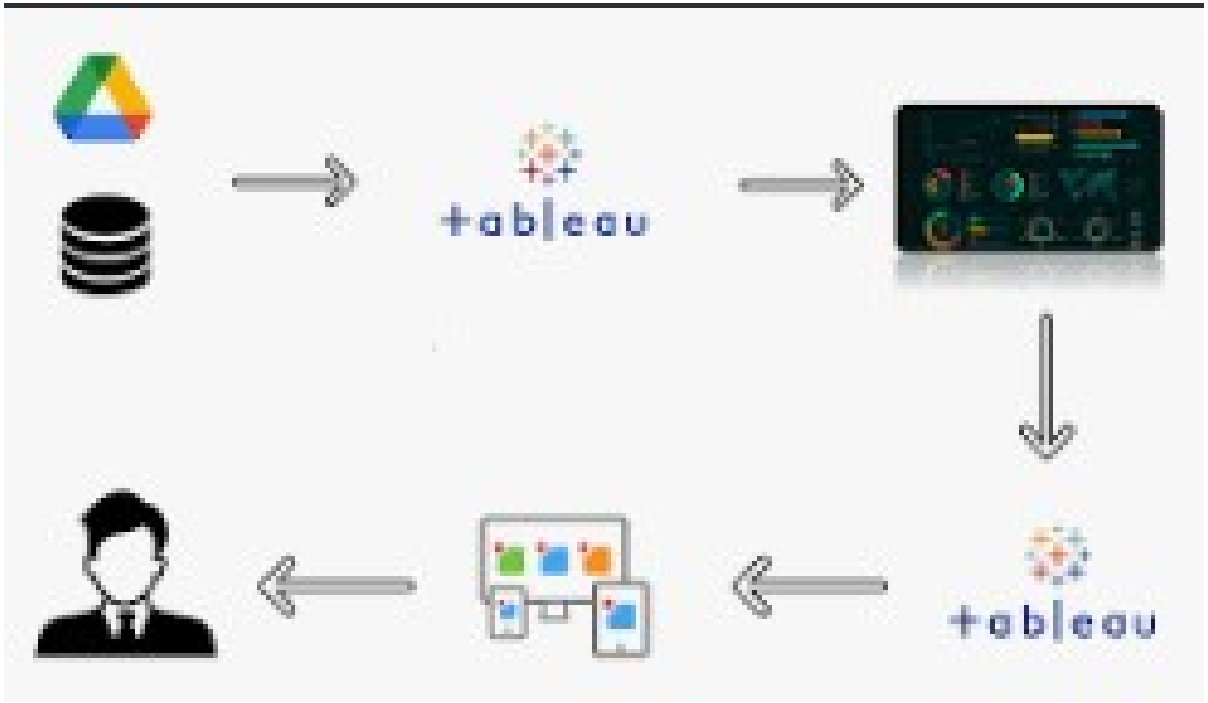
Project Design Phase-II Technology Stack (Architecture & Stack)

Date	24 JUNE 2025
Team ID	LTVIP2025TMID52193
Project Name	Cosmetic Insights : Navigating Cosmetics Trends and Consumer Insights with Tableau
Maximum Marks	4 Marks

Technical Architecture:

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2



3. Technology Stack

Below is the technology stack used in the iRevolution Tableau project.

Sno	Components	Description	technology
1	User Interface	How user interacts with the analytics platform (Web UI, Mobile App, etc.)	HTML, CSS, JavaScript / Angular JS / React JS
2	Application Logic-1	Logic for filtering and comparing cosmetic products	Python / Java
3	Application Logic-2	Text analysis for extracting product claims and ingredients	IBM Watson NLU / Python NLP libraries
4	Application Logic-3	Chatbot interface for product recommendations	IBM Watson Assistant / Google Dialogflow
5	Database	Storage for product, sales, and customer interaction data	MySQL, MongoDB (NoSQL)
6	Cloud Database	Scalable cloud-based data storage	IBM DB2, IBM Cloudant, Firebase
7	File Storage	Storage for product images and marketing assets	IBM Cloud Object Storage / AWS S3 / Local Filesystem
8	External API-1	Integration for real-time skin type/weather-based product suggestions	IBM Weather API / SkincareMatch API
9	External API-2	Integration with product barcode scanners or e-commerce platforms	Amazon Product API / Flipkart Open API
10	Machine Learning Model	Product recommendation engine and trend prediction	Classification Models, Recommendation Systems (Scikit-Learn)
11	Infrastructure	Deployment on local servers or cloud infrastructure	Local Server / IBM Cloud / Kubernetes / Cloud Foundry

Table-2: Application Characteristics:

S.No	Category	Description	Technology Used
1	Open-Source Frameworks	List the open-source frameworks used in the dashboard and backend	React JS, Flask, Scikit-Learn, Pandas
2	Security Implementations	Security/access control mechanisms implemented	SHA-256, OAuth 2.0, IAM Roles, OWASP Principles
3	Scalable Architecture	Design for scalable growth of products, categories, and user base	Microservices, REST APIs, Kubernetes
4	Availability	Measures to ensure continuous uptime and access	Load Balancer, Multi-Zone Deployment, Failover
5	Performance	Optimization for quick data load and response times	Redis Cache, CDN (Cloudflare), Indexed Queries