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

Date	1 June 2025
Team ID	LTVIP2025TMID48098
Project Name	Cosmestic Insights: Navigating Cosmetics Trends and Consumer Insights with Tablaue
Maximum Marks	4 Marks

Technical Architecture:

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

S.No	Component	Description	Technology Used
1	User Interface	Web-based dashboard for visualizing trends and insights	Tableau (Public/Cloud), Embedded Web UI
2	Application Logic-1	Data collection from social platforms and sales databases	Python, REST APIs
3	Application Logic-2	Text preprocessing, trend mining, and sentiment analysis	Python (Pandas, NLTK, TextBlob)
4	Application Logic-3	Data transformation and filtering logic before visualization	Python scripts with scheduling (CRON/AWS Lambda)
5	Database	Temporary structured storage before dashboard processing	PostgreSQL / Google BigQuery
6	Cloud Database	Cloud-hosted database for scalable data access	Amazon RDS, Firebase
7	File Storage	Storage of raw datasets and exports	Amazon S3 / Google Cloud Storage
8	External API-1	Collect social media trend data	Instagram Graph API, Reddit API
9	External API-2	Pull product reviews and cosmetic ratings	Amazon Product API / Flipkart API
10	Machine Learning Model	Sentiment and trend classification	Logistic Regression, Text Classification models
11	Infrastructure	Cloud deployment and scheduling	AWS Lambda, Google Cloud Functions, EC2

Table-2: Application Characteristics

S.No	Characteristics	Description	Technology Used
1	Open-Source Frameworks	Data scraping, analysis, and dashboard libraries	Python, Pandas, BeautifulSoup, Flask
2	Security Implementations	Securing API calls, encrypting user data, access control for dashboard	OAuth 2.0, JWT, IAM Roles (AWS), SSL
3	Scalable Architecture	Modular and serverless design for trend extraction and dashboard rendering	Microservices, Serverless with AWS Lambda
4	Availability	Dashboard and APIs available across locations via cloud and failover setup	AWS Load Balancer, Multi-AZ deployments
5	Performance	Optimized ETL pipelines, caching frequent queries, real-time updates	Redis cache, Tableau live connections