

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

Date	31 January 3035
Team ID	LTVIP2026TMIDS90481
Project Name	IRevolution: A Data-Driven Exploration of Apple's iPhone Impact in India
Maximum Marks	4 Marks

Technical Architecture:

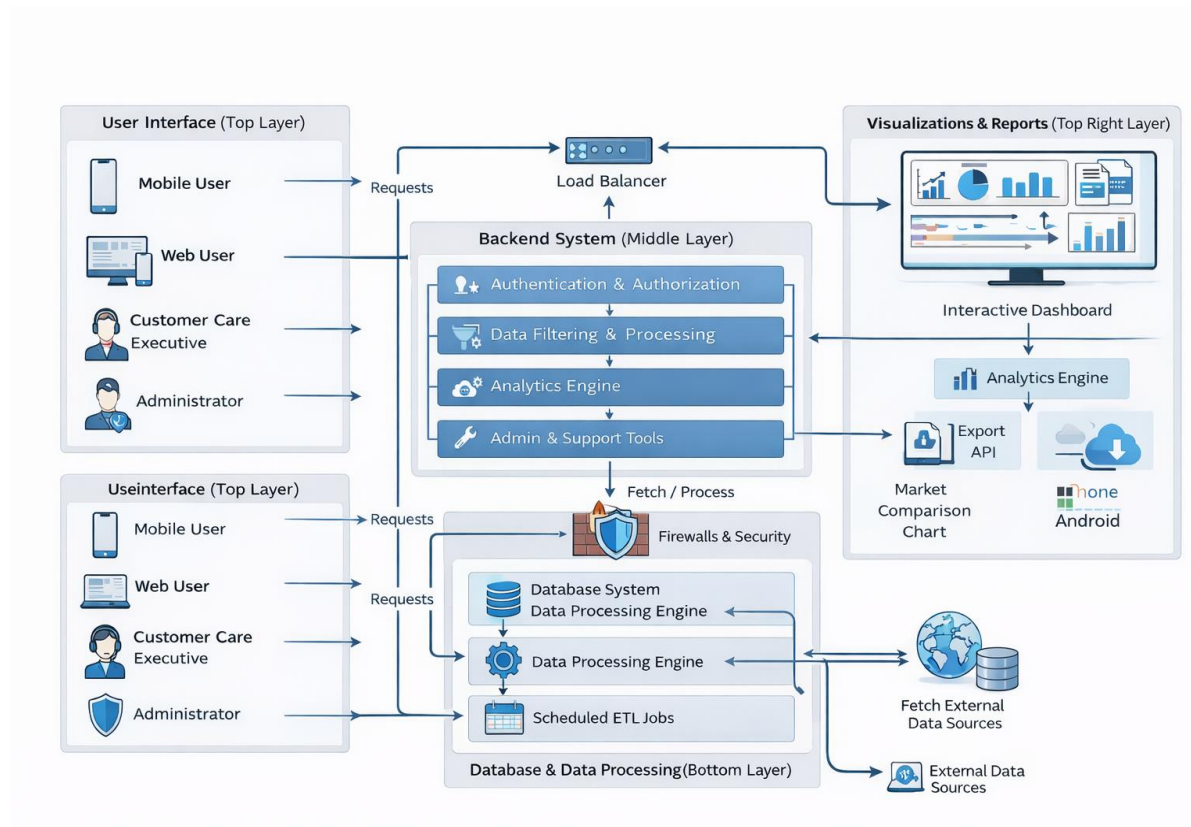


Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1	User Interface	Users interact with analytics dashboards via Web UI and Mobile responsive interface	HTML5, CSS3, JavaScript, React.js / Bootstrap
2	Application Logic-1	Handles user authentication, login, registration and session management	Python (Flask/Django) or Node.js
3	Application Logic-2	Processes dataset filtering, search queries, and user requests	REST API Services (Flask API / Express.js)
4	Application Logic-3	Performs analytics computation and generates insights	Python (Pandas, NumPy)
5	Database	Stores processed sales data, user details and analytics results	MySQL / PostgreSQL
6	Cloud Database	Cloud-hosted storage for scalable data access	Firebase / AWS RDS
7	File Storage	Stores uploaded CSV datasets and generated reports	AWS S3 / Local File System
8	External API-1	Fetches market statistics and smartphone shipment datasets	Public datasets (Kaggle / Statista APIs)
9	External API-2	Fetches economic or demographic indicators related to adoption	Government Open Data API (data.gov.in)
10	Machine Learning Model	Predicts iPhone adoption trend and sales growth	Python Scikit-learn (Regression/Forecasting)
11	Infrastructure (Server/Cloud)	Deployment of web application and analytics services	AWS EC2 / Google Cloud / Docker

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1	Open-Source Frameworks	Frameworks used to build frontend and backend analytics platform	React.js, Flask/Django, Bootstrap
2	Security Implementations	Secure login, encrypted passwords, role-based admin access	HTTPS, JWT Authentication, SHA-256 Password Hashing
3	Scalable Architecture	System supports multiple users and increasing datasets with layered architecture	3-Tier Architecture (Presentation, Application, Data Layer), Cloud Hosting
4	Performance Optimization	Fast loading dashboards and efficient processing of large datasets	Caching, Optimized SQL Queries, Pandas Data Processing
5	Data Visualization & Reporting	Interactive charts and downloadable analytics reports for user understanding	Tableau / Power BI / Chart.js