Project Design Phase-I
Solution Architecture

Date	18 February 2026
Team ID	**LTVIP2026TMIDS47508**
Project Name	iRevolution: A Data-Driven Exploration of Apple's iPhone Impact in India
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.
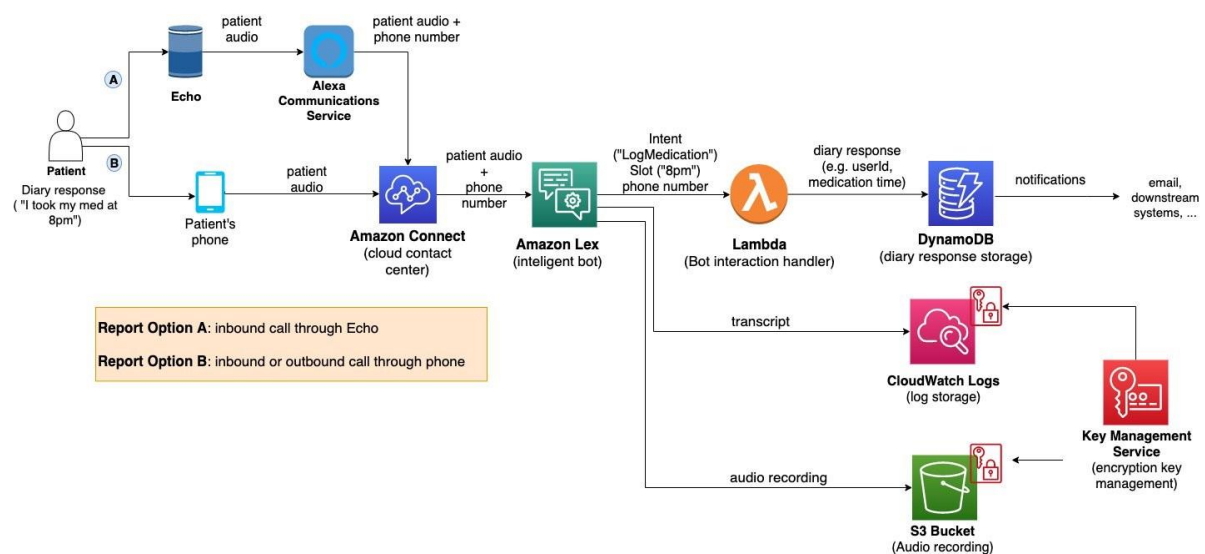
Example - Solution Architecture Diagram:

Figure 1: Architecture and data flow of the voice patient diary sample application

Reference: https://aws.amazon.com/blogs/industries/voice-applications-in-clinical-research-powered-by-ai-on-aws-part-1-architecture-and-design-considerations/

Proposed Solution Architecture for iRevolution

The iRevolution project uses a data-driven architecture to analyze and visualize the impact of Apple's iPhone on India's smartphone ecosystem. The architecture connects multiple data sources with analytics and visualization layers to transform raw data into meaningful insights.

1. Data Sources Layer

This layer collects structured and unstructured datasets including smartphone sales data, pricing trends, consumer demographics, app usage statistics, digital payment adoption, and market reports related to Apple and competing brands in India.

2. Data Ingestion & Storage

Data is gathered through APIs, public datasets, and web scraping techniques. The collected data is stored in a centralized cloud database or data warehouse for efficient processing and scalability.

3. Data Processing & Analytics Layer

Data preprocessing techniques such as cleaning, normalization, and transformation are applied. Statistical analysis and machine learning models are used to identify trends, correlations, and growth patterns related to iPhone adoption and its economic and social impact.

4. Visualization & Application Layer

Interactive dashboards present insights using charts, graphs, and comparative analytics. Users such as researchers, students, and businesses can explore insights about consumer behavior, regional adoption, and market influence.

5. User & Stakeholder Layer

Stakeholders including academic researchers, policymakers, and business analysts access the platform to understand how premium smartphone technology influences India's digital economy.

Architecture Data Flow

Data flows from external sources → ingestion pipeline → storage systems → analytics engine → visual dashboards. This layered approach ensures scalability, flexibility, and real-time insights.

Technology Stack (Suggested)

Frontend: Web dashboard (HTML, CSS, JavaScript, Power BI/Tableau)
Backend: Python, Flask/Django
Database: MySQL / PostgreSQL / Cloud Data Warehouse
Analytics: Python (Pandas, NumPy, Scikit-learn)
Cloud Platform: AWS / Azure / Google Cloud

Figure 1: Proposed architecture and data flow diagram for the iRevolution analytical platform (Students may include a system diagram showing data sources, processing, and visualization layers).