Project Design Phase
Solution Architecture

Date	June 2025
Team ID	LTVIP2025TMID44695
Project Name	ResolveNow: Your Platform for Online Complaints
Maximum Marks	4 Marks

Solution Architecture Overview:

The ResolveNow system follows a client-server-based architecture using the MERN stack (MongoDB, Express.js, React.js, Node.js). The architecture bridges user interface requirements with backend logic and database storage, ensuring real-time communication, efficient complaint tracking, and modular code management.

Architecture Layers:

1. Frontend (Client Layer):

- **Technology: React.js with Bootstrap & Material UI**
- **Role:**
  - **User-facing interface for complaint registration and tracking**
  - **Role-based access (Admin, User, Agent)**
  - **Axios used for API calls**
  - **Real-time dark/light theme toggle**
  - **Chat UI for interaction with agents**

2. Backend (Application Layer):

- **Technology: Node.js with Express.js**
- **Role:**
  - **Handles REST API endpoints**
  - **Authentication and session management**
  - **Complaint routing logic**
  - **Connects frontend to database**

3. Database (Storage Layer):

- **Technology: MongoDB Atlas (Cloud-hosted NoSQL DB)**
- **Role:**

- **Stores user profiles, complaints, status updates, chat history, and agent/admin data**
- **Document-based structure for flexibility and scalability**

4. Optional Integration:

- **Socket.io (For Real-Time Messaging)**
- **Email/SMS Gateway (For notifications)**

Data Flow Overview:

1. **User Sign Up/Login: User credentials are sent from frontend to backend, verified, and stored in MongoDB.**
2. **Complaint Submission: User submits a complaint, which is stored in the database and visible to admins.**
3. **Assignment: Admin assigns complaint to agent based on workload.**
4. **Chat: User and agent communicate in real-time (via chat module).**
5. **Tracking: Complaint status is updated by agents/admins and reflected on user dashboard.**

Architecture Diagram:

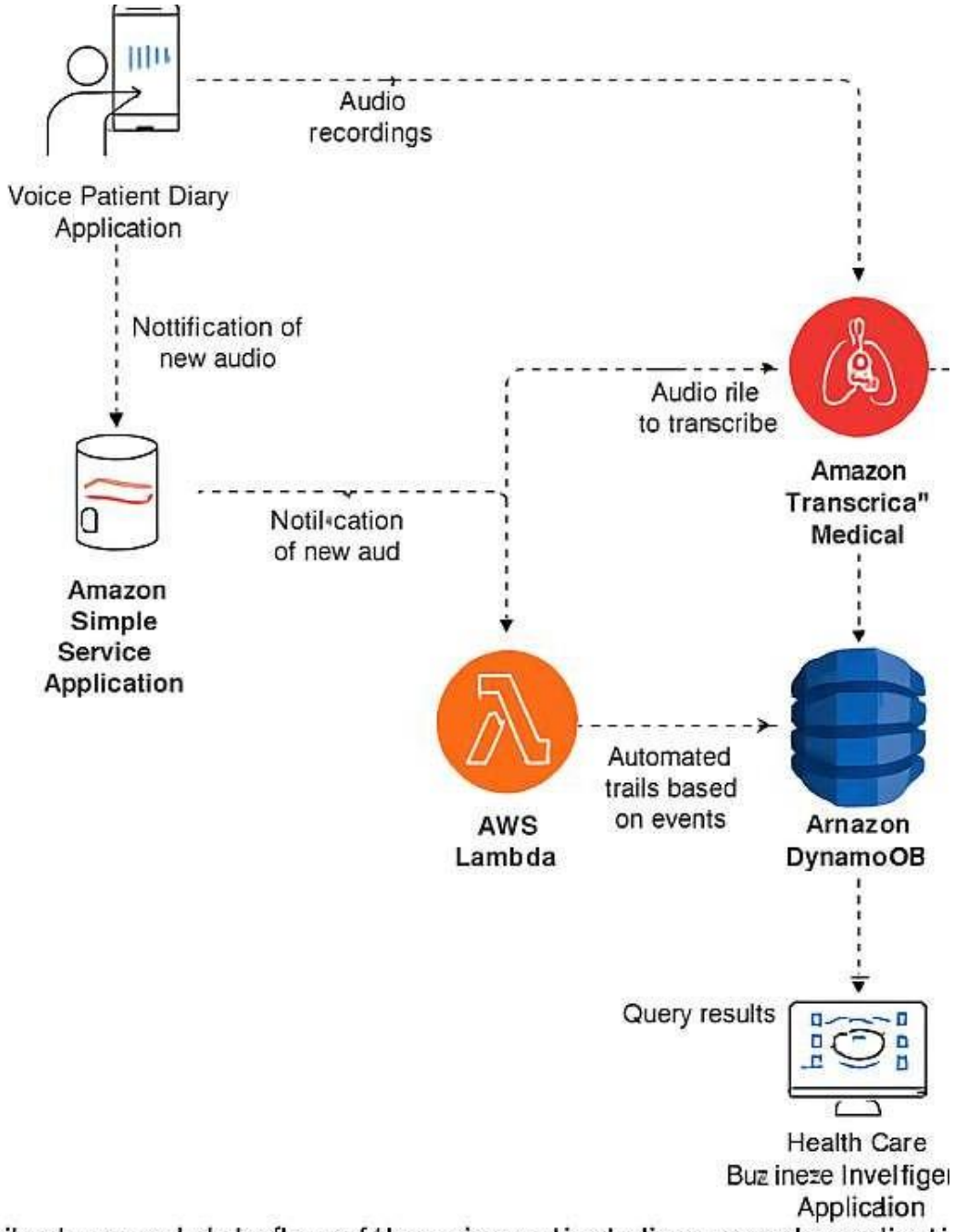

Figure 1: Architecture and data flow of the voice patient-diary sample applicati