Project Design Phase - II

Technology Stack (Architecture & Stack)

Date	01 November 2025
Team ID	NM2025TMID07096
Project Name	Streamlining Ticket Assignment for Efficient Support Operations
Maximum Marks	4 Marks

Technical Architecture:

Streamlined Ticket Assignment and Approval Workflow Automation using ServiceNow Platform

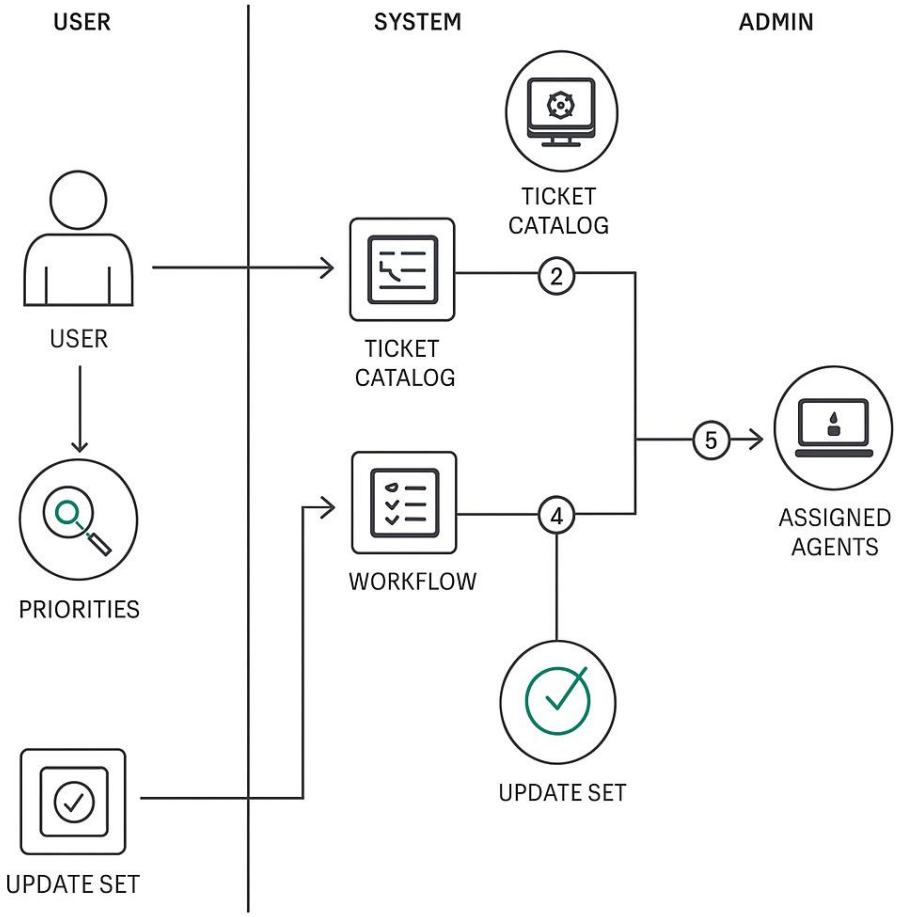

Table-1: Component & Technology:

S.No.	Component	Description	Technology
1.	**User Interface**	The patient interacts with the system using either Alexa Echo or a mobile device to record daily medication diary responses (e.g., "I took my medicine at 8 PM").	Alexa Echo Device / Mobile Interface
2.	**Voice Processing Service**	Captures and processes the patient's audio commands through Alexa and routes them to AWS services for interpretation.	Alexa Communications Service
3.	**Cloud Contact Center**	Handles inbound and outbound voice interactions, transferring patient audio and phone data securely to AWS systems.	Amazon Connect
4.	**AI Bot / NLP Engine**	Interprets patient speech input (intent, slot, and entities) to understand diary responses such as medication time or type.	Amazon Lex (Intelligent Bot)
5.	**Lambda Function (Logic Handler)**	Processes recognized data from Lex and stores diary responses in the database. It acts as the middleware logic engine.	AWS Lambda
6.	**Database**	Stores patient responses, including user ID, medication name, time, and date for reference and analytics.	Amazon DynamoDB
7.	**Logging System**	Captures interaction transcripts and system events for audit and troubleshooting.	Amazon CloudWatch Logs
8.	**File Storage**	Stores encrypted audio recordings of patient responses for validation and compliance.	Amazon S3 Bucket
9.	**Encryption and Key Management**	Secures sensitive patient audio and metadata using managed encryption keys.	AWS Key Management Service (KMS)
10.	**Notification Service (Optional)**	Sends reminders, alerts, or confirmation messages to patients or caregivers through email or integrated systems.	AWS SNS / Email Integration

Table-2: Application Characteristics:

S.No.	Characteristics	Description	Technology
1.	**Open-Source Frameworks**	Not applicable, as the solution leverages proprietary AWS cloud and Alexa voice services for automation.	—
2.	**Security Implementations**	End-to-end encryption of patient audio and data using AWS KMS, secure access control through IAM roles and policies.	AWS KMS, IAM Roles, Secure Access Policies
3.	**Scalable Architecture**	Built on a cloud-native serverless architecture that scales automatically with user interactions and concurrent requests.	AWS Lambda, Amazon Connect, Amazon DynamoDB
4.	**Availability**	Ensures continuous availability with fault-tolerant and regionally distributed AWS cloud infrastructure.	AWS Cloud (Multi-Region Availability)
5.	**Performance**	Delivers fast, real-time responses through optimized Lambda execution, low-latency voice processing, and asynchronous API calls.	AWS Lambda, Amazon Lex, Amazon API Gateway