# **Data Science Use Case Document for Intelligent Call Summarization**

## **1. Problem Statement**

* **Description:**Call center agents spend significant time manually summarizing customer interactions, leading to inefficiencies and delays in follow-ups. Customers often face repetitive questioning due to a lack of consolidated records of past interactions. There is a need for an automated solution to summarize call conversations accurately and in real time.

## **2. Target Variable / Or no of Clusters**

* **Definition:**The target output is a concise, accurate, and structured summary of the customer's call, including key points like issue description, resolution provided, next steps, and sentiment analysis. No clustering is required.

## **3. Input Variables/ Parameters**

**Key Influencers:** Call transcript (text)

 Speaker identification (agent/customer)

 Key action words or phrases

 Sentiment indicators (e.g., positive/negative tone)

 Historical customer interaction data

 Time duration of the call

**4. Sector :**

Telecom

### **5.Approach / Technology Used**

**Technology Stack:**

* **Natural Language Processing (NLP)**: For extracting key phrases and sentiment from call transcripts.
* **Speech-to-Text Conversion**: To transcribe calls in real time.
* **Summarization Models**: GenAI models such as OpenAI GPT, fine-tuned for telecom-specific customer support data.
* **Sentiment Analysis**: Machine learning models to classify customer sentiment.

### **6. Benefits**

### Reduction in call wrap-up times by automating summaries.

* Improved accuracy and standardization in recording customer issues and resolutions.
* Enhanced customer satisfaction due to faster and more consistent service.
* Better insights for training and quality assurance through sentiment analysis and key points.

### **7. Expected Outcome**

* **Automated summaries**: Structured reports that include issue raised, actions taken, and next steps.
* **Sentiment insights**: Overall mood of the customer during the interaction.
* **Time savings**: Reduction in post-call processing time by 30-40%.