

Extracting Intelligence from Conversations powered by native ML services of AWS

A prominent retail and commercial bank partnered with Tiger Analytics to address critical objectives such as categorizing customer interactions' intent for enhanced service quality, operational cost optimization, and improving call resolution status for better agent performance.

The Background

Our client is a prominent retail and commercial bank, providing a wide range of personal banking products such as bank accounts, loans, mortgages, and credit cards. They enlisted our services with the following objectives:

To categorize the intent of customer interactions, enhance customer service quality, enrich the chatbot experience, and optimize operational costs.

To determine call resolution status, improve first call resolution rates, benchmark agent performance, and enhance agent skills and efficiency

Key Challenges

- ∨ Inadequate data quality, particularly in the case of telephone conversation transcripts.
- ∨ Lack of well-defined business rules for the soft tagging of call resolution status, necessitating multiple iterations with the client to determine the final level of a conversation.

Our Solution

Data preparation involved applying filter-based criteria through exploratory data analysis (EDA) to eliminate irrelevant and poor-quality samples, particularly for telephonic conversation transcripts.

Data labeling was conducted programmatically for call resolution using established business rules, custom scenarios, and semantic mapping.

Performed data pre-processing to cleanse and enhance the transcript data, including tasks like removing stop words, part-of-speech tagging, named entity recognition, and lemmatization.

Transformed the pre-processed unstructured data into inputs suitable for modeling. BERTopic was employed for call intent determination, and fast text was utilized for call resolution due to its speed and accuracy.

Explored multiple topic modeling techniques on the transformed vectors for intent detection, resulting in the creation of logical, dense clusters that facilitated the interpretation of topics while preserving the key descriptive words.

For call resolution, **trained the base model on the dataset for classification** and extracted high-value samples using techniques such as uncertainty and diversity sampling, integrating an active learning component.

Indicative category validation for the call intent model, where chat transcript intents were compared and validated against model outputs. Data was stored in Amazon S3 buckets at various stages of the pipeline.

The project relied on **AWS Sagemaker Pipelines** for training and inference processes, meticulously tracking model versions, input data, and various pre-processing techniques associated with different versions. This comprehensive approach ensured efficient and accurate intent classification and call resolution for our client.

Tech Stack

/ AWS

/ Amazon S3, AWS Sagemaker



Value Delivered

Superior Resolution

Processed more than 200,000 call transcripts and over 60,000 chat transcripts, culminating in developing models proficient in determining call resolution and intent for calling.

Innovative Features

Engineered a "Reason to Call" feature, providing primary and secondary reasons for calls, relevant supporting sentences, and keywords.

Created a "Call Resolution" feature, proficient in classifying call outcomes into predefined categories, accompanied by supporting sentences and keyword collections.

Accuracy

Achieved call resolution determination with an accuracy rate exceeding 70% and surpassing 80% for the precise determination of call intent.

About Us

Tiger Analytics is a global leader in AI and analytics, helping Fortune 500 companies solve their toughest challenges. With over 4000 data technologists and consultants spread across offices in the US, Canada, UK, India, Singapore and Australia; we help our customers accelerate their AI and analytics journey in sectors like CPG, Retail, Insurance, BFS, Manufacturing, Life Sciences, and Healthcare. Tiger Analytics is a Great Place to Work-Certified and a 'Leader' in the Forrester Wave: Customer Analytics Services Report 2023.

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