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Conversational Analytics in Customer Relationship Management

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ABSTRACT

Business Applications from the last decades has been making use of CRM Models for maintaining an healthy and social relationship with the customers to achieve a customer friendly business model ,to enhance the productivity of the business in the segment where consumer requirement is the highest priority. The use of AI and Machine Learning only paves the path for a better CRM Model circumventing all the possibilities of human oversight. Thus this research presents the use of Conversational Analytics using Artificial Intelligence and Machine Learning in the Customer Relationship Segment.

Keywords— Augmented Analytic, Natural Language Processing, Stemming, Lemmatization, Tokenization, Conversational Analytics, Chatbot.

1. INTRODUCTION

This research paper highlights the evidential usage of Conversational Analytics in CRM Models for time saving and precise insights [1]. Conversational Analytics basically is instruction your application to capture your sentiments either in speech or text format and convert them to analytical queries , so that a single touch here can give you what your business consultant can only provide. This basically is an escape to normally mundane business dashboards, market chaos and fluctuations.

2. LITERATURE REVIEW

2.1 Background on an existing CRM

A business methodology or strategy that maintains the best possible history of relationship with its customers is called Customer Relationship Management [2][3]. The sustainability of business mainly depends on how much the associated customer segment still chooses it. The most important KPI's here therefore is understanding customer perception, the agility of the product or service to meet the changing requirement of the customer, to predict their demands and thereby identifying the potential customers and their patterns influencing the growth of profit margin of the business.

To understand CRM Models better, let's take a *use case of a product that is yet to be launched in the market*. These are some points to be considered by every business stakeholder before a product launch.
Does the product target a large segment of potential customer requirement category?
Does the product cater to all the expected functions the existing product in the market is inept of?
Do we maintain a healthy log of customer service for our entire existing product in market?
Identify the most suitable time where a change to a new product is inevitable and reasonable too.
How much is the increase in our potential customer margin with this product?

These are the few questions that need to be taken into consideration while premeditating a product launch. These questions can also be answered by an efficient trade planner team or a sales analytics team. However when we have a human insight to any solution it may be possible that the insight is taken, considering a particular skew in a different tangent which was incorrect. Mostly communications about a product happens by call service, survey emails and handy notes by a sales representative. Distributed pattern of information and scattered data will only lead to an incorrect decision from a wrongly analyzed hypotheses considered by an analyst. This gives rise to the need of an efficient model that maintains and manages the relationship of the customer with the business.

A CRM model mainly automates the sales , marketing and customer services and integrates it into one dashboard. This means all the questions that came before the product launch in the previous use case , is now answered all in this one business intelligent platform. All we need is to feed the model the dataset the analytics

team uses and it will bolster up all the consumer requirements by applying strategic metrics. This is the reason why most business consultants uses CRM models like SAP CRM, Sales force, Zoho and so on.

2.2 Precincts of existing CRM Model

A CRM model may provide various insights on sales based on skews, patterns and outliers present in the dataset. However a particular skew in data may not be so important and is yet considered by the consultant. This may then result in considering wrong or unwanted hypotheses which will hamper the prediction of the CRM Model.

A CRM Model is unable to identify and recognize human emotions via their speech , voice modulation or behavioural pattern due their lack of implementation in natural language processing. Identifying human language will.

2.3 Conversational Analytics

Conversational Analytics is actually gathering the requirement from the customer in their own natural language and converting them into queries to fetch the required output. This means here the analytic query is modelled out directly from the user's story points. This will make analytics tools to be essentially working as a search interface. According to Gartner, by 2020 this AI method will be implemented in almost every business segment. This helps the business user by saving his time from logging into a legacy system. Instead he can just talk to his phone and ask about the sales status. The best use cases would be instead of asking Alexa to switch on the AC of the room; one can ask what the review currently launched product in the market is. The ability to speak in one's own language than to speak the sentiments in "SQL" language will help the business user achieve better productivity and understanding the expectation of the customer. More to it they would allow the business user to prioritize their requirement and make an impactful decision for the business relatively faster. The chances of procrastination or misunderstood requirement here can be relatively lesser.

3. PROTOTYPE DESIGN

The objective of the research here is the integration of conversational analytics into CRM model.This integration will require natural language processing toolkit along with python.

Process Requirement for implementing Conversational Analytics is as follows:

1. Designing speech recognition Chatbox using Speech Recognition Package of Python.
2. Convert the speech in Natural Human Language
3. Convert these words to analytical queries
4. Hit the query on the database.

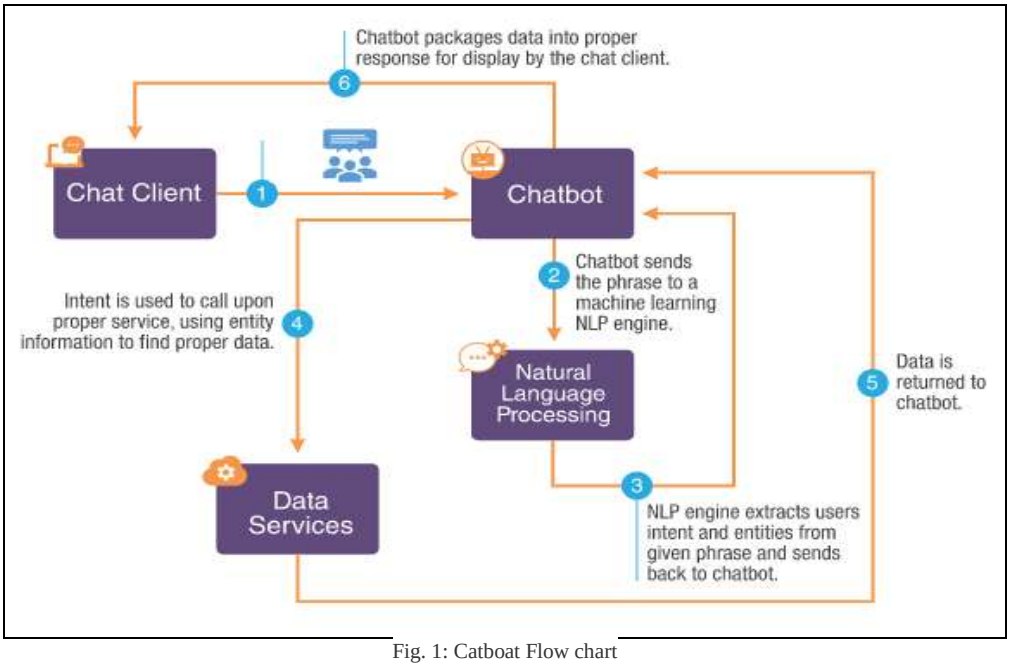

Fig. 1: Catboat Flow chart

3.1 Designing a speech recognition Chatbox using Speech Recognition Package of Python

For speech recognition we need to install the Speech Recognition Packages in Python. These packages are available in python 2.6, 2.7……3.3[4][5].

Fig 2: Speech Recognition Package of Python

3.2 Recognizer Class

According to [7][8] , the speech would be recognized by a recognizer class which is pretty simple.This will require an internet connection.Lets take the instance of google.

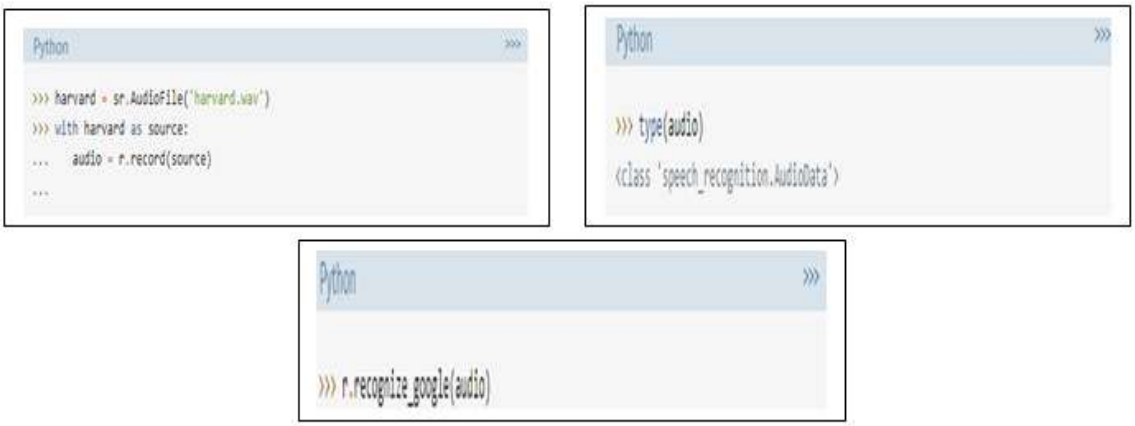

Fig 3: Class Recognition Package of Python

3.3 Text to Query

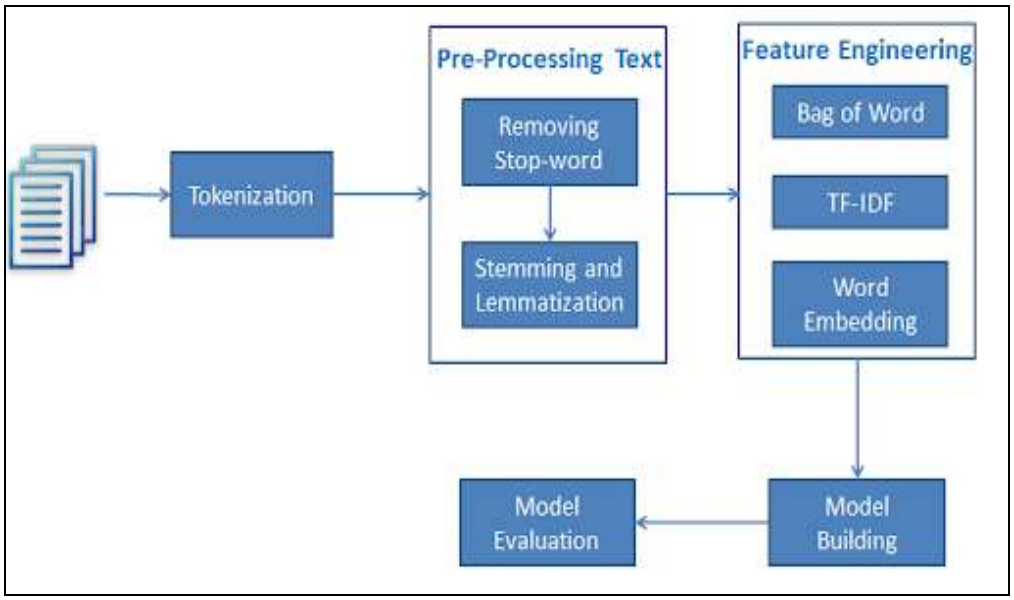

Fig 4: Text to Query processing

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Conversion of text to analytical query consists of the following steps [6]:

- Tokenization : Dividing Characters to various tokens
- Lemmatization : Using language dictionary to perform accurate reduction to root words
- Stemming : Uses pattern matching to remove suffixes from words (eg removes – "remove" + s)
- Feature Engineering: Feature Engineering includes phase extraction, macro understanding and de-compounding. Once we have the model query , we can then hit the crm database and get the result. The result is then retraced back to the Chatbot.

4. CONCLUSION

The research intends to provide a chatbox application for the business user wherein the user can just "speak" what he or she needs and the chatbox will be smart enough to convert the speech to analytical query and get the results. This saves him from the pain of actual "querying syntax" .As of now this model is a thought process by Salesforce and other CRM models. It is expected to be put into full-fledged implementation by 2020.

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