Task 22 – NLP 2

Amazon Comprehend is a natural language processing (NLP) service that uses machine learning to discover insights from text (Amazon 2023). This service is packaged as an API, that customers can use for:

- ❖ Custom Entity Recognition – analysing specific text terms or entities unique to the business. Example, policy numbers
- ❖ Custom Classification – text classification model for categorising business-specific labels. Example, organised customer feedback mapped to business-specific labels such as Ticket Refund, Account Question or Flight Complaint.
- ❖ Key Phrase Extraction
- ❖ Sentiment Analysis – analysis overall text sentiment, such as positive, negative, neutral or mixed
- ❖ Entity Recognition – text categorisation of named entities such as location, organisation, person, date, etc.
- ❖ Targeted Sentiment – granular analysis of text sentiment towards entities within the text & categorising them as positive, negative, neutral or mixed

A good example of this product in action is with the business use case, Chick-fil-A's Food Safety Team (Addy 2018).

The business was keen to use NLP to help identify key words, phrases and customer sentiment from social media data to help spot potential food safety related issues. This solution needed to be operated in real-time to allow the business to continuously monitor their Chick-fil-A sites, investigate issues and deploy solutions to mitigate operational risks.

The sequence of events that take place for this analysis is as follows:

1. Social Media Data is mined in Raw format every 10 min
2. Amazon API called → **custom classification** → Categorise and flag food safety words & phrases, such as, food poisoning, vomiting, I got sick, etc. from social media data
3. Amazon API called → **sentiment analysis** → Sentiment text analysis used to extract specific sentences & categorises them as positive, negative, neutral or mix with a % confidence score
4. Custom Smart Sort Logic – produces overall summary of customer Star Rating, custom classification, sentiment analysis & repetition of words
5. Business events triggered in real-time
6. Data is then pushed to Tableau Dashboard for analysis & reporting for food safety teams to use for investigations & addressing business issues. This data is also presented by locations.

References List

Addy, D. (2018). *AWS re:Invent 2018: Smart & Interactive Apps w/ Intelligent Language Services on AWS (AIM303-R2)*. [online] www.youtube.com. Available at: https://www.youtube.com/watch?v=9epnmJ6RFpQ&ab_channel=AmazonWebServices [Accessed 4 Jul. 2023]. Chick-fil-A Food Safety team Business Case usage of Amazon Comprehend (NLP) Product @ 31:55 video timestamp.

Amazon (2023). *Amazon Comprehend – Features*. [online] Amazon Web Services, Inc. Available at: https://aws.amazon.com/comprehend/features/ Overview of Amazon Comprehend Product.