

# Plant-Based Alternatives: Word on the Street in South Africa

## Introduction

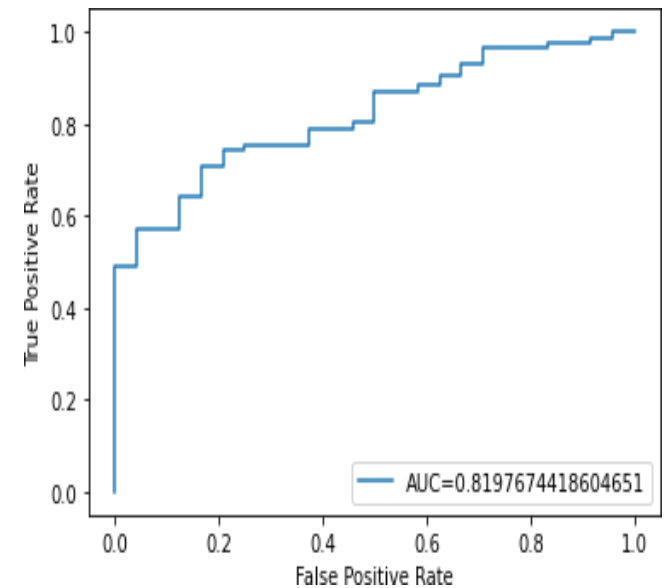
- Problem Statement**  
 The study seeks to identify consumers' perceptions of plant-based products, their experience after buying them, and finally aims to segment the consumers into different cohorts.
- What is Sentiment Analysis?**
  - How do people feel about your brand online?
  - Who is tweeting about plant-based products?
  - Considers Emotions and Opinions
  - Creates an opportunity for targeted marketing
  - Identifying customer groups

## Sentiment Classifier

The sentiment classifier is used to gain a better understanding of consumers' perceptions/opinions shared on the platforms. The following were employed:

Classifiers	Word2Vec
Logistic Regression	78,2%
Random Forest	78,4%
Support Vector Machine	79,1%

Logistic Regression Model performance



## Data Exploration

Data was acquired using Twint; Twint is an advanced Twitter scraping tool written in Python that allows for scraping Tweets from Twitter profiles without using Twitter's API (Poldi 2019). Using Twint's search operators, the following command and specifications were run on Google Cloud Platform (Google, 2008):

```
twint -s 'plant based' -g= '-30,25,560km' --since 2017-01-01 --until 2022-04-20 -o plant_based_tweets.csv -csv
```

These specifications allowed for twitter data scraping in the Johannesburg area up to 40km from the city's center, from the year 2017 to the year 2022. The search phrases applied were: plant-based, plant-based alternatives, vegan meat, vegan sausages, and vegan substitutes, amongst others.

## Sentiment Analysis

Figure 1 shows data that can be informative from a business standpoint. Hashtags provide information about trending topics, as such, they can be used to predict upcoming trends and to build marketing campaigns for brand alignment.

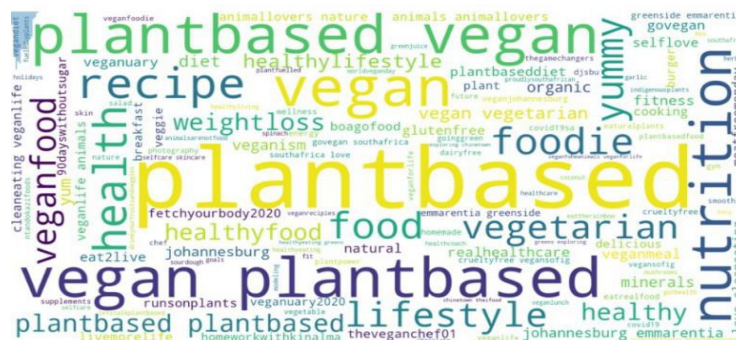


Figure 1. WordCloud: Frequent Hashtags

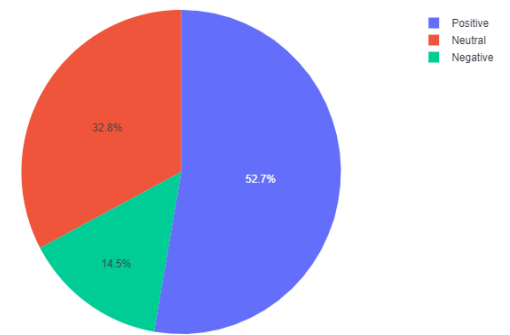
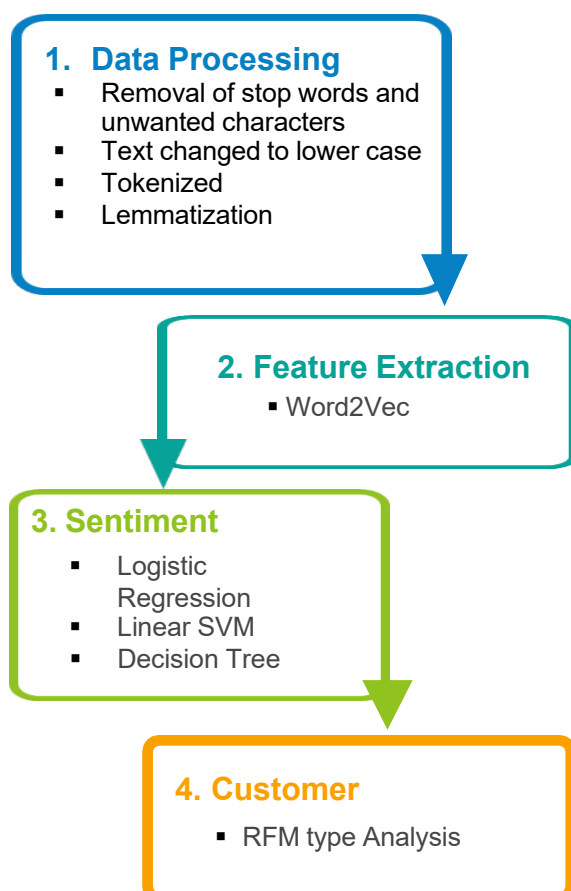


Figure 2. Sentiment Analysis visualization

From Figure 2 it can be observed that the sentiment is positive about plant-based meat alternatives. This is good considering that this is a change of lifestyle and this means that those that have made the switch are reaping the benefits.

## Methodology



## Customer Segmentation

Customer segmentation is a useful tool for analysing market behavioural patterns. This data may be used for personalized marketing, product innovation, and advertising, amongst other things. Figure 3, depicts the adoption of plant-based in South Africa, with more consumers least likely to adopt/maintain the plant-based lifestyle for various reasons. Few consumers are willing to adapt and maintain the lifestyle, in this case being Plant based Champ and Consistent loyalists.

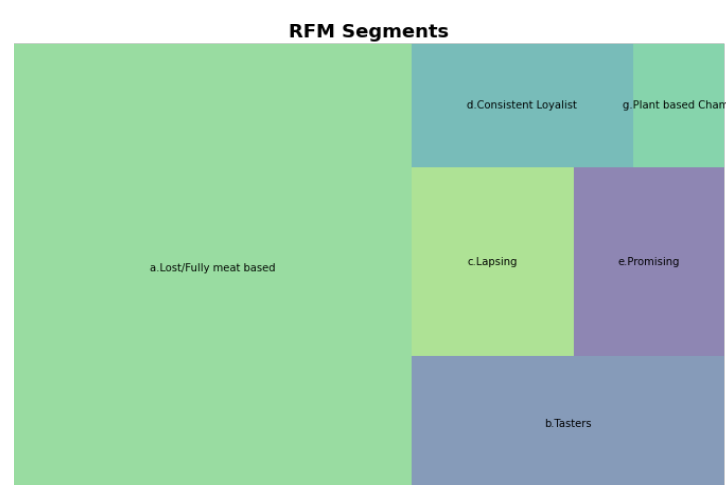


Figure 3. Different cohorts of clients from RFM

## Conclusions

- The data is not class-wise balanced
- Sample small but true reflection of the current adoption in SA
- Real-time data feed to enable real time insights
- Consider deep learning in terms of classification
  - Dive deep into emotions such as angry, sad etc.

## References

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