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# TEXT ANALYTICS – EMOTIONAL CLASSIFICATION

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## TEXT ANALYSIS OF AN ONLINE WOMEN'S FASHION COMPANY

To demonstrate, in the “simplified” example, R Studio is used to analyse approximately 23,000 text only reviews obtained for a Women's Ecommerce clothing company (data was sourced from Kaggle – a Machine Learning and Data Science Community website).

The 23,000 reviews covered 20 product categories with multiple variations of each product – resulting in 1,206 discrete products

## OVERALL EMOTIONAL CLASSIFICATION OF REVIEW EXPERIENCE

Of the 23,000 reviews from the Woman's fashion company a deeper analysis allows the Analyst to attach an EMOTIONAL perspective to the SENTIMENT of the review.

This is achieved through scoring words used in a sentence based on their comparison to a list of words in the NRC Sentiment Lexicons within the <sup>(2)</sup> SYUZHET PACKAGE which are associated with eight emotions (i.e., anger, fear, anticipation, trust, surprise, sadness, joy, and disgust).

It provides a score for each of the eight emotions based on the presence of a word corresponding to that emotion (The <sup>(1)</sup> NRC WORD-EMOTION ASSOCIATION LEXICON Score), for example scores from this data set for a single sentence can range from 0 -10 for each of the 8 emotions.

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## EXAMPLES OF WORD ASSOCIATIONS

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### ANTICIPATION

“I SAW THIS TOP IN STORE AND IMMEDIATELY PICKED UP THE RED ONE”

### TRUST

“THIS IS ONE OF MY FAVOURITE NEW RETAILER BUYS”

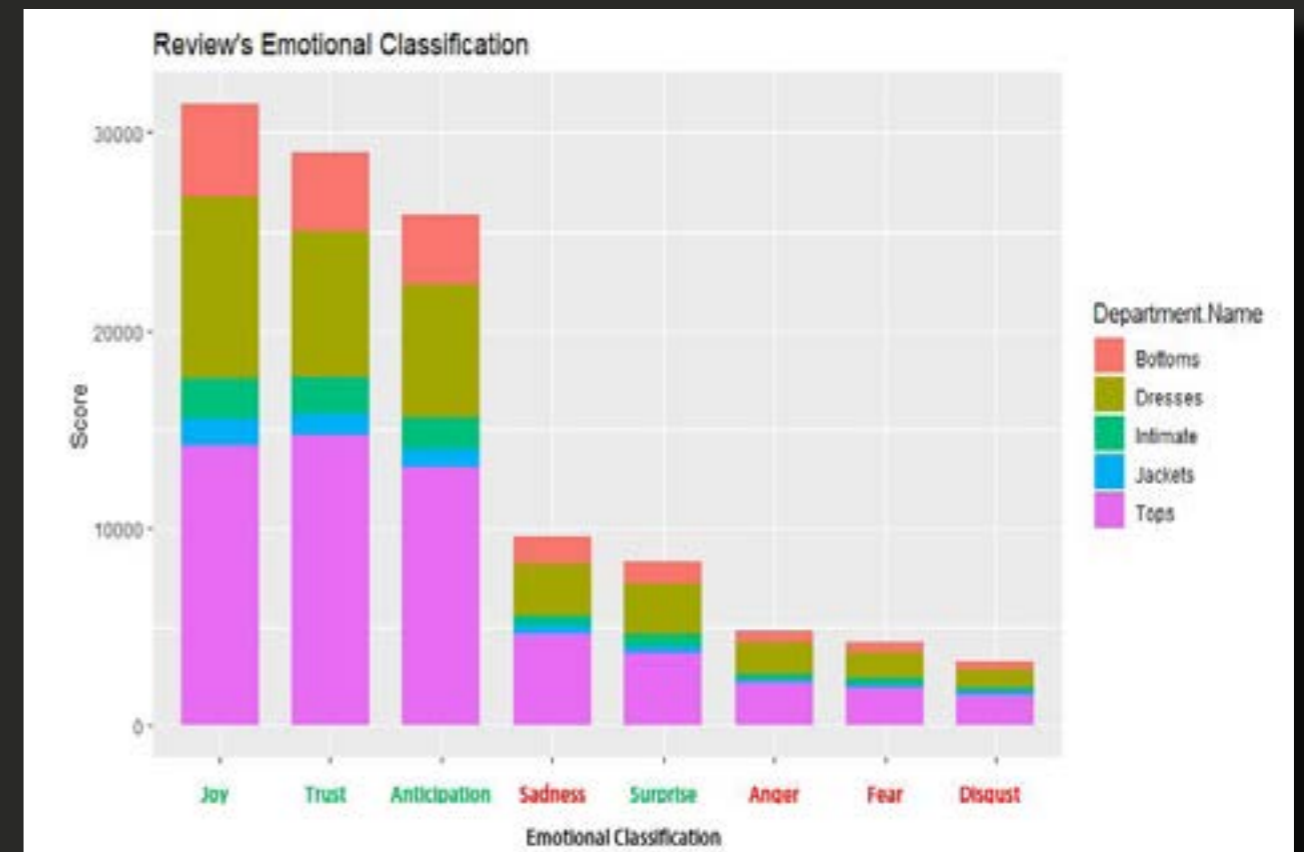
### ANGER

“DO NOT WASTE YOUR MONEY ON THIS”

# TEXT ANALYTICS – EMOTIONAL CLASSIFICATION

THE GRAPH BELOW SHOWS THE EMOTIONAL CLASSIFICATION OF ALL PRODUCT REVIEWS.

BELOW, POSITIVE EMOTIONS ARE HIGHLIGHTED IN GREEN AND NEGATIVE EMOTIONS HIGHLIGHTED IN RED ON THE X-Axis:



- As can be seen, in the reviews, the respondents expressed JOY, TRUST and ANTICIPATION emotions in their reviews most frequently of the 8 Emotional Classifications – suggesting a loyal and returning customer base.
- Overall, the reviews had mainly positive emotions. There could be further refinements made in the reviews associated with negative emotional classification such as DISGUST, FEAR and ANGER.
- More analysis will need to be done to assess which product category is driving a particular emotional classification or positive/negative result.

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## TEXT ANALYTICS – EMOTIONAL CLASSIFICATION

### OUTCOMES OF EMOTIONAL CLASSIFICATION OF TEXT

Applying emotional classification to reviews can be used to provide a high-level view of customers sentiment towards:

- The impact of any operational/process change implemented (e.g., responses/delivery times, customer service)
- Product range/ (e.g., new products, materials, colours etc)

By tracking results over time will indicate if the positive trend is increasing/stable/decreasing and if the negative emotions are decreasing.

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## APPENDIX 1 – REFERENCE MATERIAL

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### REFERENCES:

#### (1) NRC Lexicon Emotions Papers:

- Mohammad, Saif M. and Turney, Peter D., NRC EMOTION LEXICON, National Research Council Canada (NRC), viewed 12/8/2021, <<http://saifmohammad.com/WebPages/lexicons.html> >
- More information:
- <http://www.saifmohammad.com/WebPages/NRC-Emotion-Lexicon.htm>

#### (2) Syuzhet R Package Information

- Matthew L. Jockers , Nebraska Literary Lab, viewed 12/8/2021, <<https://www.rdocumentation.org/packages/syuzhet/versions/1.0.6>>

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## APPENDIX 2 – GLOSSARY

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### GLOSSARY:

- Tokenisation - is breaking up text into smaller units called tokens which can be individual words, phrases or sentences. In this case words or consecutive words are used.
- NRC Lexicon Emotions scored words based on the comparison of eight emotions (i.e., anger, fear, anticipation, trust, surprise, sadness, joy, and disgust).

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## APPENDIX 3 – FURTHER READING

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[Full case Study – Text Analysis on written reviews from a Women’s Online fashion company using RStudio:](#)

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## APPENDIX 4 – R PACKAGES

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While performing the analysis using R, the analyst can call on specialised packages to perform detailed analysis of the data.

Packages used to perform detailed analysis.

```
library(tidyverse)
library("tm")
library("SnowballC")
library("wordcloud")
library("RColorBrewer")
library("syuzhet")
library("ggplot2")
library("tidytext")
library("glue")
library(DT)
library(tidytext)
library(dplyr)
library(stringr)
library(readr)
library(reticulate)
library(crfsuite)
```



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