05.20.25

CANVA CORPORATION

Natural Language Processing

Tweet Analysis

Agenda

01 Introduction

02 Data

03 Modeling

04 Recommendations and Conclusions

05 Next Steps

01

Introduction

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Tweet Analysis

KBO Marketing Company is a marketing firm that wants a model that can predict sentiment for technology products such as smartphones. The C-suite executives task their in-house data scientists to develop a prototype

Modeling……..

Completed the following:

- Leveraged tweets targeted at Apple and Google
- Two categories: *Not Positive* and *Positive*

02

Data

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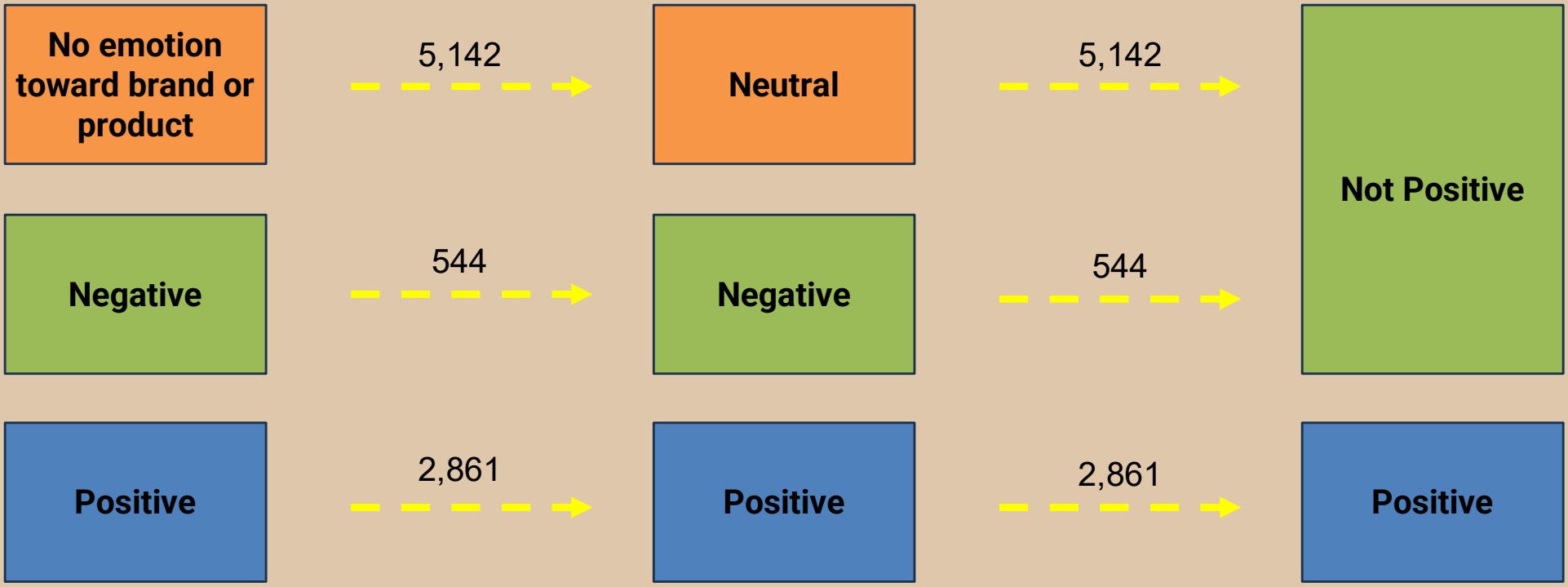
Data Description

- csv file
  - Initially 8,721 Observations, or Tweets
  - 3 Columns
- Columns are the following:
  - Tweet
  - Apple / Google Brand or Product (i.e. – *iPad, iPhone App, Android*)
  - Emotion

Data Description



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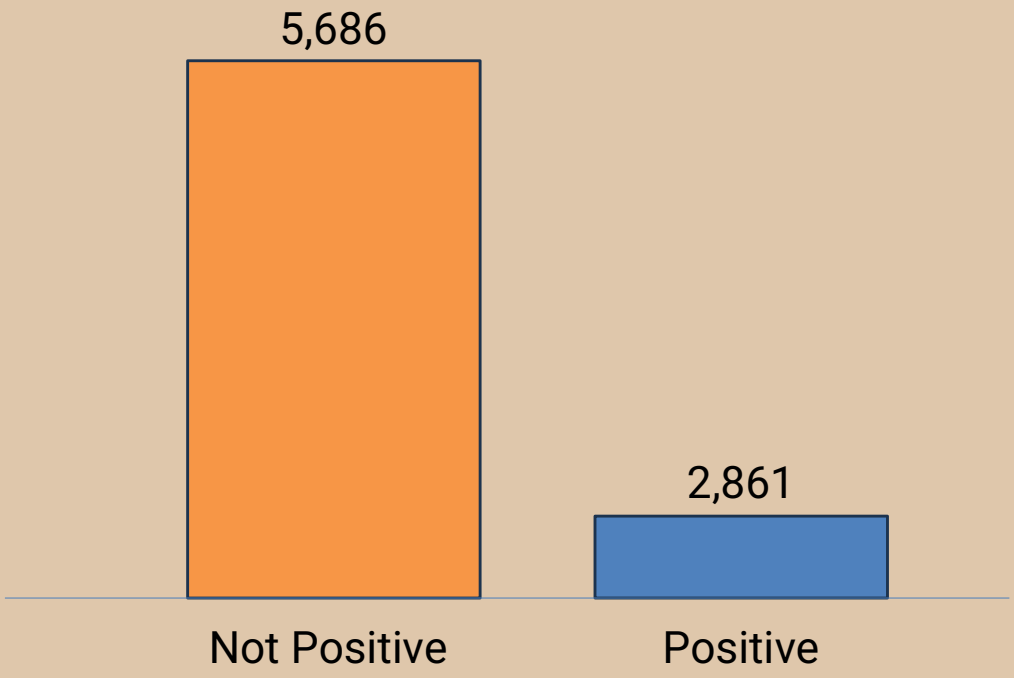
Data Description

- Class Imbalance



03

Modeling

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Naive Bayes

- What is Naïve Bayes?
  - Algorithm based on Bayes Theorem

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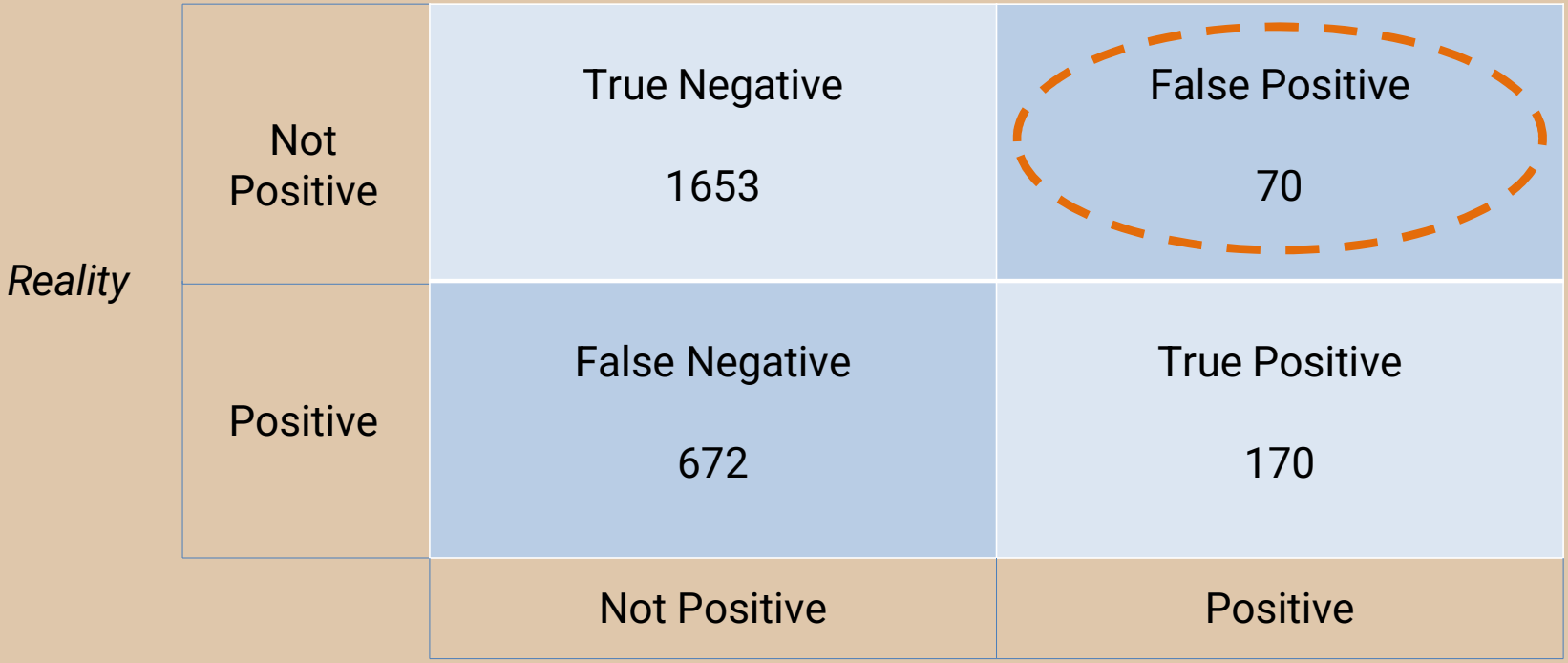
Confusion Matrix



04

Recommendations and Conclusions

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Recommendations and Conclusions

- Current Model
  - ≈70% Precision
  - Based on 8,547 Customers

05

Next Steps

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Next Steps

1 – Public Online Communities

2 – Other Smartphone and Tech Companies

3 – Private Online Communities

06

Appendix

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Appendix

- Serrano, Luis (2022). “Using Probability to its Maximum: The naïve Bayes model”
- Liang, David (2024). “Intro – Probability in Python: Coin Toss, Dice, and Poker Explained”

Model Precision

- ≈70.8%
- How is Precision Calculated?

$$= \frac{\text{Number of True Positives}}{\text{Number of Positives Predicted by the Model}}$$

$$= \frac{170}{240}$$