

# Capstone: Enron Email Classification

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# PROBLEM STATEMENT



1. Build a model that can classify labeled Enron emails effectively
2. Take learnings from this classification and use it to classify email responses for NewtonX
3. Ultimately build an auto-response system that sends a preset message based on the label the email receives

# BUSINESS VALUE



1

AUTO-LABELING



2

PREDICTION

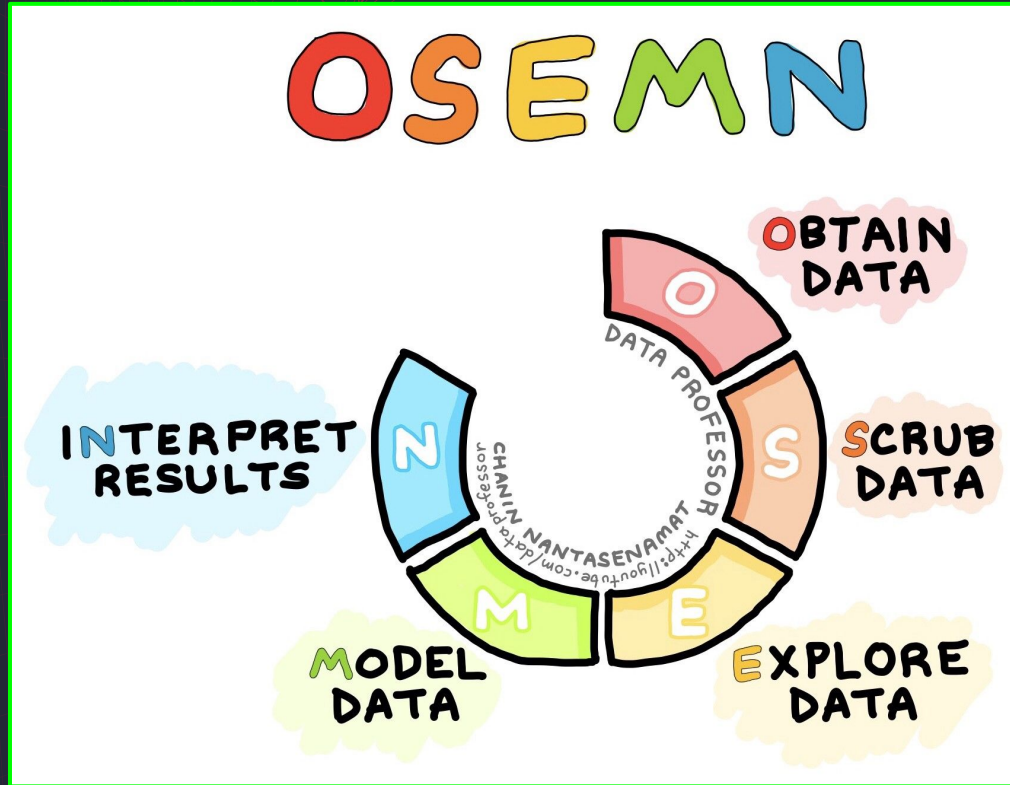


3

POSSIBILITIES

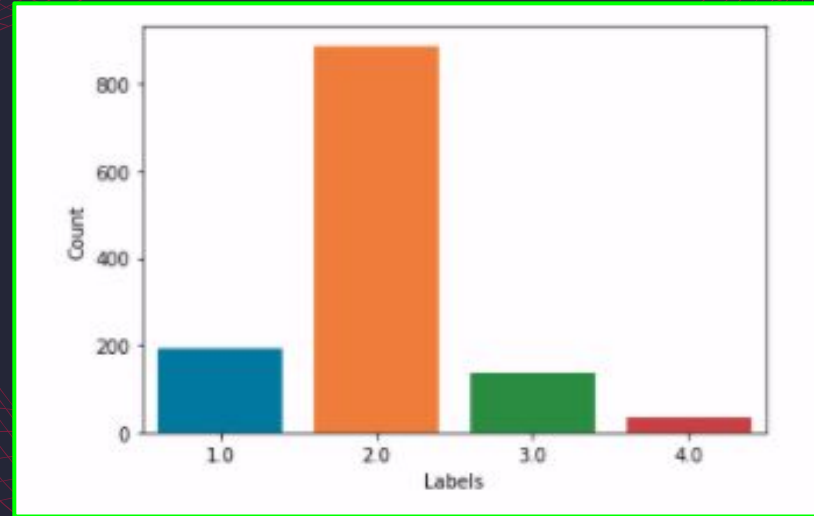


# METHODOLOGY



**OSEMN Framework**

# FINDINGS I



## Labels

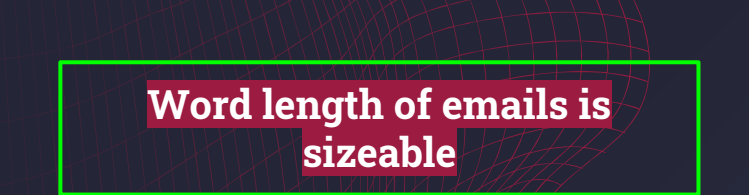
1.0: Coarse genre (company strategy, logistic arrangements, etc) – 14%

2.0: Included/forwarded information (forwarded emails, press releases, etc) – 74%

3.0: Primary topics (meeting minutes, regulations, etc) – 10%

4.0: Emotional tone (jubilation, sarcasm, etc) – 2%

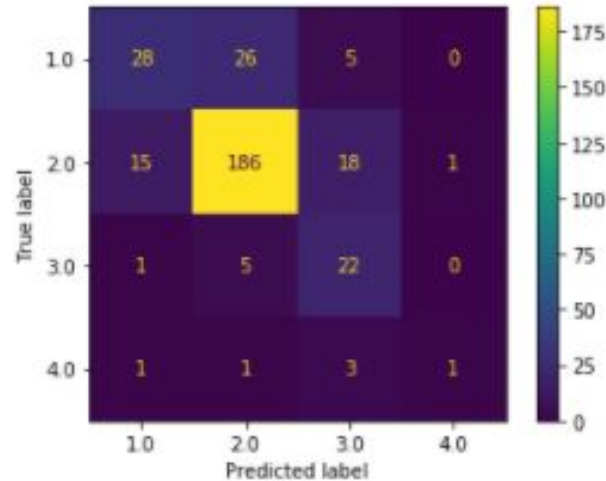
# FINDINGS I



## FINDINGS 3

Train Accuracy: 0.9880239520958084  
Test Accuracy: 0.7571884984025559

Accuracy Score for model: 75.72%  
Precision Score for model: 76.76%  
Recall Score for model: 75.72%  
F1 Score for model: 75.5%



**MODEL #1: GRADIENT BOOSTING**

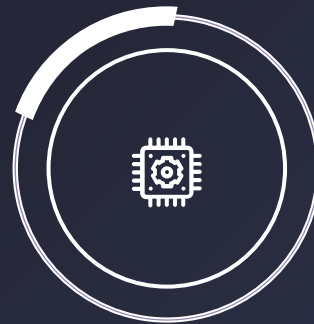


# FUTURE WORK



## LABELING

Use this model to label the 98K or so emails in our original dataset that are unlabeled



## AUTO-RESPONSES

Create an auto-response tool that responds to emails according the what label they receive