

# DETERMINING SONG SUCCESS

A Classification and Analysis Project  
Dana Rausch | 2.19.2021

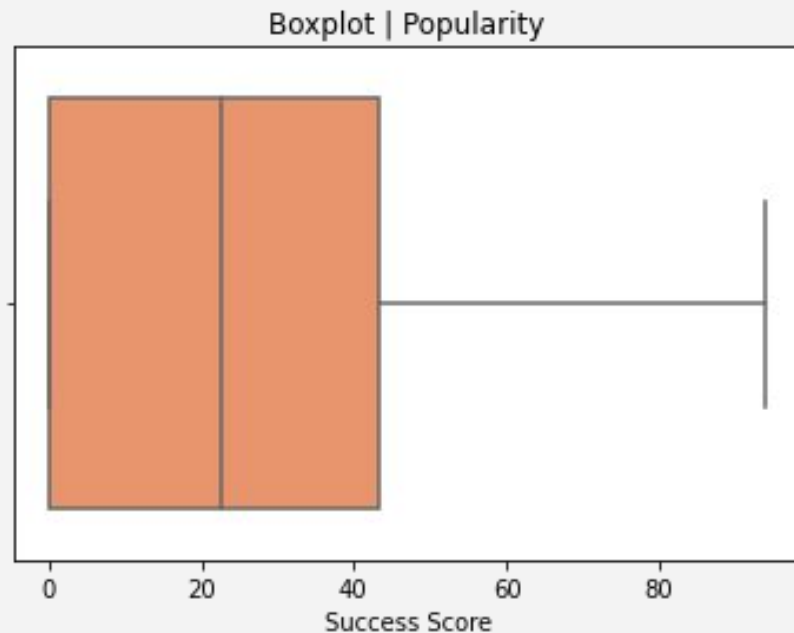
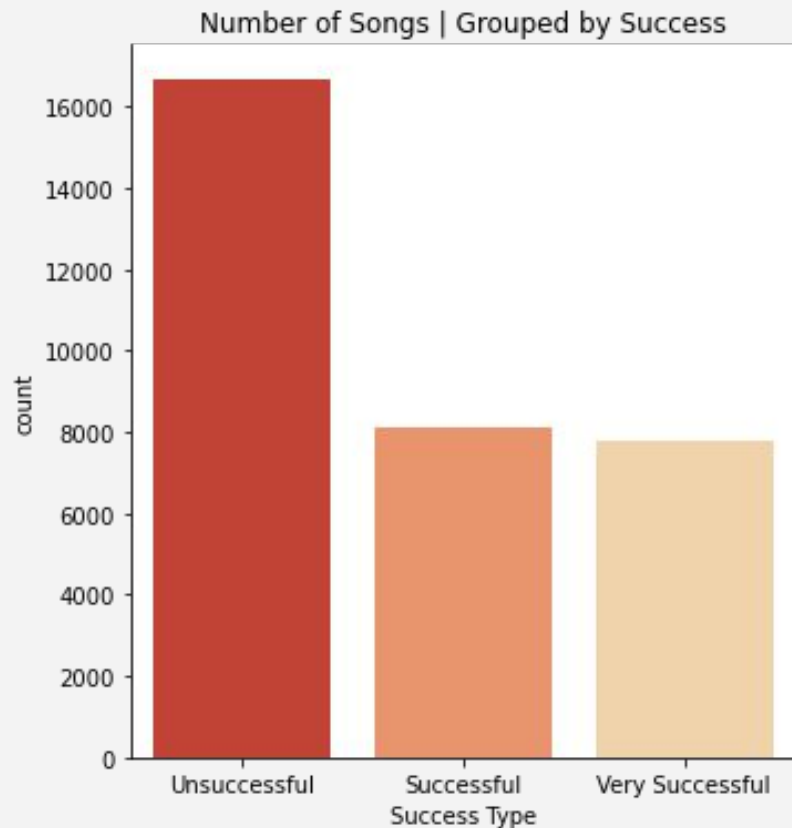


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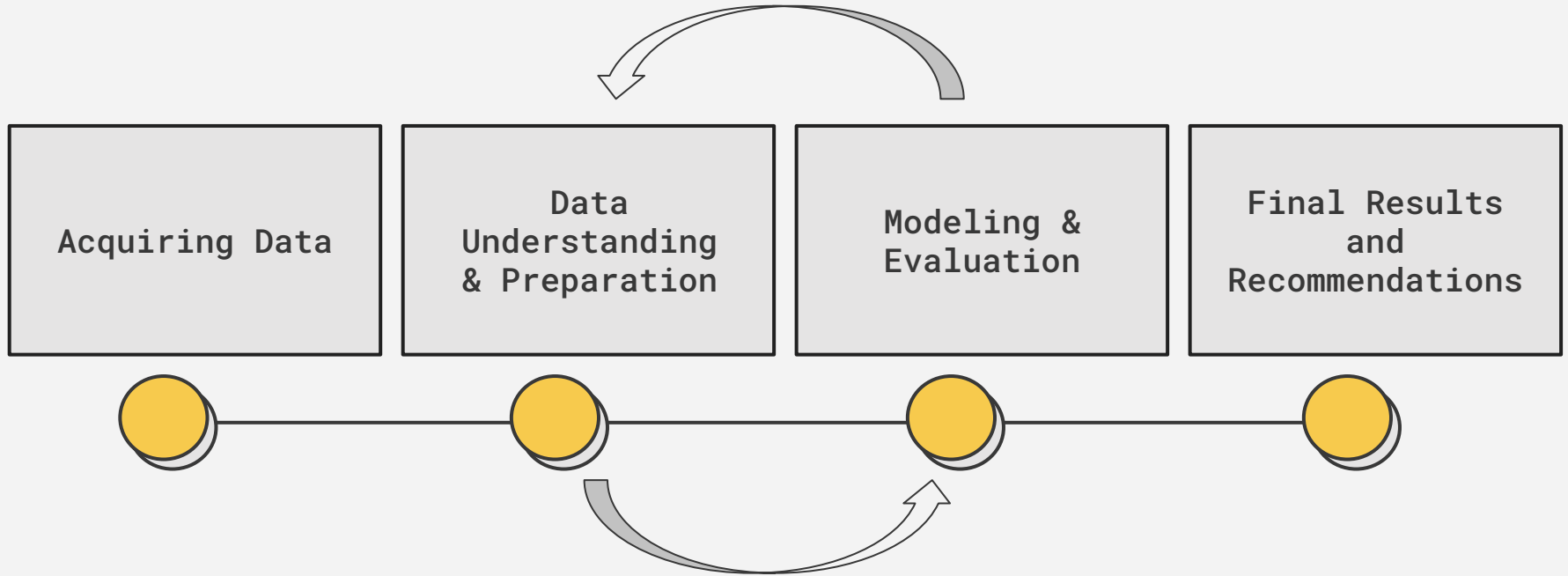
- Business Problem
- Business Value and hypothesis
- Methodology
- Results
- Recommendations | Conclusions
- Future Work
- Appendix



# THE PROBLEM: HOW TO DETERMINE IF A NEW SONG WILL BE SUCCESSFUL

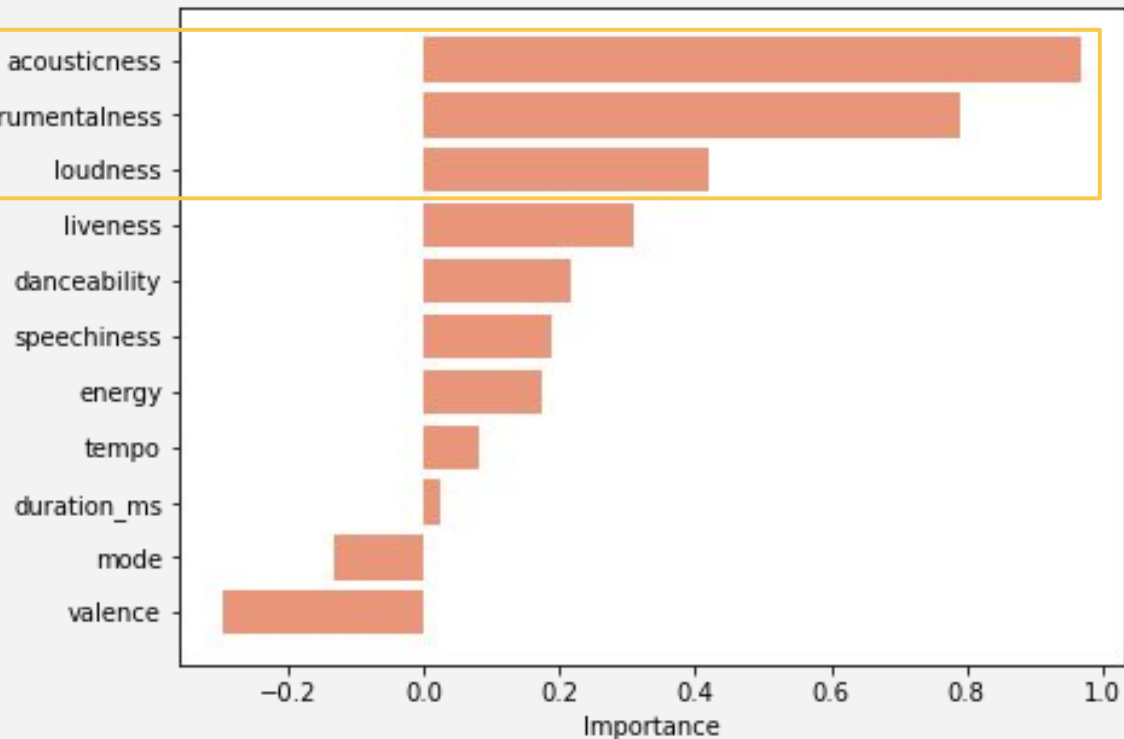


# METHODOLOGY



# TECHNICAL FEATURES

Feature Influence on Success



**Features with most impact  
on success:**

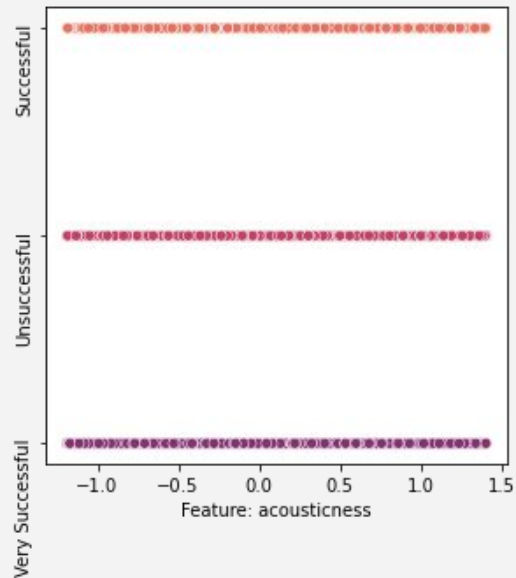
Acousticness: 0.98

Instrumentalness: 0.79

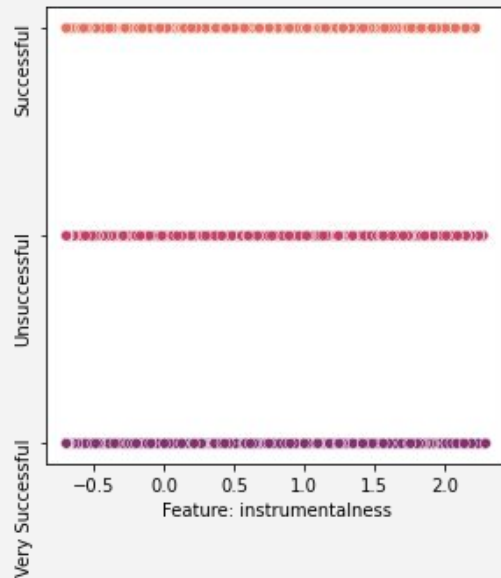
Loudness: 0.42

# DISTRIBUTION OF SUCCESS

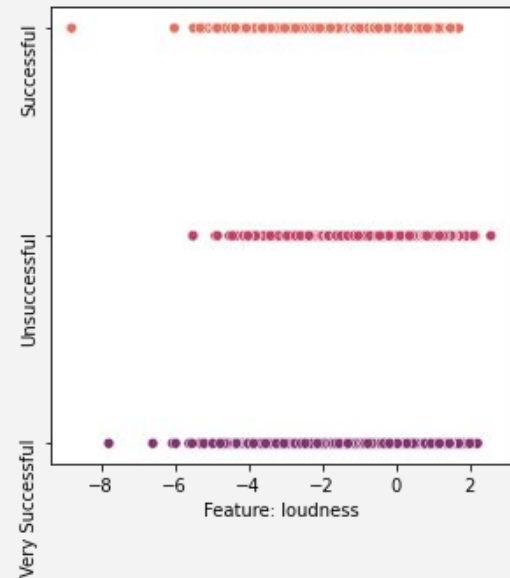
Distribution of Success Across Influential Features



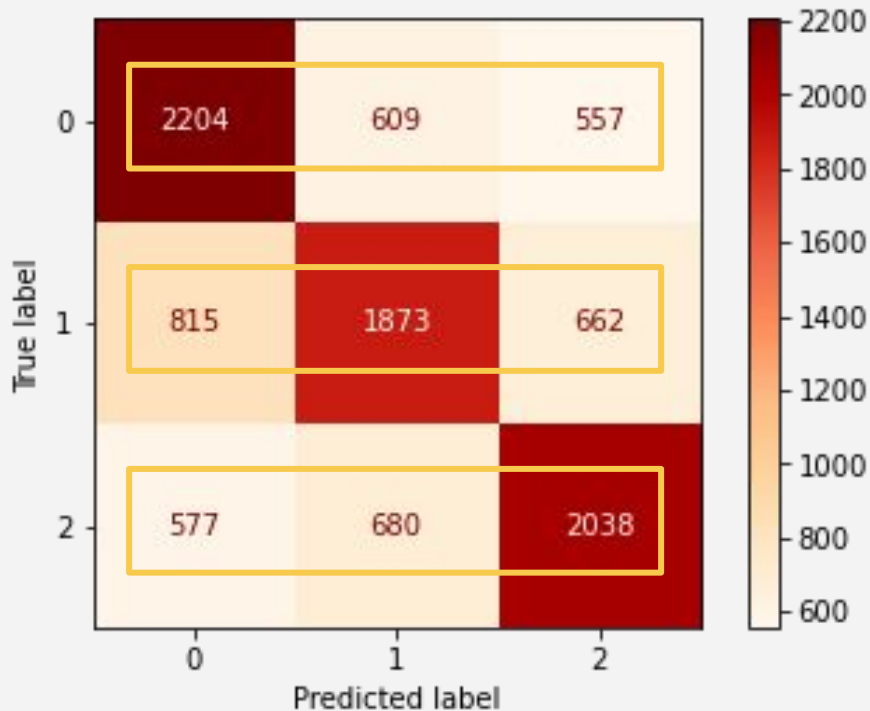
Distribution of Success Across Influential Features



Distribution of Success Across Influential Features



# RESULTS: SENSITIVITY

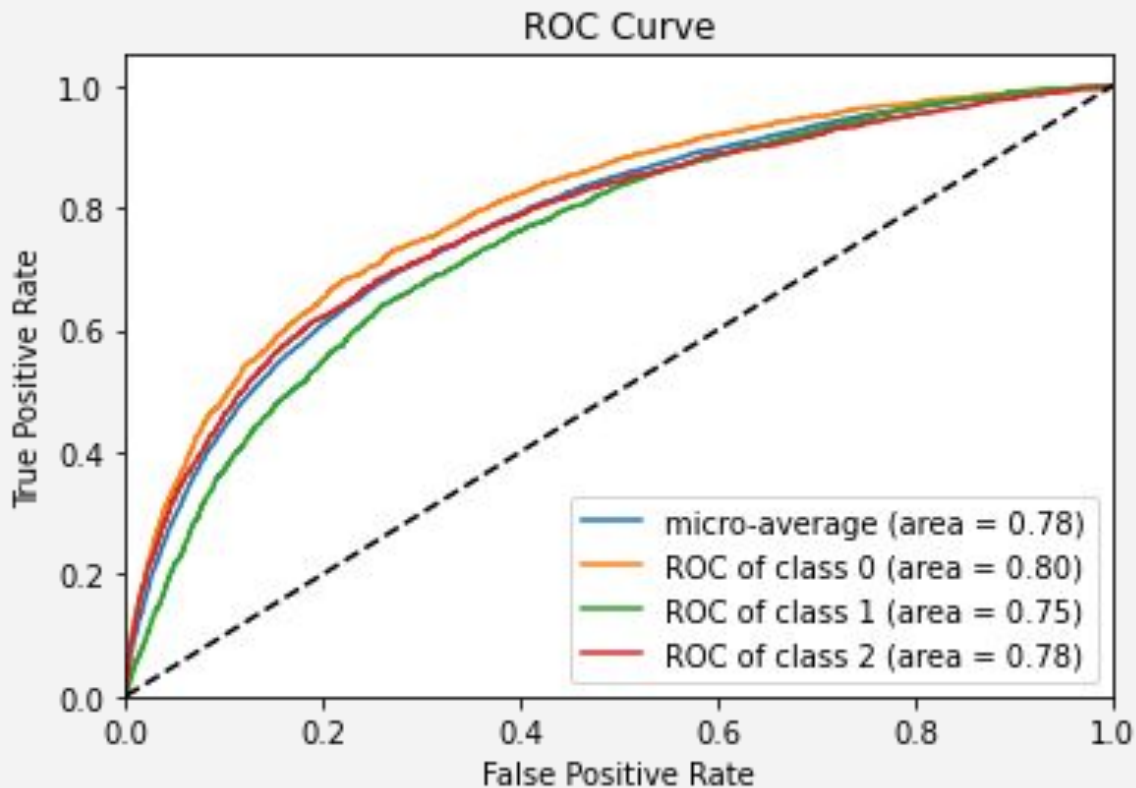


**0 .** Unsuccessful: 65%

**1 .** Successful: 56%

**2 .** Very Successful: 62%

# RESULTS: OVERALL PERFORMANCE



0 = Unsuccessful, 1 = Successful, 2 = Very Successful



# RECOMMENDATIONS

1.

## **DIRECTIONAL INDICATOR**

All songs falling outside the 'unsuccessful' category have potential

2.

## **REDUCE WORKLOAD**

Lighten workload by ignoring songs classed as 'unsuccessful'

3.

## **GENRE DRIVEN**

For more specific feature recommendations, build out genre-specific models

# FUTURE WORK

**1 .**

Focus on genre-specific  
models

**2 .**

Adjust classes to a binary  
format of Unsuccessful/  
Successful only

# THANK YOU!

Questions?  
Reach out!



[Say hello!](#)

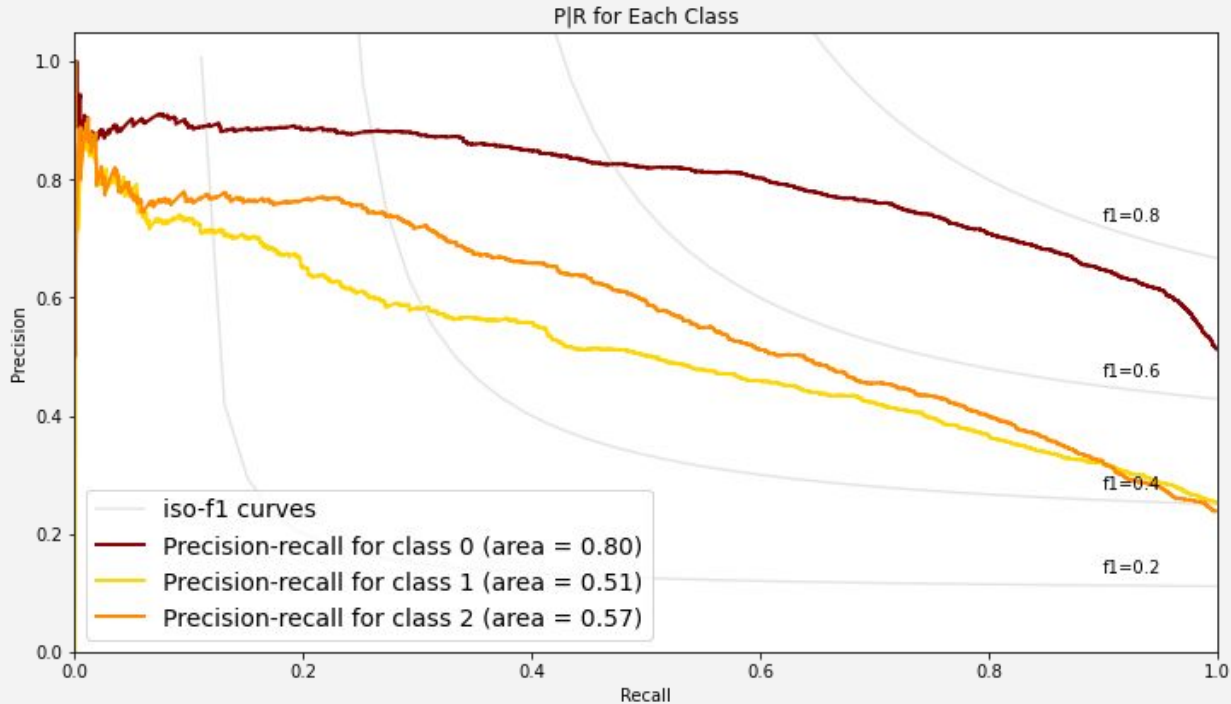


[Let's connect!](#)

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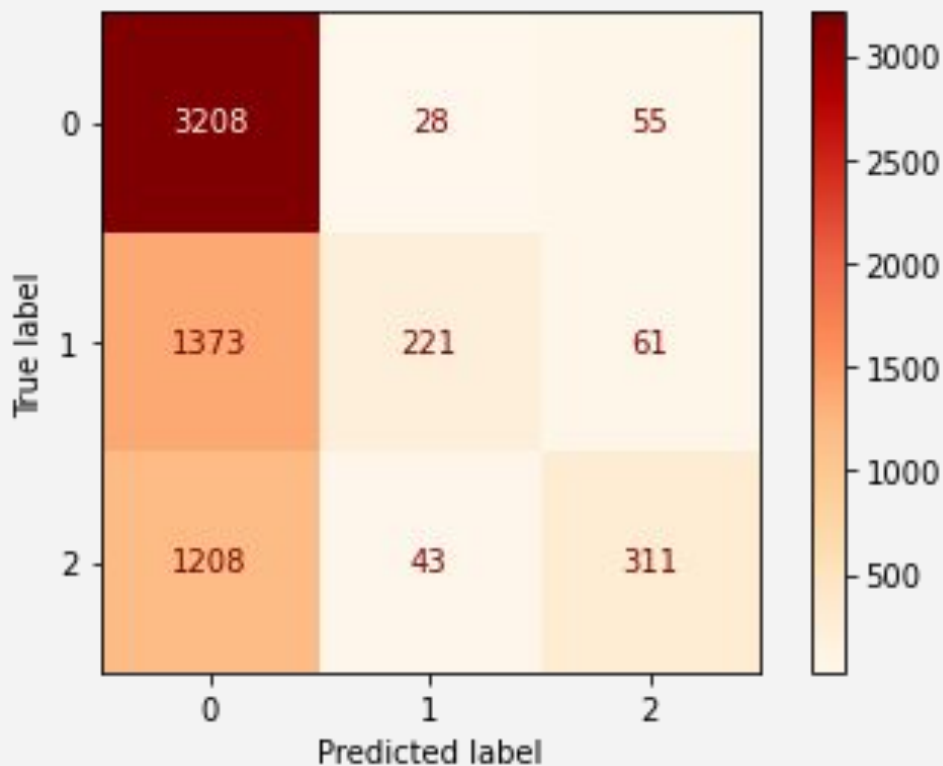
# APPENDIX: P|R CURVE



## APPENDIX: EVALUATION METRICS

|              | precision | recall | f1-score | support |
|--------------|-----------|--------|----------|---------|
| 0            | 0.613     | 0.654  | 0.633    | 3370    |
| 1            | 0.592     | 0.559  | 0.575    | 3350    |
| 2            | 0.626     | 0.619  | 0.622    | 3295    |
| accuracy     |           |        | 0.611    | 10015   |
| macro avg    | 0.610     | 0.611  | 0.610    | 10015   |
| weighted avg | 0.610     | 0.611  | 0.610    | 10015   |

# APPENDIX: CONFUSION MATRIX



Pre-SMOTE

0 = Unsuccessful, 1 = Successful, 2 = Very Successful

## APPENDIX: EVALUATION METRICS

|              | precision | recall | f1-score | support |
|--------------|-----------|--------|----------|---------|
| 0            | 0.657     | 0.868  | 0.748    | 3291    |
| 1            | 0.587     | 0.368  | 0.452    | 1655    |
| 2            | 0.604     | 0.435  | 0.506    | 1562    |
| accuracy     |           |        | 0.637    | 6508    |
| macro avg    | 0.616     | 0.557  | 0.569    | 6508    |
| weighted avg | 0.627     | 0.637  | 0.615    | 6508    |