

TF-IDF

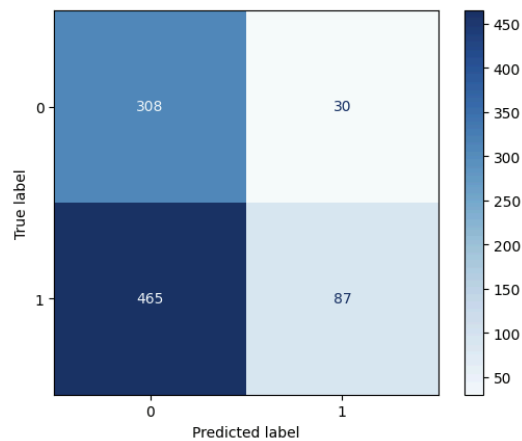
Naive Bayes:

(Q+C):

Best Parameters:

```
{'alpha': 0.01}
```

Confusion Matrix:



Classification Report:

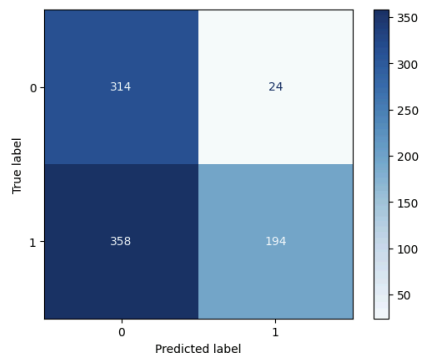
| | precision | recall | f1-score | support |
|--------------|-----------|--------|----------|---------|
| 0 | 0.40 | 0.91 | 0.55 | 338 |
| 1 | 0.74 | 0.16 | 0.26 | 552 |
| accuracy | | | 0.44 | 890 |
| macro avg | 0.57 | 0.53 | 0.41 | 890 |
| weighted avg | 0.61 | 0.44 | 0.37 | 890 |

(LA):

Best Parameters:

```
{'alpha': 100}
```

Confusion Matrix:



Classification Report:

| | precision | recall | f1-score | support |
|--------------|-----------|--------|----------|---------|
| 0 | 0.47 | 0.93 | 0.62 | 338 |
| 1 | 0.89 | 0.35 | 0.50 | 552 |
| accuracy | | | 0.57 | 890 |
| macro avg | 0.68 | 0.64 | 0.56 | 890 |
| weighted avg | 0.73 | 0.57 | 0.55 | 890 |

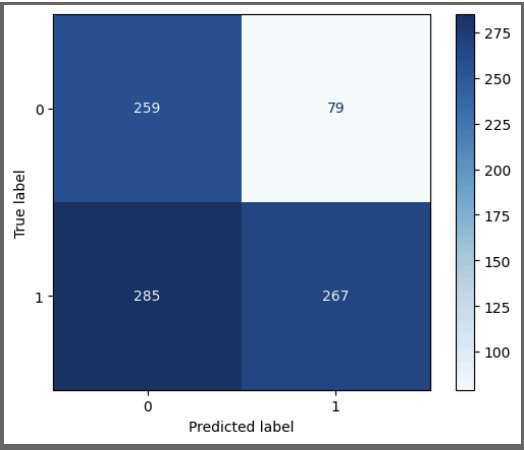
Logistic Regression

(Q+C):

Best Parameters:

```
{'C': 1, 'penalty': 'l1', 'solver': 'liblinear'}
```

Confusion Matrix:



Classification Report:

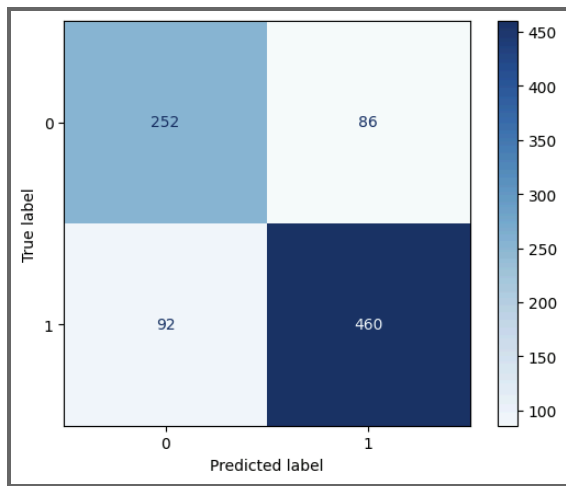
| | precision | recall | f1-score | support |
|--------------|-----------|--------|----------|---------|
| 0 | 0.48 | 0.77 | 0.59 | 338 |
| 1 | 0.77 | 0.48 | 0.59 | 552 |
| accuracy | 0.59 | | | 890 |
| macro avg | 0.62 | 0.62 | 0.59 | 890 |
| weighted avg | 0.66 | 0.59 | 0.59 | 890 |

(LA):

Best Parameters:

```
{'C': 1, 'penalty': 'l1', 'solver': 'liblinear'}
```

Confusion Matrix:



Classification Report:

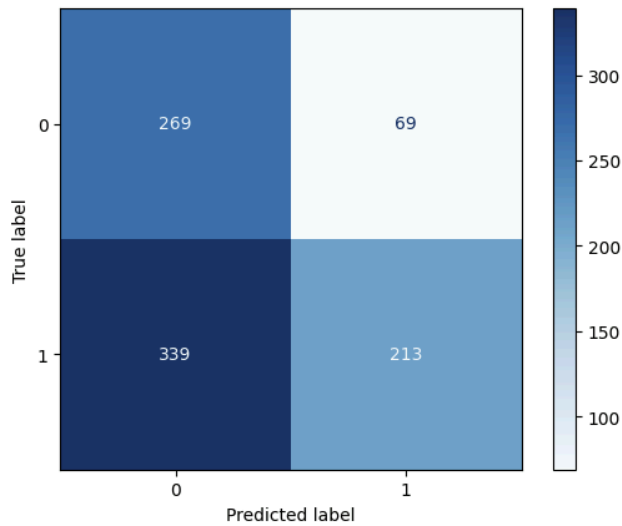
| | precision | recall | f1-score | support |
|--------------|-----------|--------|----------|---------|
| 0 | 0.73 | 0.75 | 0.74 | 338 |
| 1 | 0.84 | 0.83 | 0.84 | 552 |
| accuracy | | | 0.80 | 890 |
| macro avg | 0.79 | 0.79 | 0.79 | 890 |
| weighted avg | 0.80 | 0.80 | 0.80 | 890 |

SVM (Q+C):

Best Parameters:

```
{'C': 1, 'kernel': 'rbf'}
```

Confusion Matrix:



Classification Report:

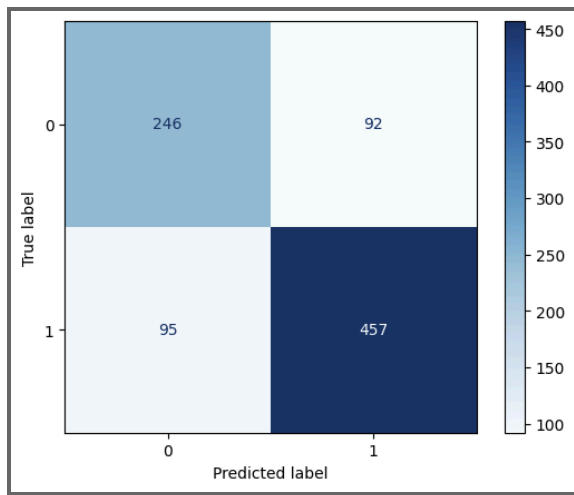
| | precision | recall | f1-score | support |
|--------------|-----------|--------|----------|---------|
| 0 | 0.44 | 0.80 | 0.57 | 338 |
| 1 | 0.76 | 0.39 | 0.51 | 552 |
| accuracy | | | 0.54 | 890 |
| macro avg | 0.60 | 0.59 | 0.54 | 890 |
| weighted avg | 0.64 | 0.54 | 0.53 | 890 |

(LA):

Best Parameters:

```
{'C': 1, 'kernel': 'rbf'}
```

Confusion Matrix:



Classification Report:

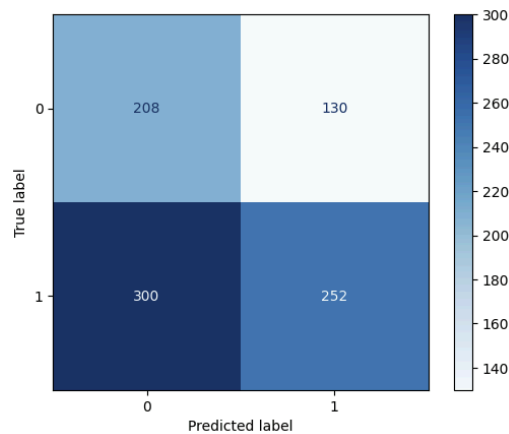
| | precision | recall | f1-score | support |
|--------------|-----------|--------|----------|---------|
| 0 | 0.72 | 0.73 | 0.72 | 338 |
| 1 | 0.83 | 0.83 | 0.83 | 552 |
| accuracy | | | 0.79 | 890 |
| macro avg | 0.78 | 0.78 | 0.78 | 890 |
| weighted avg | 0.79 | 0.79 | 0.79 | 890 |

Decision Tree (Q+C):

Best Parameters:

```
{'criterion': 'entropy', 'max_features': None}
```

Confusion Matrix:



Classification Report:

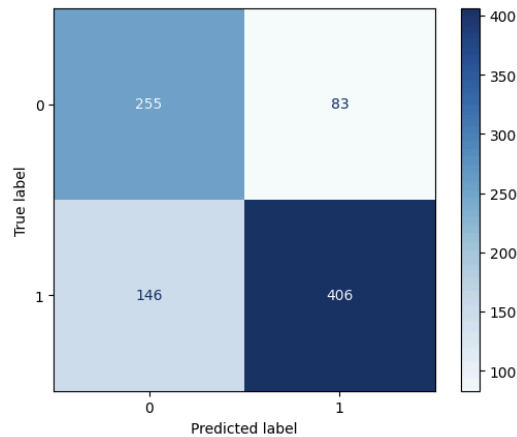
| | precision | recall | f1-score | support |
|--------------|-----------|--------|----------|---------|
| 0 | 0.41 | 0.62 | 0.49 | 338 |
| 1 | 0.66 | 0.46 | 0.54 | 552 |
| accuracy | | | 0.52 | 890 |
| macro avg | 0.53 | 0.54 | 0.52 | 890 |
| weighted avg | 0.56 | 0.52 | 0.52 | 890 |

(LA):

Best Parameters:

```
{'criterion': 'entropy', 'max_features': None}
```

Confusion Matrix:



Classification Report:

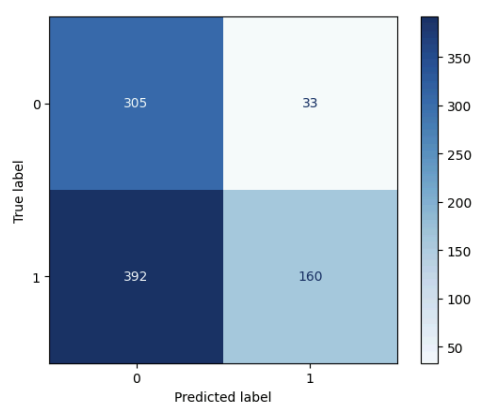
| | precision | recall | f1-score | support |
|--------------|-----------|--------|----------|---------|
| 0 | 0.64 | 0.75 | 0.69 | 338 |
| 1 | 0.83 | 0.74 | 0.78 | 552 |
| accuracy | | | 0.74 | 890 |
| macro avg | 0.73 | 0.74 | 0.74 | 890 |
| weighted avg | 0.76 | 0.74 | 0.75 | 890 |

Random Forest (Q+C):

Best Parameters:

```
{'criterion': 'entropy'}
```

Confusion Matrix:



Classification Report:

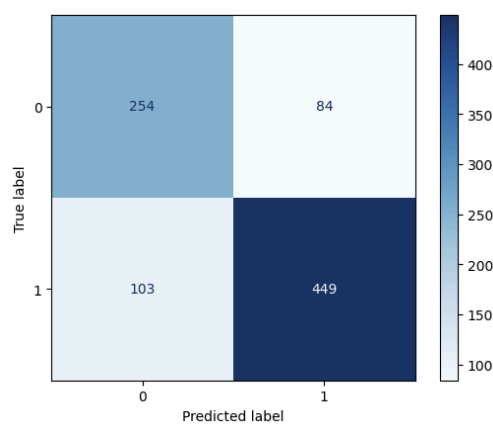
| | precision | recall | f1-score | support |
|--------------|-----------|--------|----------|---------|
| 0 | 0.44 | 0.90 | 0.59 | 338 |
| 1 | 0.83 | 0.29 | 0.43 | 552 |
| accuracy | 0.52 | | | 890 |
| macro avg | 0.63 | 0.60 | 0.51 | 890 |
| weighted avg | 0.68 | 0.52 | 0.49 | 890 |

(LA):

Best Parameters:

```
{'criterion': 'entropy'}
```

Confusion Matrix:



Classification Report:

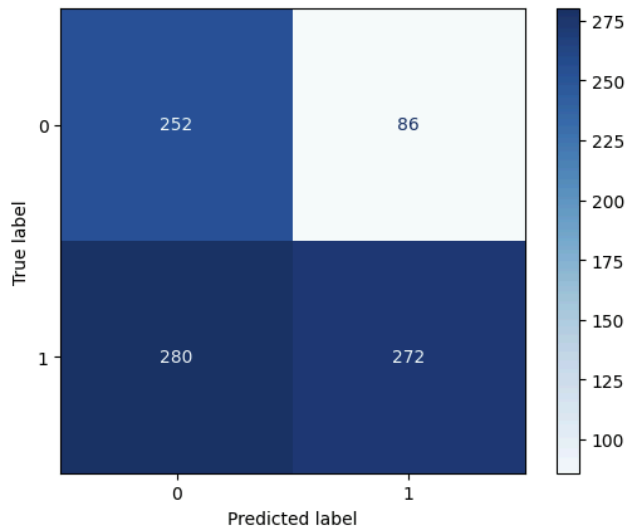
| | precision | recall | f1-score | support |
|--------------|-----------|--------|----------|---------|
| 0 | 0.71 | 0.75 | 0.73 | 338 |
| 1 | 0.84 | 0.81 | 0.83 | 552 |
| accuracy | | | 0.79 | 890 |
| macro avg | 0.78 | 0.78 | 0.78 | 890 |
| weighted avg | 0.79 | 0.79 | 0.79 | 890 |

XGBoost (Q+C):

Best Parameters:

```
{'criterion': 'friedman_mse', 'n_estimators': 200}
```

Confusion Matrix:



Classification Report:

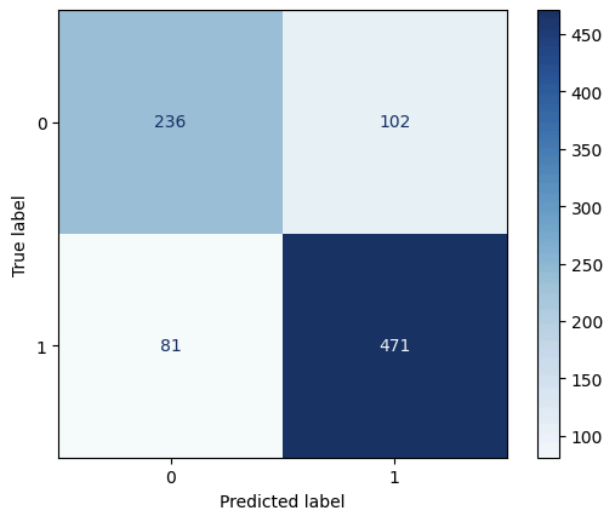
| | precision | recall | f1-score | support |
|--------------|-----------|--------|----------|---------|
| 0 | 0.47 | 0.75 | 0.58 | 338 |
| 1 | 0.76 | 0.49 | 0.60 | 552 |
| accuracy | | | 0.59 | 890 |
| macro avg | 0.62 | 0.62 | 0.59 | 890 |
| weighted avg | 0.65 | 0.59 | 0.59 | 890 |

(LA):

Best Parameters:

```
{'criterion': 'friedman_mse', 'n_estimators': 200}
```

Confusion Matrix:



Classification Report:

| | precision | recall | f1-score | support |
|--------------|-----------|--------|----------|---------|
| 0 | 0.74 | 0.70 | 0.72 | 338 |
| 1 | 0.82 | 0.85 | 0.84 | 552 |
| accuracy | 0.79 | | | 890 |
| macro avg | 0.78 | 0.78 | 0.78 | 890 |
| weighted avg | 0.79 | 0.79 | 0.79 | 890 |