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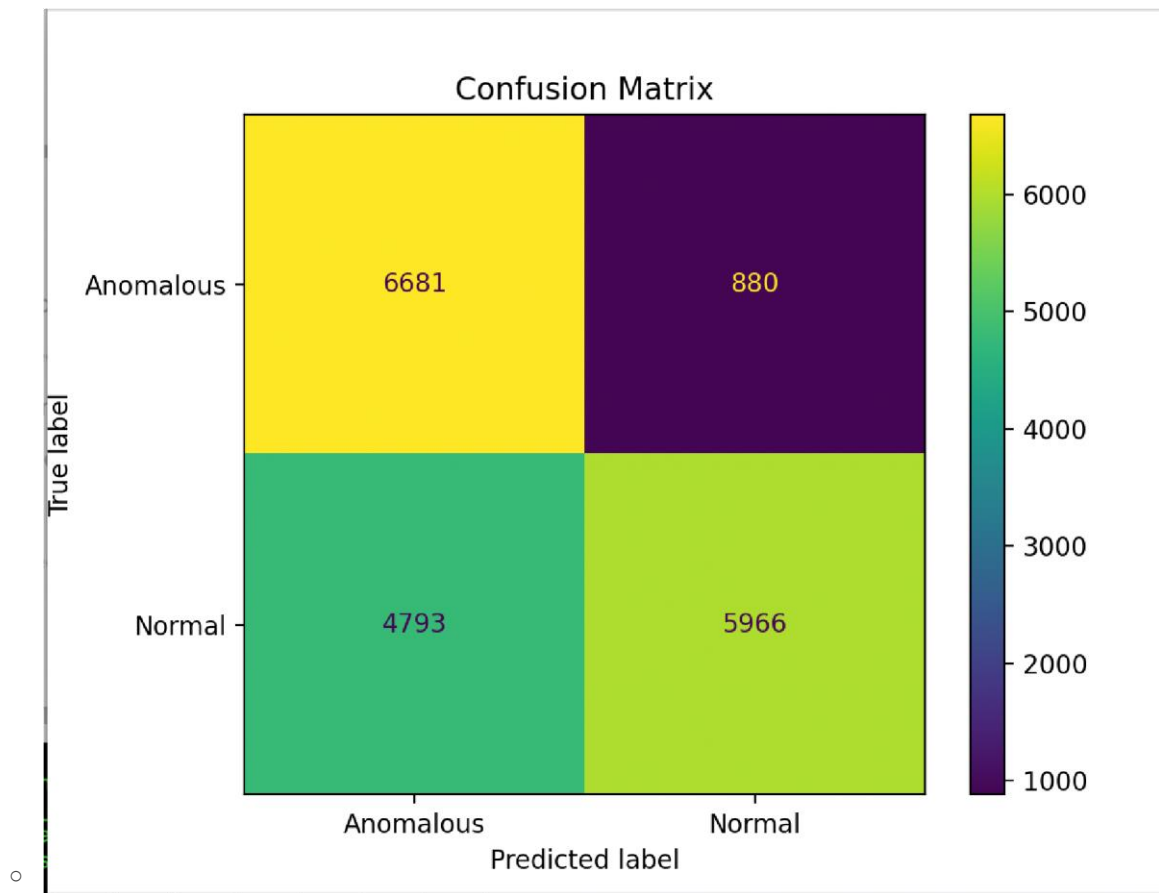
1. Performance Metrics

The following metrics were evaluated across three models: Random Forest, Logistic Regression, and Gradient Boost. Key metrics include accuracy, precision, recall, and F1-score.

Model	Accuracy	Precision (Macro Avg)	Recall (Macro Avg)	F1-Score (Macro Avg)
Random Forest	69%	0.73	0.72	0.69
Logistic Regression	65%	0.64	0.64	0.64
Gradient Boost	68%	0.72	0.71	0.68
Decision Tree	69%	0.73	0.72	0.69
Naive Bayes	59.80%	0.80	0.51	0.05

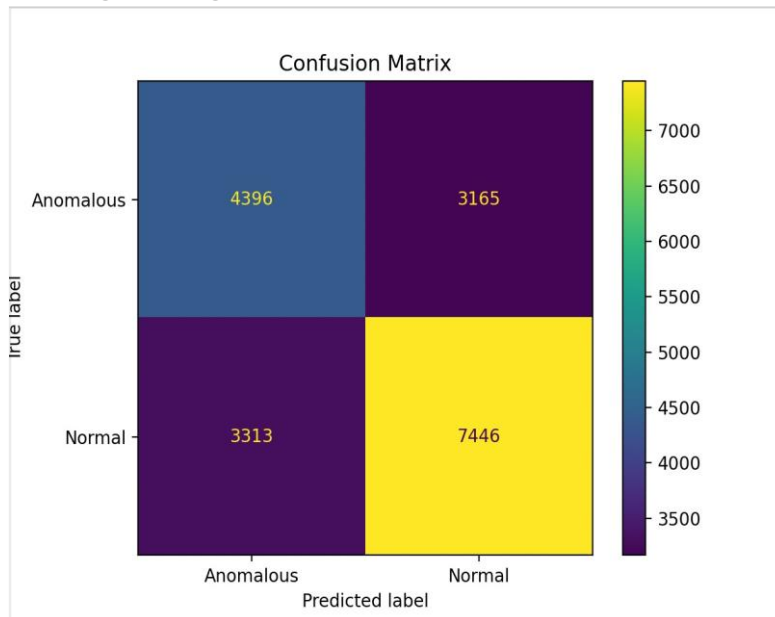
2. Confusion Matrix Analysis

- Random Forest



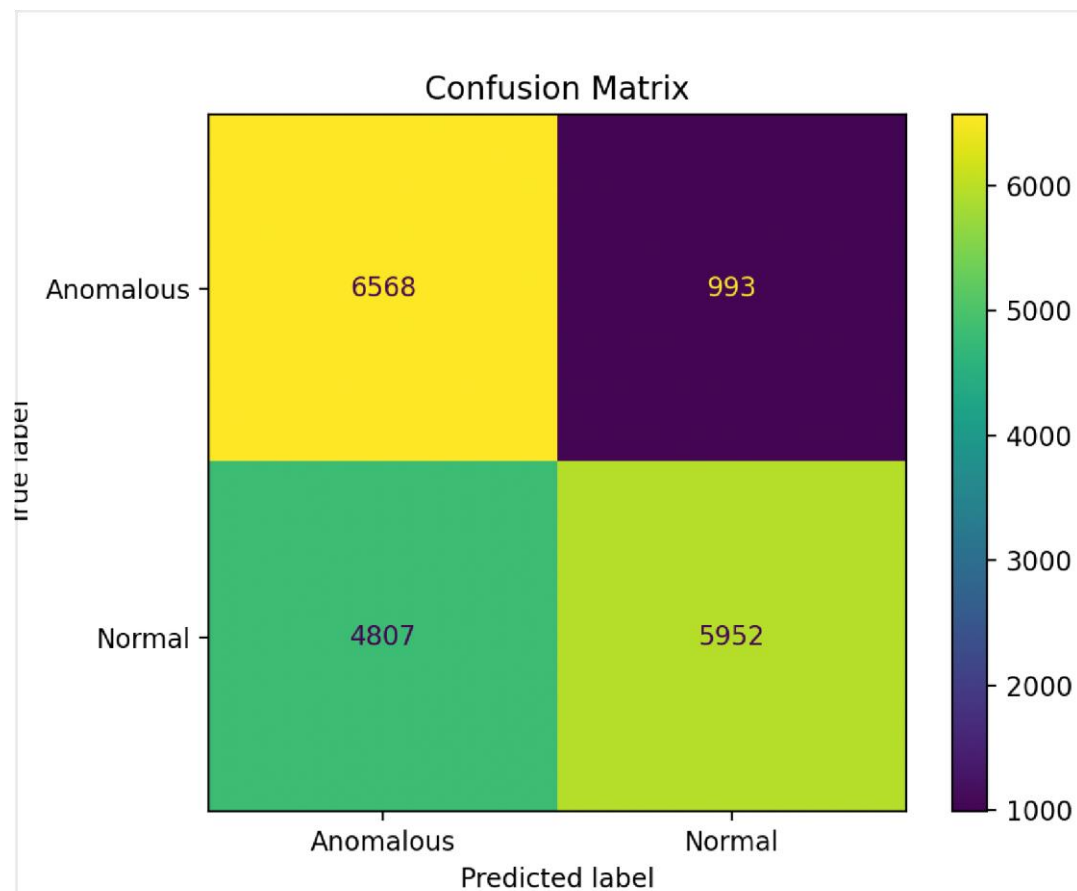
- True Positive (Normal): 5966
- False Negative (Normal as Anomalous): 4793
- True Negative (Anomalous): 6681
- False Positive (Anomalous as Normal): 880

- Logistic Regression



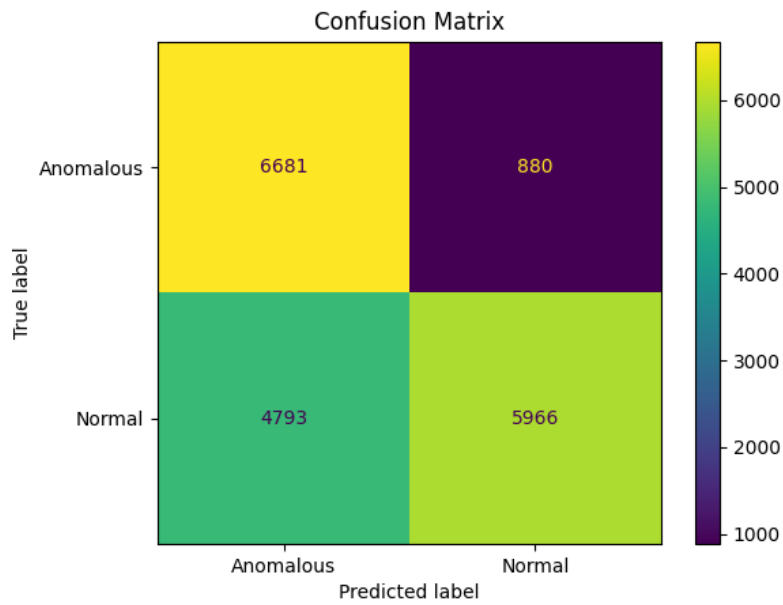
- Achieved lower precision and recall compared to the other models.
- True Positive (Normal): 7446
- False Negative (Normal as Anomalous): 3313
- True Negative (Anomalous): 4396
- False Positive (Anomalous as Normal): 3165

- Gradient Boost



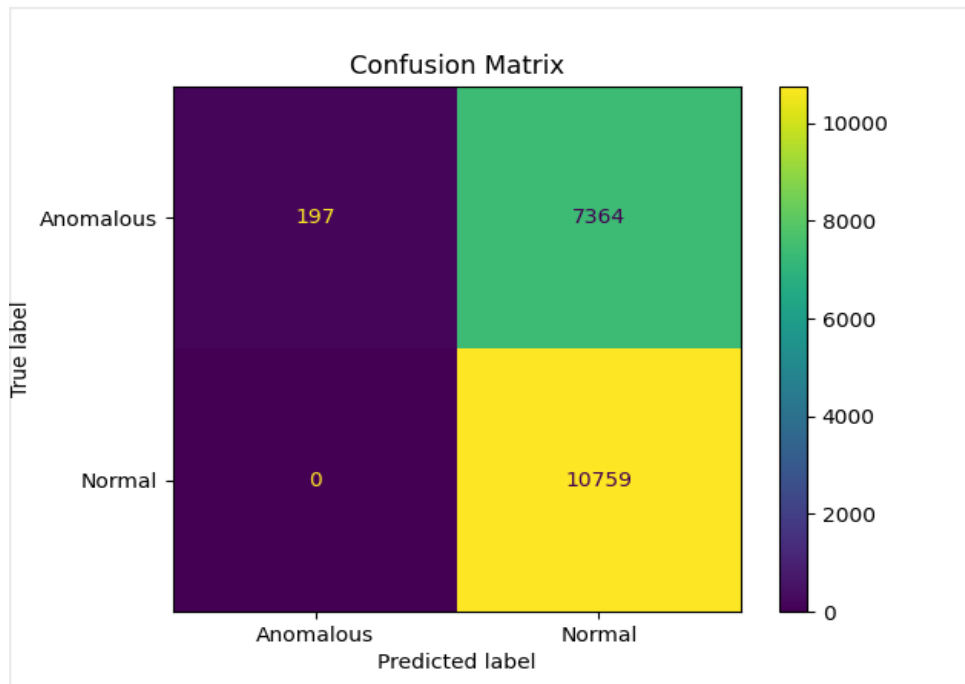
- True Positive (Normal): 5952
- False Negative: 4807

- Decision Tree



- True Positive (Normal): 5966
- False Negative (Normal as Anomalous): 4793
- True Negative (Anomalous): 6681
- False Positive (Anomalous as Normal): 880

- Naive Bayes



- True Positive (Normal): 10759
- False Negative (Normal as Anomalous): 0
- True Negative (Anomalous): 197
- False Positive (Anomalous as Normal): 7364

3. Comparison of Models

- Best Performing Models: Random Forest and Logistic Regression Both models achieved an accuracy of 69% and had balanced macroaveraged precision and recall scores.
 - Random Forest: Performed better at identifying "Anomalous" samples, evidenced by its recall score.
 - Logistic Regression: Balanced overall, with slightly better precision on normal samples.
- Gradient Boost:

Gradient Boost underperformed with an accuracy of 65%, showing lower recall and precision values.

4. Feature Importance

Random Forest Top Features:

1. has_imagenes - 0.2483
2. Method - 0.1434
3. has_miembros - 0.0780
4. has_index_jsp - 0.0590
5. has_B1 - 0.0590

Gradient Boost Top Features:

1. has_imagenes - 0.3614
2. has_index_jsp - 0.0916
3. Method - 0.0863

Decision Tree Top Features:

1. has_imagenes - 0.3274
2. has_index_jsp - 0.0940
3. has_login - 0.0742
4. Method - 0.0594

5. Conclusion

The Random Forest and Decision Tree models demonstrated the best performance, achieving an accuracy of 69%. Both models provided balanced results in terms of precision and recall metrics. Logistic Regression and Gradient Boost models showed moderate performance with accuracies ranging from 65% to 68%, but with slightly lower precision and recall values. The Naive Bayes model achieved high precision (80%) but was limited by its low recall (51%) and F1-Score (0.05), indicating poor classification performance overall. In summary, the Random Forest and Decision Tree models were the most consistent in accurately classifying both normal and anomalous samples.