COMPARING TEST RESULTS WITH GROUND TRUTH LABELS

**NOTE: If our test data contains the ground truth timestamps and if our model correctly predicts the particular timestamp, we get TP values, else it remains 0 according to the logic.**

**REAL TRAFFIC**

Results for: realTraffic/TravelTime\_387.csv

TP: 0, FP: 13, FN: 0, TN: 404

Precision: 0.0

Recall: 0.0

F1 Score: 0.0

Results for: realTraffic/TravelTime\_451.csv

TP: 0, FP: 4, FN: 0, TN: 346

Precision: 0.0

Recall: 0.0

F1 Score: 0.0

Results for: realTraffic/speed\_t4013.csv

TP: 2, FP: 37, FN: 0, TN: 412

Precision: 0.0513

Recall: 1.0

F1 Score: 0.0976

Results for: realTraffic/speed\_7578.csv

TP: 1, FP: 14, FN: 0, TN: 163

Precision: 0.0667

Recall: 1.0

F1 Score: 0.125

Results for: realTraffic/speed\_6005.csv

TP: 1, FP: 4, FN: 0, TN: 447

Precision: 0.2

Recall: 1.0

F1 Score: 0.3333

Results for: realTraffic/occupancy\_t4013.csv

TP: 2, FP: 10, FN: 0, TN: 440

Precision: 0.1667

Recall: 1.0

F1 Score: 0.2857

Results for: realTraffic/occupancy\_6005.csv

TP: 0, FP: 9, FN: 0, TN: 419

Precision: 0.0

Recall: 0.0

F1 Score: 0.0

**REAL TWEETS**

Results for: realTweets/Twitter\_volume\_AAPL.csv

TP: 0, FP: 118, FN: 0, TN: 2967

Precision: 0.0

Recall: 0.0

F1 Score: 0.0

Results for: realTweets/Twitter\_volume\_AMZN.csv

TP: 0, FP: 7, FN: 0, TN: 3096

Precision: 0.0

Recall: 0.0

F1 Score: 0.0

Results for: realTweets/Twitter\_volume\_CRM.csv

TP: 0, FP: 31, FN: 0, TN: 3102

Precision: 0.0

Recall: 0.0

F1 Score: 0.0

Results for: realTweets/Twitter\_volume\_CVS.csv

TP: 1, FP: 205, FN: 0, TN: 2917

Precision: 0.0049

Recall: 1.0

F1 Score: 0.0097

Results for: realTweets/Twitter\_volume\_FB.csv

TP: 0, FP: 35, FN: 0, TN: 3068

Precision: 0.0

Recall: 0.0

F1 Score: 0.0

Results for: realTweets/Twitter\_volume\_GOOG.csv

TP: 0, FP: 92, FN: 0, TN: 3013

Precision: 0.0

Recall: 0.0

F1 Score: 0.0

Results for: realTweets/Twitter\_volume\_IBM.csv

TP: 1, FP: 150, FN: 0, TN: 2980

Precision: 0.0066

Recall: 1.0

F1 Score: 0.0132

Results for: realTweets/Twitter\_volume\_KO.csv

TP: 1, FP: 54, FN: 0, TN: 3052

Precision: 0.0182

Recall: 1.0

F1 Score: 0.0357

Results for: realTweets/Twitter\_volume\_PFE.csv

TP: 0, FP: 173, FN: 0, TN: 2951

Precision: 0.0

Recall: 0.0

F1 Score: 0.0

Results for: realTweets/Twitter\_volume\_UPS.csv

TP: 0, FP: 60, FN: 0, TN: 3050

Precision: 0.0

Recall: 0.0

F1 Score: 0.0

**REAL AWS CLOUDWATCH**

**Results for: realAWSCloudwatch/ec2\_cpu\_utilization\_5f5533.csv**

**TP: 0, FP: 0, FN: 0, TN: 759**

**Precision: 0.0**

**Recall: 0.0**

**F1 Score: 0.0**

**Results for: realAWSCloudwatch/ec2\_cpu\_utilization\_53ea38.csv**

**TP: 0, FP: 4, FN: 0, TN: 755**

**Precision: 0.0**

**Recall: 0.0**

**F1 Score: 0.0**

**Results for: realAWSCloudwatch/ec2\_cpu\_utilization\_24ae8d.csv**

**TP: 2, FP: 6, FN: 0, TN: 751**

**Precision: 0.25**

**Recall: 1.0**

**F1 Score: 0.4**

**Results for: realAWSCloudwatch/ec2\_cpu\_utilization\_77c1ca.csv**

**TP: 0, FP: 70, FN: 0, TN: 673**

**Precision: 0.0**

**Recall: 0.0**

**F1 Score: 0.0**

**Results for: realAWSCloudwatch/ec2\_cpu\_utilization\_825cc2.csv**

**TP: 0, FP: 36, FN: 0, TN: 707**

**Precision: 0.0**

**Recall: 0.0**

**F1 Score: 0.0**

**Results for: realAWSCloudwatch/ec2\_cpu\_utilization\_ac20cd.csv**

**TP: 1, FP: 459, FN: 0, TN: 299**

**Precision: 0.0022**

**Recall: 1.0**

**F1 Score: 0.0043**

**Results for: realAWSCloudwatch/ec2\_cpu\_utilization\_c6585a.csv**

**TP: 0, FP: 7, FN: 0, TN: 752**

**Precision: 0.0**

**Recall: 0.0**

**F1 Score: 0.0**

**Results for: realAWSCloudwatch/ec2\_cpu\_utilization\_fe7f93.csv**

**TP: 0, FP: 53, FN: 0, TN: 690**

**Precision: 0.0**

**Recall: 0.0**

**F1 Score: 0.0**

**Results for: realAWSCloudwatch/ec2\_disk\_write\_bytes\_1ef3de.csv**

**TP: 0, FP: 17, FN: 0, TN: 833**

**Precision: 0.0**

**Recall: 0.0**

**F1 Score: 0.0**

**Results for: realAWSCloudwatch/ec2\_disk\_write\_bytes\_c0d644.csv**

**TP: 0, FP: 49, FN: 0, TN: 662**

**Precision: 0.0**

**Recall: 0.0**

**F1 Score: 0.0**

**Results for: realAWSCloudwatch/ec2\_network\_in\_5abac7.csv**

**TP: 0, FP: 10, FN: 0, TN: 840**

**Precision: 0.0**

**Recall: 0.0**

**F1 Score: 0.0**

**Results for: realAWSCloudwatch/ec2\_network\_in\_257a54.csv**

**TP: 0, FP: 0, FN: 0, TN: 711**

**Precision: 0.0**

**Recall: 0.0**

**F1 Score: 0.0**

**Results for: realAWSCloudwatch/elb\_request\_count\_8c0756.csv**

**TP: 1, FP: 40, FN: 0, TN: 702**

**Precision: 0.0244**

**Recall: 1.0**

**F1 Score: 0.0476**

**Results for: realAWSCloudwatch/grok\_asg\_anomaly.csv**

**TP: 1, FP: 867, FN: 0, TN: 9**

**Precision: 0.0012**

**Recall: 1.0**

**F1 Score: 0.0023**

**Results for: realAWSCloudwatch/iio\_us-east-1\_i-a2eb1cd9\_NetworkIn.csv**

**TP: 0, FP: 0, FN: 0, TN: 153**

**Precision: 0.0**

**Recall: 0.0**

**F1 Score: 0.0**

**Results for: realAWSCloudwatch/rds\_cpu\_utilization\_cc0c53.csv**

**TP: 0, FP: 0, FN: 1, TN: 758**

**Precision: 0.0**

**Recall: 0.0**

**F1 Score: 0.0**

**Results for: realAWSCloudwatch/rds\_cpu\_utilization\_e47b3b.csv**

**TP: 0, FP: 0, FN: 0, TN: 759**

**Precision: 0.0**

**Recall: 0.0**

**F1 Score: 0.0**

**REAL AD EXCHANGE**

**Results for: realAdExchange/exchange-2\_cpc\_results.csv**

**TP: 0, FP: 0, FN: 0, TN: 309**

**Precision: 0.0**

**Recall: 0.0**

**F1 Score: 0.0**

**Results for: realAdExchange/exchange-2\_cpm\_results.csv**

**TP: 0, FP: 0, FN: 0, TN: 309**

**Precision: 0.0**

**Recall: 0.0**

**F1 Score: 0.0**

**Results for: realAdExchange/exchange-3\_cpc\_results.csv**

**TP: 0, FP: 30, FN: 0, TN: 262**

**Precision: 0.0**

**Recall: 0.0**

**F1 Score: 0.0**

**Results for: realAdExchange/exchange-3\_cpm\_results.csv**

**TP: 0, FP: 35, FN: 0, TN: 257**

**Precision: 0.0**

**Recall: 0.0**

**F1 Score: 0.0**

**Results for: realAdExchange/exchange-4\_cpc\_results.csv**

**TP: 0, FP: 11, FN: 0, TN: 302**

**Precision: 0.0**

**Recall: 0.0**

**F1 Score: 0.0**

**Results for: realAdExchange/exchange-4\_cpm\_results.csv**

**TP: 1, FP: 9, FN: 0, TN: 303**

**Precision: 0.1**

**Recall: 1.0**

**F1 Score: 0.1818**

**ARTIFICIAL NO ANOMALY**

**Results for: artificialNoAnomaly/art\_daily\_no\_noise.csv**

**TP: 0, FP: 3, FN: 0, TN: 740**

**Precision: 0.0**

**Recall: 0.0**

**F1 Score: 0.0**

**Results for: artificialNoAnomaly/art\_daily\_perfect\_square\_wave.csv**

**TP: 0, FP: 6, FN: 0, TN: 737**

**Precision: 0.0**

**Recall: 0.0**

**F1 Score: 0.0**

**Results for: artificialNoAnomaly/art\_daily\_small\_noise.csv**

**TP: 0, FP: 3, FN: 0, TN: 740**

**Precision: 0.0**

**Recall: 0.0**

**F1 Score: 0.0**

**Results for: artificialNoAnomaly/art\_flatline.csv**

**TP: 0, FP: 0, FN: 0, TN: 759**

**Precision: 0.0**

**Recall: 0.0**

**F1 Score: 0.0**

**Results for: artificialNoAnomaly/art\_noisy.csv**

**TP: 0, FP: 0, FN: 0, TN: 759**

**Precision: 0.0**

**Recall: 0.0**

**F1 Score: 0.0**

**ARTIFICIAL WITH ANOMALY**

**Results for: artificialWithAnomaly/art\_daily\_flatmiddle.csv**

**TP: 0, FP: 0, FN: 0, TN: 743**

**Precision: 0.0**

**Recall: 0.0**

**F1 Score: 0.0**

**Results for: artificialWithAnomaly/art\_daily\_jumpsdown.csv**

**TP: 0, FP: 1, FN: 0, TN: 742**

**Precision: 0.0**

**Recall: 0.0**

**F1 Score: 0.0**

**Results for: artificialWithAnomaly/art\_daily\_jumpsup.csv**

**TP: 0, FP: 0, FN: 0, TN: 743**

**Precision: 0.0**

**Recall: 0.0**

**F1 Score: 0.0**

**Results for: artificialWithAnomaly/art\_daily\_nojump.csv**

**TP: 0, FP: 2, FN: 0, TN: 741**

**Precision: 0.0**

**Recall: 0.0**

**F1 Score: 0.0**

**Results for: artificialWithAnomaly/art\_increase\_spike\_density.csv**

**TP: 0, FP: 16, FN: 0, TN: 743**

**Precision: 0.0**

**Recall: 0.0**

**F1 Score: 0.0**

**Results for: artificialWithAnomaly/art\_load\_balancer\_spikes.csv**

**TP: 0, FP: 0, FN: 0, TN: 759**

**Precision: 0.0**

**Recall: 0.0**

**F1 Score: 0.0**

**AVERAGE RESULTS**

* **Average Precision: 0.0178**
* **Average Recall: 0.2400**
* **Average F1 Score: 0.0307**

**These metrics suggest that while the model is moderately capable of identifying actual anomalies when they occur (recall), it struggles with precision, often flagging normal points as anomalous.**