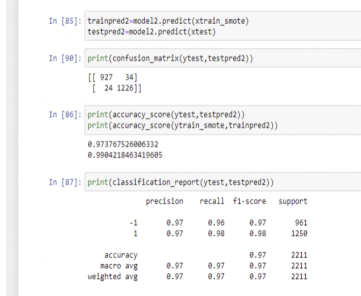
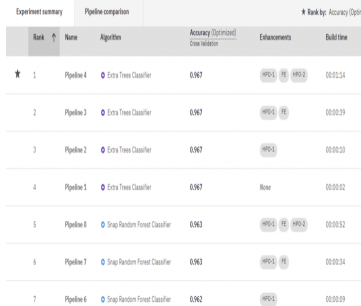


## Project Development Phase Model Performance Test

|               |                                  |
|---------------|----------------------------------|
| Date          | 13 November 2022                 |
| Team ID       | PNT2022TMID49434                 |
| Project Name  | Project - Web Phishing Detection |
| Maximum Marks | 10 Marks                         |

### Model Performance Testing:

Project team shall fill the following information in model performance testing template.

| S.No.              | Parameter      | Values   | Screenshot.  |                             |              |                     |  |                             |  |      |   |      |           |                      |              |            |   |   |            |                        |       |         |          |  |   |            |                        |       |         |          |  |   |            |                        |       |     |          |  |   |            |                        |       |      |          |  |   |            |                               |       |         |          |  |   |            |                               |       |         |          |  |   |            |                               |       |     |          |
|--------------------|----------------|--|--|-----------------------------|--------------|---------------------|--|-----------------------------|--|------|---|------|-----------|----------------------|--------------|------------|---|---|------------|------------------------|-------|---------|----------|--|---|------------|------------------------|-------|---------|----------|--|---|------------|------------------------|-------|-----|----------|--|---|------------|------------------------|-------|------|----------|--|---|------------|-------------------------------|-------|---------|----------|--|---|------------|-------------------------------|-------|---------|----------|--|---|------------|-------------------------------|-------|-----|----------|
| 1.                 | Metrics        | <b>Classification Model:</b><br>Confusion Matrix - , Accuracy Score- & Classification Report - |  <pre>In [85]: trainpred2=model2.predict(train_snote)          testpred2=model2.predict(test)  In [90]: print(confusion_matrix(ytest,testpred2))  [[ 927  34]  [  24 1226]]  In [86]: print(accuracy_score(ytest,testpred2))          print(accuracy_score(ytrain_snote,trainpred2))  0.973767526806332 0.9984218463419685  In [87]: print(classification_report(ytest,testpred2))                precision    recall  f1-score   support       -1       0.97       0.96       0.97       961       1       0.97       0.98       0.98      1250   accuracy macro avg  0.97       0.97       0.97      2211 weighted avg 0.97       0.97       0.97      2211</pre>  |                             |              |                     |  |                             |  |      |   |      |           |                      |              |            |   |   |            |                        |       |         |          |  |   |            |                        |       |         |          |  |   |            |                        |       |     |          |  |   |            |                        |       |      |          |  |   |            |                               |       |         |          |  |   |            |                               |       |         |          |  |   |            |                               |       |     |          |
| 2.                 | Tune the Model | Hyperparameter Tuning -<br>Validation Method -   |  <table><tr><th colspan="2">Experiment summary</th><th>Pipeline comparison</th><th></th><th colspan="2">* Rank by: Accuracy   Optim</th></tr><tr><th>Rank</th><th>↑</th><th>Name</th><th>Algorithm</th><th>Accuracy (Optimized)</th><th>Enhancements</th><th>Build time</th></tr><tr><td>★</td><td>1</td><td>Pipeline 4</td><td>Extra Trees Classifier</td><td>0.967</td><td>HP5 HP2</td><td>00:01:14</td></tr><tr><td></td><td>2</td><td>Pipeline 3</td><td>Extra Trees Classifier</td><td>0.967</td><td>HP5 HP1</td><td>00:00:39</td></tr><tr><td></td><td>3</td><td>Pipeline 2</td><td>Extra Trees Classifier</td><td>0.967</td><td>HP5</td><td>00:00:03</td></tr><tr><td></td><td>4</td><td>Pipeline 1</td><td>Extra Trees Classifier</td><td>0.967</td><td>None</td><td>00:00:02</td></tr><tr><td></td><td>5</td><td>Pipeline 8</td><td>Drop Random Forest Classifier</td><td>0.963</td><td>HP5 HP3</td><td>00:00:52</td></tr><tr><td></td><td>6</td><td>Pipeline 7</td><td>Drop Random Forest Classifier</td><td>0.963</td><td>HP5 HP1</td><td>00:00:34</td></tr><tr><td></td><td>7</td><td>Pipeline 6</td><td>Drop Random Forest Classifier</td><td>0.962</td><td>HP5</td><td>00:00:09</td></tr></table> | Experiment summary          |              | Pipeline comparison |  | * Rank by: Accuracy   Optim |  | Rank | ↑ | Name | Algorithm | Accuracy (Optimized) | Enhancements | Build time | ★ | 1 | Pipeline 4 | Extra Trees Classifier | 0.967 | HP5 HP2 | 00:01:14 |  | 2 | Pipeline 3 | Extra Trees Classifier | 0.967 | HP5 HP1 | 00:00:39 |  | 3 | Pipeline 2 | Extra Trees Classifier | 0.967 | HP5 | 00:00:03 |  | 4 | Pipeline 1 | Extra Trees Classifier | 0.967 | None | 00:00:02 |  | 5 | Pipeline 8 | Drop Random Forest Classifier | 0.963 | HP5 HP3 | 00:00:52 |  | 6 | Pipeline 7 | Drop Random Forest Classifier | 0.963 | HP5 HP1 | 00:00:34 |  | 7 | Pipeline 6 | Drop Random Forest Classifier | 0.962 | HP5 | 00:00:09 |
| Experiment summary |                | Pipeline comparison  |  | * Rank by: Accuracy   Optim |              |                     |  |                             |  |      |   |      |           |                      |              |            |   |   |            |                        |       |         |          |  |   |            |                        |       |         |          |  |   |            |                        |       |     |          |  |   |            |                        |       |      |          |  |   |            |                               |       |         |          |  |   |            |                               |       |         |          |  |   |            |                               |       |     |          |
| Rank               | ↑              | Name   | Algorithm  | Accuracy (Optimized)        | Enhancements | Build time          |  |                             |  |      |   |      |           |                      |              |            |   |   |            |                        |       |         |          |  |   |            |                        |       |         |          |  |   |            |                        |       |     |          |  |   |            |                        |       |      |          |  |   |            |                               |       |         |          |  |   |            |                               |       |         |          |  |   |            |                               |       |     |          |
| ★                  | 1              | Pipeline 4   | Extra Trees Classifier   | 0.967                       | HP5 HP2      | 00:01:14            |  |                             |  |      |   |      |           |                      |              |            |   |   |            |                        |       |         |          |  |   |            |                        |       |         |          |  |   |            |                        |       |     |          |  |   |            |                        |       |      |          |  |   |            |                               |       |         |          |  |   |            |                               |       |         |          |  |   |            |                               |       |     |          |
|                    | 2              | Pipeline 3   | Extra Trees Classifier   | 0.967                       | HP5 HP1      | 00:00:39            |  |                             |  |      |   |      |           |                      |              |            |   |   |            |                        |       |         |          |  |   |            |                        |       |         |          |  |   |            |                        |       |     |          |  |   |            |                        |       |      |          |  |   |            |                               |       |         |          |  |   |            |                               |       |         |          |  |   |            |                               |       |     |          |
|                    | 3              | Pipeline 2   | Extra Trees Classifier   | 0.967                       | HP5          | 00:00:03            |  |                             |  |      |   |      |           |                      |              |            |   |   |            |                        |       |         |          |  |   |            |                        |       |         |          |  |   |            |                        |       |     |          |  |   |            |                        |       |      |          |  |   |            |                               |       |         |          |  |   |            |                               |       |         |          |  |   |            |                               |       |     |          |
|                    | 4              | Pipeline 1   | Extra Trees Classifier   | 0.967                       | None         | 00:00:02            |  |                             |  |      |   |      |           |                      |              |            |   |   |            |                        |       |         |          |  |   |            |                        |       |         |          |  |   |            |                        |       |     |          |  |   |            |                        |       |      |          |  |   |            |                               |       |         |          |  |   |            |                               |       |         |          |  |   |            |                               |       |     |          |
|                    | 5              | Pipeline 8   | Drop Random Forest Classifier  | 0.963                       | HP5 HP3      | 00:00:52            |  |                             |  |      |   |      |           |                      |              |            |   |   |            |                        |       |         |          |  |   |            |                        |       |         |          |  |   |            |                        |       |     |          |  |   |            |                        |       |      |          |  |   |            |                               |       |         |          |  |   |            |                               |       |         |          |  |   |            |                               |       |     |          |
|                    | 6              | Pipeline 7   | Drop Random Forest Classifier  | 0.963                       | HP5 HP1      | 00:00:34            |  |                             |  |      |   |      |           |                      |              |            |   |   |            |                        |       |         |          |  |   |            |                        |       |         |          |  |   |            |                        |       |     |          |  |   |            |                        |       |      |          |  |   |            |                               |       |         |          |  |   |            |                               |       |         |          |  |   |            |                               |       |     |          |
|                    | 7              | Pipeline 6   | Drop Random Forest Classifier  | 0.962                       | HP5          | 00:00:09            |  |                             |  |      |   |      |           |                      |              |            |   |   |            |                        |       |         |          |  |   |            |                        |       |         |          |  |   |            |                        |       |     |          |  |   |            |                        |       |      |          |  |   |            |                               |       |         |          |  |   |            |                               |       |         |          |  |   |            |                               |       |     |          |