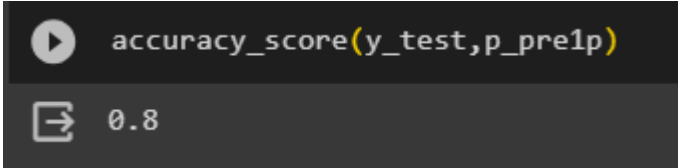
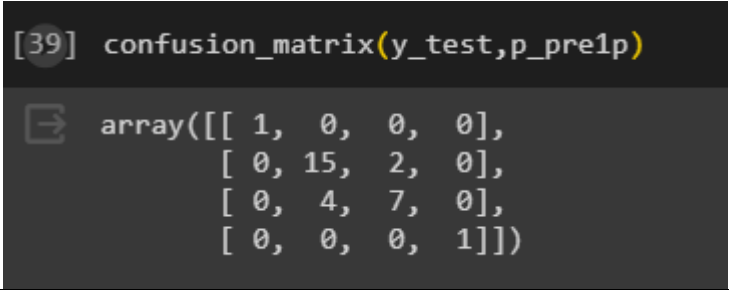


Project Development Phase Model Performance Test

| | |
|---------------|--------------------------------------|
| Date | 1 November 2023 |
| Team ID | 593213 |
| Project Name | Lymphography Classification using ML |
| Maximum Marks | 10 Marks |

Model Performance Testing:

| S.No. | Parameter | Values | Screenshot | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------|-----------|--|---|---------|-----------|--------|----------|---------|---|------|------|------|---|---|------|------|------|----|---|------|------|------|----|---|------|------|------|---|----------|--|--|------|----|-----------|------|------|------|----|--------------|------|------|------|----|--|-----------|--------|----------|---------|---|------|------|------|---|---|------|------|------|----|---|------|------|------|----|---|------|------|------|---|----------|--|--|------|-----|-----------|------|------|------|-----|--------------|------|------|------|-----|
| 1. | Metrics | <p>Regression Model: MAE - , MSE - , RMSE - , R2 score -</p> <p>Classification Model: Confusion Matrix - , Accuracy Score- & Classification Report -</p> | <p>Random Forest Classifier is used as the model</p> <p>Classification Report of test data</p> <pre>print("classification_report of test data") print(classification_report(y_true=y_test, y_pred=p_pre1p))</pre> <table><tr><th></th><th>precision</th><th>recall</th><th>f1-score</th><th>support</th></tr><tr><td>1</td><td>1.00</td><td>1.00</td><td>1.00</td><td>1</td></tr><tr><td>2</td><td>0.79</td><td>0.88</td><td>0.83</td><td>17</td></tr><tr><td>3</td><td>0.78</td><td>0.64</td><td>0.70</td><td>11</td></tr><tr><td>4</td><td>1.00</td><td>1.00</td><td>1.00</td><td>1</td></tr><tr><td>accuracy</td><td></td><td></td><td>0.80</td><td>30</td></tr><tr><td>macro avg</td><td>0.89</td><td>0.88</td><td>0.88</td><td>30</td></tr><tr><td>weighted avg</td><td>0.80</td><td>0.80</td><td>0.80</td><td>30</td></tr></table> <p>Classification Report of train data</p> <pre>print("classification_report for train data") print(classification_report(y_true=y_train, y_pred=p_pre1t))</pre> <table><tr><th></th><th>precision</th><th>recall</th><th>f1-score</th><th>support</th></tr><tr><td>1</td><td>1.00</td><td>1.00</td><td>1.00</td><td>1</td></tr><tr><td>2</td><td>0.95</td><td>0.98</td><td>0.97</td><td>64</td></tr><tr><td>3</td><td>0.98</td><td>0.94</td><td>0.96</td><td>50</td></tr><tr><td>4</td><td>1.00</td><td>1.00</td><td>1.00</td><td>3</td></tr><tr><td>accuracy</td><td></td><td></td><td>0.97</td><td>118</td></tr><tr><td>macro avg</td><td>0.98</td><td>0.98</td><td>0.98</td><td>118</td></tr><tr><td>weighted avg</td><td>0.97</td><td>0.97</td><td>0.97</td><td>118</td></tr></table> | | precision | recall | f1-score | support | 1 | 1.00 | 1.00 | 1.00 | 1 | 2 | 0.79 | 0.88 | 0.83 | 17 | 3 | 0.78 | 0.64 | 0.70 | 11 | 4 | 1.00 | 1.00 | 1.00 | 1 | accuracy | | | 0.80 | 30 | macro avg | 0.89 | 0.88 | 0.88 | 30 | weighted avg | 0.80 | 0.80 | 0.80 | 30 | | precision | recall | f1-score | support | 1 | 1.00 | 1.00 | 1.00 | 1 | 2 | 0.95 | 0.98 | 0.97 | 64 | 3 | 0.98 | 0.94 | 0.96 | 50 | 4 | 1.00 | 1.00 | 1.00 | 3 | accuracy | | | 0.97 | 118 | macro avg | 0.98 | 0.98 | 0.98 | 118 | weighted avg | 0.97 | 0.97 | 0.97 | 118 |
| | precision | recall | f1-score | support | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 1.00 | 1.00 | 1.00 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 0.79 | 0.88 | 0.83 | 17 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | 0.78 | 0.64 | 0.70 | 11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | 1.00 | 1.00 | 1.00 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| accuracy | | | 0.80 | 30 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| macro avg | 0.89 | 0.88 | 0.88 | 30 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| weighted avg | 0.80 | 0.80 | 0.80 | 30 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | precision | recall | f1-score | support | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 1.00 | 1.00 | 1.00 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 0.95 | 0.98 | 0.97 | 64 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | 0.98 | 0.94 | 0.96 | 50 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | 1.00 | 1.00 | 1.00 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| accuracy | | | 0.97 | 118 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| macro avg | 0.98 | 0.98 | 0.98 | 118 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| weighted avg | 0.97 | 0.97 | 0.97 | 118 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| | | | |
|----|----------------|---|---|
| | | | <div>Accuracy Score</div> <div>The image shows a Jupyter Notebook cell with the code <code>accuracy_score(y_test,p_pre1p)</code> and its output <code>0.8</code>.<pre>accuracy_score(y_test,p_pre1p) 0.8</pre></div> <div>Confusion Matrix</div> <div>The image shows a Jupyter Notebook cell with the code <code>confusion_matrix(y_test,p_pre1p)</code> and its output, a 4x4 array.<pre>[39] confusion_matrix(y_test,p_pre1p) array([[1, 0, 0, 0], [0, 15, 2, 0], [0, 4, 7, 0], [0, 0, 0, 1]])</pre></div> |
| 2. | Tune the Model | Hyperparameter Tuning - Validation Method - | No Hyperparameter Tuning is used |