**Project Development Phase**

**Model Performance Test**

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| --- | --- |
| Date | 10 NOvember 2022 |
| Team ID | PNT2022TMID35483 |
| Project Name | Project – Early Detection of Chronic Kidney Disease using Machine Learning |
| Maximum Marks | 10 Marks |

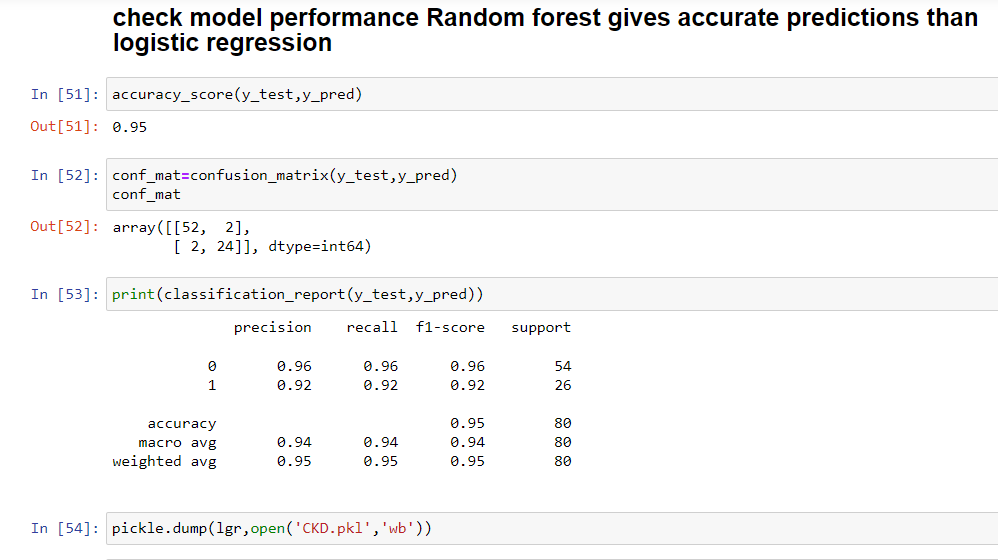
**Model Performance Testing:**

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

|  |  |  |  |
| --- | --- | --- | --- |
| **S.No.** | **Parameter** | **Values** | **Screenshot** |
|  | Metrics | **Regression Model:** MAE - , MSE - , RMSE - , R2 score -  **Classification Model:** Confusion Matrix - , Accuray Score- & Classification Report - | See Below |
|  | Tune the Model | Hyperparameter Tuning -  Validation Method - | See Below |

**1. Metrics**

**Model: Random Forest Classification**



**2. Tune the Model**

**Hyperparameter Tuning:**

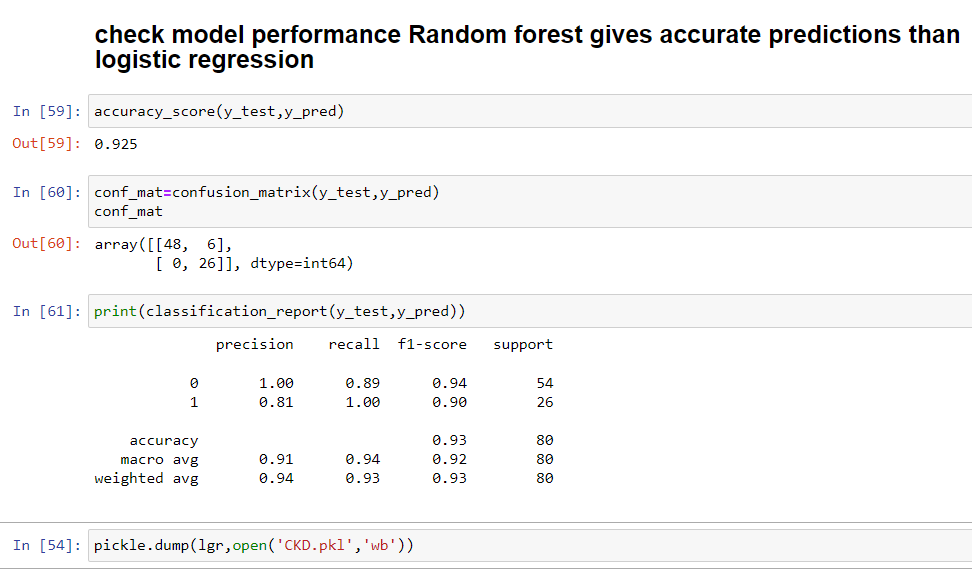
* The number of features is important and should be tuned in random forest classification.
* Initially all parameters in the dataset are taken as independent values to arrive at the dependent decision of Chronic Kidney Disease or No Chronic Kidney Disease.
* But the result was not accurate so used only 8 more correlated values as independent values to arrive at the dependent decision of Chronic Kidney Disease or not.

**Validation Method:**

It involves **partitioning the training data set into subsets, where one subset is held out to test the performance of the model**. This data set is called the validation data set.

Cross validation is to use different models and identify the best:

**Logistic Regression Model performance values:**



Hence we tested with Logistic regression and Random Forest Classification wherein the accuracy of Random Forest classification is 95% compared with Logistic Regression.

|  |  |  |
| --- | --- | --- |
| Metric | Logistic Regression | Random Forest Classification |
| Accuracy | 0.925 | 0.95 |
| Other metrics |  |  |

The above table shows that Random Forest Classification gives better results over Logistic Regression.