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EECS 658

CompareMLModelsV2 Output

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Output:

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Naïve Baysian (GaussianNB):


Accuracy:

0.96

Confusion Matrix:

[[50  0  0]
 [ 0 47  3]
 [ 0  3 47]]

Classification Report:

                 precision    recall  f1-score   support

    Iris-setosa       1.00      1.00      1.00        50
Iris-versicolor       0.94      0.94      0.94        50
 Iris-virginica       0.94      0.94      0.94        50

       accuracy                           0.96       150
      macro avg       0.96      0.96      0.96       150
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        weighted avg         0.96       0.96       0.96          150


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Linear regression (LinearRegression):


Accuracy:

0.9666666666666667

Confusion Matrix:

[[50  0  0]
 [ 0 48  2]
 [ 0  3 47]]

Classification Report:

              precision    recall  f1-score   support

           0       1.00      1.00      1.00        50
           1       0.94      0.96      0.95        50
           2       0.96      0.94      0.95        50

    accuracy                           0.97       150
   macro avg       0.97      0.97      0.97       150
weighted avg       0.97      0.97      0.97       150
```

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Polynomial of degree 2 regression (LinearRegression):


Accuracy:

0.96

Confusion Matrix:

[[50  0  0  0]
 [ 0 49  1  0]
 [ 0  4 45  1]
 [ 0  0  0  0]]

Classification Report:
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                  0.0          1.00         1.00         1.00            50
                  1.0          0.92         0.98         0.95            50
                  2.0          0.98         0.90         0.94            50
                  3.0          0.00         0.00         0.00             0

        accuracy                                         0.96           150
       macro avg             0.73         0.72         0.72           150
    weighted avg             0.97         0.96         0.96           150


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Polynomial of degree 3 regression (LinearRegression) :


Accuracy:

0.9066666666666666

Confusion Matrix:

[[47  3  0  0]
 [ 1 47  2  0]
 [ 1  5 42  2]
 [ 0  0  0  0]]

Classification Report:
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                      0.0         0.96        0.94        0.95          50
                      1.0         0.85        0.94        0.90          50
                      2.0         0.95        0.84        0.89          50
                      3.0         0.00        0.00        0.00           0

          accuracy                                        0.91         150
         macro avg    0.69        0.68        0.68         150
      weighted avg    0.92        0.91        0.91         150


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kNN (KNeighborsClassifier) :


Accuracy:

0.94

Confusion Matrix:

[[50  0  0]
 [ 0 48  2]
 [ 0  7 43]]

Classification Report:

                    precision    recall  f1-score   support

                 0       1.00      1.00      1.00        50
                 1       0.96      0.92      0.94        50
                 2       0.92      0.96      0.94        50

          accuracy                          0.96       150
         macro avg       0.96      0.96      0.96       150
      weighted avg       0.96      0.96      0.96       150
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SVM (svm.LinearSVC):


Accuracy:

0.94

Confusion Matrix:

[[50  0  0]
 [ 0 43  7]
 [ 0  2 48]]

Classification Report:

              precision    recall  f1-score   support

           0       1.00      1.00      1.00        50
           1       0.96      0.86      0.91        50
           2       0.87      0.96      0.91        50

    accuracy                           0.94       150
   macro avg       0.94      0.94      0.94       150
weighted avg       0.94      0.94      0.94       150



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Decision Tree (DecisionTreeClassifiers):


Accuracy:

0.9533333333333334

Confusion Matrix:

[[50  0  0]
 [ 0 46  4]
 [ 0  3 47]]

Classification Report:

              precision    recall  f1-score   support

           0       1.00      1.00      1.00        50
           1       0.94      0.92      0.93        50
           2       0.92      0.94      0.93        50

    accuracy                           0.95       150
   macro avg       0.95      0.95      0.95       150
weighted avg       0.95      0.95      0.95       150


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Random Forrest (RandomForestClassifier):


Accuracy:

0.94

Confusion Matrix:

[[50  0  0]
 [ 0 47  3]
 [ 0  6 44]]

Classification Report:

              precision    recall  f1-score   support

           0       1.00      1.00      1.00        50
           1       0.89      0.94      0.91        50
           2       0.94      0.88      0.91        50

    accuracy                           0.94       150
   macro avg       0.94      0.94      0.94       150
weighted avg       0.94      0.94      0.94       150


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Extra Tree (ExtraTreesClassifier):

Accuracy:

0.9466666666666667

Confusion Matrix:

[[50  0  0]
 [ 0 46  4]
 [ 0  4 46]]

Classification Report:

              precision    recall  f1-score   support

           0       1.00      1.00      1.00        50
           1       0.92      0.92      0.92        50
           2       0.92      0.92      0.92        50

    accuracy                           0.95       150
   macro avg       0.95      0.95      0.95       150
weighted avg       0.95      0.95      0.95       150

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NN (neural_network.MLPClassifier):


Accuracy:

0.9733333333333334

Confusion Matrix:

[[50  0  0]
 [ 0 46  4]
 [ 0  0 50]]

Classification Report:

              precision    recall  f1-score   support

           0       1.00      1.00      1.00        50
           1       1.00      0.92      0.96        50
           2       0.93      1.00      0.96        50

    accuracy                           0.97       150
   macro avg       0.98      0.97      0.97       150
weighted avg       0.98      0.97      0.97       150
```