ELL409 Assignment Report

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The below is the detailed data indicating the Accuracy, Precision, Recall and F-Scores attained by different ML models for the given datasets

Haberman

KNN
Accuracy: 74.3421052631578
Precision_Training: 0
Recall_Training: 0.0
F1_Training: 0
Precision_Test: 0
Recall_Test: 0.0
F1_Test: 0

BAYES (Multivariate Gaussian Density)
Accurcy: 82.4175824175824
Precision_Training: 0.6
Recall_Training: 0.234375
F1_Training: 0.33707865168539325
Precision_Test: 0.5333333333333333
Recall_Test: 0.47058823529411764
F1_Test: 0.5

KMCluster
Accuracy 73.77049180327869
Precision_Training: 0
Recall_Training: 0.0
F1_Training: 0
Precision_Test: 0
Recall_Test: 0.0
F1_Test: 0

Naïve Bayes
Accuracy: 75.4098360655737
Precision_Training: 0.5833333333333334
Recall_Training: 0.21875
F1_Training: 0.31818181818181823
Precision_Test: 0.6666666666666666
Recall_Test: 0.23529411764705882
F1_Test: 0.3478260869565218

Logistic
Accuracy: 72.5274725274725
Precision_Training: 0.2616822429906542
Recall_Training: 1.0
F1_Training: 0.41481481481481475
Precision_Test: 0.26666666666666666
Recall_Test: 0.96
F1_Test: 0.4173913043478261

Breast Cancer

KNN
Accuracy : 89.7887323943661
Precision_Training: 1.0
Recall_Training: 0.8830409356725146
F1_Training: 0.937888198757764
Precision_Test: 0.9875776397515528
Recall_Test: 0.8548387096774194
F1_Test: 0.9164265129682998

BAYES (Multivariate Gaussian Density)
Accuracy : 95.8823529411764
Precision_Training: 0.9770114942528736
Recall_Training: 0.9883720930232558
F1_Training: 0.9826589595375722
Precision_Test: 0.96
Recall_Test: 0.9696969696969697
F1_Test: 0.964824120603015

KMCluster
Accuracy 84.070796460177
Precision_Training: 0.972972972972973
Recall_Training: 0.75
F1_Training: 0.8470588235294119
Precision_Test: 0.9636363636363636
Recall_Test: 0.7681159420289855
F1_Test: 0.8548387096774193

Naïve Bayes
94.11765
Precision_Training: 0.9624060150375939
Recall_Training: 0.9516728624535316
F1_Training: 0.9570093457943926
Precision_Test: 0.9431818181818182
Recall_Test: 0.9431818181818182
F1_Test: 0.9431818181818182

Logistic
91.07143
Precision_Training: 0.61328125
Recall_Training: 1.0
F1_Training: 0.7602905569007264
Precision_Test: 0.7636363636363637
Recall_Test: 0.9767441860465116
F1_Test: 0.8571428571428571

Heart

KNN
Accuracy: 64.1791044776119
Precision_Training: 1.0
Recall_Training: 0.3333333333333333
F1_Training: 0.5
Precision_Test: 0.75
Recall_Test: 0.16666666666666666
F1_Test: 0.27272727272727276

BAYES (Multivariate Gaussian Density)
Accuracy: 86.25
Precision_Training: 0.868421052631579
Recall_Training: 0.8354430379746836
F1_Training: 0.8516129032258065
Precision_Test: 0.8947368421052632
Recall_Test: 0.8292682926829268
F1_Test: 0.860759493670886

KMCluster
Accuracy 77.35849056603774
Precision_Training: 0.6428571428571429
Recall_Training: 0.7659574468085106
F1_Training: 0.6990291262135921
Precision_Test: 0.75
Recall_Test: 0.8076923076923077
F1_Test: 0.7777777777777779

Naïve Bayes
Accuracy: 90.566037735849
Precision_Training: 0.8020833333333334
Recall_Training: 0.8555555555555555
F1_Training: 0.8279569892473118
Precision_Test: 1.0
Recall_Test: 0.8333333333333334
F1_Test: 0.9090909090909091

Logistic
Accuracy: 83.0188679245283
Precision_Training: 0.4398148148148148
Recall_Training: 0.9895833333333334
F1_Training: 0.608974358974359
Precision_Test: 0.46153846153846156
Recall_Test: 1.0
F1_Test: 0.631578947368421

Hepatitis

KNN
Accuracy: 70.1298701298701
Precision_Training: 1.0
Recall_Training: 0.625
F1_Training: 0.7692307692307693
Precision_Test: 0.9285714285714286
Recall_Test: 0.6610169491525424
F1_Test: 0.7722772277227723

BAYES (Multivariate Gaussian Density)
Accuracy: 89.1304347826086
Precision_Training: 1.0
Recall_Training: 0.963855421686747
F1_Training: 0.9815950920245399
Precision_Test: 0.926829268292683
Recall_Test: 0.95
F1_Test: 0.9382716049382716

KMCluster
Accuracy 86.66666666666667
Precision_Training: 0.776
Recall_Training: 1.0
F1_Training: 0.8738738738738739
Precision_Test: 0.8666666666666667
Recall_Test: 1.0
F1_Test: 0.9285714285714286

Naïve Bayes
Accuracy: 29.5081967213114
Precision_Training: 0
Recall_Training: 0.0
F1_Training: 0
Precision_Test: 0
Recall_Test: 0.0
F1_Test: 0

Logistic
Accuracy: 88.2608695652173
Precision_Training: 0.8518518518518519
Recall_Training: 0.989247311827957
F1_Training: 0.9154228855721392
Precision_Test: 0.6666666666666666
Recall_Test: 1.0
F1_Test: 0.8

Zoo

KNN
Accuracy: 95
Precision_Training: 0.7142857142857143
Recall_Training: 0.7142857142857143
F1_Training: 0.7142857142857143
Precision_Test: 0.7142857142857143
Recall_Test: 0.7142857142857143
F1_Test: 0.7142857142857143

Parzen Bayes Zoo
Accuracy 93.33333333333333
Precision_Training: 0.8367346938775511
Recall_Training: 0.761904761904762
F1_Training: 0.7975683890577507
Precision_Test: 0.8367346938775511
Recall_Test: 0.761904761904762
F1_Test: 0.7975683890577507

KMCluster
Accuracy 83.33333333333334
Precision_Training: 0.44387755102040816
Recall_Training: 0.5714285714285714
F1_Training: 0.4996410624551327
Precision_Test: 0.44387755102040816
Recall_Test: 0.5714285714285714
F1_Test: 0.4996410624551327

Logistic
Accuracy: 23.3333333333333
Precision_Training: 0.18285714285714286
Recall_Training: 0.2448979591836735
F1_Training: 0.2093784078516903
Precision_Test: 0.18285714285714286
Recall_Test: 0.2448979591836735
F1_Test: 0.2093784078516903

Naïve Bayes
Accuracy: 95
Precision_Training: 0.5238095238095238
Recall_Training: 0.5714285714285714
F1_Training: 0.5465838509316769
Precision_Test: 0.5238095238095238
Recall_Test: 0.5714285714285714
F1_Test: 0.5465838509316769