Classification Report 2022-09-02-21-27-09

## ========== Initializing fit\_ensemble\_voting\_classifier ==========

## Model : LogisticRegression

Initializing builMultiLabelModels

Classification on Training dataset :

Accuracy\_score: 75.17 %

Loss: 24.83 %

Zero\_one\_loss: 24.83 %

Hamming\_loss: 6.49 %

Classification\_report: precision recall f1-score support  
  
 0 0.78 0.66 0.72 828  
 1 0.67 0.47 0.55 475  
 2 0.92 0.94 0.93 302  
 3 1.00 1.00 1.00 43  
 4 0.88 0.92 0.90 534  
  
 micro avg 0.82 0.73 0.77 2182  
 macro avg 0.85 0.80 0.82 2182  
weighted avg 0.80 0.73 0.76 2182  
 samples avg 0.32 0.31 0.31 2182

Classification on Testing dataset :

Accuracy\_score: 78.47 %

Loss: 21.53 %

Zero\_one\_loss: 21.53 %

Hamming\_loss: 5.5 %

Classification\_report: precision recall f1-score support  
  
 0 0.81 0.69 0.74 312  
 1 0.67 0.45 0.54 182  
 2 0.96 0.95 0.96 135  
 3 1.00 1.00 1.00 16  
 4 0.89 0.93 0.91 241  
  
 micro avg 0.84 0.75 0.79 886  
 macro avg 0.87 0.80 0.83 886  
weighted avg 0.83 0.75 0.78 886  
 samples avg 0.32 0.31 0.31 886

File saved: D:\test\Basic\_Python\Project POMO\data scraping\Artifact\2022-09-02-21-27-09\Models\MultiLabelModel\_LogisticRegression.pkl

Model data: {'Accuracy': 75.17, 'Loss': 24.83, 'Hamming\_loss': 6.49, 'Model\_name': 'LogisticRegression', 'Filename': 'D:\\test\\Basic\_Python\\Project POMO\\data scraping\\Artifact\\2022-09-02-21-27-09\\Models\\MultiLabelModel\_LogisticRegression.pkl'}

## Model : KNeighborsClassifier

Initializing builMultiLabelModels

Classification on Training dataset :

Accuracy\_score: 88.03 %

Loss: 11.97 %

Zero\_one\_loss: 11.97 %

Hamming\_loss: 3.06 %

Classification\_report: precision recall f1-score support  
  
 0 0.89 0.81 0.85 828  
 1 0.89 0.88 0.89 475  
 2 0.94 0.96 0.95 302  
 3 1.00 0.53 0.70 43  
 4 0.93 0.99 0.95 534  
  
 micro avg 0.91 0.88 0.90 2182  
 macro avg 0.93 0.83 0.87 2182  
weighted avg 0.91 0.88 0.89 2182  
 samples avg 0.37 0.37 0.37 2182

Classification on Testing dataset :

Accuracy\_score: 87.88 %

Loss: 12.12 %

Zero\_one\_loss: 12.12 %

Hamming\_loss: 3.21 %

Classification\_report: precision recall f1-score support  
  
 0 0.89 0.79 0.84 312  
 1 0.86 0.88 0.87 182  
 2 0.93 0.94 0.94 135  
 3 1.00 0.38 0.55 16  
 4 0.90 0.98 0.94 241  
  
 micro avg 0.89 0.88 0.89 886  
 macro avg 0.92 0.79 0.83 886  
weighted avg 0.90 0.88 0.88 886  
 samples avg 0.35 0.35 0.35 886

File saved: D:\test\Basic\_Python\Project POMO\data scraping\Artifact\2022-09-02-21-27-09\Models\MultiLabelModel\_KNeighborsClassifier.pkl

Model data: {'Accuracy': 88.03, 'Loss': 11.97, 'Hamming\_loss': 3.06, 'Model\_name': 'KNeighborsClassifier', 'Filename': 'D:\\test\\Basic\_Python\\Project POMO\\data scraping\\Artifact\\2022-09-02-21-27-09\\Models\\MultiLabelModel\_KNeighborsClassifier.pkl'}

## Model : GaussianNB

Initializing builMultiLabelModels

Classification on Training dataset :

Accuracy\_score: 62.79 %

Loss: 37.21 %

Zero\_one\_loss: 37.21 %

Hamming\_loss: 14.77 %

Classification\_report: precision recall f1-score support  
  
 0 0.56 0.72 0.63 828  
 1 0.44 0.87 0.59 475  
 2 0.46 1.00 0.63 302  
 3 0.13 0.98 0.23 43  
 4 0.68 1.00 0.81 534  
  
 micro avg 0.50 0.86 0.64 2182  
 macro avg 0.46 0.91 0.58 2182  
weighted avg 0.54 0.86 0.66 2182  
 samples avg 0.21 0.34 0.25 2182

Classification on Testing dataset :

Accuracy\_score: 64.75 %

Loss: 35.25 %

Zero\_one\_loss: 35.25 %

Hamming\_loss: 13.83 %

Classification\_report: precision recall f1-score support  
  
 0 0.53 0.74 0.62 312  
 1 0.43 0.88 0.58 182  
 2 0.49 1.00 0.66 135  
 3 0.12 1.00 0.21 16  
 4 0.73 1.00 0.84 241  
  
 micro avg 0.51 0.88 0.64 886  
 macro avg 0.46 0.92 0.58 886  
weighted avg 0.55 0.88 0.67 886  
 samples avg 0.22 0.35 0.25 886

File saved: D:\test\Basic\_Python\Project POMO\data scraping\Artifact\2022-09-02-21-27-09\Models\MultiLabelModel\_GaussianNB.pkl

Model data: {'Accuracy': 62.79, 'Loss': 37.21, 'Hamming\_loss': 14.77, 'Model\_name': 'GaussianNB', 'Filename': 'D:\\test\\Basic\_Python\\Project POMO\\data scraping\\Artifact\\2022-09-02-21-27-09\\Models\\MultiLabelModel\_GaussianNB.pkl'}

## Model : SVC

Initializing builMultiLabelModels

Classification on Training dataset :

Accuracy\_score: 99.76 %

Loss: 0.24 %

Zero\_one\_loss: 0.24 %

Hamming\_loss: 0.05 %

Classification\_report: precision recall f1-score support  
  
 0 1.00 1.00 1.00 828  
 1 1.00 1.00 1.00 475  
 2 1.00 1.00 1.00 302  
 3 1.00 0.95 0.98 43  
 4 1.00 1.00 1.00 534  
  
 micro avg 1.00 1.00 1.00 2182  
 macro avg 1.00 0.99 0.99 2182  
weighted avg 1.00 1.00 1.00 2182  
 samples avg 0.43 0.43 0.43 2182

Classification on Testing dataset :

Accuracy\_score: 100.0 %

Loss: 0.0 %

Zero\_one\_loss: 0.0 %

Hamming\_loss: 0.0 %

Classification\_report: precision recall f1-score support  
  
 0 1.00 1.00 1.00 312  
 1 1.00 1.00 1.00 182  
 2 1.00 1.00 1.00 135  
 3 1.00 1.00 1.00 16  
 4 1.00 1.00 1.00 241  
  
 micro avg 1.00 1.00 1.00 886  
 macro avg 1.00 1.00 1.00 886  
weighted avg 1.00 1.00 1.00 886  
 samples avg 0.41 0.41 0.41 886

File saved: D:\test\Basic\_Python\Project POMO\data scraping\Artifact\2022-09-02-21-27-09\Models\MultiLabelModel\_SVC.pkl

Model data: {'Accuracy': 99.76, 'Loss': 0.24, 'Hamming\_loss': 0.05, 'Model\_name': 'SVC', 'Filename': 'D:\\test\\Basic\_Python\\Project POMO\\data scraping\\Artifact\\2022-09-02-21-27-09\\Models\\MultiLabelModel\_SVC.pkl'}

## Model : DecisionTreeClassifier

Initializing builMultiLabelModels

Classification on Training dataset :

Accuracy\_score: 100.0 %

Loss: 0.0 %

Zero\_one\_loss: 0.0 %

Hamming\_loss: 0.0 %

Classification\_report: precision recall f1-score support  
  
 0 1.00 1.00 1.00 828  
 1 1.00 1.00 1.00 475  
 2 1.00 1.00 1.00 302  
 3 1.00 1.00 1.00 43  
 4 1.00 1.00 1.00 534  
  
 micro avg 1.00 1.00 1.00 2182  
 macro avg 1.00 1.00 1.00 2182  
weighted avg 1.00 1.00 1.00 2182  
 samples avg 0.43 0.43 0.43 2182

Classification on Testing dataset :

Accuracy\_score: 100.0 %

Loss: 0.0 %

Zero\_one\_loss: 0.0 %

Hamming\_loss: 0.0 %

Classification\_report: precision recall f1-score support  
  
 0 1.00 1.00 1.00 312  
 1 1.00 1.00 1.00 182  
 2 1.00 1.00 1.00 135  
 3 1.00 1.00 1.00 16  
 4 1.00 1.00 1.00 241  
  
 micro avg 1.00 1.00 1.00 886  
 macro avg 1.00 1.00 1.00 886  
weighted avg 1.00 1.00 1.00 886  
 samples avg 0.41 0.41 0.41 886

File saved: D:\test\Basic\_Python\Project POMO\data scraping\Artifact\2022-09-02-21-27-09\Models\MultiLabelModel\_DecisionTreeClassifier.pkl

Model data: {'Accuracy': 100.0, 'Loss': 0.0, 'Hamming\_loss': 0.0, 'Model\_name': 'DecisionTreeClassifier', 'Filename': 'D:\\test\\Basic\_Python\\Project POMO\\data scraping\\Artifact\\2022-09-02-21-27-09\\Models\\MultiLabelModel\_DecisionTreeClassifier.pkl'}

## Model : RandomForestClassifier

Initializing builMultiLabelModels

Classification on Training dataset :

Accuracy\_score: 100.0 %

Loss: 0.0 %

Zero\_one\_loss: 0.0 %

Hamming\_loss: 0.0 %

Classification\_report: precision recall f1-score support  
  
 0 1.00 1.00 1.00 828  
 1 1.00 1.00 1.00 475  
 2 1.00 1.00 1.00 302  
 3 1.00 1.00 1.00 43  
 4 1.00 1.00 1.00 534  
  
 micro avg 1.00 1.00 1.00 2182  
 macro avg 1.00 1.00 1.00 2182  
weighted avg 1.00 1.00 1.00 2182  
 samples avg 0.43 0.43 0.43 2182

Classification on Testing dataset :

Accuracy\_score: 100.0 %

Loss: 0.0 %

Zero\_one\_loss: 0.0 %

Hamming\_loss: 0.0 %

Classification\_report: precision recall f1-score support  
  
 0 1.00 1.00 1.00 312  
 1 1.00 1.00 1.00 182  
 2 1.00 1.00 1.00 135  
 3 1.00 1.00 1.00 16  
 4 1.00 1.00 1.00 241  
  
 micro avg 1.00 1.00 1.00 886  
 macro avg 1.00 1.00 1.00 886  
weighted avg 1.00 1.00 1.00 886  
 samples avg 0.41 0.41 0.41 886

File saved: D:\test\Basic\_Python\Project POMO\data scraping\Artifact\2022-09-02-21-27-09\Models\MultiLabelModel\_RandomForestClassifier.pkl

Model data: {'Accuracy': 100.0, 'Loss': 0.0, 'Hamming\_loss': 0.0, 'Model\_name': 'RandomForestClassifier', 'Filename': 'D:\\test\\Basic\_Python\\Project POMO\\data scraping\\Artifact\\2022-09-02-21-27-09\\Models\\MultiLabelModel\_RandomForestClassifier.pkl'}

## Model : GradientBoostingClassifier

Initializing builMultiLabelModels

Classification on Training dataset :

Accuracy\_score: 99.28 %

Loss: 0.72 %

Zero\_one\_loss: 0.72 %

Hamming\_loss: 0.14 %

Classification\_report: precision recall f1-score support  
  
 0 0.99 0.99 0.99 828  
 1 0.99 0.99 0.99 475  
 2 1.00 1.00 1.00 302  
 3 1.00 1.00 1.00 43  
 4 1.00 1.00 1.00 534  
  
 micro avg 0.99 1.00 1.00 2182  
 macro avg 1.00 1.00 1.00 2182  
weighted avg 0.99 1.00 1.00 2182  
 samples avg 0.43 0.43 0.43 2182

Classification on Testing dataset :

Accuracy\_score: 100.0 %

Loss: 0.0 %

Zero\_one\_loss: 0.0 %

Hamming\_loss: 0.0 %

Classification\_report: precision recall f1-score support  
  
 0 1.00 1.00 1.00 312  
 1 1.00 1.00 1.00 182  
 2 1.00 1.00 1.00 135  
 3 1.00 1.00 1.00 16  
 4 1.00 1.00 1.00 241  
  
 micro avg 1.00 1.00 1.00 886  
 macro avg 1.00 1.00 1.00 886  
weighted avg 1.00 1.00 1.00 886  
 samples avg 0.41 0.41 0.41 886

File saved: D:\test\Basic\_Python\Project POMO\data scraping\Artifact\2022-09-02-21-27-09\Models\MultiLabelModel\_GradientBoostingClassifier.pkl

Model data: {'Accuracy': 99.28, 'Loss': 0.72, 'Hamming\_loss': 0.14, 'Model\_name': 'GradientBoostingClassifier', 'Filename': 'D:\\test\\Basic\_Python\\Project POMO\\data scraping\\Artifact\\2022-09-02-21-27-09\\Models\\MultiLabelModel\_GradientBoostingClassifier.pkl'}

## Model : AdaBoostClassifier

Initializing builMultiLabelModels

Classification on Training dataset :

Accuracy\_score: 98.39 %

Loss: 1.61 %

Zero\_one\_loss: 1.61 %

Hamming\_loss: 0.34 %

Classification\_report: precision recall f1-score support  
  
 0 0.98 0.98 0.98 828  
 1 0.98 0.98 0.98 475  
 2 1.00 1.00 1.00 302  
 3 1.00 1.00 1.00 43  
 4 1.00 1.00 1.00 534  
  
 micro avg 0.99 0.99 0.99 2182  
 macro avg 0.99 0.99 0.99 2182  
weighted avg 0.99 0.99 0.99 2182  
 samples avg 0.42 0.42 0.42 2182

Classification on Testing dataset :

Accuracy\_score: 99.92 %

Loss: 0.08 %

Zero\_one\_loss: 0.08 %

Hamming\_loss: 0.02 %

Classification\_report: precision recall f1-score support  
  
 0 1.00 1.00 1.00 312  
 1 1.00 1.00 1.00 182  
 2 1.00 1.00 1.00 135  
 3 1.00 1.00 1.00 16  
 4 1.00 1.00 1.00 241  
  
 micro avg 1.00 1.00 1.00 886  
 macro avg 1.00 1.00 1.00 886  
weighted avg 1.00 1.00 1.00 886  
 samples avg 0.41 0.41 0.41 886

File saved: D:\test\Basic\_Python\Project POMO\data scraping\Artifact\2022-09-02-21-27-09\Models\MultiLabelModel\_AdaBoostClassifier.pkl

Model data: {'Accuracy': 98.39, 'Loss': 1.61, 'Hamming\_loss': 0.34, 'Model\_name': 'AdaBoostClassifier', 'Filename': 'D:\\test\\Basic\_Python\\Project POMO\\data scraping\\Artifact\\2022-09-02-21-27-09\\Models\\MultiLabelModel\_AdaBoostClassifier.pkl'}

## Ensemble\_Voting\_Classifier\_Result >>>

Classification Report on Training dataset :

Accuracy\_score: 58.0 %

Loss: 42.0 %

Zero\_one\_loss: 42.0 %

Hamming\_loss: 14.49 %

ML\_confusion\_matrix:  
 precision recall f1-score support  
  
 0 1.00 0.02 0.04 828  
 1 1.00 0.01 0.02 475  
 2 1.00 0.02 0.04 302  
 3 0.00 0.00 0.00 43  
 4 1.00 0.06 0.12 534  
  
 micro avg 1.00 0.03 0.06 2182  
 macro avg 0.80 0.02 0.04 2182  
weighted avg 0.98 0.03 0.06 2182  
 samples avg 0.02 0.01 0.01 2182

Classification Report on Testing dataset :

Accuracy\_score: 100.0 %

Loss: 0.0 %

Zero\_one\_loss: 0.0 %

Hamming\_loss: 0.0 %

ML\_confusion\_matrix:  
 precision recall f1-score support  
  
 0 1.00 1.00 1.00 312  
 1 1.00 1.00 1.00 182  
 2 1.00 1.00 1.00 135  
 3 1.00 1.00 1.00 16  
 4 1.00 1.00 1.00 241  
  
 micro avg 1.00 1.00 1.00 886  
 macro avg 1.00 1.00 1.00 886  
weighted avg 1.00 1.00 1.00 886  
 samples avg 0.41 0.41 0.41 886