Spring 2024 CS5720

Neural Networks & Deep Learning - Assignment 5

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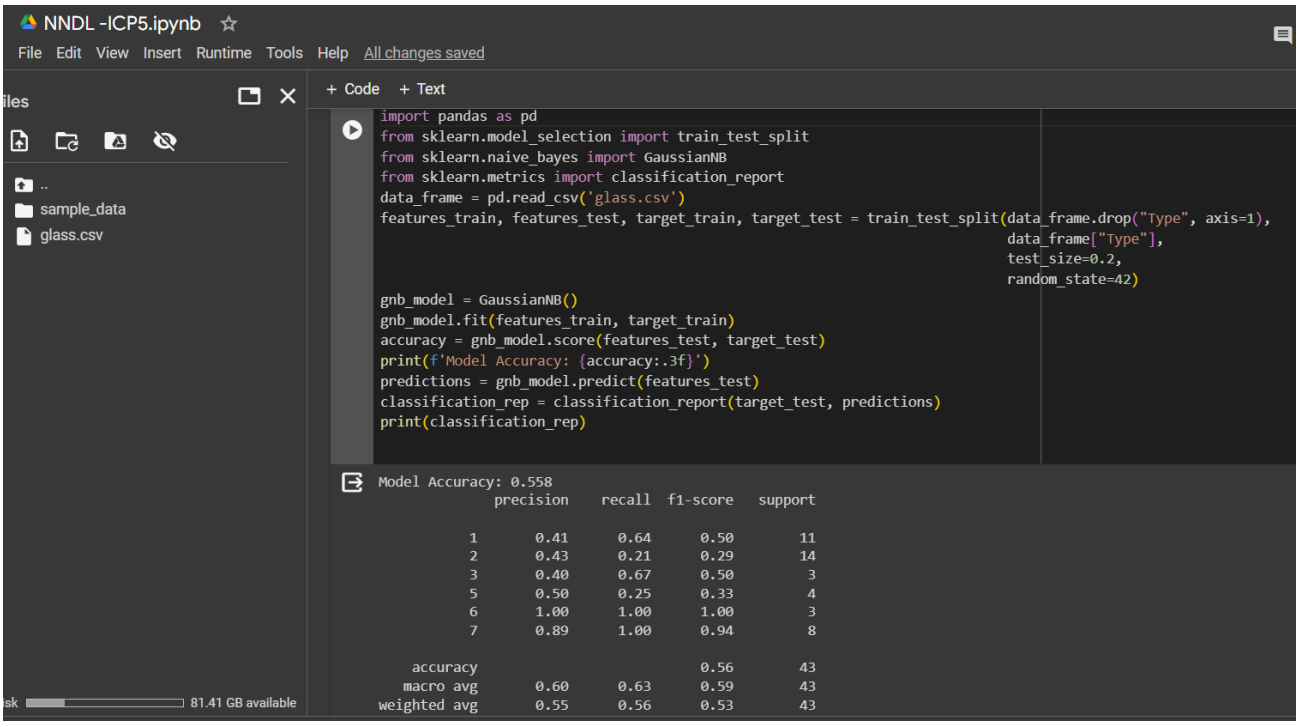
Github link : https://github.com/09sravyareddy/NNDL-ICP5

Recording Link : https://drive.google.com/file/d/1Z3I68YmTT4uEOLpTiFmN60upwksnrIJW/view?usp=sharing

1) Implement Naïve Bayes method using scikit-learn library
   Use dataset available with name glass
   Use train_test_split to create training and testing part
   Evaluate the model on test part using score and
   classification_report(y_true, y_pred)



2) Implement linear SVM method using scikit library
Use the same dataset above
Use train_test_split to create training and testing part
Evaluate the model on test part using score and classification_report(y_true, y_pred)

```
import pandas as pd
from sklearn.model_selection import train_test_split
from sklearn.svm import LinearSVC
from sklearn.metrics import classification_report

glass_data = pd.read_csv('glass.csv')

features_train, features_test, labels_train, labels_test = train_test_split(
    glass_data.drop(columns=["Type"]), glass_data["Type"], test_size=0.2, random_state=123)
svc_model = LinearSVC(dual=False)
svc_model.fit(features_train, labels_train)


model_accuracy = svc_model.score(features_test, labels_test)
print(f'Model Accuracy: {model_accuracy:.3f}')

predicted_labels = svc_model.predict(features_test)
detailed_report = classification_report(labels_test, predicted_labels)
print(detailed_report)
```

```
Model Accuracy: 0.698
              precision    recall  f1-score   support

           1       0.67      0.36      0.47        11
           2       0.54      1.00      0.70        13
           3       0.00      0.00      0.00         3
           5       1.00      0.33      0.50         3
           6       1.00      0.50      0.67         2
           7       1.00      1.00      1.00        11

    accuracy                           0.70        43
   macro avg       0.70      0.53      0.56        43
weighted avg       0.71      0.70      0.65        43

/usr/local/lib/python3.10/dist-packages/sklearn/metrics/_classification.py:1344: UndefinedMetricWarning: Precision and F-score are ill-defined an
  _warn_prf(average, modifier, msg_start, len(result))
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```

2)