

Spring 2023: CS5720–NN &DL ICP 5

In-Class Programming Assignment-5

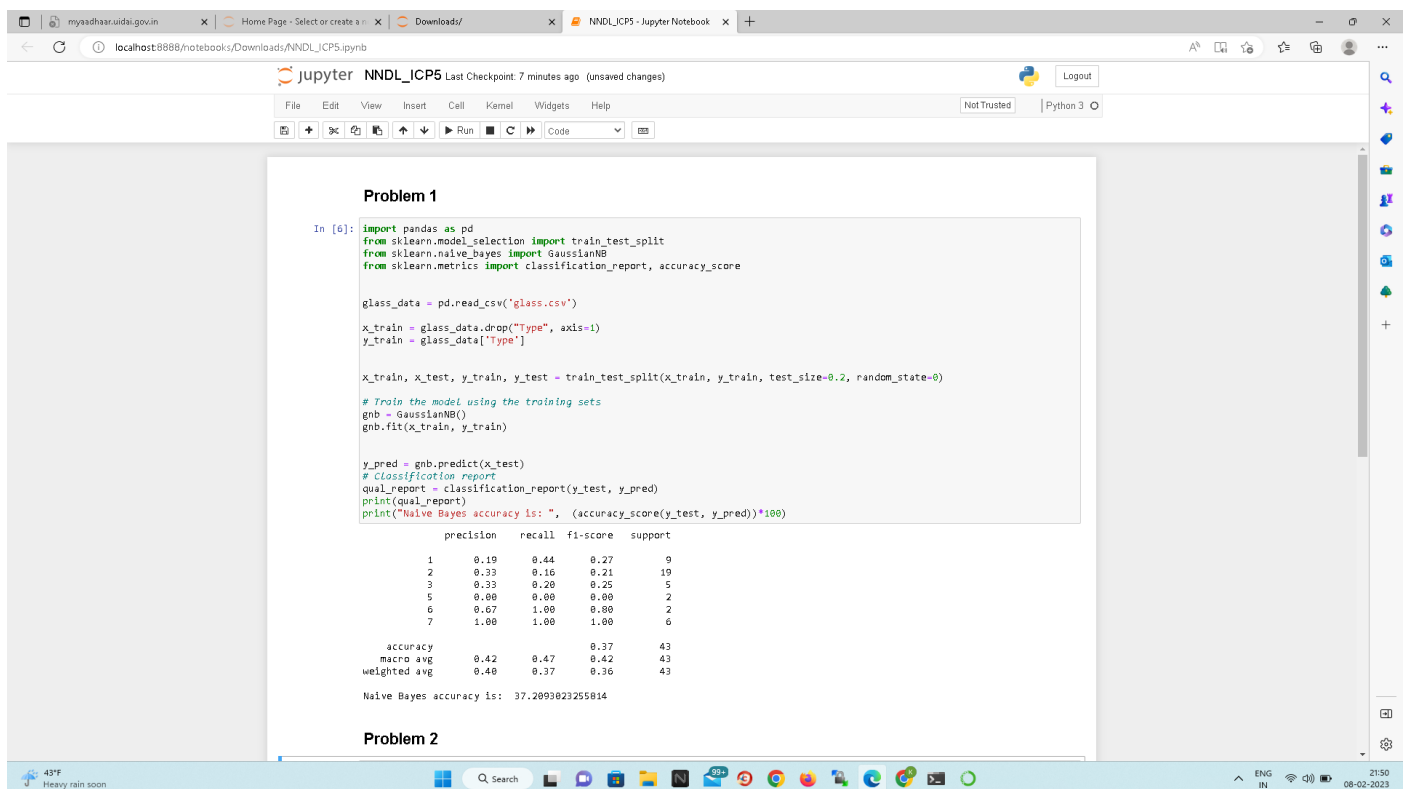
Name: Karthik Reddy Kothakapu

ID: 700728681

Github Link:

<https://github.com/kxk86810/Assignment-5>

Problem 1:



```
In [6]: import pandas as pd
from sklearn.model_selection import train_test_split
from sklearn.naive_bayes import GaussianNB
from sklearn.metrics import classification_report, accuracy_score

glass_data = pd.read_csv('glass.csv')
x_train = glass_data.drop("Type", axis=1)
y_train = glass_data["Type"]

x_train, x_test, y_train, y_test = train_test_split(x_train, y_train, test_size=0.2, random_state=0)

# Train the model using the training sets
gnb = GaussianNB()
gnb.fit(x_train, y_train)

y_pred = gnb.predict(x_test)
# Classification report
qual_report = classification_report(y_test, y_pred)
print(qual_report)
print("Naive Bayes accuracy is: ", (accuracy_score(y_test, y_pred))*100)
```

	precision	recall	f1-score	support
1	0.19	0.44	0.27	9
2	0.33	0.16	0.21	19
3	0.33	0.20	0.25	5
5	0.00	0.00	0.00	2
6	0.67	1.00	0.80	2
7	1.00	1.00	1.00	6
accuracy			0.37	43
macro avg	0.42	0.47	0.42	43
weighted avg	0.40	0.37	0.36	43

Naive Bayes accuracy is: 37.2093023255814

Problem 2

Problem 2:

The screenshot displays a Jupyter Notebook environment with the following details:

- Browser Tabs:** Includes tabs for 'myaadhaar.uidai.gov.in', 'Home Page - Select or create a...', 'Downloads', 'NNDL_ICP5 - Jupyter Notebook', and a '+' icon for additional tabs.
- Address Bar:** Shows the local host address 'localhost:8888/notebooks/Downloads/NNDL_ICP5.ipynb'.
- Jupyter Notebook Interface:**
 - Header:** Displays the Jupyter logo, the notebook name 'NNDL_ICP5', and the status 'Last Checkpoint: 7 minutes ago (unsaved changes)'. A 'Logout' button is present.
 - Menu Bar:** Contains 'File', 'Edit', 'View', 'Insert', 'Cell', 'Kernel', 'Widgets', and 'Help'.
 - Toolbar:** Includes icons for running, saving, and other notebook functions, along with a dropdown menu currently set to 'Code'.
- Code Cell [4]:**

```

import pandas as pd
from sklearn.model_selection import train_test_split
from sklearn.svm import SVC
from sklearn.metrics import classification_report, accuracy_score

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

x_train = glass_data.drop("Type", axis=1)
y_train = glass_data["Type"]
# splitting train and test data using train_test_split
x_train, x_test, y_train, y_test = train_test_split(x_train, y_train, test_size=0.2, random_state=0)

# Train the model using the training sets
svc = SVC()
svc.fit(x_train, y_train)
y_pred = svc.predict(x_test)
# Classification report
qual_report = classification_report(y_test, y_pred, zero_division = 0)
print(qual_report)
print("SVM accuracy is: ", accuracy_score(y_test, y_pred)*100)

```
- Output:**

```

      precision    recall  f1-score   support

     1      0.21      1.00      0.35         9
     2      0.00      0.00      0.00        19
     3      0.00      0.00      0.00         5
     5      0.00      0.00      0.00         2
     6      0.00      0.00      0.00         2
     7      0.00      0.00      0.00         6

 accuracy          0.21         43
 macro avg          0.03         43
 weighted avg          0.04         43

SVM accuracy is:  20.930232550139537

```
- Input Prompt:** The cell ends with 'In []:', indicating the next step in the notebook.