NEURAL NETWORK ASSIGNMENT-5

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Question – 1

In [1]:
```
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
```

In [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)
```

```
              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      0.17      0.06        43
weighted avg       0.04      0.21      0.07        43

SVM accuracy is:  20.930232558139537
```

In [ ]:
```
#Which algorithm you got better accuracy? Can you justify why?

#As compared to the accuracy navie bayes is better than the svm, even though svm uses a hyperplane to seperate classes
```


```
    accuracy                           0.21        43
   macro avg       0.03      0.17      0.06        43
weighted avg       0.04      0.21      0.07        43

SVM accuracy is:  20.930232558139537
```

In [ ]:
```
#Which algorithm you got better accuracy? Can you justify why?

#As compared to the accuracy navie bayes is better than the svm, even though svm uses a hyperplane to seperate classes
# where navie bayes assumes independence features navie baye's is fast and efficient it is used for large datasets and it also
# doesnt require large data it can handle continous dataand it is also suitable for high dimensional data
```


VEDIO LINK: https://drive.google.com/file/d/1Ze-WP5wU7rAMYszR2d4rnavpduCKfqe1/view?usp=sharing