

TEAM ID:PNT2022TMID17925

Importing The Required Libraries

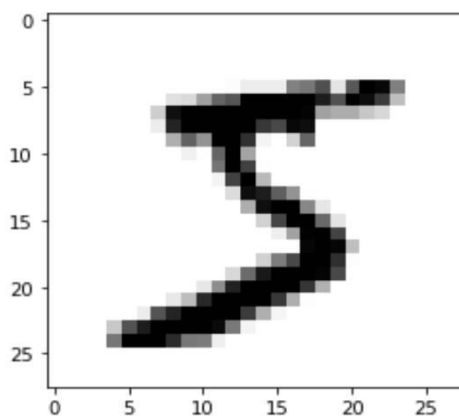
```
import pandas as pd  
import numpy as np  
import seaborn as sns  
from keras.datasets import mnist  
from keras.layers import Dense, Flatten, MaxPooling2D, Dropout  
from keras.layers.convolutional import Conv2D  
from keras.models import Sequential  
from tensorflow.keras.utils import to_categorical  
import cv2
```

Loading The Data

```
(X_train, y_train), (X_test, y_test) = mnist.load_data()
```

Analyzing The Data

```
plt.imshow(X_train[0], cmap="binary")  
plt.show()  
print (y_train[0])
```



Reshaping The Data

```
print("---Before reshaping the Data---")  
print("Shape of X_train: {}".format(X_train.shape))
```

```

print("Shape of y_train: {}".format(y_train.shape))
print("Shape of X_test: {}".format(X_test.shape))
print("Shape of y_test: {}".format(y_test.shape))
print("-----")
print()
print("---After reshaping the Data---")
X_train = X_train.reshape(60000, 28, 28, 1)
X_test = X_test.reshape(10000, 28, 28, 1)
print("Shape of X_train: {}".format(X_train.shape))
print("Shape of y_train: {}".format(y_train.shape))
print("Shape of X_test: {}".format(X_test.shape))
print("Shape of y_test: {}".format(y_test.shape))
print("-----")

```

---Before reshaping the Data---

```

Shape of X_train: (60000, 28, 28, 1)
Shape of y_train: (60000,)
Shape of X_test: (10000, 28, 28, 1)
Shape of y_test: (10000,)

```

---After reshaping the Data---

```

Shape of X_train: (60000, 28, 28, 1)
Shape of y_train: (60000,)
Shape of X_test: (10000, 28, 28, 1)
Shape of y_test: (10000,)

```
