

Team ID	PNT2022TMID52603
Project Name	A Novel Method for Handwritten Digit Recognition System

Analyzing the Data

```
1 X_train.shape
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```
(60000, 28, 28)
```

```
1 X_test.shape
```

```
(10000, 28, 28)
```

```
X_train[0]
```

```

    253, 70, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0],
[ 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 35,
 241, 225, 160, 108, 1, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0],
[ 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
 81, 240, 253, 253, 119, 25, 0, 0, 0, 0, 0, 0, 0,
0, 0],
[ 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
 0, 45, 186, 253, 253, 150, 27, 0, 0, 0, 0, 0, 0,
 0, 0],
[ 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
 0, 0, 16, 93, 252, 253, 187, 0, 0, 0, 0, 0, 0,
 0, 0],
[ 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
 0, 0, 0, 0, 249, 253, 249, 64, 0, 0, 0, 0, 0,
 0, 0],
[ 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
 0, 46, 130, 183, 253, 253, 207, 2, 0, 0, 0, 0, 0,
 0, 0],
[ 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 39,
 148, 229, 253, 253, 253, 250, 182, 0, 0, 0, 0, 0, 0,
 0, 0],
[ 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 24, 114, 221,
 253, 253, 253, 253, 201, 78, 0, 0, 0, 0, 0, 0,
 0, 0],
[ 0, 0, 0, 0, 0, 0, 0, 0, 23, 66, 213, 253, 253,
 253, 253, 198, 81, 2, 0, 0, 0, 0, 0, 0, 0,
 0, 0],
[ 0, 0, 0, 0, 0, 18, 171, 219, 253, 253, 253, 253,
 195, 80, 9, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
 0, 0],
[ 0, 0, 0, 55, 172, 226, 253, 253, 253, 253, 244, 133,
 11, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
 0, 0],
[ 0, 0, 0, 136, 253, 253, 253, 212, 135, 132, 16, 0,
 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
 0, 0],
[ 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
 0, 0, 0, 0, 0, 0, 0, 0, 0,
 0, 0],
[ 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
 0, 0, 0, 0, 0, 0, 0, 0, 0,
 0, 0],
[ 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
 0, 0, 0, 0, 0, 0, 0, 0, 0,
 0, 0]], dtype=uint8)
y_train[0]

```

5

```
plt.imshow(X_train[0])
```



