#Understanding the Data (Sprint-1) TEAM ID:PNT2022TMID10395

```
#Import all Necessary Libraries import pandas as pd
import numpy as np import matplotlib.pyplot as plt
from tensorflow.keras.datasets import mnist
(x_train, y_train), (x_test, y_test) = mnist.load_data()
x train
array([[[0, 0, 0, ..., 0, 0, 0],
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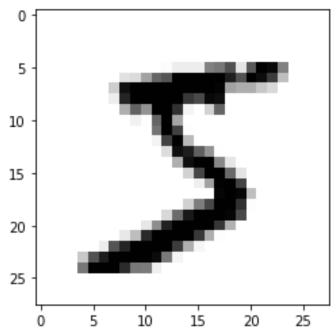
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#plot the single image plt.imshow(one_img,cmap='binary')

<matplotlib.image.AxesImage at 0x7f36882992d0>



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y_train
array([5, 0, 4, ..., 5, 6, 8], dtype=uint8)
#categories the data
from tensorflow.keras.utils import to_categorical
y_train.shape
(60000,)
y_example = to_categorical(y_train)
print(y_example,y_example.shape)
[[0. 0. 0. ... 0. 0. 0.]
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[1. 0. 0. ... 0. 0. 0.] [0. 0. 0. ... 0. 0. 0.]

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[0. 0. 0. ... 0. 0. 0.]
[0. 0. 0. ... 0. 0. 0.]
 [0. 0. 0. ... 0. 1. 0.]] (60000, 10)
y example[0]
array([0., 0., 0., 0., 0., 1., 0., 0., 0., 0.], dtype=float32)
y_cat_test = to_categorical(y_test,num_classes=10) y_cat_train
= to categorical(y train, 10) one img.max(), one img.min()
(255, 0)
x train = x train/255
x_test = x_test/255
scaled img = x train[0]
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#reshape the scaled data
x train = x train.reshape(60000,28,28,1)
x \text{ test} = x \text{ test.reshape}(10000, 28, 28, 1)
x train.shape,x test.shape
```

((60000, 28, 28, 1), (10000, 28, 28, 1))