#### PROJECT DEVELOPMENT PHASE - sprint 1

#### TEAM ID:PNT2022TMID29320

### #understanding the data (sprint 1)

```
#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],
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        [[0, 0, 0, \ldots, 0, 0, 0],
         [0, 0, 0, ..., 0, 0]]], dtype=uint8)
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x train[0] one img.shape (28, 28) one img
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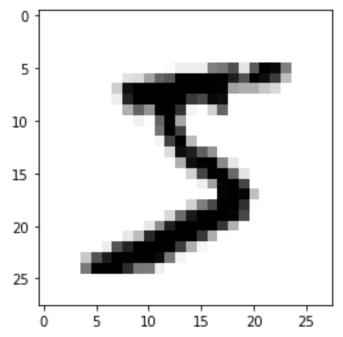
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## #plot the single image

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.]
[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. 0. 0. ... 0. 1. 0.]] (60000, 10)
y example[0]
array([0., 0., 0., 0., 0., 1., 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_test = x_test.reshape(10000,28,28,1)
x_train.shape,x_test.shape
((60000, 28, 28, 1), (10000, 28, 28, 1))
```