```
# import numpy as np
import tensorflow #open source used for both ML and DL for computation
from tensorflow.keras.datasets import mnist #mnist dataset
from tensorflow.keras.models import Sequential #it is a plain stack of layers
from tensorflow.keras import layers #A Layer consists of a tensor- in tensor-out computat ion
from tensorflow.keras.layers import Dense, Flatten #Dense-Dense Layer is the regular deeply c
#faltten -used fot flattening the input or change the dimension
from tensorflow.keras.layers import Conv2D #onvoLutiona 1 Layer
from keras.optimizers import Adam #opt imizer
from keras. utils import np_utils #used for one-hot encoding
import matplotlib.pyplot as plt #used for data visualization
# (x_train, y_train), (x_test, y_test)=mnist.load_data () #splitting the mnist data into trai
print (x train.shape) #shape is used for give the dimens ion values #60000-rows 28x28-pixels
print (x_test.shape)
     (60000, 28, 28)
     (10000, 28, 28)
(60000, 28, 28) (10000, 28, 28)
```

x_train[0]

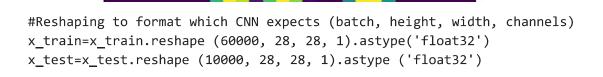
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Reshaping Dataset



Applying One Hot Encoding

```
number_of_classes = 10 #storing the no of classes in a variable

y_train = np_utils.to_categorical (y_train, number_of_classes) #converts the output in binary
y_test = np_utils.to_categorical (y_test, number_of_classes)

y_train[0] #Printing the new label

array([0., 0., 0., 0., 0., 0., 0., 0., 0.], dtype=float32)
```

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