### IBM cloud deployment

Team ID - PNT2022TMID07039

#### Importing the required libraries

!pip install tensorflow --upgrade

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Requirement already satisfied: tensorflow in /opt/conda/envs/Python-3.9/lib/python_
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Requirement already satisfied: h5py>=2.9.0 in /opt/conda/envs/Python-3.9/lib/pythc
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Requirement already satisfied: wheel<1.0,>=0.23.0 in /opt/conda/envs/Python-3.9/li
Requirement already satisfied: google-auth<3,>=1.6.3 in /opt/conda/envs/Python-3.9
Requirement already satisfied: google-auth-oauthlib<0.5,>=0.4.1 in /opt/conda/envs
Requirement already satisfied: tensorboard-data-server<0.7.0,>=0.6.0 in /opt/conda
Requirement already satisfied: requests<3,>=2.21.0 in /opt/conda/envs/Python-3.9/l
Requirement already satisfied: markdown>=2.6.8 in /opt/conda/envs/Python-3.9/lib/p
Requirement already satisfied: tensorboard-plugin-wit>=1.6.0 in /opt/conda/envs/Py
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Requirement already satisfied: pyparsing!=3.0.5,>=2.0.2 in /opt/conda/envs/Python-Installing collected packages: absl-py, tensorflow-estimator, tensorboard, libclan
```

```
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
from tensorflow.keras.layers import Dense, Flatten #Dense-Dense Layer is the regular deepl
#faltten -used fot flattening the input or change the dimension
from tensorflow.keras.layers import Conv2D #convolutional Layer
from keras.utils import np_utils #used for one-hot encoding
import matplotlib.pyplot as plt #used for data visualization
```

#### Load data

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plt.imshow(x train[6000]) #ploting the index=image

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## Reshaping Dataset

```
#Reshaping to format which CNN expects (batch, height, width, channels)
x_train=x_train.reshape (60000, 28, 28, 1).astype('float32')
x_test=x_test.reshape (10000, 28, 28, 1).astype ('float32')
```

# 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 bin
y_test = np_utils.to_categorical (y_test, number_of_classes)
```

### Add CNN Layers

[ ] L, 4 cells hidden

# Compiling the model

[ ] L, 2 cells hidden

#### Train the model

[ ] 1 cell hidden

# Observing the metrics

[ ] L, 8 cells hidden

1/15/22, 11:12 PM [ ] L, 1 cell hidden	sprint-4.lpynb - Colaboratory
▶ Test The Model	
[ ] l, 4 cells hidden	
▶ Save The model	
[ ] L, 4 cells hidden	
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TEST MODEL	

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