Project Development Phase
Model Performance Test

Date	18 November 2022
Team ID	PNT2022TMID16247
Project Name	A Novel method for Handwritten Digit Recognition
Maximum Marks	10 Marks

Model Performance Testing:

1. **MODEL SUMMARY**

```
In [5]: model.summary()
```

```
Model: "sequential"
_________________________________________________________________
 Layer (type)                Output Shape              Param #
=================================================================
 conv2d (Conv2D)             (None, 26, 26, 32)        320

 max_pooling2d (MaxPooling2D  (None, 13, 13, 32)       0
 )

 conv2d_1 (Conv2D)           (None, 11, 11, 32)        9248

 batch_normalization (BatchN  (None, 11, 11, 32)       128
 ormalization)

 conv2d_2 (Conv2D)           (None, 6, 6, 32)          25632

 batch_normalization_1 (Batc  (None, 6, 6, 32)         128
 hNormalization)

 dropout (Dropout)           (None, 6, 6, 32)          0

 conv2d_3 (Conv2D)           (None, 4, 4, 64)          18496

 batch_normalization_2 (Batc  (None, 4, 4, 64)         256
 hNormalization)

 conv2d_4 (Conv2D)           (None, 2, 2, 64)          36928

 batch_normalization_3 (Batc  (None, 2, 2, 64)         256
 hNormalization)

 conv2d_5 (Conv2D)           (None, 1, 1, 64)          102464

 batch_normalization_4 (Batc  (None, 1, 1, 64)         256
 hNormalization)

 dropout_1 (Dropout)         (None, 1, 1, 64)          0

 flatten (Flatten)           (None, 64)                0

 dropout_2 (Dropout)         (None, 64)                0

 dense (Dense)               (None, 10)                650

=================================================================
Total params: 194,762
Trainable params: 194,250
Non-trainable params: 512
```

2. ACCURACY

Values:

Test loss: 0.01923

Test Accuracy: 0.99449

Observing the metrics

In [7]:
```
#final evaluation of the model
metrics = model.evaluate(x_test, y_test, verbose=0)
print("Metrics(Test loss & Test Accuracy) : ")
print(metrics)
```

```
Metrics(Test loss & Test Accuracy) :
[0.01923108845949173, 0.9944999814033508]
```