Team ID	PNT2022TMID23253
Project Name	A Novel Method for Handwritten Digit Recognition System

Test with Saved model:

```
from tensorflow.keras.models import load_model
model=load_model("model.h5")
```

```
model.summary()
```

```
Model: "sequential"
_________________________________________________________________
Layer (type)                 Output Shape              Param #
=================================================================
conv2d (Conv2D)              (None, 26, 26, 64)        640
_________________________________________________________________
conv2d_1 (Conv2D)            (None, 24, 24, 32)        18464
_________________________________________________________________
flatten (Flatten)            (None, 18432)             0
_________________________________________________________________
dense (Dense)                (None, 10)                184330
=================================================================
Total params: 203,434
Trainable params: 203,434
Non-trainable params: 0
_________________________________________________________________
```

```
example = X_train[1]
prediction = model.predict(example.reshape(1, 28, 28, 1))
## First output
print ("Prediction (Softmax) from the neural network:\n\n {}".format(prediction))
## Second output
hard_maxed_prediction = np.zeros(prediction.shape)
hard_maxed_prediction[0][np.argmax(prediction)] = 1
print ("\n\nHard-maxed form of the prediction: \n\n {}".format(hard_maxed_prediction))
## Third output
print ("\n\n--------- Prediction --------- \n\n")
plt.imshow(example.reshape(28, 28), cmap="gray")
plt.show()
print("\n\nFinal Output: {}".format(np.argmax(prediction)))
```

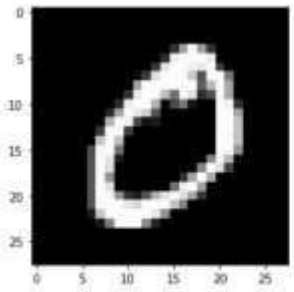
```
Prediction (Softmax) from the neural network:

 [[1.0000000e+00 3.5041383e-34 3.1392596e-20 1.9669141e-34 0.0000000e+00
  1.2160965e-34 2.6726674e-17 7.1123406e-35 3.0426787e-25 8.0960580e-30]]


Hard-maxed form of the prediction:

 [[1. 0. 0. 0. 0. 0. 0. 0. 0. 0.]]


--------- Prediction ---------
```




```
Final Output: 0
```