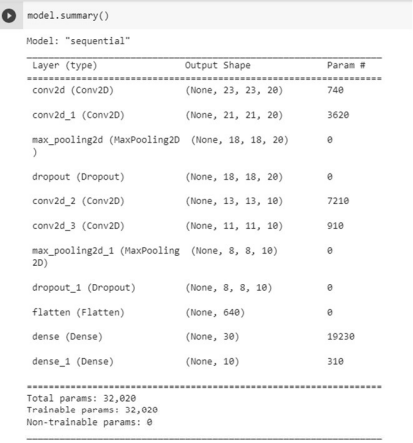
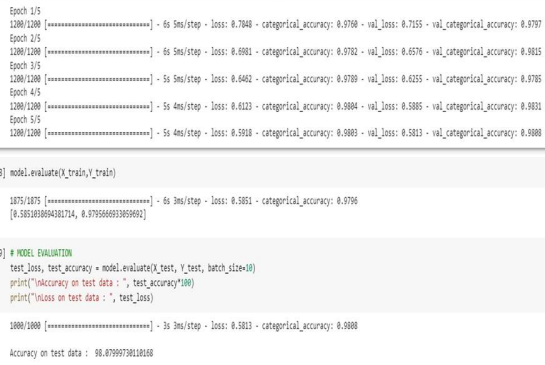


Project Development Phase Model Performance Test

Date	10 November 2022
Team ID	PNT2022TMID04039
Project Name	Project – A Novel Method For Handwritten Digit Recognition System
Maximum Marks	10 Marks

Model Performance Testing:

Project team shall fill the following information in model performance testing template.

S.No.	Parameter	Values	Screenshot
1.	Model Summary	Total Params: 32,020 Trainable params: 32,020 Non-trainable params: 0	 <pre> model.summary() Model: "sequential" Layer (type) Output Shape Param # ----- conv2d (Conv2D) (None, 28, 28, 20) 740 conv2d_1 (Conv2D) (None, 24, 24, 20) 3620 max_pooling2d (MaxPooling2D) (None, 12, 12, 20) 0 dropout (Dropout) (None, 12, 12, 20) 0 conv2d_2 (Conv2D) (None, 10, 10, 10) 7210 conv2d_3 (Conv2D) (None, 8, 8, 10) 910 max_pooling2d_1 (MaxPooling2D) (None, 4, 4, 10) 0 dropout_1 (Dropout) (None, 4, 4, 10) 0 flatten (Flatten) (None, 640) 0 dense (Dense) (None, 30) 19230 dense_1 (Dense) (None, 10) 310 ----- Total params: 32,020 Trainable params: 32,020 Non-trainable params: 0 </pre>
2.	Accuracy	Training Accuracy – 98.3% Validation Accuracy – 98.08%	 <pre> Epoch 1/5 1280/1280 [=====] - 6s 5ms/step - loss: 0.7048 - categorical_accuracy: 0.6760 - val_loss: 0.7155 - val_categorical_accuracy: 0.6797 Epoch 2/5 1280/1280 [=====] - 6s 5ms/step - loss: 0.6981 - categorical_accuracy: 0.6782 - val_loss: 0.6576 - val_categorical_accuracy: 0.6815 Epoch 3/5 1280/1280 [=====] - 5s 5ms/step - loss: 0.6842 - categorical_accuracy: 0.6789 - val_loss: 0.6255 - val_categorical_accuracy: 0.6795 Epoch 4/5 1280/1280 [=====] - 5s 4ms/step - loss: 0.6123 - categorical_accuracy: 0.6884 - val_loss: 0.5885 - val_categorical_accuracy: 0.6831 Epoch 5/5 1280/1280 [=====] - 5s 4ms/step - loss: 0.5918 - categorical_accuracy: 0.6883 - val_loss: 0.5813 - val_categorical_accuracy: 0.6888 [18] model.evaluate(X_train, Y_train) 1875/1875 [=====] - 6s 3ms/step - loss: 0.5851 - categorical_accuracy: 0.6796 [0.5851093894381714, 0.6795668938566692] [19] # MODEL EVALUATION test_loss, test_accuracy = model.evaluate(X_test, Y_test, batch_size=10) print(f"Accuracy on test data : ", test_accuracy*100) print(f"Loss on test data : ", test_loss) 1880/1880 [=====] - 3s 3ms/step - loss: 0.5813 - categorical_accuracy: 0.6888 Accuracy on test data : 98.67999798118168 </pre>