**PROJECT RESULTS:**

1. **Building\_model.py:**

Consists of:-

1. Accuracy
2. Stepwise Loss
3. CNN error at the end
4. Improvement between start and end after each epoch.

**Dataset:**

no.of training examples:70000

no.of testing examples:2000

X\_train shape:(70000, 1024)

Y\_train shape:(1, 70000)

X\_test shape:(2000, 1024)

Y\_test shape:(1, 2000)

**RESULT(AS FOUND IN OUTPUT):**

Train on 70000 samples, validate on 2000 samples

Epoch 1/8

70000/70000 [==============================] - 119s 2ms/step - loss: 0.7718 - acc: 0.7805 - val\_loss: 0.3241 - val\_acc: 0.8990

Epoch 00001: val\_acc improved from -inf to 0.89900, saving model to devanagari.h5

Epoch 2/8

70000/70000 [==============================] - 130s 2ms/step - loss: 0.2329 - acc: 0.9293 - val\_loss: 0.2172 - val\_acc: 0.9340

Epoch 00002: val\_acc improved from 0.89900 to 0.93400, saving model to devanagari.h5

Epoch 3/8

70000/70000 [==============================] - 130s 2ms/step - loss: 0.1514 - acc: 0.9540 - val\_loss: 0.1413 - val\_acc: 0.9595

Epoch 00003: val\_acc improved from 0.93400 to 0.95950, saving model to devanagari.h5

Epoch 4/8

70000/70000 [==============================] - 143s 2ms/step - loss: 0.1107 - acc: 0.9666 - val\_loss: 0.1343 - val\_acc: 0.9615

Epoch 00004: val\_acc improved from 0.95950 to 0.96150, saving model to devanagari.h5

Epoch 5/8

70000/70000 [==============================] - 131s 2ms/step - loss: 0.0854 - acc: 0.9728 - val\_loss: 0.1366 - val\_acc: 0.9650

Epoch 00005: val\_acc improved from 0.96150 to 0.96500, saving model to devanagari.h5

Epoch 6/8

70000/70000 [==============================] - 130s 2ms/step - loss: 0.0697 - acc: 0.9782 - val\_loss: 0.1295 - val\_acc: 0.9620

Epoch 00006: val\_acc did not improve from 0.96500

Epoch 7/8

70000/70000 [==============================] - 131s 2ms/step - loss: 0.0568 - acc: 0.9815 - val\_loss: 0.1186 - val\_acc: 0.9685

Epoch 00007: val\_acc improved from 0.96500 to 0.96850, saving model to devanagari.h5

Epoch 8/8

70000/70000 [==============================] - 130s 2ms/step - loss: 0.0473 - acc: 0.9845 - val\_loss: 0.1107 - val\_acc: 0.9695

Epoch 00008: val\_acc improved from 0.96850 to 0.96950, saving model to devanagari.h5

CNN Error : 3.050000%

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Layer (type) Output Shape Param #

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conv2d\_5 (Conv2D) (None, 28, 28, 32) 832

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max\_pooling2d\_5 (MaxPooling2 (None, 14, 14, 32) 0

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conv2d\_6 (Conv2D) (None, 10, 10, 64) 51264

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max\_pooling2d\_6 (MaxPooling2 (None, 2, 2, 64) 0

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flatten\_3 (Flatten) (None, 256) 0

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dense\_3 (Dense) (None, 37) 9509

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Total params: 61,605

Trainable params: 61,605

Non-trainable params: 0

1. **Devanagari\_application.py:**

Consists of :

1. Image parameters as captured on the webcam.

119410.5

processed: (1, 32, 32, 1)

9 1.0

51267.5

processed: (1, 32, 32, 1)

14 1.0

95383.0

processed: (1, 32, 32, 1)

9 1.0

1146.0

13379.0

processed: (1, 32, 32, 1)

26 1.0

17330.5

processed: (1, 32, 32, 1)

35 1.0

92.5

8305.5

processed: (1, 32, 32, 1)

35 1.0

Carried out till program is stopped.