Lab03 Report

ANN Analysis:

```
Layer (type)              Output Shape              Param #
flatten (Flatten)         (None, 784)                     0
dense (Dense)             (None, 128)               100,480
dense_1 (Dense)           (None, 10)                  1,290


Total params: 101,770 (397.54 KB)


Trainable params: 101,770 (397.54 KB)


Non-trainable params: 0 (0.00 B)
```

- **Architecture:**
  - 28x28 Image → 784 Neurons → 128 Neurons → 10 Output

- **Metric:**
  - Epochs: 6
  - Accuracy: 0.972100019454956
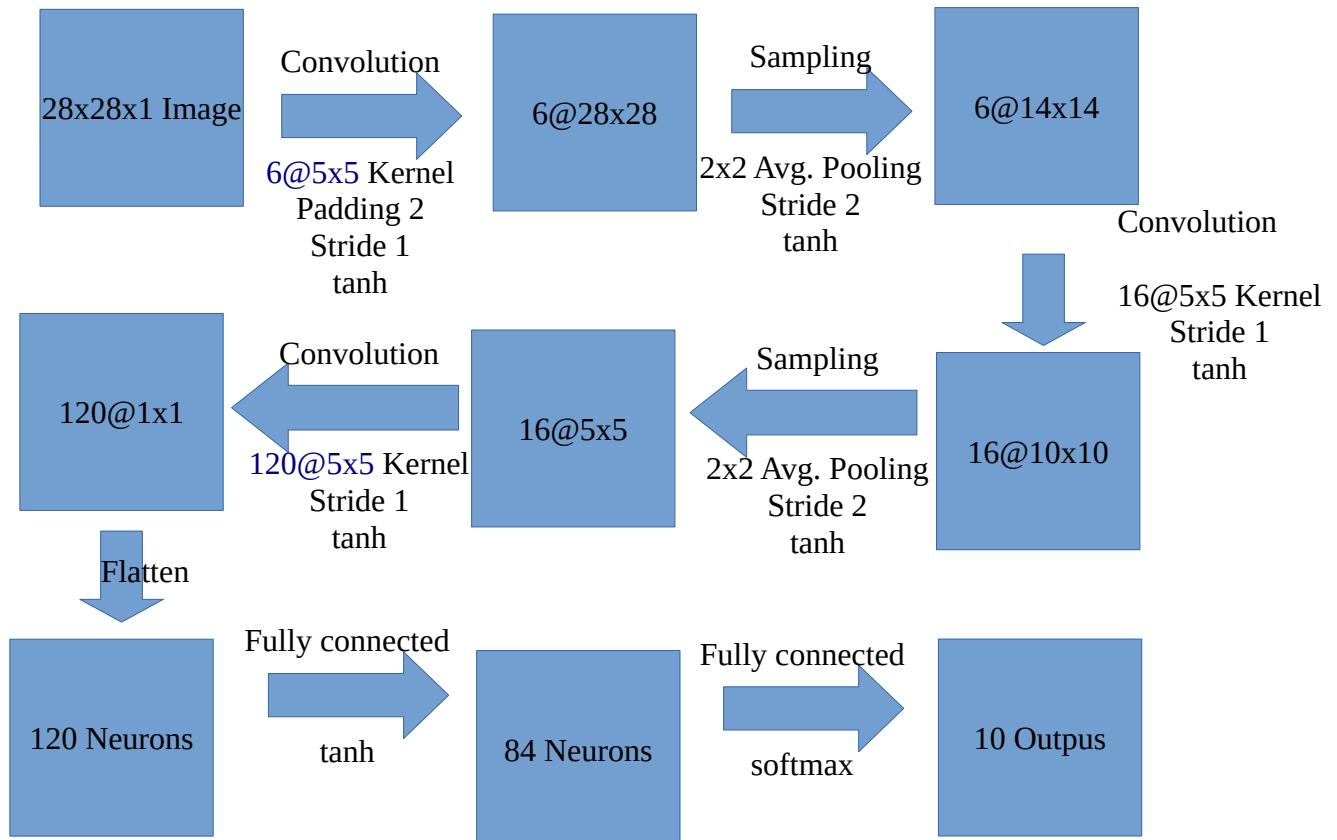 - Loss: 0.09034173935651779

CNN Analysis:

Layer (type)	Output Shape	Param #
conv2d_6 (Conv2D)	(None, 28, 28, 6)	156
average_pooling2d_4 (AveragePooling2D)	(None, 14, 14, 6)	0
conv2d_7 (Conv2D)	(None, 10, 10, 16)	2,416
average_pooling2d_5 (AveragePooling2D)	(None, 5, 5, 16)	0
conv2d_8 (Conv2D)	(None, 1, 1, 120)	48,120
flatten_2 (Flatten)	(None, 120)	0
dense_4 (Dense)	(None, 84)	10,164
dense_5 (Dense)	(None, 10)	850

Total params: 61,706 (241.04 KB)

Trainable params: 61,706 (241.04 KB)

Non-trainable params: 0 (0.00 B)

- **Architecture:**

28x28x1 Image → Convolution (6@5x5 Kernel, Padding 2, Stride 1, tanh) → 6@28x28 → Sampling (2x2 Avg. Pooling, Stride 2, tanh) → 6@14x14 → Convolution (16@5x5 Kernel, Stride 1, tanh) → 16@10x10 → Sampling (2x2 Avg. Pooling, Stride 2, tanh) → 16@5x5 → Convolution (120@5x5 Kernel, Stride 1, tanh) → 120@1x1 → Flatten → 120 Neurons → Fully connected (tanh) → 84 Neurons → Fully connected (softmax) → 10 Outpus

- **Metric:**
  - Epochs: 6
  - Accuracy: 98.45%
  - Loss: 0.047294165939092636