# **PART 1: Mnist Project Report**

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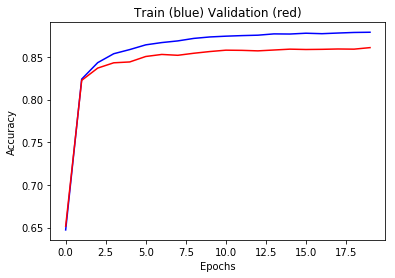
### **1st Neural Network architecture:**

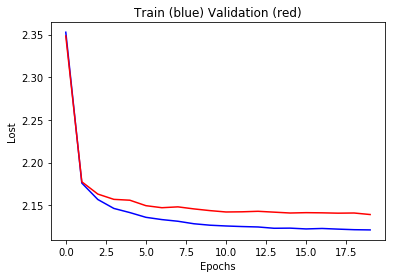
1. **Model architecture:**
   1. **Number of layers:** 3
   2. **Size of layers:** 784, 256, 10
2. **Learning rate:** 0.01
3. **Optimization algorithm:** Adam
4. **Loss function:** Softmax cross entropy with logits
5. **Batch size:** 200
6. **Amount of epochs:** 20
7. **Activation functions**:

1. relu

2. softmax

1. **Regularization/dropout:** Not used
2. **Graphs**:



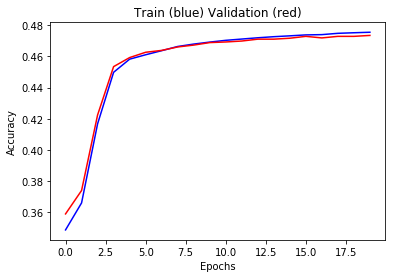


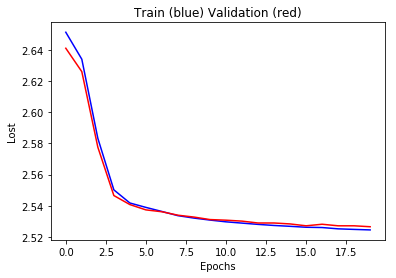
### **2nd Neural Network architecture:**

1. **Model architecture:**
   1. **Number of layers:** 3
   2. **Size of layers:** 784, 256, 10 (1 hidden layer)
2. **Learning rate:** 0.01
3. **Optimization algorithm:** Gradient Descent
4. **Loss function:** softmax cross entropy with logits
5. **Batch size:** 200
6. **Amount of epochs:** 20
7. **Activation functions:**

1. relu

2. softmax

1. **Regularization/dropout:** Not used
2. **Graphs:** 



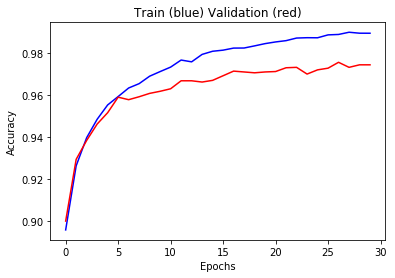
### **3rd Neural Network architecture:**

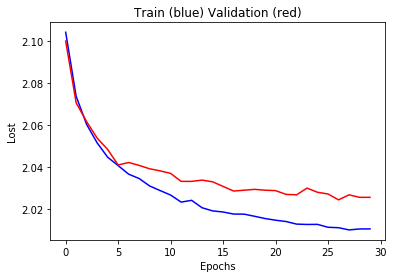
1. **Model architecture:**
   1. **Number of layers:** 4
   2. **Size of layers:** 784, 256, 128, 10
2. **Learning rate** **:**0.02
3. **Optimization algorithm:** Adam
4. **Loss function:** softmax cross entropy with logits
5. **Batch size:** 150
6. **Amount of epochs:** 20
7. **Activation functions:**

1. sigmoid

2. softmax

1. **Regularization/dropout**: 0.55 between the first hidden layer and the second hidden layer.
2. **Graphs:**



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