

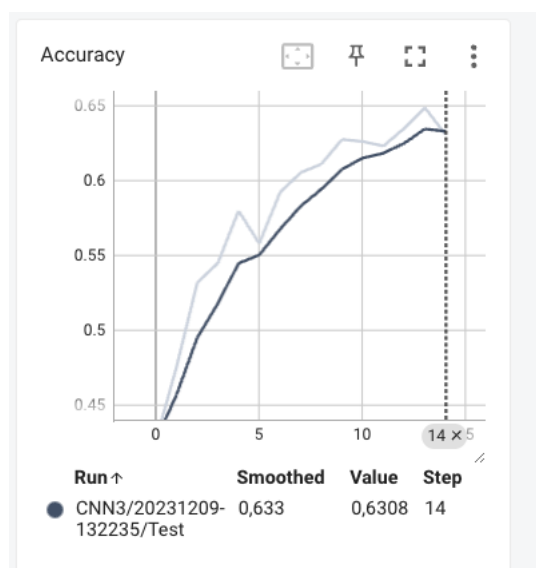
# Tensorflow Group 50 Homework03

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We have two main Architectures. CNN3 is a Residual type of Architecture. CNNLINEAR is a linear architecture, that we tried to max out for fun. Unfortunately we are not able to track our Test Accuracy with the Tensor Board yet. All plots for test accuracy have a scalar graph added for the sake of visibility. We have it in our training loop though. So we are able to post our accuracies on our best model. Because of our current workload we will solve this problems after this homework. The CNN3 Architecture would perform much better with a lower learning rate and many more epochs. For the sake of your suggestion to use not more than 15 epochs and because of problems with the Google Collab GPU (we tried out to much :)). We decided to to only train it for 15 Epochs and use higher learning rates. Our shared Model will most likely be one with much more Epochs and a lower learning rate.

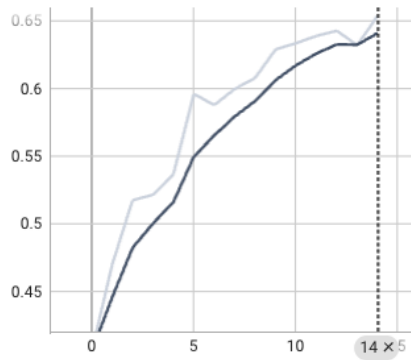
CNN3 :

```
CNN Layer [batch_size, 32, 32, 5]
CNN Layer [batch_size, 32, 32, 5]
MaxPooling [batch_size, 16, 16]
Adding Input and output
MaxPooling[batch_size, 16, 16]
CNN Layer [batch_size, 16, 16, 20]
CNN Layer [batch_size, 16, 16, 20]
Adding Input and Output
MaxPooling[batch_size, 8, 8]
CNN Layer [batch_size, 8, 8, 128]
Adding input and output
MaxPooling [batch_size, 4,4]
CNN Layer [batch_size, 4, 4, 256]
GlobalAveragePooling
DenseLayer [10, Softmax]
```

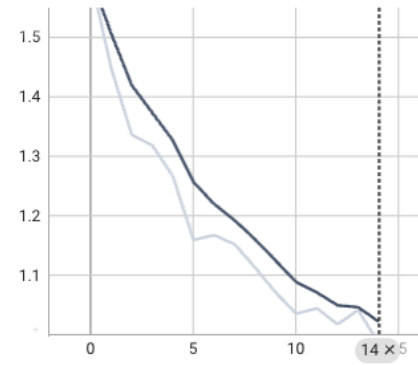


Learning Rate= 0.0005  
Optimizer = Adam

Accuracy

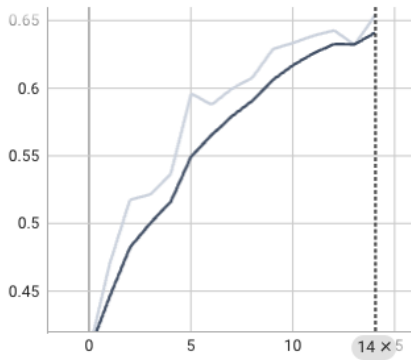


Loss

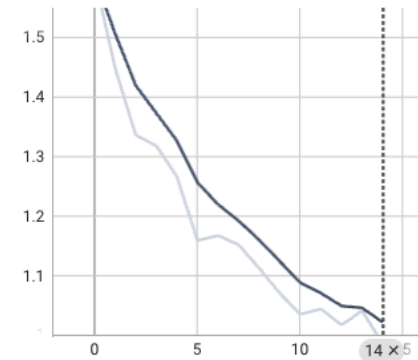


Learning Rate 0.0001  
Optimizer Adam

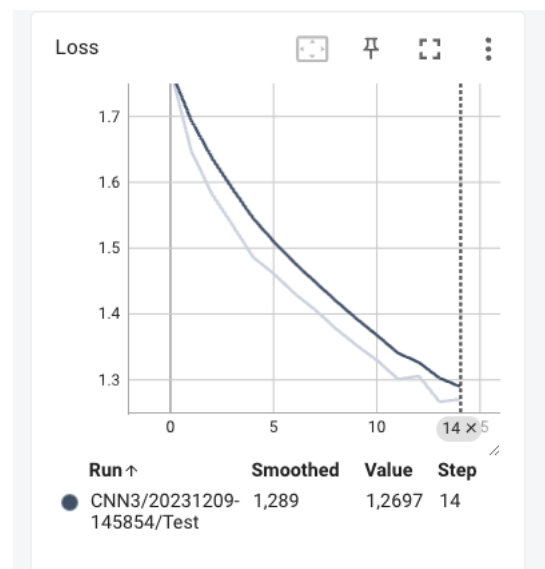
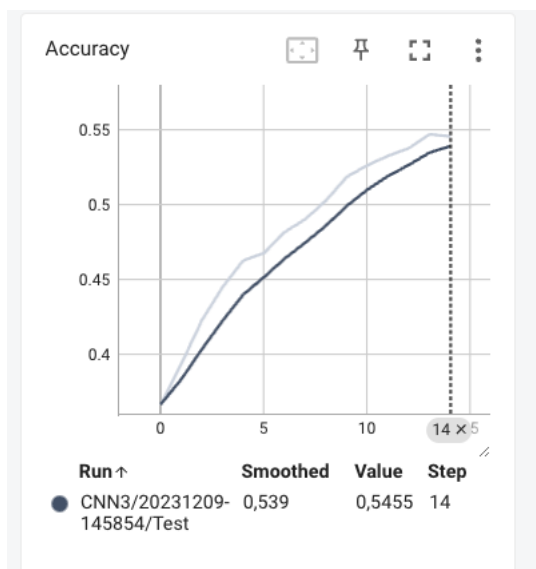
Accuracy



Loss



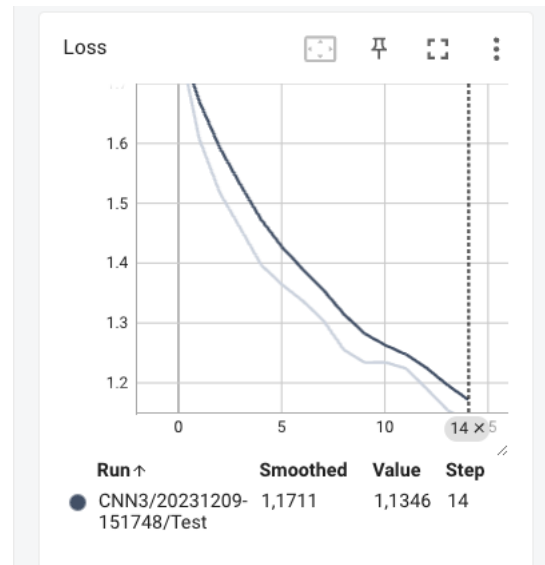
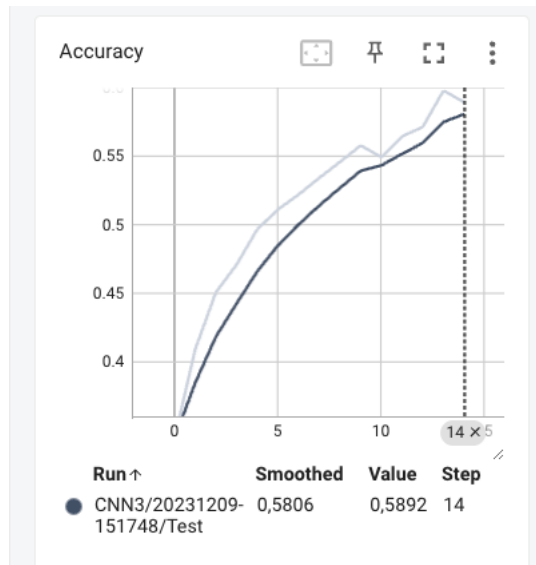
Learning Rate 0.0005  
Optimizer AdamMax



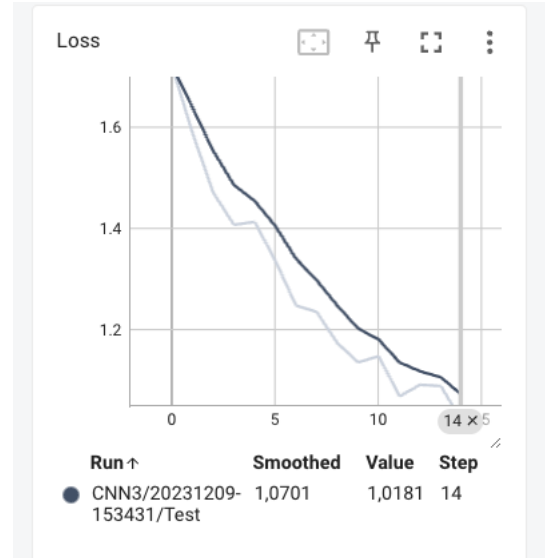
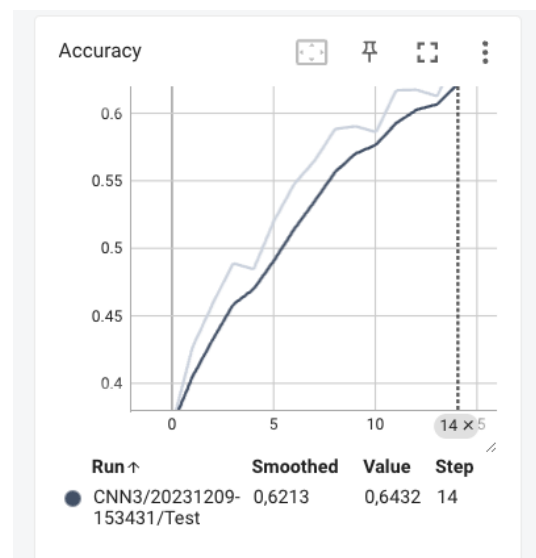
Learning Rate 0.0001  
Optimizer AdamMax

## CNNLINEAR

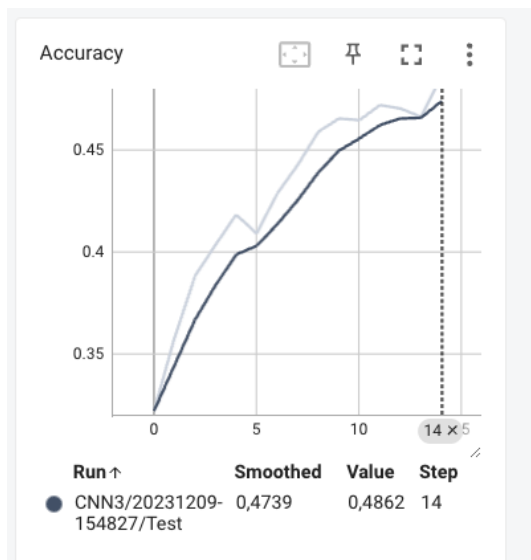
CNN Layer [batch\_size, 32, 32, 5]  
CNN Layer [batch\_size, 32, 32, 5]  
MaxPooling [batch\_size, 16, 16]  
CNN Layer [batch\_size, 16, 16, 20]  
CNN Layer [batch\_size, 16, 16, 20]  
MaxPooling [batch\_size, 8, 8]  
CNN Layer [batch\_size, 8, 8, 128]  
MaxPooling [batch\_size, 4, 4]  
CNN Layer [batch\_size, 4, 4, 256]  
GlobalAveragePooling  
DenseLayer [10, Softmax]



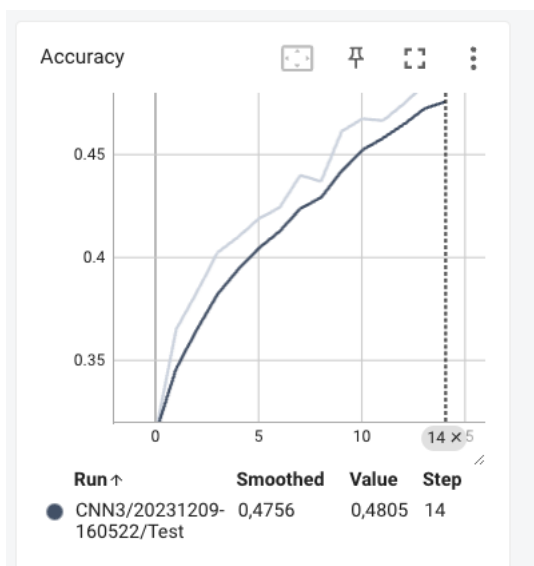
Learning Rate 0.0005  
Optimizer Adam



Learning Rate 0.0001  
Optimizer Adam



Learning Rate 0.0005  
Optimizer AdamMax



Learning Rate 0.0001  
Optimizer AdamMax