

Report I have tried with different optimizer

I have used adam optimizer with learning\_rate = 0.001

Train\_dataset = 40000

Val\_dataset = 10000

Test\_dataset = 10000 (without label)

```
Train on 40000 samples, validate on 10000 samples
Epoch 1/6
40000/40000 [=====] - 24s 612us/step - loss: 1.2514 - acc: 0.5568 - val_loss: 1.0813 - val_acc: 0.6289
Epoch 2/6
40000/40000 [=====] - 18s 441us/step - loss: 0.9118 - acc: 0.6821 - val_loss: 0.9155 - val_acc: 0.6883
Epoch 3/6
40000/40000 [=====] - 18s 441us/step - loss: 0.7529 - acc: 0.7362 - val_loss: 0.8822 - val_acc: 0.7036
Epoch 4/6
40000/40000 [=====] - 18s 439us/step - loss: 0.6102 - acc: 0.7856 - val_loss: 0.8616 - val_acc: 0.7191
Epoch 5/6
40000/40000 [=====] - 17s 437us/step - loss: 0.4812 - acc: 0.8306 - val_loss: 0.8231 - val_acc: 0.7397
Epoch 6/6
40000/40000 [=====] - 18s 439us/step - loss: 0.3599 - acc: 0.8743 - val_loss: 0.8396 - val_acc: 0.7456
```

## ADAM

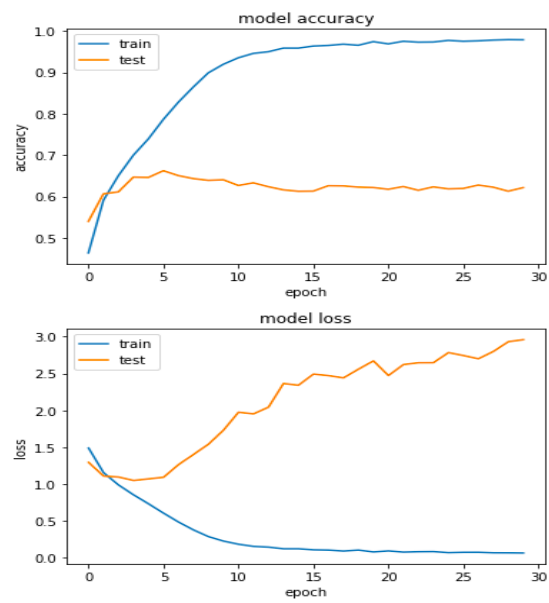


Fig. 1.1 L.R. = 0.001 and epoch=30

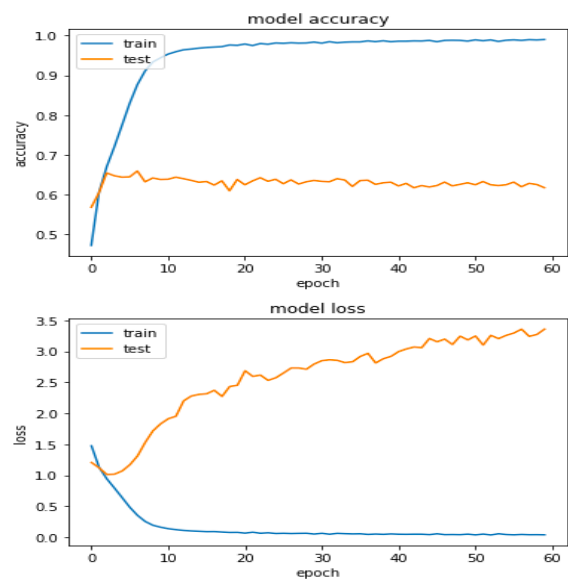


Fig. 1.2 L.R. = 0.001 and epoch=60

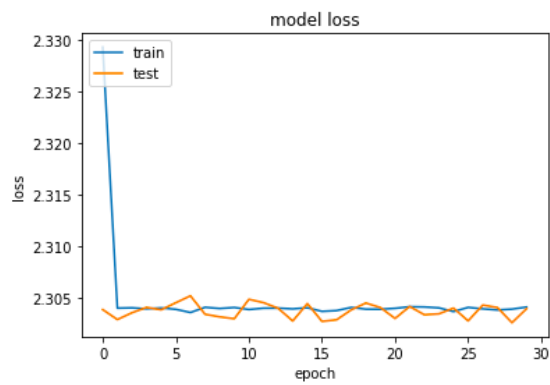
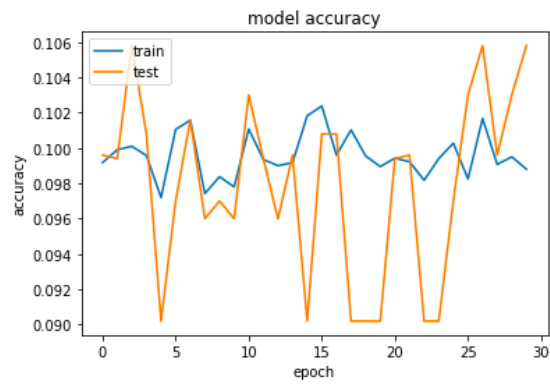


Fig. 1.3 L.R. = 0.01 and epoch=30

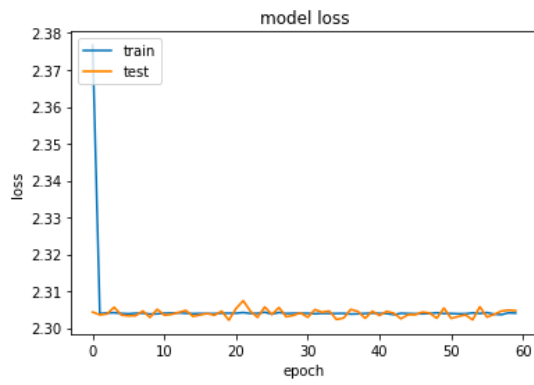
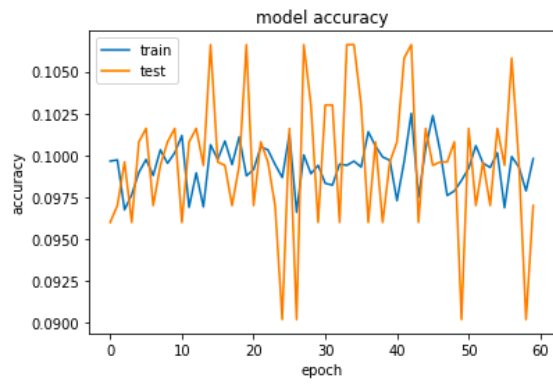


Fig. 1.4 L.R. = 0.01 and epoch=30

RMS

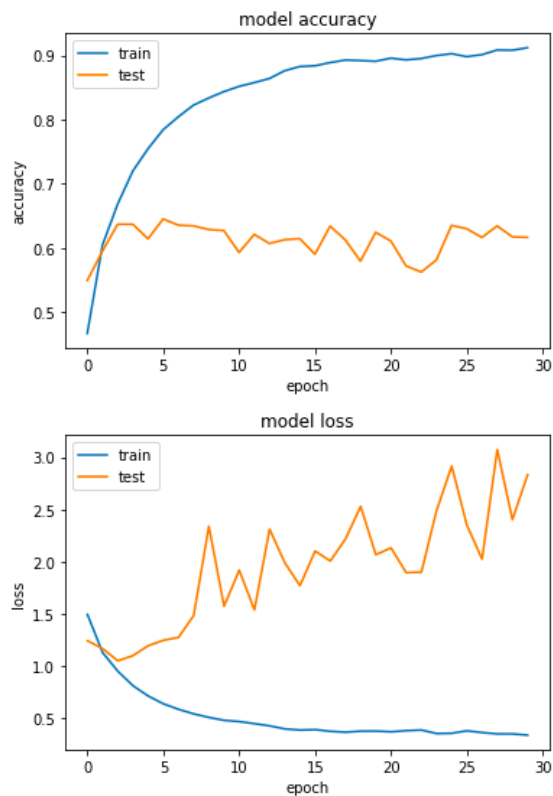


Fig. 2.1 L.R. = 0.001 and epoch=30.

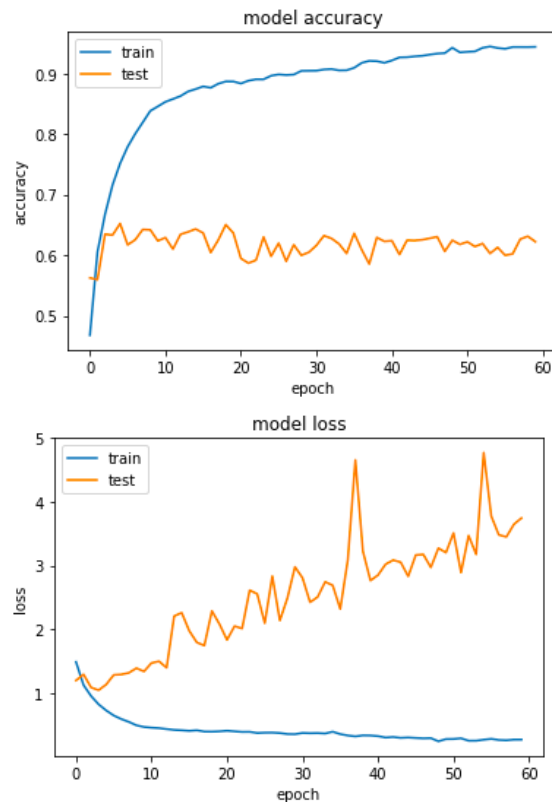


Fig. 2.2 L.R. = 0.001 and epoch=60

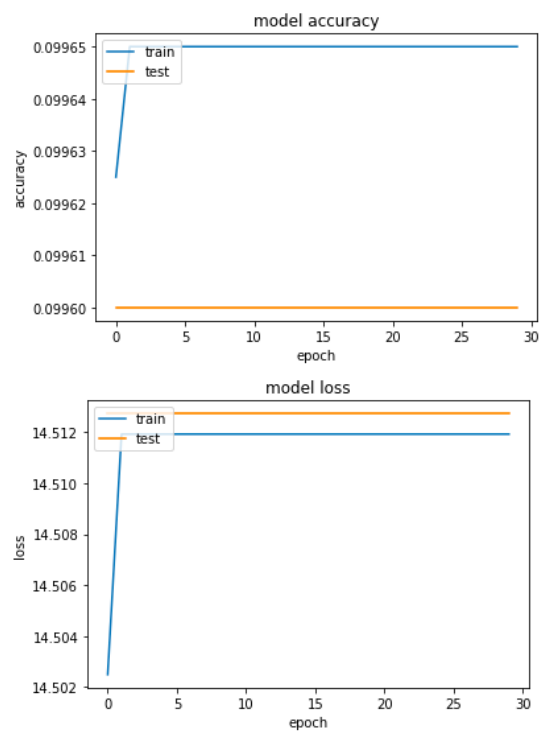


Fig. 2.3 L.R. = 0.01 and epoch = 30

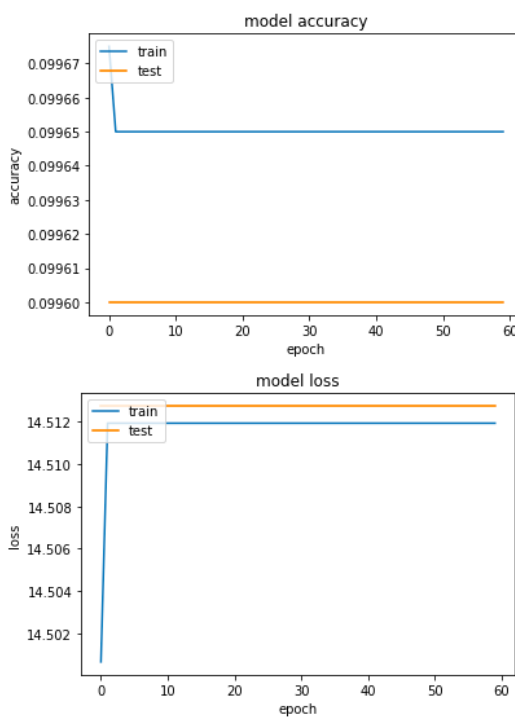


Fig. 2.4 L.R. = 0.01 and epoch=60

SGD

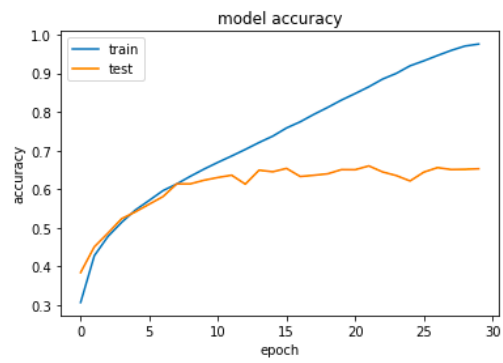


Fig. 3.1 L.R. = 0.01 epoch=30

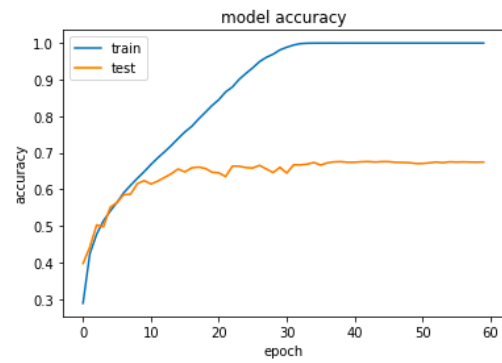


Fig. 3.2 L.R. = 0.01 epoch=60

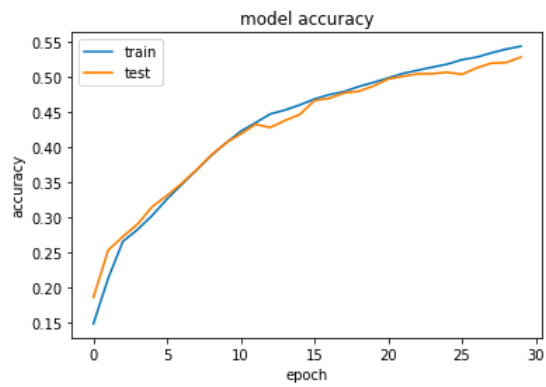
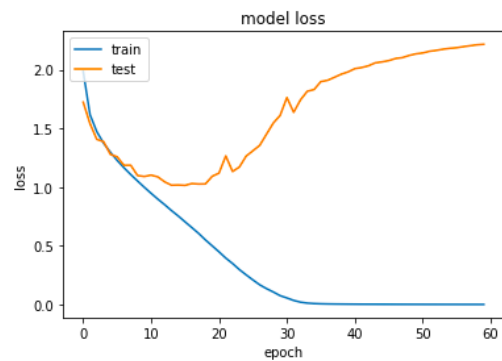
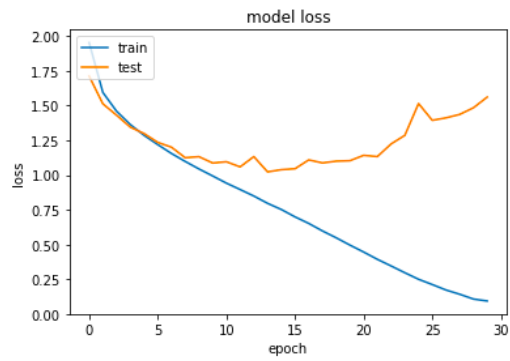


Fig. 3.3 L.R.= 0.01 epoch=30

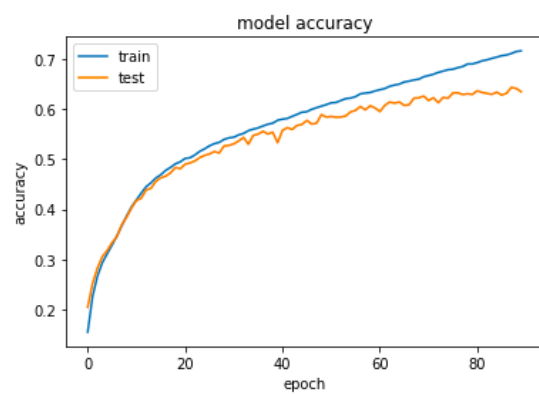
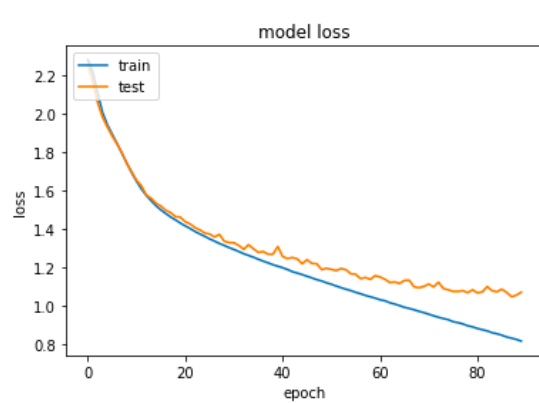
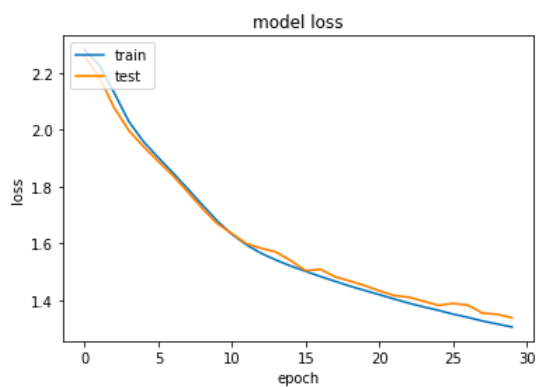


Fig. 3.4 L.R.= 0.01 epoch=90



ADAGRAD

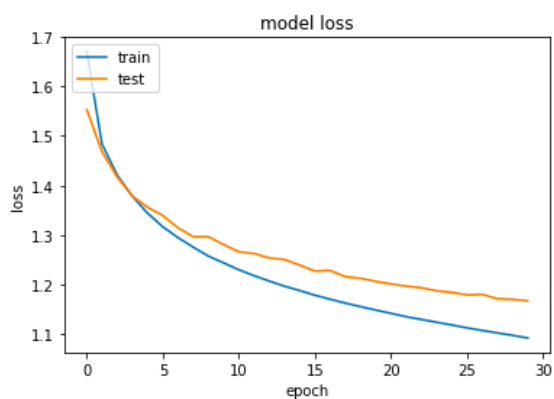
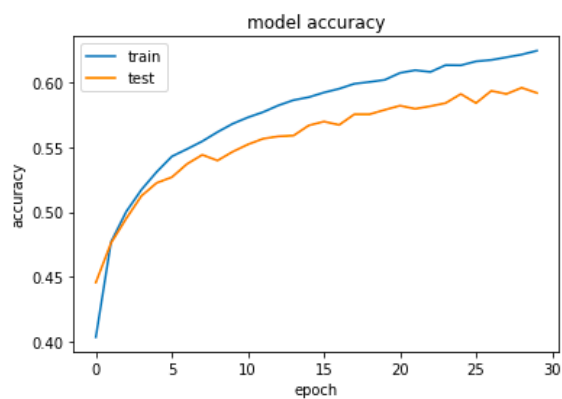


Fig. 4.1 L.R.=0.001 and epoch=30

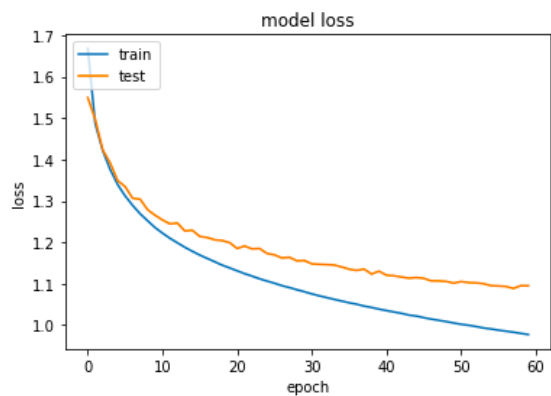
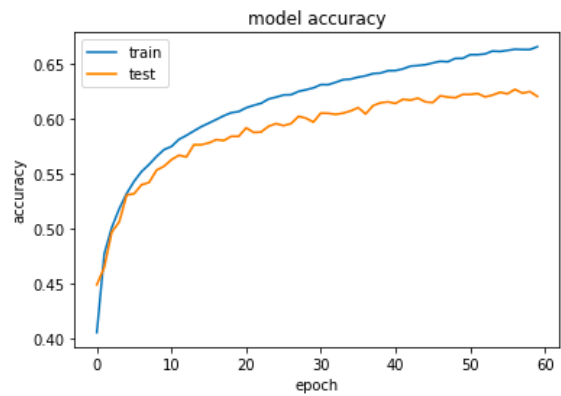


Fig. 4.2 L.R.=0.001 and epoch=60

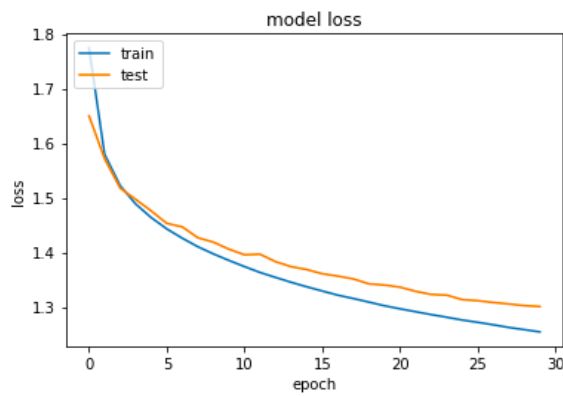
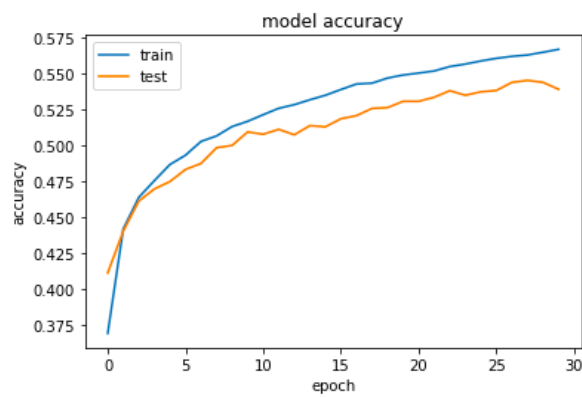


Fig. 4.3 L.R.=0.0005 and epoch=30

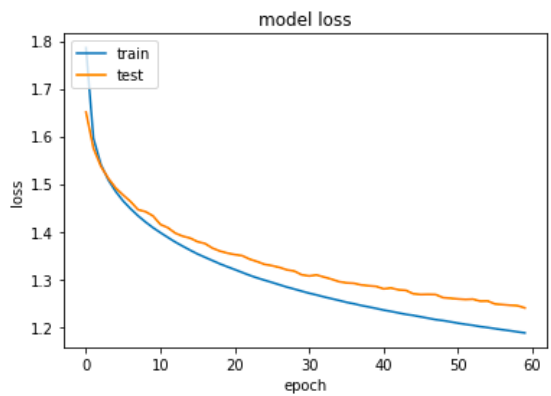
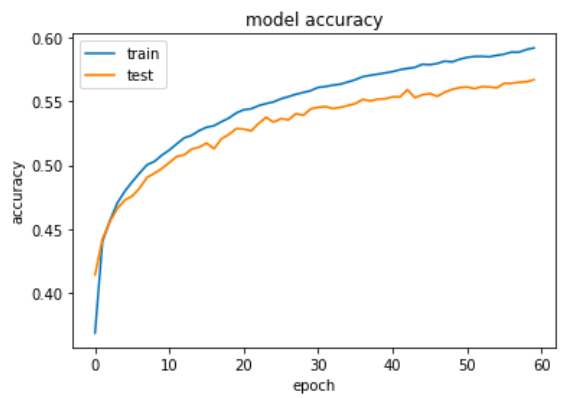


Fig. 4.4 L.R.=0.0005 and epoch=60