Attempt 1:

Optimizer:adadelta

history = model.fit(data,labels, epochs=10**, batch_size=50**, validation_split=0.3, verbose=1)

Train on 17500 samples, validate on 7500 samples

Epoch 1/10

17500/17500 : 800s 46ms/step - loss: 0.5864 - acc: 0.7109 - val_loss: 1.2658 - val_acc: 0.0083

Epoch 2/10

17500/17500 : 789s 45ms/step - loss: 0.5633 - acc: 0.7210 - val_loss: 1.0903 - val_acc: 0.1477

Epoch 3/10

17500/17500 : 787s 45ms/step - loss: 0.5931 - acc: 0.7120 - val_loss: 1.1586 - val_acc: 0.0015

Epoch 4/10

17500/17500 :792s 45ms/step - loss: 0.6020 - acc: 0.7135 - val_loss: 1.1904 - val_acc: 0.0000e+00

Epoch 5/10

17500/17500 :- 784s 45ms/step - loss: 0.6006 - acc: 0.7142 - val_loss: 1.2981 - val_acc: 0.0000e+00

Epoch 6/10

17500/17500 :780s 45ms/step - loss: 0.6000 - acc: 0.7142 - val_loss: 1.2073 - val_acc: 0.0000e+00

Epoch 7/10

17500/17500 : 790s 45ms/step - loss: 0.5986 - acc: 0.7143 - val_loss: 1.0793 - val_acc: 0.0000e+00

Epoch 8/10

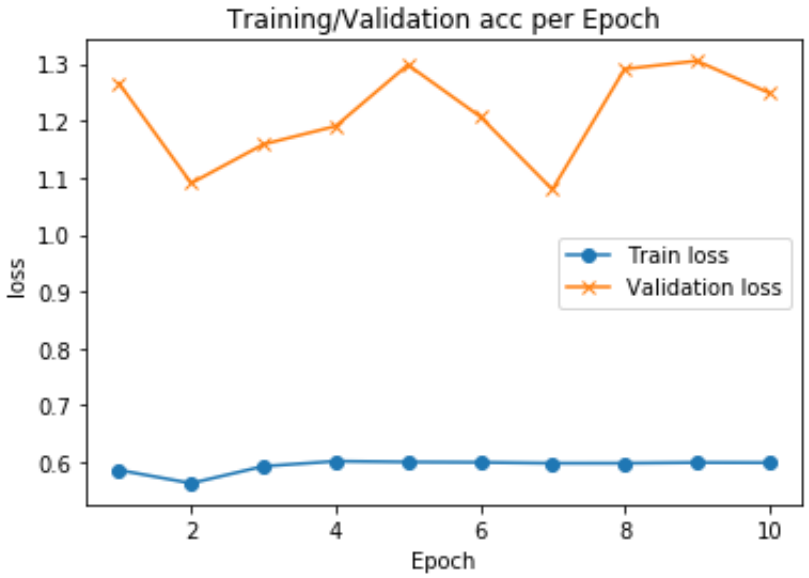
17500/17500 : 779s 45ms/step - loss: 0.5986 - acc: 0.7143 - val_loss: 1.2908 - val_acc: 0.0000e+00

Epoch 9/10

17500/17500 : 784s 45ms/step - loss: 0.5997 - acc: 0.7143 - val_loss: 1.3050 - val_acc: 0.0000e+00

Epoch 10/10

17500/17500 : 793s 45ms/step - loss: 0.5995 - acc: 0.7143 - val_loss: 1.2488 - val_acc: 0.0000e+00



Attempt 2:

Optimizer: SGD

sgd=optimizers.SGD(**lr=0.01**, **momentum=0.0**, decay=0.0, nesterov=False)

model.compile(loss='mean_squared_error',metrics=["accuracy"], optimizer=sgd)

history = model.fit(data,labels, epochs=15, **batch_size=100**, validation_data=(X_val,Y_val), verbose=1)

Train on 25000 samples, validate on 5000 samples

Epoch 1/15

25000/25000 : 1113s 45ms/step - loss: 0.2535 - acc: 0.5170 - val_loss: 0.2456 - val_acc: 0.5606

Epoch 2/15

25000/25000 : 44ms/step - loss: 0.2456 - acc: 0.5556 - val_loss: 0.2396 - val_acc: 0.5782

Epoch 3/15

25000/25000 : 1112s 44ms/step - loss: 0.2417 - acc: 0.5731 - val_loss: 0.2363 - val_acc: 0.5878

Epoch 4/15

25000/25000 : 1111s 44ms/step - loss: 0.2394 - acc: 0.5850 - val_loss: 0.2368 - val_acc: 0.5862

Epoch 5/15

25000/25000 : 1119s 45ms/step - loss: 0.2370 - acc: 0.5916 - val_loss: 0.2356 - val_acc: 0.5946

Epoch 6/15

25000/25000 : 1120s 45ms/step - loss: 0.2360 - acc: 0.5952 - val_loss: 0.2335 - val_acc: 0.6004

Epoch 7/15

25000/25000 : 1121s 45ms/step - loss: 0.2329 - acc: 0.6052 - val_loss: 0.2303 - val_acc: 0.6076

Epoch 8/15

25000/25000 : 1334s 53ms/step - loss: 0.2305 - acc: 0.6106 - val_loss: 0.2274 - val_acc: 0.6154

Epoch 9/15

25000/25000 : 1343s 54ms/step - loss: 0.2293 - acc: 0.6165 - val_loss: 0.2262 - val_acc: 0.6164

Epoch 10/15

25000/25000 : 1347s 54ms/step - loss: 0.2279 - acc: 0.6216 - val_loss: 0.2250 - val_acc: 0.6222

Epoch 11/15

25000/25000 : 1340s 54ms/step - loss: 0.2268 - acc: 0.6216 - val_loss: 0.2273 - val_acc: 0.6170

Epoch 12/15

25000/25000 : 1344s 54ms/step - loss: 0.2255 - acc: 0.6279 - val_loss: 0.2236 - val_acc: 0.6234

Epoch 13/15

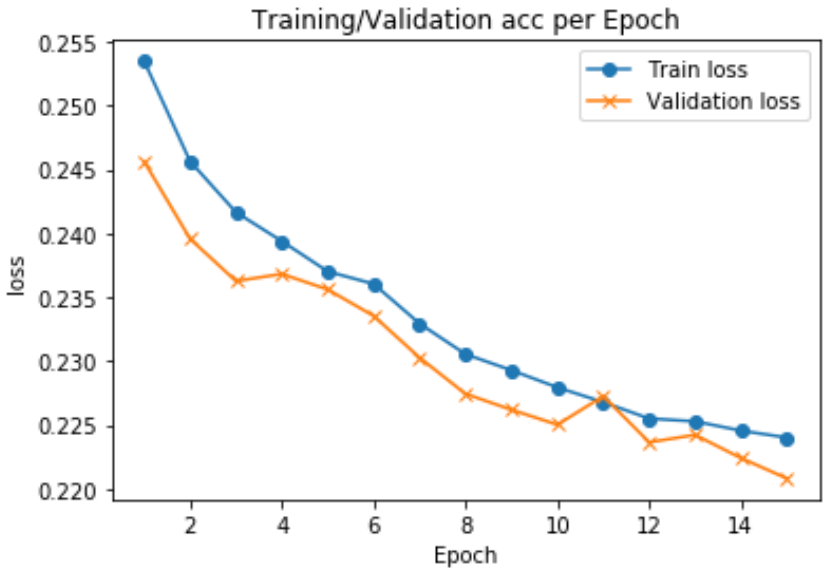
25000/25000 : 1337s 53ms/step - loss: 0.2253 - acc: 0.6276 - val_loss: 0.2242 - val_acc: 0.6280

Epoch 14/15

25000/25000 : 1341s 54ms/step - loss: 0.2246 - acc: 0.6288 - val_loss: 0.2224 - val_acc: 0.6298

Epoch 15/15

25000/25000 : 1349s 54ms/step - loss: 0.2240 - acc: 0.6332 - val_loss: 0.2208 - val_acc: 0.6358



Attempt 3:

sgd=**optimizers.SGD**(**lr=0.001**, **momentum=0.7**, decay=0.0, nesterov=False)

model.compile(loss='mean_squared_error',metrics=["accuracy"], optimizer=sgd)

history = model.fit(data,labels, epochs=15, **batch_size=300**, validation_data=(X_val,Y_val), verbose=1)

Train on 25000 samples, validate on 5000 samples

Epoch 1/15

25000/25000 : 1321s 53ms/step - loss: 0.2222 - acc: 0.6336 - val_loss: 0.2221 - val_acc: 0.6328

Epoch 2/15

25000/25000 : 1301s 52ms/step - loss: 0.2215 - acc: 0.6367 - val_loss: 0.2210 - val_acc: 0.6300

Epoch 3/15

25000/25000 : 1324s 53ms/step - loss: 0.2209 - acc: 0.6402 - val_loss: 0.2234 - val_acc: 0.6336

Epoch 4/15

25000/25000 : 1313s 53ms/step - loss: 0.2218 - acc: 0.6352 - val_loss: 0.2230 - val_acc: 0.6328

Epoch 5/15

25000/25000 : 1312s 52ms/step - loss: 0.2214 - acc: 0.6384 - val_loss: 0.2210 - val_acc: 0.6330

Epoch 6/15

25000/25000 : 1315s 53ms/step - loss: 0.2209 - acc: 0.6398 - val_loss: 0.2217 - val_acc: 0.6324

Epoch 7/15

25000/25000 : 1309s 52ms/step - loss: 0.2208 - acc: 0.6395 - val_loss: 0.2205 - val_acc: 0.6340

Epoch 8/15

25000/25000 : 1314s 53ms/step - loss: 0.2212 - acc: 0.6376 - val_loss: 0.2206 - val_acc: 0.6352

Epoch 9/15

25000/25000 : 1529s 61ms/step - loss: 0.2210 - acc: 0.6396 - val_loss: 0.2213 - val_acc: 0.6336

Epoch 10/15

25000/25000 : 1296s 52ms/step - loss: 0.2207 - acc: 0.6380 - val_loss: 0.2201 - val_acc: 0.6360

Epoch 11/15

25000/25000 : 1301s 52ms/step - loss: 0.2209 - acc: 0.6400 - val_loss: 0.2208 - val_acc: 0.6334

Epoch 12/15

25000/25000 : 1304s 52ms/step - loss: 0.2209 - acc: 0.6392 - val_loss: 0.2203 - val_acc: 0.6372

Epoch 13/15

25000/25000 : 1307s 52ms/step - loss: 0.2206 - acc: 0.6400 - val_loss: 0.2205 - val_acc: 0.6360

Epoch 14/15

25000/25000 : 1303s 52ms/step - loss: 0.2203 - acc: 0.6410 - val_loss: 0.2212 - val_acc: 0.6320

Epoch 15/15

25000/25000 : 1303s 52ms/step - loss: 0.2199 - acc: 0.6440 - val_loss: 0.2206 - val_acc: 0.6342