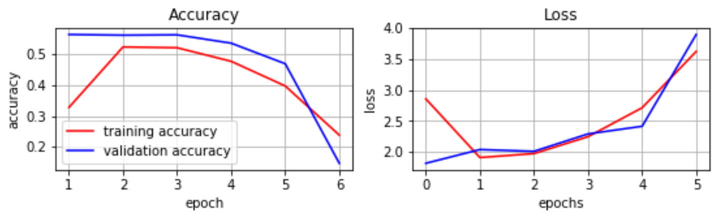
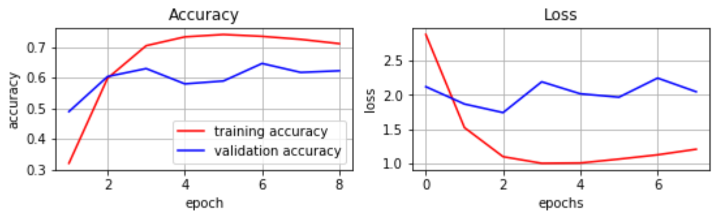
```
Creando el modelo ... final_1_3_rmsprop
Sin optimizador, hay que compilar el modelo.
===============================================================================================
Entrenando ...  final_1_3_rmsprop
Epoch 1/30
4198/4198 [==============================] - 286s 68ms/step - loss: 2.8586 - acc: 0.3280 - val_loss: 1.8194 - val_acc: 0.5
Epoch 2/30
4198/4198 [==============================] - 287s 68ms/step - loss: 1.9121 - acc: 0.5241 - val_loss: 2.0408 - val_acc: 0.5
Epoch 3/30
4198/4198 [==============================] - 284s 68ms/step - loss: 1.9757 - acc: 0.5216 - val_loss: 2.0119 - val_acc: 0.5
Epoch 4/30
4198/4198 [==============================] - 281s 67ms/step - loss: 2.2483 - acc: 0.4776 - val_loss: 2.2935 - val_acc: 0.5
Epoch 5/30
4198/4198 [==============================] - 284s 68ms/step - loss: 2.7151 - acc: 0.3977 - val_loss: 2.4160 - val_acc: 0.4
Epoch 6/30
4198/4198 [==============================] - 280s 67ms/step - loss: 3.6233 - acc: 0.2383 - val_loss: 3.8963 - val_acc: 0.1

Modelo guardado en: /content/drive/My Drive/MAIR-Master/07MAIR-Actividad1/modelo_0_final_1_3_rmsprop.hdf5

Tiempo de ejecución del experimento: 1708.0
```

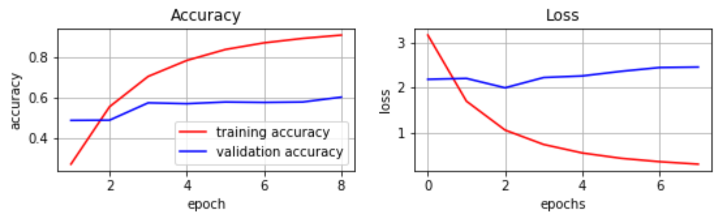


```
Evaluando ...
Exactitud validate       : 13.65 %, Loss: 3.8931
Exactitud test           : 14.69 %, Loss: 3.8963
Exactitud todo el dataset: 21.6 %, Loss: 3.5335
Creando el modelo ... final_1_4_rmsprop
Sin optimizador, hay que compilar el modelo.
===============================================================================================
Entrenando ...  final_1_4_rmsprop
Epoch 1/30
4198/4198 [==============================] - 279s 66ms/step - loss: 2.8798 - acc: 0.3207 - val_loss: 2.1210 - val_acc: 0.4
Epoch 2/30
4198/4198 [==============================] - 274s 65ms/step - loss: 1.5262 - acc: 0.5987 - val_loss: 1.8691 - val_acc: 0.6
Epoch 3/30
4198/4198 [==============================] - 266s 63ms/step - loss: 1.1034 - acc: 0.7050 - val_loss: 1.7442 - val_acc: 0.6
Epoch 4/30
4198/4198 [==============================] - 268s 64ms/step - loss: 1.0075 - acc: 0.7337 - val_loss: 2.1925 - val_acc: 0.5
Epoch 5/30
4198/4198 [==============================] - 271s 65ms/step - loss: 1.0119 - acc: 0.7415 - val_loss: 2.0178 - val_acc: 0.5
Epoch 6/30
4198/4198 [==============================] - 271s 65ms/step - loss: 1.0684 - acc: 0.7354 - val_loss: 1.9683 - val_acc: 0.6
Epoch 7/30
4198/4198 [==============================] - 287s 68ms/step - loss: 1.1304 - acc: 0.7256 - val_loss: 2.2465 - val_acc: 0.6
Epoch 8/30
4198/4198 [==============================] - 280s 67ms/step - loss: 1.2118 - acc: 0.7116 - val_loss: 2.0474 - val_acc: 0.6

Modelo guardado en: /content/drive/My Drive/MAIR-Master/07MAIR-Actividad1/modelo_0_final_1_4_rmsprop.hdf5

Tiempo de ejecución del experimento: 2204.0
```

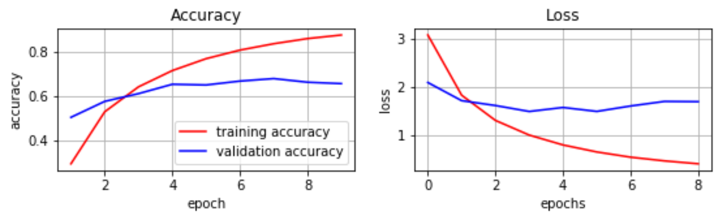


```
Evaluando ...
Exactitud validate       : 61.04 %, Loss: 1.9815
Exactitud test           : 62.29 %, Loss: 2.0474
Exactitud todo el dataset: 77.97 %, Loss: 1.1024
Creando el modelo ... final_2_3_Adam_1e-4
Sin optimizador, hay que compilar el modelo.
===============================================================================================
Entrenando ...  final_2_3_Adam_1e-4
Epoch 1/30
4198/4198 [==============================] - 290s 69ms/step - loss: 3.1619 - acc: 0.2707 - val_loss: 2.1832 - val_acc: 0.4
Epoch 2/30
4198/4198 [==============================] - 298s 71ms/step - loss: 1.6993 - acc: 0.5538 - val_loss: 2.2036 - val_acc: 0.4
Epoch 3/30
4198/4198 [==============================] - 292s 70ms/step - loss: 1.0606 - acc: 0.7032 - val_loss: 1.9957 - val_acc: 0.5
Epoch 4/30
4198/4198 [==============================] - 287s 68ms/step - loss: 0.7414 - acc: 0.7819 - val_loss: 2.2233 - val_acc: 0.5
Epoch 5/30
4198/4198 [==============================] - 288s 69ms/step - loss: 0.5538 - acc: 0.8359 - val_loss: 2.2583 - val_acc: 0.5
Epoch 6/30
4198/4198 [==============================] - 290s 69ms/step - loss: 0.4360 - acc: 0.8686 - val_loss: 2.3602 - val_acc: 0.5
Epoch 7/30
4198/4198 [==============================] - 289s 69ms/step - loss: 0.3609 - acc: 0.8905 - val_loss: 2.4443 - val_acc: 0.5
Epoch 8/30
4198/4198 [==============================] - 288s 69ms/step - loss: 0.3065 - acc: 0.9068 - val_loss: 2.4547 - val_acc: 0.6
```

```
Modelo guardado en: /content/drive/My Drive/MAIR-Master/07MAIR-Actividad1/modelo_0_final_2_3_Adam_1e-4.hdf5

Tiempo de ejecución del experimento: 2330.0
```



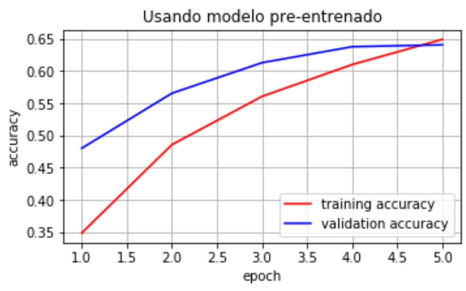
```
Evaluando ...
Exactitud validate       : 58.65 %, Loss: 2.666
Exactitud test           : 60.1 %, Loss: 2.4547
Exactitud todo el dataset: 82.48 %, Loss: 1.0465
Creando el modelo ... final_2_4_Adam_1e-4
Sin optimizador, hay que compilar el modelo.
===============================================================================================
Entrenando ...  final_2_4_Adam_1e-4
Epoch 1/30
4198/4198 [==============================] - 282s 67ms/step - loss: 3.0827 - acc: 0.2908 - val_loss: 2.0901 - val_acc: 0.5
Epoch 2/30
4198/4198 [==============================] - 270s 64ms/step - loss: 1.8251 - acc: 0.5285 - val_loss: 1.7107 - val_acc: 0.5
Epoch 3/30
4198/4198 [==============================] - 268s 64ms/step - loss: 1.2978 - acc: 0.6425 - val_loss: 1.6090 - val_acc: 0.6
Epoch 4/30
4198/4198 [==============================] - 269s 64ms/step - loss: 0.9914 - acc: 0.7168 - val_loss: 1.4849 - val_acc: 0.6
Epoch 5/30
4198/4198 [==============================] - 266s 63ms/step - loss: 0.7850 - acc: 0.7712 - val_loss: 1.5681 - val_acc: 0.6
Epoch 6/30
4198/4198 [==============================] - 267s 64ms/step - loss: 0.6384 - acc: 0.8103 - val_loss: 1.4861 - val_acc: 0.6
Epoch 7/30
4198/4198 [==============================] - 269s 64ms/step - loss: 0.5291 - acc: 0.8395 - val_loss: 1.5992 - val_acc: 0.6
Epoch 8/30
4198/4198 [==============================] - 273s 65ms/step - loss: 0.4520 - acc: 0.8630 - val_loss: 1.6948 - val_acc: 0.6
Epoch 9/30
4198/4198 [==============================] - 277s 66ms/step - loss: 0.3913 - acc: 0.8794 - val_loss: 1.6898 - val_acc: 0.6

Modelo guardado en: /content/drive/My Drive/MAIR-Master/07MAIR-Actividad1/modelo_0_final_2_4_Adam_1e-4.hdf5

Tiempo de ejecución del experimento: 2452.0
```

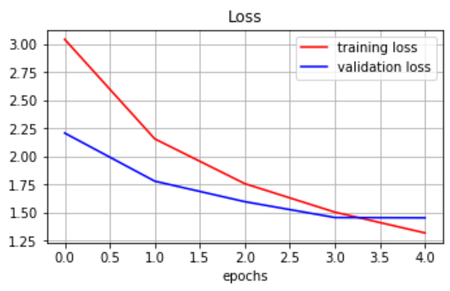


```
Evaluando ...
Exactitud validate       : 63.65 %, Loss: 1.7777
Exactitud test           : 65.73 %, Loss: 1.6898
Exactitud todo el dataset: 84.71 %, Loss: 0.7057
```

```
function ClickConnect(){
    console.log("Working");
    document.querySelector("colab-toolbar-button#connect").click()
}
setInterval(ClickConnect,600000)
```

```
# vemos los resultados   # 61%   best test 66%
plot_results(history_augmentation)

# predecimos para verificar la exactitud conseguida
#predict_sample(X_test,y_test,model=test_model)
print("Exactitud en subconjunto de test:")
predict_accuracy(X_test, y_test, model,verbose=True)

print("\nExactitud en todo el dataset:")
predict_accuracy(x_data, y_cat, model,verbose=True)

```





```
Exactitud en subconjunto de test:
Predict loss: 1.4546661967786338
Predict accuracy: 0.6406705537620856

Exactitud en todo el dataset:
Predict loss: 0.9939162630872903
Predict accuracy: 0.736358665983295
(0.9939, 0.7364)
```

```
1
```

---

6. Referencias

inicio

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