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WARNING:tensorflow:From /usr/local/lib/python3.6/dist-packages/keras/backend/tensorflow_backend.py:66: The name tf.get_default_graph is deprecated. Please use tf.compat.v1.get_default_graph instead.

WARNING:tensorflow:From /usr/local/lib/python3.6/dist-packages/keras/backend/tensorflow_backend.py:541: The name tf.placeholder is deprecated. Please use tf.compat.v1.placeholder instead.

WARNING:tensorflow:From /usr/local/lib/python3.6/dist-packages/keras/backend/tensorflow_backend.py:4432: The name tf.random_uniform is deprecated. Please use tf.random.uniform instead.

WARNING:tensorflow:From /usr/local/lib/python3.6/dist-packages/keras/backend/tensorflow_backend.py:4267: The name tf.nn.max_pool is deprecated. Please use tf.nn.max_pool2d instead.

Downloading data from https://github.com/fchollet/deep-learning-models/releases/download/v0.1/vgg16\_weights\_tf\_dim\_ordering\_tf\_kernels\_notop.h5
58892288/58889256 [=====] - 2s 0us/step
WARNING:tensorflow:From /usr/local/lib/python3.6/dist-packages/keras/backend/tensorflow_backend.py:216: The name tf.is_variable_initialized is deprecated. Please use tf.compat.v1.is_variable_initialized instead.

WARNING:tensorflow:From /usr/local/lib/python3.6/dist-packages/keras/backend/tensorflow_backend.py:223: The name tf.variables_initializer is deprecated. Please use tf.compat.v1.variables_initializer instead.

Capa input_1 congelada...
Capa block1_conv1 congelada...
Capa block1_conv2 congelada...
Capa block1_pool congelada...
Capa block2_conv1 congelada...
Capa block2_conv2 congelada...
Capa block2_pool congelada...
Capa block3_conv1 congelada...
Capa block3_conv2 congelada...
Capa block3_conv3 congelada...
Capa block3_pool congelada...
Capa block4_conv1 congelada...
Capa block4_conv2 congelada...
Capa block4_conv3 congelada...
Capa block4_pool congelada...
WARNING:tensorflow:From /usr/local/lib/python3.6/dist-packages/keras/backend/tensorflow_backend.py:148: The name tf.placeholder_with_default is deprecated. Please use tf.compat.v1.placeholder_with_default instead.

WARNING:tensorflow:From /usr/local/lib/python3.6/dist-packages/keras/backend/tensorflow_backend.py:3733: calling dropout (from tensorflow.python.ops.nn_ops) with keep_prob is deprecated and will be removed in a future version.
Instructions for updating:
Please use 'rate' instead of 'keep_prob'. Rate should be set to 'rate = 1 - keep_prob'.
Model: "sequential_1"

Layer (type)                Output Shape                Param #
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vgg16 (Model)                (None, 4, 4, 512)          14714688
flatten_1 (Flatten)          (None, 8192)                0
dense_1 (Dense)              (None, 1024)                8389632
dense_2 (Dense)              (None, 1024)                1049600
dropout_1 (Dropout)          (None, 1024)                0
dense_3 (Dense)              (None, 102)                 104550
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Total params: 24,258,470
Trainable params: 16,623,206
Non-trainable params: 7,635,264

WARNING:tensorflow:From /usr/local/lib/python3.6/dist-packages/keras/optimizers.py:793: The name tf.train.Optimizer is deprecated. Please use tf.compat.v1.train.Optimizer instead.

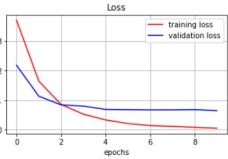
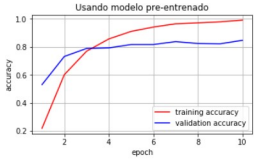
WARNING:tensorflow:From /usr/local/lib/python3.6/dist-packages/keras/backend/tensorflow_backend.py:3576: The name tf.log is deprecated. Please use tf.math.log instead.

Creando subset de datos ...
Creando sub-conjunto de datos con 102 clases y 100 muestras por clase
number_of_classes: 102
Sub-conjunto con 102 clases creado.
Cantidad de muestras: 6398
Creando juegos de datos de train, validate y test ...
Creando datos de train, validate y test ...
Datos de train, validate y test creados.

Split de Entrenamiento, Validación y prueba: 4478, 960, 960
Entrenando el modelo...
WARNING:tensorflow:From /usr/local/lib/python3.6/dist-packages/tensorflow_core/python/ops/math_grad.py:1424: where (from tensorflow.python.ops.array_ops) is deprecated and will be removed in a future version.
Instructions for updating:
Use tf.where in 2.0, which has the same broadcast rule as np.where
WARNING:tensorflow:From /usr/local/lib/python3.6/dist-packages/keras/backend/tensorflow_backend.py:1033: The name tf.assign_add is deprecated. Please use tf.compat.v1.assign_add instead.

WARNING:tensorflow:From /usr/local/lib/python3.6/dist-packages/keras/backend/tensorflow_backend.py:1020: The name tf.assign is deprecated. Please use tf.compat.v1.assign instead.

Train on 4478 samples, validate on 960 samples
Epoch 1/10
4478/4478 [=====] - 15s 3ms/step - loss: 3.7046 - acc: 0.2182 - val_loss: 2.1791 - val_acc: 0.5302
Epoch 2/10
4478/4478 [=====] - 6s 1ms/step - loss: 1.6411 - acc: 0.6009 - val_loss: 1.1298 - val_acc: 0.7312
Epoch 3/10
4478/4478 [=====] - 6s 1ms/step - loss: 0.8523 - acc: 0.7689 - val_loss: 0.8359 - val_acc: 0.7885
Epoch 4/10
4478/4478 [=====] - 6s 1ms/step - loss: 0.5214 - acc: 0.8566 - val_loss: 0.7945 - val_acc: 0.7927
Epoch 5/10
4478/4478 [=====] - 6s 1ms/step - loss: 0.3272 - acc: 0.9105 - val_loss: 0.6827 - val_acc: 0.8167
Epoch 6/10
4478/4478 [=====] - 6s 1ms/step - loss: 0.2040 - acc: 0.9415 - val_loss: 0.6758 - val_acc: 0.8167
Epoch 7/10
4478/4478 [=====] - 6s 1ms/step - loss: 0.1364 - acc: 0.9649 - val_loss: 0.6650 - val_acc: 0.8375
Epoch 8/10
4478/4478 [=====] - 6s 1ms/step - loss: 0.1065 - acc: 0.9716 - val_loss: 0.6666 - val_acc: 0.8240
Epoch 9/10
4478/4478 [=====] - 6s 1ms/step - loss: 0.0752 - acc: 0.9790 - val_loss: 0.6764 - val_acc: 0.8219
Epoch 10/10
4478/4478 [=====] - 6s 1ms/step - loss: 0.0452 - acc: 0.9911 - val_loss: 0.6377 - val_acc: 0.8469
```



Exactitud en subconjunto de test:
Predict loss: 0.5914467121164004
Predict accuracy: 0.85625
Exactitud sobre todo el dataset:
Predict loss: 0.30378238947745156
Predict accuracy: 0.930781848004374
(0.3038, 0.9308)