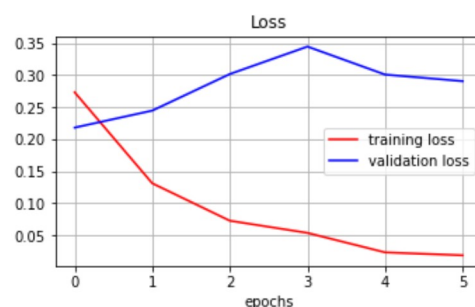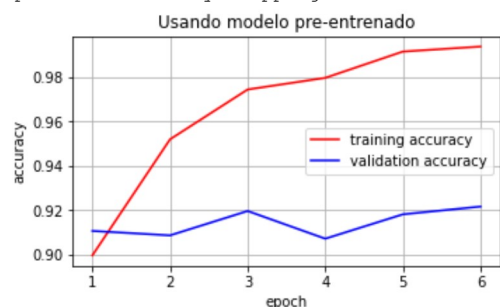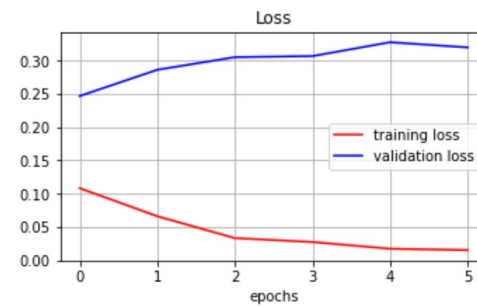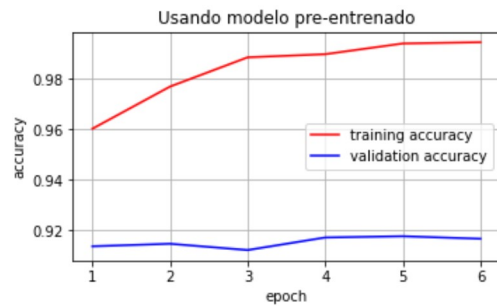```
Imagenes entrenamiento originales: 8000
Imagenes entrenamiento con augmentation: 8000
Entrenamiento: Imágenes con tatuajes: 4596  sin: 3404  total imágenes de train: 8000
Validación: Imágenes con tatuajes:    1149  sin: 851  total imágenes de validate: 2000
Test: Imágenes con tatuajes:    1149  sin: 851  total imágenes de test: 2000
Downloading data from https://storage.googleapis.com/tensorflow/keras-applications/resnet/resnet50_weights_tf_dim_ordering_tf_kernels_notop.h5
94773248/94765736 [==============================] - 1s 0us/step
Epoch 1/10
250/250 [==============================] - 19s 74ms/step - loss: 0.5505 - accuracy: 0.8430 - val_loss: 0.2272 - val_accuracy: 0.9100
Epoch 2/10
250/250 [==============================] - 17s 68ms/step - loss: 0.1964 - accuracy: 0.9225 - val_loss: 0.2282 - val_accuracy: 0.9150
Epoch 3/10
250/250 [==============================] - 17s 68ms/step - loss: 0.1076 - accuracy: 0.9586 - val_loss: 0.2322 - val_accuracy: 0.9150
Epoch 4/10
250/250 [==============================] - 17s 68ms/step - loss: 0.0704 - accuracy: 0.9728 - val_loss: 0.2356 - val_accuracy: 0.9090
Epoch 5/10
250/250 [==============================] - 17s 68ms/step - loss: 0.0427 - accuracy: 0.9861 - val_loss: 0.3433 - val_accuracy: 0.9105
Epoch 6/10
250/250 [==============================] - ETA: 0s - loss: 0.0410 - accuracy: 0.9860Restoring model weights from the end of the best epoch.
250/250 [==============================] - 17s 69ms/step - loss: 0.0410 - accuracy: 0.9860 - val_loss: 0.3069 - val_accuracy: 0.9175
Epoch 00006: early stopping
Entrenando sin augmentation
Epoch 1/30
250/250 [==============================] - 17s 70ms/step - loss: 0.2732 - accuracy: 0.8995 - val_loss: 0.2180 - val_accuracy: 0.9105 - lr: 1.0000e-04
Epoch 2/30
250/250 [==============================] - 17s 68ms/step - loss: 0.1312 - accuracy: 0.9519 - val_loss: 0.2446 - val_accuracy: 0.9085 - lr: 1.0000e-04
Epoch 3/30
250/250 [==============================] - 17s 68ms/step - loss: 0.0728 - accuracy: 0.9744 - val_loss: 0.3016 - val_accuracy: 0.9195 - lr: 1.0000e-04
Epoch 4/30
250/250 [==============================] - ETA: 0s - loss: 0.0539 - accuracy: 0.9796
Epoch 00004: ReduceLROnPlateau reducing learning rate to 2.499999936844688e-05.
250/250 [==============================] - 17s 68ms/step - loss: 0.0539 - accuracy: 0.9796 - val_loss: 0.3444 - val_accuracy: 0.9070 - lr: 1.0000e-04
Epoch 5/30
250/250 [==============================] - 17s 68ms/step - loss: 0.0235 - accuracy: 0.9915 - val_loss: 0.3007 - val_accuracy: 0.9180 - lr: 2.5000e-05
Epoch 6/30
250/250 [==============================] - ETA: 0s - loss: 0.0189 - accuracy: 0.9937Restoring model weights from the end of the best epoch.
250/250 [==============================] - 17s 69ms/step - loss: 0.0189 - accuracy: 0.9937 - val_loss: 0.2905 - val_accuracy: 0.9215 - lr: 2.5000e-05
Epoch 00006: early stopping
```



```
Saved model to disk at 20200627-15:56-
Entrenando sin augmentation
```

```
Epoch 1/30
250/250 [==============================] - 18s 73ms/step - loss: 0.1082 - accuracy: 0.9603 - val_loss: 0.2465 - val_accuracy: 0.9135 - lr: 0.0010
Epoch 2/30
250/250 [==============================] - 17s 67ms/step - loss: 0.0660 - accuracy: 0.9770 - val_loss: 0.2859 - val_accuracy: 0.9145 - lr: 0.0010
Epoch 3/30
250/250 [==============================] - 17s 67ms/step - loss: 0.0331 - accuracy: 0.9886 - val_loss: 0.3049 - val_accuracy: 0.9120 - lr: 0.0010
Epoch 4/30
250/250 [==============================] - ETA: 0s - loss: 0.0273 - accuracy: 0.9899
Epoch 00004: ReduceLROnPlateau reducing learning rate to 0.0002500000118743628.
250/250 [==============================] - 17s 67ms/step - loss: 0.0273 - accuracy: 0.9899 - val_loss: 0.3065 - val_accuracy: 0.9170 - lr: 0.0010
Epoch 5/30
250/250 [==============================] - 17s 67ms/step - loss: 0.0172 - accuracy: 0.9941 - val_loss: 0.3273 - val_accuracy: 0.9175 - lr: 2.5000e-04
Epoch 6/30
250/250 [==============================] - ETA: 0s - loss: 0.0152 - accuracy: 0.9946Restoring model weights from the end of the best epoch.
250/250 [==============================] - 17s 68ms/step - loss: 0.0152 - accuracy: 0.9946 - val_loss: 0.3196 - val_accuracy: 0.9165 - lr: 2.5000e-04
Epoch 00006: early stopping
```



```
Saved model to disk at 20200627-15:58-

Evaluando modelo ...
63/63 [==============================] - 3s 50ms/step
Clases reales:    [0 0 0 0 0 0 0 1 0 1 0 1 0 0 0 1 0 1 0 0 0 1 1 0 1 1 0 1 0 1]
Clases predichas: [0 0 1 0 0 0 0 1 0 1 0 1 0 0 0 1 0 1 0 1 0 1 1 0 1 1 0 0 0 1]


 Classification Report
              precision    recall  f1-score   support


           0       0.87      0.94      0.90       851
           1       0.95      0.89      0.92      1149

    accuracy                           0.91      2000
   macro avg       0.91      0.92      0.91      2000
weighted avg       0.92      0.91      0.91      2000

Matriz de confusión
prediction     1     0
label
1           1025   124
0             49   802
```

Confusion matrix