```
 1 D:\OneDrive\TFG\TFG_Python\venv\Scripts\python.exe C:\
   Users\elias\AppData\Local\JetBrains\Toolbox\apps\PyCharm-P
   \ch-0\183.4284.139\helpers\pydev\pydevconsole.py --mode=
   client --port=62155
 2
 3 import sys; print('Python %s on %s' % (sys.version, sys.
   platform))
 4 sys.path.extend(['D:\\OneDrive\\TFG\\TFG_Python', 'D:/
   OneDrive/TFG/TFG_Python'])
 5
 6 PyDev console: starting.
 7
 8 Python 3.6.7 (v3.6.7:6ec5cf24b7, Oct 20 2018, 13:35:33) [
   MSC v.1900 64 bit (AMD64)] on win32
 9 >>> runfile('D:/OneDrive/TFG/TFG_Python/core/model.py',
   wdir='D:/OneDrive/TFG/TFG_Python/core')
10 Using TensorFlow backend.
11 >>> model_training()
12 ISBINARY: True
13 tipo
14 benign          2510
15 malignant       2510
16 premalignant    2510
17 dtype: int64
18 Valid gen: Img leidas= 0
19 Valid gen: Img leidas= 100
20 Valid gen: Img leidas= 200
21 Valid gen: Img leidas= 300
22 Valid gen: Img leidas= 400
23 Valid gen: Img leidas= 500
24 Valid gen: Img leidas= 600
25 Valid gen: Img leidas= 700
26 Valid gen: Img leidas= 800
27 Valid gen: Img leidas= 900
28 Valid gen: Img leidas= 1000
29 Valid gen: Img leidas= 1100
30 Valid gen: Img leidas= 1200
31 Creando modelo y compilandolo
32 2019-04-26 11:11:07.884751: I tensorflow/core/platform/
   cpu_feature_guard.cc:141] Your CPU supports instructions
   that this TensorFlow binary was not compiled to use: AVX2
33 2019-04-26 11:11:08.114404: I tensorflow/core/
   common_runtime/gpu/gpu_device.cc:1432] Found device 0 with
    properties:
34 name: GeForce GTX 1070 major: 6 minor: 1 memoryClockRate(
```

```
34 GHz): 1.835
35 pciBusID: 0000:26:00.0
36 totalMemory: 8.00GiB freeMemory: 6.64GiB
37 2019-04-26 11:11:08.114584: I tensorflow/core/
   common_runtime/gpu/gpu_device.cc:1511] Adding visible gpu
   devices: 0
38 2019-04-26 11:11:10.127965: I tensorflow/core/
   common_runtime/gpu/gpu_device.cc:982] Device interconnect
   StreamExecutor with strength 1 edge matrix:
39 2019-04-26 11:11:10.128059: I tensorflow/core/
   common_runtime/gpu/gpu_device.cc:988]      0
40 2019-04-26 11:11:10.128116: I tensorflow/core/
   common_runtime/gpu/gpu_device.cc:1001] 0:   N
41 2019-04-26 11:11:10.128287: I tensorflow/core/
   common_runtime/gpu/gpu_device.cc:1115] Created TensorFlow
   device (/job:localhost/replica:0/task:0/device:GPU:0 with
   6397 MB memory) -> physical GPU (device: 0, name: GeForce
   GTX 1070, pci bus id: 0000:26:00.0, compute capability: 6.
   1)
42 Se comienza el entrenamiento del modelo
43 ['loss', 'acc']
44 Epoch 1/40
45 2019-04-26 11:12:33.929440: W tensorflow/core/
   common_runtime/bfc_allocator.cc:211] Allocator (GPU_0_bfc
   ) ran out of memory trying to allocate 2.03GiB. The caller
    indicates that this is not a failure, but may mean that
   there could be performance gains if more memory were
   available.
46 2019-04-26 11:12:34.014483: W tensorflow/core/
   common_runtime/bfc_allocator.cc:211] Allocator (GPU_0_bfc
   ) ran out of memory trying to allocate 2.00GiB. The caller
    indicates that this is not a failure, but may mean that
   there could be performance gains if more memory were
   available.
47 2019-04-26 11:12:34.017623: W tensorflow/core/
   common_runtime/bfc_allocator.cc:211] Allocator (GPU_0_bfc
   ) ran out of memory trying to allocate 2.15GiB. The caller
    indicates that this is not a failure, but may mean that
   there could be performance gains if more memory were
   available.
48  - 93s - loss: 10.5744 - acc: 0.3198 - val_loss: 10.6473
    - val_acc: 0.3394
49 Epoch 2/40
50  - 59s - loss: 10.8797 - acc: 0.3250 - val_loss: 10.6473
    - val_acc: 0.3394
```

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51 Epoch 3/40
52  - 63s - loss: 11.0140 - acc: 0.3167 - val_loss: 10.6473
    - val_acc: 0.3394
53 Epoch 4/40
54  - 71s - loss: 11.1148 - acc: 0.3104 - val_loss: 10.6473
    - val_acc: 0.3394
55 Epoch 5/40
56  - 60s - loss: 10.6614 - acc: 0.3385 - val_loss: 10.6473
    - val_acc: 0.3394
57 Epoch 6/40
58  - 65s - loss: 10.8126 - acc: 0.3292 - val_loss: 10.6473
    - val_acc: 0.3394
59
60 Epoch 00006: ReduceLROnPlateau reducing learning rate to 0
   .010000000149011612.
61 Epoch 7/40
62  - 63s - loss: 10.4096 - acc: 0.3542 - val_loss: 10.6473
    - val_acc: 0.3394
63 Epoch 8/40
64  - 56s - loss: 10.7958 - acc: 0.3302 - val_loss: 10.6473
    - val_acc: 0.3394
65 Epoch 9/40
66  - 54s - loss: 10.7118 - acc: 0.3354 - val_loss: 10.6473
    - val_acc: 0.3394
67 Epoch 10/40
68  - 54s - loss: 10.7790 - acc: 0.3313 - val_loss: 10.6473
    - val_acc: 0.3394
69 Epoch 11/40
70  - 53s - loss: 10.9637 - acc: 0.3198 - val_loss: 10.6473
    - val_acc: 0.3394
71
72 Epoch 00011: ReduceLROnPlateau reducing learning rate to 0
   .0009999999776482583.
73 Entrenamiento completado, se procede al test final
74
75   32/1506 [..............................] - ETA: 10s
76   64/1506 [>.............................] - ETA: 9s
77   96/1506 [>.............................] - ETA: 9s
78  128/1506 [=>............................] - ETA: 9s
79  160/1506 [==>...........................] - ETA: 8s
80  192/1506 [==>...........................] - ETA: 8s
81  224/1506 [===>..........................] - ETA: 8s
82  256/1506 [====>.........................] - ETA: 8s
83  288/1506 [====>.........................] - ETA: 7s
84  320/1506 [=====>........................] - ETA: 7s
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 85    352/1506 [======>.........................] - ETA: 7s
 86    384/1506 [======>.........................] - ETA: 7s
 87    416/1506 [======>.........................] - ETA: 7s
 88    448/1506 [======>.........................] - ETA: 6s
 89    480/1506 [=======>........................] - ETA: 6s
 90    512/1506 [========>.......................] - ETA: 6s
 91    544/1506 [========>.......................] - ETA: 6s
 92    576/1506 [=========>......................] - ETA: 6s
 93    608/1506 [=========>......................] - ETA: 5s
 94    640/1506 [==========>.....................] - ETA: 5s
 95    672/1506 [===========>....................] - ETA: 5s
 96    704/1506 [============>...................] - ETA: 5s
 97    736/1506 [============>...................] - ETA: 4s
 98    768/1506 [=============>..................] - ETA: 4s
 99    800/1506 [==============>.................] - ETA: 4s
100    832/1506 [===============>................] - ETA: 4s
101    864/1506 [===============>................] - ETA: 4s
102    896/1506 [================>...............] - ETA: 3s
103    928/1506 [=================>..............] - ETA: 3s
104    960/1506 [==================>.............] - ETA: 3s
105    992/1506 [==================>.............] - ETA: 3s
106   1024/1506 [===================>............] - ETA: 3s
107   1056/1506 [====================>...........] - ETA: 2s
108   1088/1506 [=====================>..........] - ETA: 2s
109   1120/1506 [=====================>..........] - ETA: 2s
110   1152/1506 [======================>.........] - ETA: 2s
111   1184/1506 [=======================>........] - ETA: 2s
112   1216/1506 [========================>.......] - ETA: 1s
113   1248/1506 [========================>.......] - ETA: 1s
114   1280/1506 [=========================>......] - ETA: 1s
115   1312/1506 [==========================>.....] - ETA: 1s
116   1344/1506 [===========================>....] - ETA: 1s
117   1376/1506 [===========================>...] - ETA: 0s
118   1408/1506 [============================>..] - ETA: 0s
119   1440/1506 [=============================>..] - ETA: 0s
120   1472/1506 [==============================>.] - ETA: 0s
121   1504/1506 [==============================>.] - ETA: 0s
122   1506/1506 [==============================] - 10s 7ms/step
123 ['loss', 'acc']
124 [10.809612329895911, 0.3293492695883134]
125 Ahora vamos a dibujar la matriz de confusion
126 ['benign', 'premalignant', 'malignant']
127 Normalized confusion matrix
128 [[1. 0. 0.]
129  [1. 0. 0.]
```

```
130   [1. 0. 0.]]
131 El entrenamiento ha llevado : 966.4774813652039
132
```