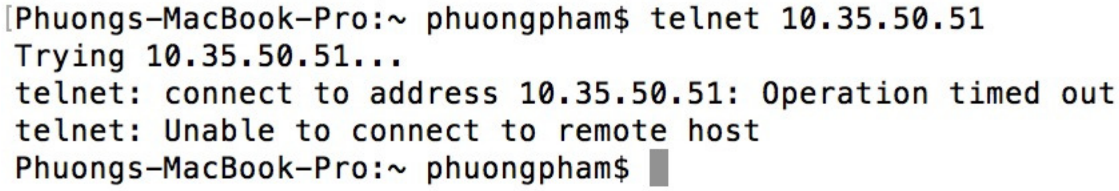
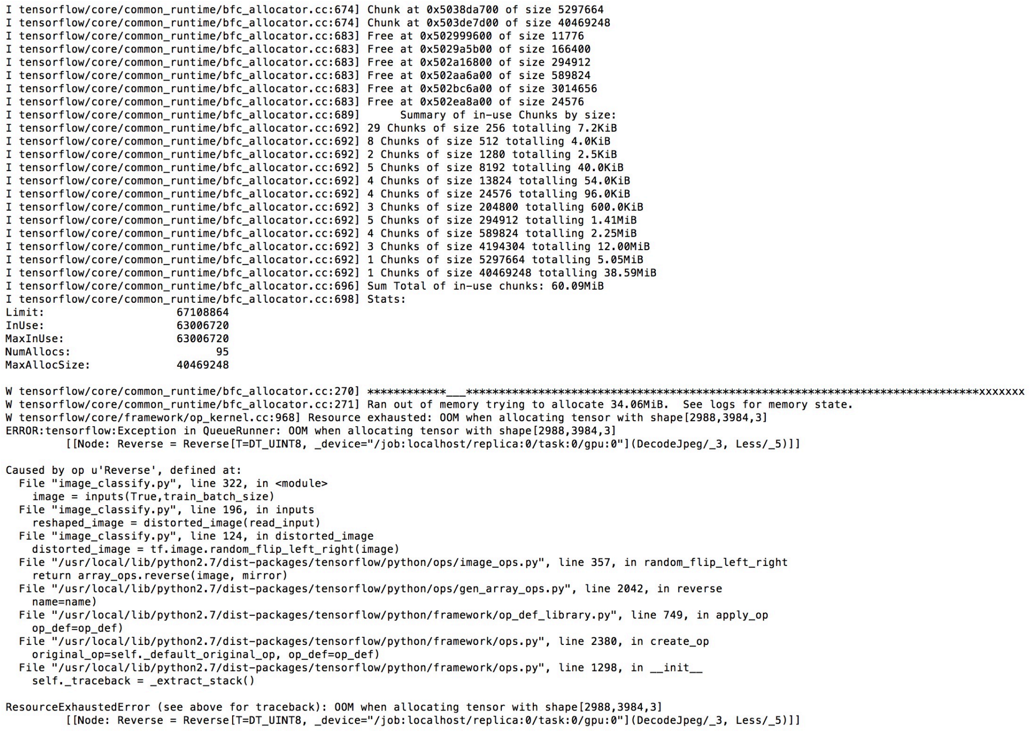
Server problem. IP was changed from 51 to 52



```
[Phuongs-MacBook-Pro:~ phuongpham$ telnet 10.35.50.51
 Trying 10.35.50.51...
 telnet: connect to address 10.35.50.51: Operation timed out
 telnet: Unable to connect to remote host
 Phuongs-MacBook-Pro:~ phuongpham$ 
```

Tensorflow problem

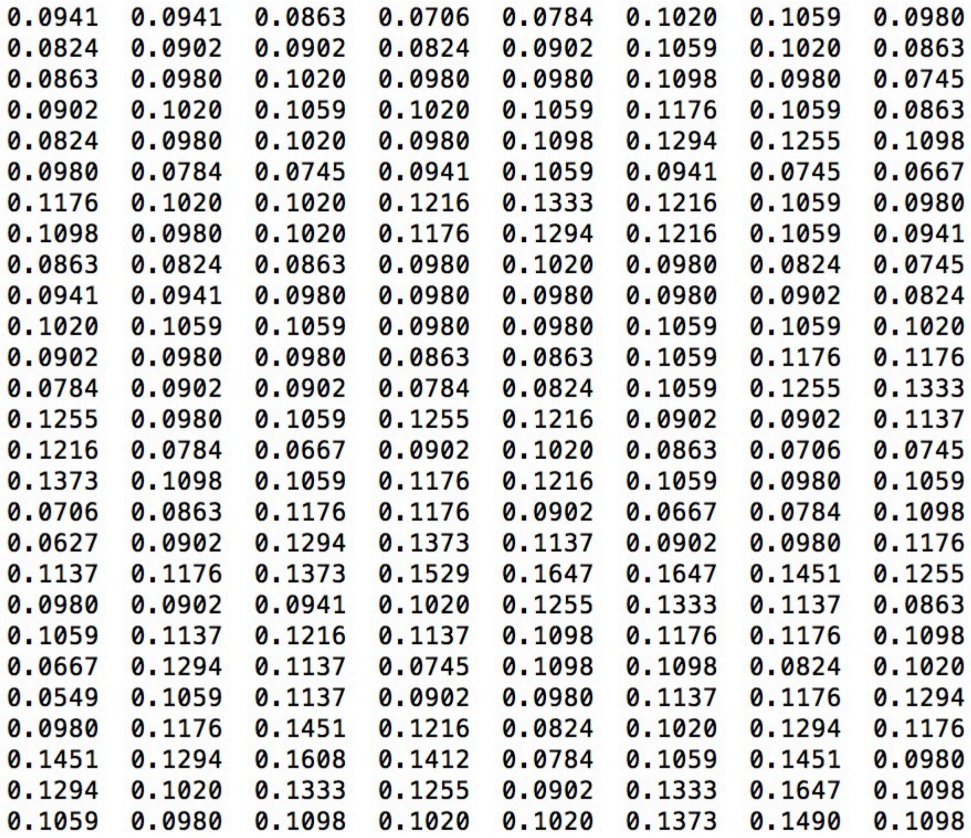
1. Tensorflow was not running on GPU
2. Resource exhauted error (too many images to process?)



```
I tensorflow/core/common_runtime/bfc_allocator.cc:674] Chunk at 0x5038da700 of size 5297664
I tensorflow/core/common_runtime/bfc_allocator.cc:674] Chunk at 0x503de7d00 of size 40469248
I tensorflow/core/common_runtime/bfc_allocator.cc:683] Free at 0x502999600 of size 11776
I tensorflow/core/common_runtime/bfc_allocator.cc:683] Free at 0x5029a5b00 of size 166400
I tensorflow/core/common_runtime/bfc_allocator.cc:683] Free at 0x502a16800 of size 294912
I tensorflow/core/common_runtime/bfc_allocator.cc:683] Free at 0x502aa6a00 of size 589824
I tensorflow/core/common_runtime/bfc_allocator.cc:683] Free at 0x502bc6a00 of size 3014656
I tensorflow/core/common_runtime/bfc_allocator.cc:683] Free at 0x502ea8a00 of size 24576
I tensorflow/core/common_runtime/bfc_allocator.cc:689]      Summary of in-use Chunks by size:
I tensorflow/core/common_runtime/bfc_allocator.cc:692] 29 Chunks of size 256 totalling 7.2KiB
I tensorflow/core/common_runtime/bfc_allocator.cc:692] 8 Chunks of size 512 totalling 4.0KiB
I tensorflow/core/common_runtime/bfc_allocator.cc:692] 2 Chunks of size 1280 totalling 2.5KiB
I tensorflow/core/common_runtime/bfc_allocator.cc:692] 5 Chunks of size 8192 totalling 40.0KiB
I tensorflow/core/common_runtime/bfc_allocator.cc:692] 4 Chunks of size 13824 totalling 54.0KiB
I tensorflow/core/common_runtime/bfc_allocator.cc:692] 4 Chunks of size 24576 totalling 96.0KiB
I tensorflow/core/common_runtime/bfc_allocator.cc:692] 3 Chunks of size 204800 totalling 600.0KiB
I tensorflow/core/common_runtime/bfc_allocator.cc:692] 5 Chunks of size 294912 totalling 1.41MiB
I tensorflow/core/common_runtime/bfc_allocator.cc:692] 4 Chunks of size 589824 totalling 2.25MiB
I tensorflow/core/common_runtime/bfc_allocator.cc:692] 3 Chunks of size 4194304 totalling 12.00MiB
I tensorflow/core/common_runtime/bfc_allocator.cc:692] 1 Chunks of size 5297664 totalling 5.05MiB
I tensorflow/core/common_runtime/bfc_allocator.cc:692] 1 Chunks of size 40469248 totalling 38.59MiB
I tensorflow/core/common_runtime/bfc_allocator.cc:696] Sum Total of in-use chunks: 60.09MiB
I tensorflow/core/common_runtime/bfc_allocator.cc:698] Stats:
Limit:                  67108864
InUse:                  63006720
MaxInUse:               63006720
NumAllocs:                    95
MaxAllocSize:           40469248

W tensorflow/core/common_runtime/bfc_allocator.cc:270] ************___******************************************************************************xxxxxxx
W tensorflow/core/common_runtime/bfc_allocator.cc:271] Ran out of memory trying to allocate 34.06MiB.  See logs for memory state.
W tensorflow/core/framework/op_kernel.cc:968] Resource exhausted: OOM when allocating tensor with shape[2988,3984,3]
ERROR:tensorflow:Exception in QueueRunner: OOM when allocating tensor with shape[2988,3984,3]
         [[Node: Reverse = Reverse[T=DT_UINT8, _device="/job:localhost/replica:0/task:0/gpu:0"](DecodeJpeg/_3, Less/_5)]]

Caused by op u'Reverse', defined at:
  File "image_classify.py", line 322, in <module>
    image = inputs(True,train_batch_size)
  File "image_classify.py", line 196, in inputs
    reshaped_image = distorted_image(read_input)
  File "image_classify.py", line 124, in distorted_image
    distorted_image = tf.image.random_flip_left_right(image)
  File "/usr/local/lib/python2.7/dist-packages/tensorflow/python/ops/image_ops.py", line 357, in random_flip_left_right
    return array_ops.reverse(image, mirror)
  File "/usr/local/lib/python2.7/dist-packages/tensorflow/python/ops/gen_array_ops.py", line 2042, in reverse
    name=name)
  File "/usr/local/lib/python2.7/dist-packages/tensorflow/python/framework/op_def_library.py", line 749, in apply_op
    op_def=op_def)
  File "/usr/local/lib/python2.7/dist-packages/tensorflow/python/framework/ops.py", line 2380, in create_op
    original_op=self._default_original_op, op_def=op_def)
  File "/usr/local/lib/python2.7/dist-packages/tensorflow/python/framework/ops.py", line 1298, in __init__
    self._traceback = _extract_stack()

ResourceExhaustedError (see above for traceback): OOM when allocating tensor with shape[2988,3984,3]
         [[Node: Reverse = Reverse[T=DT_UINT8, _device="/job:localhost/replica:0/task:0/gpu:0"](DecodeJpeg/_3, Less/_5)]]
```

Torch

1. Memory leak issue: “you tried to allocate 0GB. Buy new RAM! at /root/torch/pkg/torch/lib/TH/THGeneral.c:210”
   → Changing the way to read the dataset
2. Data augmentation: brightness won’t change when applying brightness adjustment algorithm (ie. the pixel values displayed in your screen capture are all real numbers less than 1.0 suggests that the data you are working with here are not the original pixel values)

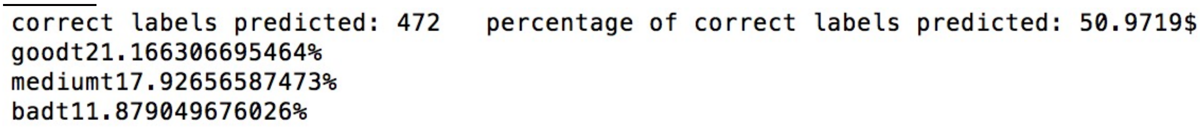


```
0.0941  0.0941  0.0863  0.0706  0.0784  0.1020  0.1059  0.0980
0.0824  0.0902  0.0902  0.0824  0.0902  0.1059  0.1020  0.0863
0.0863  0.0980  0.1020  0.0980  0.0980  0.1098  0.0980  0.0745
0.0902  0.1020  0.1059  0.1020  0.1059  0.1176  0.1059  0.0863
0.0824  0.0980  0.1020  0.0980  0.1098  0.1294  0.1255  0.1098
0.0980  0.0784  0.0745  0.0941  0.1059  0.0941  0.0745  0.0667
0.1176  0.1020  0.1020  0.1216  0.1333  0.1216  0.1059  0.0980
0.1098  0.0980  0.1020  0.1176  0.1294  0.1216  0.1059  0.0941
0.0863  0.0824  0.0863  0.0980  0.1020  0.0980  0.0824  0.0745
0.0941  0.0941  0.0980  0.0980  0.0980  0.0980  0.0902  0.0824
0.1020  0.1059  0.1059  0.0980  0.0980  0.1059  0.1059  0.1020
0.0902  0.0980  0.0980  0.0863  0.0863  0.1059  0.1176  0.1176
0.0784  0.0902  0.0902  0.0784  0.0824  0.1059  0.1255  0.1333
0.1255  0.0980  0.1059  0.1255  0.1216  0.0902  0.0902  0.1137
0.1216  0.0784  0.0667  0.0902  0.1020  0.0863  0.0706  0.0745
0.1373  0.1098  0.1059  0.1176  0.1216  0.1059  0.0980  0.1059
0.0706  0.0863  0.1176  0.1176  0.0902  0.0667  0.0784  0.1098
0.0627  0.0902  0.1294  0.1373  0.1137  0.0902  0.0980  0.1176
0.1137  0.1176  0.1373  0.1529  0.1647  0.1647  0.1451  0.1255
0.0980  0.0902  0.0941  0.1020  0.1255  0.1333  0.1137  0.0863
0.1059  0.1137  0.1216  0.1137  0.1098  0.1176  0.1176  0.1098
0.0667  0.1294  0.1137  0.0745  0.1098  0.1098  0.0824  0.1020
0.0549  0.1059  0.1137  0.0902  0.0980  0.1137  0.1176  0.1294
0.0980  0.1176  0.1451  0.1216  0.0824  0.1020  0.1294  0.1176
0.1451  0.1294  0.1608  0.1412  0.0784  0.1059  0.1451  0.0980
0.1294  0.1020  0.1333  0.1255  0.0902  0.1333  0.1647  0.1098
0.1059  0.0980  0.1098  0.1020  0.1020  0.1373  0.1490  0.1098
```

3. Learning rate: 0.001 → CNN prediction is always in one class
   Data:
   - (good + avg + poor class) = original image
4. Learning rate: 0.005 → CNN prediction is always in two classes (Good and Medium)
   Data:
   - (good + avg + poor class) = original image

   → data in Poor class is too little?
5. Best acc at the moment: 50.9%
   Data:
   - (good + avg class) = original image
   - (poor class) = original image + center crop from orginal image (crop size 200x200)+ botom left crop from orginal image (crop size 200x200) + botom right crop from orginal image (crop size 200x200)

   Learning rate = 0.005
   CNN: Input (32x32x3) -> Convol layer (kernel size = 6x6) -> maxpooling (kernel size = 2x2) -> Convol layer (kernel size = 5x5) -> maxpooling (kernel size = 2x2) -> Convol layer (kernel size = 3x3) -> Convol layer (kernel size = 3x3) -> maxpooling (kernel size = 2x2) -> fully connected (2048) -> fully connected (2048) -> fully connected (3)
   Loops = 100
   Conclude: Data preprocessing is very important!
   Results



```
correct labels predicted: 472   percentage of correct labels predicted: 50.9719$
goodt21.166306695464%
mediumt17.92656587473%
badt11.879049676026%
```