File - keras_train_test

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"C:\Program Files\Anaconda3\python.exe" "D:/Program Files/JetBrains/localanacondapy3/Chinese_Vehicle_plate_recognition/keras_train_test.py"
Using TensorFlow backend.
building network ...
_________________________________________________________________
Layer (type)                 Output Shape              Param #
Connected to
=================================================================
input_1 (InputLayer)         (None, 72, 272, 3)        0

_________________________________________________________________
conv2d_1 (Conv2D)            (None, 70, 270, 32)       896
input_1[0][0]
_________________________________________________________________
conv2d_2 (Conv2D)            (None, 68, 268, 32)       9248
conv2d_1[0][0]
_________________________________________________________________
max_pooling2d_1 (MaxPooling2D)  (None, 34, 134, 32)    0
conv2d_2[0][0]
_________________________________________________________________
conv2d_3 (Conv2D)            (None, 32, 132, 64)       18496
max_pooling2d_1[0][0]
_________________________________________________________________
conv2d_4 (Conv2D)            (None, 30, 130, 64)       36928
conv2d_3[0][0]
_________________________________________________________________
max_pooling2d_2 (MaxPooling2D)  (None, 15, 65, 64)     0
conv2d_4[0][0]
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20 ____________________________________________________________________________________________
                                                                                                
21 conv2d_5 (Conv2D)               (None, 13, 63, 128)  73856                                   
   max_pooling2d_2[0][0]                                                                        
22 ____________________________________________________________________________________________
                                                                                                
23 conv2d_6 (Conv2D)               (None, 11, 61, 128)  147584                                  
   conv2d_5[0][0]                                                                               
24 ____________________________________________________________________________________________
                                                                                                
25 max_pooling2d_3 (MaxPooling2D)  (None, 5, 30, 128)   0                                       
   conv2d_6[0][0]                                                                               
26 ____________________________________________________________________________________________
                                                                                                
27 flatten_1 (Flatten)             (None, 19200)        0                                       
   max_pooling2d_3[0][0]                                                                        
28 ____________________________________________________________________________________________
                                                                                                
29 dropout_1 (Dropout)             (None, 19200)        0                                       
   flatten_1[0][0]                                                                              
30 ____________________________________________________________________________________________
                                                                                                
31 c1 (Dense)                      (None, 65)           1248065                                 
   dropout_1[0][0]                                                                              
32 ____________________________________________________________________________________________
                                                                                                
33 c2 (Dense)                      (None, 65)           1248065                                 
   dropout_1[0][0]                                                                              
34 ____________________________________________________________________________________________
                                                                                                
35 c3 (Dense)                      (None, 65)           1248065                                 
   dropout_1[0][0]                                                                              
36 ____________________________________________________________________________________________
                                                                                                
37 c4 (Dense)                      (None, 65)           1248065                                 
   dropout_1[0][0]                                                                              
38 ____________________________________________________________________________________________
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38 ____________________________________
39 c5 (Dense)                 (None, 65)            1248065
   dropout_1[0][0]
40 ____________________________________
41 c6 (Dense)                 (None, 65)            1248065
   dropout_1[0][0]
42 ____________________________________
43 c7 (Dense)                 (None, 65)            1248065
   dropout_1[0][0]
44 ==================================================================
   ================================
45 Total params: 9,023,463
46 Trainable params: 9,023,463
47 Non-trainable params: 0
48 ____________________________________
   ____________________________________
49 save network picture
50 training network ...
51 Epoch 1/30
52 2019-07-26 21:51:54.210804: I tensorflow/core/platform/
   cpu_feature_guard.cc:141] Your CPU supports instructions that
   this TensorFlow binary was not compiled to use: AVX AVX2
53 2019-07-26 21:51:54.212804: I tensorflow/core/common_runtime/
   process_util.cc:69] Creating new thread pool with default inter
   op setting: 8. Tune using inter_op_parallelism_threads for best
   performance.
54  - 103s - loss: 25.8386 - c1_loss: 3.6490 - c2_loss: 3.4151 -
   c3_loss: 3.7268 - c4_loss: 3.7652 - c5_loss: 3.7694 - c6_loss: 3.
   7574 - c7_loss: 3.7556 - c1_acc: 0.0328 - c2_acc: 0.0506 - c3_acc
   : 0.0322 - c4_acc: 0.0347 - c5_acc: 0.0225 - c6_acc: 0.0272 -
   c7_acc: 0.0297 - val_loss: 24.4341 - val_c1_loss: 3.4661 -
   val_c2_loss: 3.2101 - val_c3_loss: 3.5381 - val_c4_loss: 3.5702
    - val_c5_loss: 3.5589 - val_c6_loss: 3.5465 - val_c7_loss: 3.
   5442 - val_c1_acc: 0.0187 - val_c2_acc: 0.0437 - val_c3_acc: 0.
   0375 - val_c4_acc: 0.0250 - val_c5_acc: 0.0187 - val_c6_acc: 0.
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0437 - val_c7_acc: 0.0250
Epoch 2/30
 - 97s - loss: 24.1647 - c1_loss: 3.4567 - c2_loss: 3.0449 - c3_loss: 3.4892 - c4_loss: 3.5242 - c5_loss: 3.5387 - c6_loss: 3.5531 - c7_loss: 3.5580 - c1_acc: 0.0394 - c2_acc: 0.1119 - c3_acc: 0.0516 - c4_acc: 0.0375 - c5_acc: 0.0381 - c6_acc: 0.0359 - c7_acc: 0.0309 - val_loss: 23.6803 - val_c1_loss: 3.4508 - val_c2_loss: 2.8307 - val_c3_loss: 3.3358 - val_c4_loss: 3.4128 - val_c5_loss: 3.5650 - val_c6_loss: 3.5050 - val_c7_loss: 3.5802 - val_c1_acc: 0.0312 - val_c2_acc: 0.1500 - val_c3_acc: 0.1250 - val_c4_acc: 0.0531 - val_c5_acc: 0.0281 - val_c6_acc: 0.0531 - val_c7_acc: 0.0437
Epoch 3/30
 - 97s - loss: 22.4567 - c1_loss: 3.4157 - c2_loss: 2.3393 - c3_loss: 3.0739 - c4_loss: 3.2223 - c5_loss: 3.3611 - c6_loss: 3.4822 - c7_loss: 3.5622 - c1_acc: 0.0659 - c2_acc: 0.3416 - c3_acc: 0.1575 - c4_acc: 0.1231 - c5_acc: 0.0866 - c6_acc: 0.0650 - c7_acc: 0.0459 - val_loss: 20.0882 - val_c1_loss: 3.2172 - val_c2_loss: 1.6129 - val_c3_loss: 2.4891 - val_c4_loss: 2.8280 - val_c5_loss: 3.1435 - val_c6_loss: 3.3810 - val_c7_loss: 3.4164 - val_c1_acc: 0.1094 - val_c2_acc: 0.5437 - val_c3_acc: 0.3406 - val_c4_acc: 0.2125 - val_c5_acc: 0.1531 - val_c6_acc: 0.0875 - val_c7_acc: 0.0625
Epoch 4/30
 - 97s - loss: 18.5814 - c1_loss: 2.9514 - c2_loss: 1.2953 - c3_loss: 2.1612 - c4_loss: 2.6310 - c5_loss: 2.9362 - c6_loss: 3.2296 - c7_loss: 3.3766 - c1_acc: 0.2016 - c2_acc: 0.6172 - c3_acc: 0.3684 - c4_acc: 0.2662 - c5_acc: 0.1847 - c6_acc: 0.1247 - c7_acc: 0.0969 - val_loss: 16.2809 - val_c1_loss: 2.5589 - val_c2_loss: 0.8339 - val_c3_loss: 1.7367 - val_c4_loss: 2.1782 - val_c5_loss: 2.7412 - val_c6_loss: 3.0389 - val_c7_loss: 3.1931 - val_c1_acc: 0.2906 - val_c2_acc: 0.7812 - val_c3_acc: 0.4938 - val_c4_acc: 0.3937 - val_c5_acc: 0.2281 - val_c6_acc: 0.1656 - val_c7_acc: 0.1219
Epoch 5/30
 - 96s - loss: 15.8216 - c1_loss: 2.3742 - c2_loss: 0.8211 - c3_loss: 1.6096 - c4_loss: 2.1722 - c5_loss: 2.6436 - c6_loss: 3.
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0437 - c7_loss: 3.1573 - c1_acc: 0.3384 - c2_acc: 0.7612 - c3_acc
: 0.5109 - c4_acc: 0.3606 - c5_acc: 0.2519 - c6_acc: 0.1759 -
c7_acc: 0.1453 - val_loss: 13.6159 - val_c1_loss: 2.1886 -
val_c2_loss: 0.5297 - val_c3_loss: 1.2441 - val_c4_loss: 1.7129
 - val_c5_loss: 2.2668 - val_c6_loss: 2.7479 - val_c7_loss: 2.
9260 - val_c1_acc: 0.3563 - val_c2_acc: 0.8531 - val_c3_acc: 0.
6344 - val_c4_acc: 0.4750 - val_c5_acc: 0.3375 - val_c6_acc: 0.
2125 - val_c7_acc: 0.2250
Epoch 6/30
 - 97s - loss: 14.0997 - c1_loss: 1.9673 - c2_loss: 0.6099 -
c3_loss: 1.2991 - c4_loss: 1.8722 - c5_loss: 2.4212 - c6_loss: 2.
9015 - c7_loss: 3.0285 - c1_acc: 0.4378 - c2_acc: 0.8141 - c3_acc
: 0.6003 - c4_acc: 0.4416 - c5_acc: 0.3013 - c6_acc: 0.2125 -
c7_acc: 0.1697 - val_loss: 12.6264 - val_c1_loss: 1.7006 -
val_c2_loss: 0.5167 - val_c3_loss: 1.0480 - val_c4_loss: 1.6410
 - val_c5_loss: 2.1147 - val_c6_loss: 2.8376 - val_c7_loss: 2.
7678 - val_c1_acc: 0.5406 - val_c2_acc: 0.8562 - val_c3_acc: 0.
7219 - val_c4_acc: 0.5312 - val_c5_acc: 0.3656 - val_c6_acc: 0.
2250 - val_c7_acc: 0.2000
Epoch 7/30
 - 97s - loss: 12.5512 - c1_loss: 1.5187 - c2_loss: 0.4436 -
c3_loss: 1.0789 - c4_loss: 1.6625 - c5_loss: 2.2261 - c6_loss: 2.
7655 - c7_loss: 2.8559 - c1_acc: 0.5709 - c2_acc: 0.8709 - c3_acc
: 0.6525 - c4_acc: 0.4947 - c5_acc: 0.3553 - c6_acc: 0.2325 -
c7_acc: 0.1944 - val_loss: 10.3044 - val_c1_loss: 1.0714 -
val_c2_loss: 0.2525 - val_c3_loss: 0.7074 - val_c4_loss: 1.4496
 - val_c5_loss: 1.8823 - val_c6_loss: 2.3740 - val_c7_loss: 2.
5672 - val_c1_acc: 0.7188 - val_c2_acc: 0.9500 - val_c3_acc: 0.
7969 - val_c4_acc: 0.5375 - val_c5_acc: 0.4875 - val_c6_acc: 0.
3281 - val_c7_acc: 0.3000
Epoch 8/30
 - 97s - loss: 11.2797 - c1_loss: 1.2284 - c2_loss: 0.3742 -
c3_loss: 0.8703 - c4_loss: 1.4565 - c5_loss: 2.0070 - c6_loss: 2.
6252 - c7_loss: 2.7182 - c1_acc: 0.6425 - c2_acc: 0.8844 - c3_acc
: 0.7203 - c4_acc: 0.5494 - c5_acc: 0.4131 - c6_acc: 0.2828 -
c7_acc: 0.2491 - val_loss: 9.8457 - val_c1_loss: 1.0537 -
val_c2_loss: 0.2360 - val_c3_loss: 0.8080 - val_c4_loss: 1.1473
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 - val_c5_loss: 1.8969 - val_c6_loss: 2.2272 - val_c7_loss: 2.
4767 - val_c1_acc: 0.7000 - val_c2_acc: 0.9500 - val_c3_acc: 0.
7469 - val_c4_acc: 0.6781 - val_c5_acc: 0.4375 - val_c6_acc: 0.
4062 - val_c7_acc: 0.2969
Epoch 9/30
 - 96s - loss: 10.2968 - c1_loss: 1.0173 - c2_loss: 0.3214 -
c3_loss: 0.7352 - c4_loss: 1.2725 - c5_loss: 1.8491 - c6_loss: 2
.5126 - c7_loss: 2.5888 - c1_acc: 0.7084 - c2_acc: 0.9031 -
c3_acc: 0.7609 - c4_acc: 0.6072 - c5_acc: 0.4578 - c6_acc: 0.
3044 - c7_acc: 0.2931 - val_loss: 8.5415 - val_c1_loss: 0.8100
 - val_c2_loss: 0.2133 - val_c3_loss: 0.5764 - val_c4_loss: 0.
9669 - val_c5_loss: 1.6670 - val_c6_loss: 2.0936 - val_c7_loss:
2.2145 - val_c1_acc: 0.7906 - val_c2_acc: 0.9469 - val_c3_acc: 0
.8313 - val_c4_acc: 0.7156 - val_c5_acc: 0.5188 - val_c6_acc: 0.
3750 - val_c7_acc: 0.3812
Epoch 10/30
 - 97s - loss: 9.5299 - c1_loss: 0.9212 - c2_loss: 0.2525 -
c3_loss: 0.6818 - c4_loss: 1.1292 - c5_loss: 1.7253 - c6_loss: 2
.3680 - c7_loss: 2.4519 - c1_acc: 0.7334 - c2_acc: 0.9278 -
c3_acc: 0.7831 - c4_acc: 0.6522 - c5_acc: 0.5022 - c6_acc: 0.
3512 - c7_acc: 0.3347 - val_loss: 8.3152 - val_c1_loss: 0.7088
 - val_c2_loss: 0.2252 - val_c3_loss: 0.5153 - val_c4_loss: 0.
9740 - val_c5_loss: 1.5737 - val_c6_loss: 2.1793 - val_c7_loss:
2.1388 - val_c1_acc: 0.8281 - val_c2_acc: 0.9625 - val_c3_acc: 0
.8625 - val_c4_acc: 0.7031 - val_c5_acc: 0.5531 - val_c6_acc: 0.
4031 - val_c7_acc: 0.3750
Epoch 11/30
 - 97s - loss: 8.6813 - c1_loss: 0.7946 - c2_loss: 0.1867 -
c3_loss: 0.5543 - c4_loss: 1.0021 - c5_loss: 1.5718 - c6_loss: 2
.2561 - c7_loss: 2.3157 - c1_acc: 0.7684 - c2_acc: 0.9469 -
c3_acc: 0.8272 - c4_acc: 0.6903 - c5_acc: 0.5413 - c6_acc: 0.
3787 - c7_acc: 0.3641 - val_loss: 6.9950 - val_c1_loss: 0.5770
 - val_c2_loss: 0.1398 - val_c3_loss: 0.3773 - val_c4_loss: 0.
7381 - val_c5_loss: 1.3253 - val_c6_loss: 1.9347 - val_c7_loss:
1.9028 - val_c1_acc: 0.8562 - val_c2_acc: 0.9812 - val_c3_acc: 0
.9000 - val_c4_acc: 0.8094 - val_c5_acc: 0.6406 - val_c6_acc: 0.
4906 - val_c7_acc: 0.4500
```

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Epoch 12/30
 - 96s - loss: 7.7822 - c1_loss: 0.6902 - c2_loss: 0.1545 - c3_loss: 0.4144 - c4_loss: 0.8586 - c5_loss: 1.4097 - c6_loss: 2.1060 - c7_loss: 2.1488 - c1_acc: 0.7894 - c2_acc: 0.9553 - c3_acc: 0.8725 - c4_acc: 0.7441 - c5_acc: 0.6041 - c6_acc: 0.4356 - c7_acc: 0.4009 - val_loss: 6.8458 - val_c1_loss: 0.4036 - val_c2_loss: 0.1255 - val_c3_loss: 0.3058 - val_c4_loss: 0.7059 - val_c5_loss: 1.3122 - val_c6_loss: 1.9925 - val_c7_loss: 2.0004 - val_c1_acc: 0.9000 - val_c2_acc: 0.9688 - val_c3_acc: 0.9187 - val_c4_acc: 0.7969 - val_c5_acc: 0.6406 - val_c6_acc: 0.4625 - val_c7_acc: 0.4594
Epoch 13/30
 - 96s - loss: 7.1446 - c1_loss: 0.5966 - c2_loss: 0.1359 - c3_loss: 0.4015 - c4_loss: 0.7287 - c5_loss: 1.3029 - c6_loss: 1.9841 - c7_loss: 1.9950 - c1_acc: 0.8216 - c2_acc: 0.9641 - c3_acc: 0.8762 - c4_acc: 0.7691 - c5_acc: 0.6272 - c6_acc: 0.4591 - c7_acc: 0.4463 - val_loss: 5.6209 - val_c1_loss: 0.3089 - val_c2_loss: 0.0506 - val_c3_loss: 0.2074 - val_c4_loss: 0.4924 - val_c5_loss: 0.9342 - val_c6_loss: 1.6667 - val_c7_loss: 1.9606 - val_c1_acc: 0.9313 - val_c2_acc: 0.9906 - val_c3_acc: 0.9187 - val_c4_acc: 0.8594 - val_c5_acc: 0.7312 - val_c6_acc: 0.5719 - val_c7_acc: 0.4750
Epoch 14/30
 - 97s - loss: 6.5083 - c1_loss: 0.5498 - c2_loss: 0.1107 - c3_loss: 0.3285 - c4_loss: 0.6372 - c5_loss: 1.1548 - c6_loss: 1.8765 - c7_loss: 1.8508 - c1_acc: 0.8334 - c2_acc: 0.9697 - c3_acc: 0.8934 - c4_acc: 0.8034 - c5_acc: 0.6669 - c6_acc: 0.4863 - c7_acc: 0.4922 - val_loss: 5.8471 - val_c1_loss: 0.4373 - val_c2_loss: 0.1364 - val_c3_loss: 0.3022 - val_c4_loss: 0.6006 - val_c5_loss: 1.0788 - val_c6_loss: 1.7021 - val_c7_loss: 1.5898 - val_c1_acc: 0.9031 - val_c2_acc: 0.9844 - val_c3_acc: 0.9313 - val_c4_acc: 0.8469 - val_c5_acc: 0.6844 - val_c6_acc: 0.5469 - val_c7_acc: 0.5188
Epoch 15/30
 - 97s - loss: 6.0054 - c1_loss: 0.4835 - c2_loss: 0.1072 - c3_loss: 0.2852 - c4_loss: 0.5569 - c5_loss: 1.1016 - c6_loss: 1.7675 - c7_loss: 1.7036 - c1_acc: 0.8591 - c2_acc: 0.9703 -
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c3_acc: 0.9134 - c4_acc: 0.8256 - c5_acc: 0.6828 - c6_acc: 0.
5184 - c7_acc: 0.5250 - val_loss: 4.7987 - val_c1_loss: 0.3822
 - val_c2_loss: 0.0461 - val_c3_loss: 0.1929 - val_c4_loss: 0.
4053 - val_c5_loss: 0.7910 - val_c6_loss: 1.4720 - val_c7_loss:
1.5092 - val_c1_acc: 0.9062 - val_c2_acc: 0.9938 - val_c3_acc: 0
.9406 - val_c4_acc: 0.8719 - val_c5_acc: 0.8000 - val_c6_acc: 0.
6094 - val_c7_acc: 0.5813
Epoch 16/30
 - 96s - loss: 5.8680 - c1_loss: 0.4418 - c2_loss: 0.0956 -
c3_loss: 0.2627 - c4_loss: 0.5780 - c5_loss: 1.0382 - c6_loss: 1
.7604 - c7_loss: 1.6912 - c1_acc: 0.8666 - c2_acc: 0.9738 -
c3_acc: 0.9244 - c4_acc: 0.8169 - c5_acc: 0.6975 - c6_acc: 0.
5234 - c7_acc: 0.5341 - val_loss: 4.3952 - val_c1_loss: 0.2759
 - val_c2_loss: 0.0256 - val_c3_loss: 0.1572 - val_c4_loss: 0.
3641 - val_c5_loss: 0.7997 - val_c6_loss: 1.3524 - val_c7_loss:
1.4203 - val_c1_acc: 0.9125 - val_c2_acc: 0.9938 - val_c3_acc: 0
.9594 - val_c4_acc: 0.8719 - val_c5_acc: 0.7750 - val_c6_acc: 0.
6719 - val_c7_acc: 0.6281
Epoch 17/30
 - 99s - loss: 5.5780 - c1_loss: 0.4899 - c2_loss: 0.1171 -
c3_loss: 0.2553 - c4_loss: 0.5276 - c5_loss: 0.9795 - c6_loss: 1
.6274 - c7_loss: 1.5813 - c1_acc: 0.8622 - c2_acc: 0.9809 -
c3_acc: 0.9263 - c4_acc: 0.8378 - c5_acc: 0.7231 - c6_acc: 0.
5647 - c7_acc: 0.5556 - val_loss: 5.4693 - val_c1_loss: 0.6393
 - val_c2_loss: 0.2654 - val_c3_loss: 0.4005 - val_c4_loss: 0.
5163 - val_c5_loss: 0.9049 - val_c6_loss: 1.3901 - val_c7_loss:
1.3527 - val_c1_acc: 0.8781 - val_c2_acc: 0.9781 - val_c3_acc: 0
.9469 - val_c4_acc: 0.8719 - val_c5_acc: 0.7125 - val_c6_acc: 0.
6125 - val_c7_acc: 0.6344
Epoch 18/30
 - 97s - loss: 5.0843 - c1_loss: 0.4157 - c2_loss: 0.0615 -
c3_loss: 0.2130 - c4_loss: 0.4527 - c5_loss: 0.9192 - c6_loss: 1
.5360 - c7_loss: 1.4862 - c1_acc: 0.8766 - c2_acc: 0.9844 -
c3_acc: 0.9359 - c4_acc: 0.8597 - c5_acc: 0.7278 - c6_acc: 0.
5872 - c7_acc: 0.5869 - val_loss: 4.0269 - val_c1_loss: 0.2122
 - val_c2_loss: 0.0245 - val_c3_loss: 0.1349 - val_c4_loss: 0.
3383 - val_c5_loss: 0.6624 - val_c6_loss: 1.3684 - val_c7_loss:
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1.2861 - val_c1_acc: 0.9406 - val_c2_acc: 0.9938 - val_c3_acc: 0
.9563 - val_c4_acc: 0.8906 - val_c5_acc: 0.7969 - val_c6_acc: 0.
6250 - val_c7_acc: 0.6188
Epoch 19/30
 - 98s - loss: 4.8549 - c1_loss: 0.3688 - c2_loss: 0.0639 -
c3_loss: 0.1939 - c4_loss: 0.3730 - c5_loss: 0.8823 - c6_loss: 1
.5475 - c7_loss: 1.4254 - c1_acc: 0.8875 - c2_acc: 0.9825 -
c3_acc: 0.9375 - c4_acc: 0.8856 - c5_acc: 0.7453 - c6_acc: 0.
5887 - c7_acc: 0.5922 - val_loss: 3.8090 - val_c1_loss: 0.2090
 - val_c2_loss: 0.0511 - val_c3_loss: 0.1301 - val_c4_loss: 0.
2699 - val_c5_loss: 0.5970 - val_c6_loss: 1.4035 - val_c7_loss:
1.1486 - val_c1_acc: 0.9531 - val_c2_acc: 0.9875 - val_c3_acc: 0
.9688 - val_c4_acc: 0.9187 - val_c5_acc: 0.8344 - val_c6_acc: 0.
6250 - val_c7_acc: 0.6937
Epoch 20/30
 - 99s - loss: 4.6987 - c1_loss: 0.3769 - c2_loss: 0.0623 -
c3_loss: 0.1717 - c4_loss: 0.4180 - c5_loss: 0.8042 - c6_loss: 1
.4811 - c7_loss: 1.3846 - c1_acc: 0.8866 - c2_acc: 0.9828 -
c3_acc: 0.9453 - c4_acc: 0.8766 - c5_acc: 0.7791 - c6_acc: 0.
6072 - c7_acc: 0.6241 - val_loss: 3.5967 - val_c1_loss: 0.2464
 - val_c2_loss: 0.0326 - val_c3_loss: 0.0789 - val_c4_loss: 0.
2723 - val_c5_loss: 0.5530 - val_c6_loss: 1.2580 - val_c7_loss:
1.1555 - val_c1_acc: 0.9281 - val_c2_acc: 0.9906 - val_c3_acc: 0
.9688 - val_c4_acc: 0.9375 - val_c5_acc: 0.8625 - val_c6_acc: 0.
6906 - val_c7_acc: 0.7250
Epoch 21/30
 - 105s - loss: 4.1964 - c1_loss: 0.3014 - c2_loss: 0.0524 -
c3_loss: 0.1548 - c4_loss: 0.3173 - c5_loss: 0.7018 - c6_loss: 1
.3865 - c7_loss: 1.2822 - c1_acc: 0.9062 - c2_acc: 0.9841 -
c3_acc: 0.9556 - c4_acc: 0.8994 - c5_acc: 0.8016 - c6_acc: 0.
6284 - c7_acc: 0.6416 - val_loss: 3.6896 - val_c1_loss: 0.2067
 - val_c2_loss: 0.0244 - val_c3_loss: 0.0832 - val_c4_loss: 0.
2752 - val_c5_loss: 0.6417 - val_c6_loss: 1.2951 - val_c7_loss:
1.1633 - val_c1_acc: 0.9406 - val_c2_acc: 0.9938 - val_c3_acc: 0
.9812 - val_c4_acc: 0.9187 - val_c5_acc: 0.8344 - val_c6_acc: 0.
6469 - val_c7_acc: 0.7031
Epoch 22/30
```

```
 - 163s - loss: 3.9691 - c1_loss: 0.2833 - c2_loss: 0.0459 - c3_loss: 0.1257 - c4_loss: 0.3093 - c5_loss: 0.6749 - c6_loss: 1.3351 - c7_loss: 1.1949 - c1_acc: 0.9147 - c2_acc: 0.9859 - c3_acc: 0.9597 - c4_acc: 0.9059 - c5_acc: 0.8066 - c6_acc: 0.6403 - c7_acc: 0.6687 - val_loss: 3.5034 - val_c1_loss: 0.2570 - val_c2_loss: 0.1284 - val_c3_loss: 0.1142 - val_c4_loss: 0.2790 - val_c5_loss: 0.5420 - val_c6_loss: 1.0858 - val_c7_loss: 1.0970 - val_c1_acc: 0.9437 - val_c2_acc: 0.9875 - val_c3_acc: 0.9844 - val_c4_acc: 0.9219 - val_c5_acc: 0.8562 - val_c6_acc: 0.7344 - val_c7_acc: 0.7219
Epoch 23/30
 - 154s - loss: 4.0246 - c1_loss: 0.3243 - c2_loss: 0.0516 - c3_loss: 0.1335 - c4_loss: 0.3183 - c5_loss: 0.6805 - c6_loss: 1.3359 - c7_loss: 1.1806 - c1_acc: 0.9125 - c2_acc: 0.9866 - c3_acc: 0.9597 - c4_acc: 0.8988 - c5_acc: 0.8025 - c6_acc: 0.6347 - c7_acc: 0.6703 - val_loss: 3.5678 - val_c1_loss: 0.3387 - val_c2_loss: 0.2140 - val_c3_loss: 0.2257 - val_c4_loss: 0.3196 - val_c5_loss: 0.5675 - val_c6_loss: 1.0052 - val_c7_loss: 0.8971 - val_c1_acc: 0.9500 - val_c2_acc: 0.9750 - val_c3_acc: 0.9750 - val_c4_acc: 0.9156 - val_c5_acc: 0.8344 - val_c6_acc: 0.7188 - val_c7_acc: 0.7375
Epoch 24/30
 - 129s - loss: 3.7153 - c1_loss: 0.3009 - c2_loss: 0.0281 - c3_loss: 0.1161 - c4_loss: 0.2720 - c5_loss: 0.6157 - c6_loss: 1.2409 - c7_loss: 1.1416 - c1_acc: 0.9044 - c2_acc: 0.9928 - c3_acc: 0.9659 - c4_acc: 0.9187 - c5_acc: 0.8206 - c6_acc: 0.6587 - c7_acc: 0.6775 - val_loss: 3.6408 - val_c1_loss: 0.2223 - val_c2_loss: 0.1845 - val_c3_loss: 0.2149 - val_c4_loss: 0.2925 - val_c5_loss: 0.6543 - val_c6_loss: 1.0974 - val_c7_loss: 0.9749 - val_c1_acc: 0.9437 - val_c2_acc: 0.9844 - val_c3_acc: 0.9688 - val_c4_acc: 0.9313 - val_c5_acc: 0.8375 - val_c6_acc: 0.7125 - val_c7_acc: 0.7688
Epoch 25/30
 - 112s - loss: 3.7309 - c1_loss: 0.3033 - c2_loss: 0.0479 - c3_loss: 0.1298 - c4_loss: 0.2648 - c5_loss: 0.6480 - c6_loss: 1.2465 - c7_loss: 1.0907 - c1_acc: 0.9122 - c2_acc: 0.9909 - c3_acc: 0.9631 - c4_acc: 0.9122 - c5_acc: 0.8087 - c6_acc: 0.
```

```
6669 - c7_acc: 0.6987 - val_loss: 3.1783 - val_c1_loss: 0.3298
 - val_c2_loss: 0.2301 - val_c3_loss: 0.2220 - val_c4_loss: 0.
2290 - val_c5_loss: 0.4473 - val_c6_loss: 0.8620 - val_c7_loss:
0.8581 - val_c1_acc: 0.9563 - val_c2_acc: 0.9812 - val_c3_acc: 0
.9750 - val_c4_acc: 0.9688 - val_c5_acc: 0.8688 - val_c6_acc: 0.
7500 - val_c7_acc: 0.7688
Epoch 26/30
 - 109s - loss: 3.5718 - c1_loss: 0.3279 - c2_loss: 0.0627 -
c3_loss: 0.1316 - c4_loss: 0.2782 - c5_loss: 0.5843 - c6_loss: 1
.2067 - c7_loss: 0.9804 - c1_acc: 0.9125 - c2_acc: 0.9881 -
c3_acc: 0.9600 - c4_acc: 0.9247 - c5_acc: 0.8353 - c6_acc: 0.
6856 - c7_acc: 0.7284 - val_loss: 2.6096 - val_c1_loss: 0.1555
 - val_c2_loss: 0.0111 - val_c3_loss: 0.0541 - val_c4_loss: 0.
1345 - val_c5_loss: 0.4190 - val_c6_loss: 1.0255 - val_c7_loss:
0.8099 - val_c1_acc: 0.9469 - val_c2_acc: 0.9969 - val_c3_acc: 0
.9906 - val_c4_acc: 0.9719 - val_c5_acc: 0.8875 - val_c6_acc: 0.
7188 - val_c7_acc: 0.7875
Epoch 27/30
 - 114s - loss: 3.2752 - c1_loss: 0.2446 - c2_loss: 0.0356 -
c3_loss: 0.1076 - c4_loss: 0.2486 - c5_loss: 0.5509 - c6_loss: 1
.1148 - c7_loss: 0.9730 - c1_acc: 0.9212 - c2_acc: 0.9897 -
c3_acc: 0.9684 - c4_acc: 0.9275 - c5_acc: 0.8431 - c6_acc: 0.
6941 - c7_acc: 0.7288 - val_loss: 2.5126 - val_c1_loss: 0.1111
 - val_c2_loss: 0.0166 - val_c3_loss: 0.0663 - val_c4_loss: 0.
1637 - val_c5_loss: 0.4810 - val_c6_loss: 0.9242 - val_c7_loss:
0.7498 - val_c1_acc: 0.9688 - val_c2_acc: 0.9938 - val_c3_acc: 0
.9781 - val_c4_acc: 0.9563 - val_c5_acc: 0.8500 - val_c6_acc: 0.
7500 - val_c7_acc: 0.7937
Epoch 28/30
 - 114s - loss: 3.3839 - c1_loss: 0.2496 - c2_loss: 0.0425 -
c3_loss: 0.1139 - c4_loss: 0.2484 - c5_loss: 0.5714 - c6_loss: 1
.1779 - c7_loss: 0.9802 - c1_acc: 0.9303 - c2_acc: 0.9894 -
c3_acc: 0.9666 - c4_acc: 0.9231 - c5_acc: 0.8300 - c6_acc: 0.
6850 - c7_acc: 0.7325 - val_loss: 2.2270 - val_c1_loss: 0.1120
 - val_c2_loss: 0.0127 - val_c3_loss: 0.0495 - val_c4_loss: 0.
1420 - val_c5_loss: 0.4339 - val_c6_loss: 0.8235 - val_c7_loss:
0.6533 - val_c1_acc: 0.9719 - val_c2_acc: 0.9969 - val_c3_acc: 0
```

```
.9906 - val_c4_acc: 0.9563 - val_c5_acc: 0.8812 - val_c6_acc: 0.
7844 - val_c7_acc: 0.8156
Epoch 29/30
 - 102s - loss: 3.1064 - c1_loss: 0.2858 - c2_loss: 0.0400 -
c3_loss: 0.0965 - c4_loss: 0.2143 - c5_loss: 0.5175 - c6_loss: 1
.0436 - c7_loss: 0.9087 - c1_acc: 0.9222 - c2_acc: 0.9922 -
c3_acc: 0.9728 - c4_acc: 0.9403 - c5_acc: 0.8503 - c6_acc: 0.
7197 - c7_acc: 0.7478 - val_loss: 2.5633 - val_c1_loss: 0.2444
 - val_c2_loss: 0.1565 - val_c3_loss: 0.0773 - val_c4_loss: 0.
1882 - val_c5_loss: 0.3812 - val_c6_loss: 0.8706 - val_c7_loss:
0.6453 - val_c1_acc: 0.9625 - val_c2_acc: 0.9906 - val_c3_acc: 0
.9906 - val_c4_acc: 0.9688 - val_c5_acc: 0.9125 - val_c6_acc: 0.
7562 - val_c7_acc: 0.8156
Epoch 30/30
 - 99s - loss: 3.0235 - c1_loss: 0.2402 - c2_loss: 0.0304 -
c3_loss: 0.0947 - c4_loss: 0.2133 - c5_loss: 0.4986 - c6_loss: 1
.0749 - c7_loss: 0.8714 - c1_acc: 0.9266 - c2_acc: 0.9947 -
c3_acc: 0.9734 - c4_acc: 0.9319 - c5_acc: 0.8656 - c6_acc: 0.
7134 - c7_acc: 0.7634 - val_loss: 2.8140 - val_c1_loss: 0.2543
 - val_c2_loss: 0.1273 - val_c3_loss: 0.2360 - val_c4_loss: 0.
2212 - val_c5_loss: 0.4599 - val_c6_loss: 0.8219 - val_c7_loss:
0.6933 - val_c1_acc: 0.9688 - val_c2_acc: 0.9875 - val_c3_acc: 0
.9688 - val_c4_acc: 0.9594 - val_c5_acc: 0.8938 - val_c6_acc: 0.
7562 - val_c7_acc: 0.8031
loading plate data ...
picture Screen Shot 2016-08-07 at 12.51.56 AM.png size error,
maybe resize before load !
picture Screen Shot 2016-08-07 at 12.53.41 AM.png size error,
maybe resize before load !
picture Screen Shot 2016-08-07 at 12.55.45 AM.png size error,
maybe resize before load !
test_name ['00', '01', '02', '03', '04', '05', '06', '07', '08
', '09', '10', '11', '12']
load the trained model
#################model predict################
results type : <class 'list'>
results type : <class 'numpy.ndarray'>
```

```
results.dtype : float32
results.shape : (7, 13, 65)
results.dtype : int64
results.shape : (13, 7)
results
 [[24 51 52 64 46 42 45]
 [21 55 52 46 39 56 40]
 [18 54 45 40 57 59 35]
 [ 4 54 37 62 57 33 54]
 [26 43 43 55 34 58 54]
 [ 2 53 47 54 33 62 63]
 [27 54 47 52 62 56 38]
 [26 60 31 58 41 48 31]
 [23 63 50 64 36 45 52]
 [24 54 32 33 50 55 44]
 [ 4 64 33 55 56 44 32]
 [14 47 39 50 33 36 48]
 [19 52 54 54 58 59 46]]
key 云
key L
key M
key Z
key F
key B
key E
key 琼
key Q
key M
key F
key 8
key R
key 9
key 湘
key P
key E
key 9
key S
```

```
key U
key 4
key 冀
key P
key 6
key X
key S
key 2
key P
key 陕
key C
key C
key Q
key 3
key T
key P
key 津
key N
key G
key P
key 2
key X
key Y
key 甘
key P
key G
key M
key X
key R
key 7
key 陕
key V
key 0
key T
key A
key H
key 0
```

```
key 贵
key Y
key K
key Z
key 5
key E
key M
key 云
key P
key 1
key 2
key K
key Q
key D
key 冀
key Z
key 2
key Q
key R
key D
key 1
key 赣
key G
key 8
key K
key 2
key 5
key H
key 粤
key M
key P
key P
key T
key U
key F
predict_plate_str type : <class 'list'>
predict_plate_str
```

```
 [['云', 'L', 'M', 'Z', 'F', 'B', 'E'], ['琼', 'Q', 'M', 'F', '8
', 'R', '9'], ['湘', 'P', 'E', '9', 'S', 'U', '4'], ['冀', 'P
', '6', 'X', 'S', '2', 'P'], ['陕', 'C', 'C', 'Q', '3', 'T', 'P
'], ['津', 'N', 'G', 'P', '2', 'X', 'Y'], ['甘', 'P', 'G', 'M
', 'X', 'R', '7'], ['陕', 'V', 'O', 'T', 'A', 'H', 'O'], ['贵
', 'Y', 'K', 'Z', '5', 'E', 'M'], ['云', 'P', '1', '2', 'K', 'Q
', 'D'], ['冀', 'Z', '2', 'Q', 'R', 'D', '1'], ['赣', 'G', '8
', 'K', '2', '5', 'H'], ['粤', 'M', 'P', 'P', 'T', 'U', 'F']]
################plt results################

Process finished with exit code 0

```