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 2019-08-01 09:39:56.456306: 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 2019-08-01 09:39:56.457306: 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  - 101s - loss: 28.5548 - c1_loss: 4.0744 - c2_loss: 3.7171 -
   c3_loss: 4.1119 - c4_loss: 4.1532 - c5_loss: 4.1429 - c6_loss: 4.
   1022 - c7_loss: 4.2532 - c1_acc: 0.0375 - c2_acc: 0.0609 - c3_acc
   : 0.0319 - c4_acc: 0.0316 - c5_acc: 0.0319 - c6_acc: 0.0328 -
   c7_acc: 0.0309 - val_loss: 24.3627 - val_c1_loss: 3.4601 -
   val_c2_loss: 3.1421 - val_c3_loss: 3.5478 - val_c4_loss: 3.5437
    - val_c5_loss: 3.5566 - val_c6_loss: 3.5467 - val_c7_loss: 3.
   5656 - val_c1_acc: 0.0344 - val_c2_acc: 0.0688 - val_c3_acc: 0.
   0437 - val_c4_acc: 0.0406 - val_c5_acc: 0.0156 - val_c6_acc: 0.
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0312 - val_c7_acc: 0.0281
Epoch 2/30
 - 97s - loss: 24.3009 - c1_loss: 3.4551 - c2_loss: 3.1184 - c3_loss: 3.5153 - c4_loss: 3.5421 - c5_loss: 3.5457 - c6_loss: 3.5602 - c7_loss: 3.5641 - c1_acc: 0.0372 - c2_acc: 0.0947 - c3_acc: 0.0534 - c4_acc: 0.0341 - c5_acc: 0.0394 - c6_acc: 0.0341 - c7_acc: 0.0322 - val_loss: 24.0029 - val_c1_loss: 3.4025 - val_c2_loss: 3.0368 - val_c3_loss: 3.4540 - val_c4_loss: 3.5046 - val_c5_loss: 3.5303 - val_c6_loss: 3.5147 - val_c7_loss: 3.5598 - val_c1_acc: 0.0719 - val_c2_acc: 0.1531 - val_c3_acc: 0.0688 - val_c4_acc: 0.0531 - val_c5_acc: 0.0500 - val_c6_acc: 0.0531 - val_c7_acc: 0.0375
Epoch 3/30
 - 97s - loss: 23.7223 - c1_loss: 3.4107 - c2_loss: 2.8537 - c3_loss: 3.3783 - c4_loss: 3.4664 - c5_loss: 3.5027 - c6_loss: 3.5494 - c7_loss: 3.5610 - c1_acc: 0.0566 - c2_acc: 0.2022 - c3_acc: 0.0884 - c4_acc: 0.0609 - c5_acc: 0.0466 - c6_acc: 0.0375 - c7_acc: 0.0359 - val_loss: 22.8710 - val_c1_loss: 3.3394 - val_c2_loss: 2.5391 - val_c3_loss: 3.1893 - val_c4_loss: 3.3392 - val_c5_loss: 3.4573 - val_c6_loss: 3.5079 - val_c7_loss: 3.4988 - val_c1_acc: 0.0781 - val_c2_acc: 0.3250 - val_c3_acc: 0.1781 - val_c4_acc: 0.0906 - val_c5_acc: 0.0531 - val_c6_acc: 0.0406 - val_c7_acc: 0.0469
Epoch 4/30
 - 104s - loss: 21.7307 - c1_loss: 3.2612 - c2_loss: 2.0318 - c3_loss: 2.9385 - c4_loss: 3.1538 - c5_loss: 3.3341 - c6_loss: 3.4749 - c7_loss: 3.5364 - c1_acc: 0.1084 - c2_acc: 0.4528 - c3_acc: 0.1947 - c4_acc: 0.1391 - c5_acc: 0.1081 - c6_acc: 0.0653 - c7_acc: 0.0619 - val_loss: 20.2472 - val_c1_loss: 3.0453 - val_c2_loss: 1.6021 - val_c3_loss: 2.6630 - val_c4_loss: 2.8736 - val_c5_loss: 3.2310 - val_c6_loss: 3.3159 - val_c7_loss: 3.5162 - val_c1_acc: 0.1688 - val_c2_acc: 0.5906 - val_c3_acc: 0.3250 - val_c4_acc: 0.2406 - val_c5_acc: 0.1156 - val_c6_acc: 0.0906 - val_c7_acc: 0.0531
Epoch 5/30
 - 140s - loss: 19.3234 - c1_loss: 2.9499 - c2_loss: 1.3086 - c3_loss: 2.4030 - c4_loss: 2.7448 - c5_loss: 3.0785 - c6_loss: 3.
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3299 - c7_loss: 3.5087 - c1_acc: 0.1972 - c2_acc: 0.6541 - c3_acc
: 0.3181 - c4_acc: 0.2344 - c5_acc: 0.1556 - c6_acc: 0.1128 -
c7_acc: 0.0775 - val_loss: 17.1438 - val_c1_loss: 2.7219 -
val_c2_loss: 0.8772 - val_c3_loss: 2.0394 - val_c4_loss: 2.3560
 - val_c5_loss: 2.7023 - val_c6_loss: 3.1218 - val_c7_loss: 3.
3252 - val_c1_acc: 0.2500 - val_c2_acc: 0.8094 - val_c3_acc: 0.
4344 - val_c4_acc: 0.3375 - val_c5_acc: 0.2281 - val_c6_acc: 0.
1437 - val_c7_acc: 0.1156
Epoch 6/30
 - 105s - loss: 17.3415 - c1_loss: 2.7058 - c2_loss: 0.9264 -
c3_loss: 1.9378 - c4_loss: 2.4057 - c5_loss: 2.8256 - c6_loss: 3.
1499 - c7_loss: 3.3903 - c1_acc: 0.2581 - c2_acc: 0.7634 - c3_acc
: 0.4347 - c4_acc: 0.3125 - c5_acc: 0.2028 - c6_acc: 0.1425 -
c7_acc: 0.1019 - val_loss: 15.6740 - val_c1_loss: 2.3641 -
val_c2_loss: 0.7096 - val_c3_loss: 1.5680 - val_c4_loss: 2.1532
 - val_c5_loss: 2.5777 - val_c6_loss: 3.1147 - val_c7_loss: 3.
1867 - val_c1_acc: 0.3812 - val_c2_acc: 0.8156 - val_c3_acc: 0.
5781 - val_c4_acc: 0.3719 - val_c5_acc: 0.3187 - val_c6_acc: 0.
1875 - val_c7_acc: 0.1437
Epoch 7/30
 - 98s - loss: 15.6043 - c1_loss: 2.3585 - c2_loss: 0.6803 -
c3_loss: 1.5959 - c4_loss: 2.1178 - c5_loss: 2.5853 - c6_loss: 3.
0312 - c7_loss: 3.2352 - c1_acc: 0.3397 - c2_acc: 0.8350 - c3_acc
: 0.5266 - c4_acc: 0.3947 - c5_acc: 0.2794 - c6_acc: 0.1731 -
c7_acc: 0.1381 - val_loss: 14.0438 - val_c1_loss: 2.1398 -
val_c2_loss: 0.5449 - val_c3_loss: 1.3548 - val_c4_loss: 2.0376
 - val_c5_loss: 2.3384 - val_c6_loss: 2.7392 - val_c7_loss: 2.
8890 - val_c1_acc: 0.4156 - val_c2_acc: 0.9250 - val_c3_acc: 0.
6062 - val_c4_acc: 0.4219 - val_c5_acc: 0.3688 - val_c6_acc: 0.
2594 - val_c7_acc: 0.2062
Epoch 8/30
 - 108s - loss: 14.0689 - c1_loss: 2.0329 - c2_loss: 0.5279 -
c3_loss: 1.3283 - c4_loss: 1.8333 - c5_loss: 2.3862 - c6_loss: 2.
8757 - c7_loss: 3.0847 - c1_acc: 0.4331 - c2_acc: 0.8719 - c3_acc
: 0.6122 - c4_acc: 0.4766 - c5_acc: 0.3256 - c6_acc: 0.2200 -
c7_acc: 0.1722 - val_loss: 13.1584 - val_c1_loss: 1.9176 -
val_c2_loss: 0.4956 - val_c3_loss: 1.2975 - val_c4_loss: 1.7048
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 - val_c5_loss: 2.2346 - val_c6_loss: 2.6235 - val_c7_loss: 2.
8849 - val_c1_acc: 0.4875 - val_c2_acc: 0.9187 - val_c3_acc: 0.
6375 - val_c4_acc: 0.5062 - val_c5_acc: 0.3750 - val_c6_acc: 0.
3094 - val_c7_acc: 0.2062
Epoch 9/30
 - 111s - loss: 13.2560 - c1_loss: 1.8308 - c2_loss: 0.4400 -
c3_loss: 1.1585 - c4_loss: 1.7186 - c5_loss: 2.2850 - c6_loss: 2
.8467 - c7_loss: 2.9763 - c1_acc: 0.5000 - c2_acc: 0.8884 -
c3_acc: 0.6622 - c4_acc: 0.4994 - c5_acc: 0.3650 - c6_acc: 0.
2309 - c7_acc: 0.1975 - val_loss: 11.6890 - val_c1_loss: 1.5830
 - val_c2_loss: 0.3548 - val_c3_loss: 0.9333 - val_c4_loss: 1.
5351 - val_c5_loss: 1.9525 - val_c6_loss: 2.5903 - val_c7_loss:
2.7399 - val_c1_acc: 0.5625 - val_c2_acc: 0.8938 - val_c3_acc: 0
.7500 - val_c4_acc: 0.5531 - val_c5_acc: 0.4562 - val_c6_acc: 0.
3094 - val_c7_acc: 0.2500
Epoch 10/30
 - 104s - loss: 12.2742 - c1_loss: 1.5530 - c2_loss: 0.3721 -
c3_loss: 1.0257 - c4_loss: 1.5714 - c5_loss: 2.1145 - c6_loss: 2
.7383 - c7_loss: 2.8993 - c1_acc: 0.5716 - c2_acc: 0.9091 -
c3_acc: 0.6944 - c4_acc: 0.5381 - c5_acc: 0.4037 - c6_acc: 0.
2700 - c7_acc: 0.2250 - val_loss: 10.2104 - val_c1_loss: 1.3284
 - val_c2_loss: 0.2713 - val_c3_loss: 0.7833 - val_c4_loss: 1.
1882 - val_c5_loss: 1.7820 - val_c6_loss: 2.3703 - val_c7_loss:
2.4869 - val_c1_acc: 0.6969 - val_c2_acc: 0.9625 - val_c3_acc: 0
.7937 - val_c4_acc: 0.6937 - val_c5_acc: 0.5188 - val_c6_acc: 0.
3500 - val_c7_acc: 0.3219
Epoch 11/30
 - 104s - loss: 11.3244 - c1_loss: 1.3215 - c2_loss: 0.3091 -
c3_loss: 0.8977 - c4_loss: 1.4152 - c5_loss: 1.9820 - c6_loss: 2
.6137 - c7_loss: 2.7853 - c1_acc: 0.6409 - c2_acc: 0.9325 -
c3_acc: 0.7384 - c4_acc: 0.6003 - c5_acc: 0.4447 - c6_acc: 0.
2959 - c7_acc: 0.2481 - val_loss: 10.2295 - val_c1_loss: 1.1770
 - val_c2_loss: 0.3834 - val_c3_loss: 0.8475 - val_c4_loss: 1.
2929 - val_c5_loss: 1.7951 - val_c6_loss: 2.2619 - val_c7_loss:
2.4717 - val_c1_acc: 0.7688 - val_c2_acc: 0.9406 - val_c3_acc: 0
.7937 - val_c4_acc: 0.6656 - val_c5_acc: 0.4969 - val_c6_acc: 0.
3781 - val_c7_acc: 0.3375
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Epoch 12/30
 - 110s - loss: 10.4724 - c1_loss: 1.1339 - c2_loss: 0.2477 - c3_loss: 0.7226 - c4_loss: 1.2719 - c5_loss: 1.9203 - c6_loss: 2.4569 - c7_loss: 2.7191 - c1_acc: 0.6887 - c2_acc: 0.9406 - c3_acc: 0.7978 - c4_acc: 0.6325 - c5_acc: 0.4738 - c6_acc: 0.3347 - c7_acc: 0.2787 - val_loss: 10.0316 - val_c1_loss: 0.9499 - val_c2_loss: 0.2152 - val_c3_loss: 0.6984 - val_c4_loss: 1.2312 - val_c5_loss: 1.9947 - val_c6_loss: 2.3464 - val_c7_loss: 2.5958 - val_c1_acc: 0.7906 - val_c2_acc: 0.9688 - val_c3_acc: 0.8406 - val_c4_acc: 0.6750 - val_c5_acc: 0.5031 - val_c6_acc: 0.3438 - val_c7_acc: 0.3281
Epoch 13/30
 - 104s - loss: 9.6255 - c1_loss: 0.9820 - c2_loss: 0.2044 - c3_loss: 0.6511 - c4_loss: 1.1297 - c5_loss: 1.7402 - c6_loss: 2.3712 - c7_loss: 2.5469 - c1_acc: 0.7391 - c2_acc: 0.9525 - c3_acc: 0.8147 - c4_acc: 0.6700 - c5_acc: 0.5150 - c6_acc: 0.3769 - c7_acc: 0.3056 - val_loss: 8.2507 - val_c1_loss: 0.7039 - val_c2_loss: 0.1526 - val_c3_loss: 0.4675 - val_c4_loss: 0.9767 - val_c5_loss: 1.4551 - val_c6_loss: 2.1196 - val_c7_loss: 2.3753 - val_c1_acc: 0.8594 - val_c2_acc: 0.9719 - val_c3_acc: 0.8938 - val_c4_acc: 0.7531 - val_c5_acc: 0.6094 - val_c6_acc: 0.4125 - val_c7_acc: 0.3688
Epoch 14/30
 - 103s - loss: 8.9726 - c1_loss: 0.8349 - c2_loss: 0.1771 - c3_loss: 0.5625 - c4_loss: 0.9941 - c5_loss: 1.6285 - c6_loss: 2.3192 - c7_loss: 2.4562 - c1_acc: 0.7844 - c2_acc: 0.9584 - c3_acc: 0.8400 - c4_acc: 0.7219 - c5_acc: 0.5456 - c6_acc: 0.3866 - c7_acc: 0.3419 - val_loss: 8.2391 - val_c1_loss: 0.8181 - val_c2_loss: 0.1816 - val_c3_loss: 0.4781 - val_c4_loss: 0.9866 - val_c5_loss: 1.4950 - val_c6_loss: 2.0042 - val_c7_loss: 2.2756 - val_c1_acc: 0.8063 - val_c2_acc: 0.9500 - val_c3_acc: 0.8938 - val_c4_acc: 0.7312 - val_c5_acc: 0.5844 - val_c6_acc: 0.4938 - val_c7_acc: 0.3875
Epoch 15/30
 - 104s - loss: 8.4747 - c1_loss: 0.7457 - c2_loss: 0.1624 - c3_loss: 0.5092 - c4_loss: 0.9132 - c5_loss: 1.5510 - c6_loss: 2.1925 - c7_loss: 2.4006 - c1_acc: 0.8181 - c2_acc: 0.9688 -
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c3_acc: 0.8600 - c4_acc: 0.7488 - c5_acc: 0.5703 - c6_acc: 0.
4150 - c7_acc: 0.3556 - val_loss: 7.8011 - val_c1_loss: 0.7090
 - val_c2_loss: 0.4249 - val_c3_loss: 0.5118 - val_c4_loss: 0.
8536 - val_c5_loss: 1.3961 - val_c6_loss: 1.9127 - val_c7_loss:
1.9930 - val_c1_acc: 0.8719 - val_c2_acc: 0.9531 - val_c3_acc: 0
.9313 - val_c4_acc: 0.7812 - val_c5_acc: 0.6687 - val_c6_acc: 0.
4719 - val_c7_acc: 0.4750
Epoch 16/30
 - 107s - loss: 8.2437 - c1_loss: 0.7156 - c2_loss: 0.1534 -
c3_loss: 0.4795 - c4_loss: 0.9211 - c5_loss: 1.5250 - c6_loss: 2
.1971 - c7_loss: 2.2519 - c1_acc: 0.8200 - c2_acc: 0.9728 -
c3_acc: 0.8741 - c4_acc: 0.7388 - c5_acc: 0.5925 - c6_acc: 0.
4144 - c7_acc: 0.3972 - val_loss: 7.1409 - val_c1_loss: 0.5844
 - val_c2_loss: 0.2345 - val_c3_loss: 0.4795 - val_c4_loss: 0.
7324 - val_c5_loss: 1.3130 - val_c6_loss: 1.8711 - val_c7_loss:
1.9260 - val_c1_acc: 0.8812 - val_c2_acc: 0.9781 - val_c3_acc: 0
.8906 - val_c4_acc: 0.8156 - val_c5_acc: 0.6281 - val_c6_acc: 0.
5062 - val_c7_acc: 0.4906
Epoch 17/30
 - 102s - loss: 7.6311 - c1_loss: 0.6766 - c2_loss: 0.1418 -
c3_loss: 0.4177 - c4_loss: 0.7970 - c5_loss: 1.3552 - c6_loss: 2
.0824 - c7_loss: 2.1602 - c1_acc: 0.8328 - c2_acc: 0.9709 -
c3_acc: 0.8897 - c4_acc: 0.7812 - c5_acc: 0.6328 - c6_acc: 0.
4506 - c7_acc: 0.4262 - val_loss: 6.7467 - val_c1_loss: 0.5136
 - val_c2_loss: 0.0833 - val_c3_loss: 0.2713 - val_c4_loss: 0.
7830 - val_c5_loss: 1.1916 - val_c6_loss: 1.8871 - val_c7_loss:
2.0168 - val_c1_acc: 0.8969 - val_c2_acc: 0.9875 - val_c3_acc: 0
.9344 - val_c4_acc: 0.7906 - val_c5_acc: 0.6750 - val_c6_acc: 0.
4906 - val_c7_acc: 0.4875
Epoch 18/30
 - 104s - loss: 7.1420 - c1_loss: 0.5598 - c2_loss: 0.1095 -
c3_loss: 0.3604 - c4_loss: 0.7136 - c5_loss: 1.2925 - c6_loss: 2
.0055 - c7_loss: 2.1007 - c1_acc: 0.8594 - c2_acc: 0.9766 -
c3_acc: 0.9041 - c4_acc: 0.7966 - c5_acc: 0.6606 - c6_acc: 0.
4747 - c7_acc: 0.4437 - val_loss: 6.2525 - val_c1_loss: 0.4389
 - val_c2_loss: 0.0741 - val_c3_loss: 0.3283 - val_c4_loss: 0.
6428 - val_c5_loss: 1.0481 - val_c6_loss: 1.7721 - val_c7_loss:
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1.9482 - val_c1_acc: 0.9156 - val_c2_acc: 0.9969 - val_c3_acc: 0
.9250 - val_c4_acc: 0.8594 - val_c5_acc: 0.6937 - val_c6_acc: 0.
5094 - val_c7_acc: 0.4781
Epoch 19/30
 - 103s - loss: 6.9700 - c1_loss: 0.5212 - c2_loss: 0.1202 -
c3_loss: 0.3617 - c4_loss: 0.6866 - c5_loss: 1.3044 - c6_loss: 1
.9275 - c7_loss: 2.0484 - c1_acc: 0.8712 - c2_acc: 0.9791 -
c3_acc: 0.9038 - c4_acc: 0.8116 - c5_acc: 0.6538 - c6_acc: 0.
4931 - c7_acc: 0.4531 - val_loss: 6.0195 - val_c1_loss: 0.3936
 - val_c2_loss: 0.2172 - val_c3_loss: 0.3632 - val_c4_loss: 0.
6689 - val_c5_loss: 1.0017 - val_c6_loss: 1.6460 - val_c7_loss:
1.7289 - val_c1_acc: 0.9313 - val_c2_acc: 0.9812 - val_c3_acc: 0
.9500 - val_c4_acc: 0.8594 - val_c5_acc: 0.7594 - val_c6_acc: 0.
5781 - val_c7_acc: 0.5563
Epoch 20/30
 - 136s - loss: 6.4535 - c1_loss: 0.4946 - c2_loss: 0.0840 -
c3_loss: 0.3005 - c4_loss: 0.6162 - c5_loss: 1.1804 - c6_loss: 1
.8093 - c7_loss: 1.9685 - c1_acc: 0.8797 - c2_acc: 0.9863 -
c3_acc: 0.9294 - c4_acc: 0.8244 - c5_acc: 0.6775 - c6_acc: 0.
5244 - c7_acc: 0.4863 - val_loss: 6.3058 - val_c1_loss: 0.5427
 - val_c2_loss: 0.3130 - val_c3_loss: 0.4564 - val_c4_loss: 0.
6371 - val_c5_loss: 0.9056 - val_c6_loss: 1.6412 - val_c7_loss:
1.8099 - val_c1_acc: 0.9031 - val_c2_acc: 0.9719 - val_c3_acc: 0
.9219 - val_c4_acc: 0.8438 - val_c5_acc: 0.7750 - val_c6_acc: 0.
5719 - val_c7_acc: 0.5281
Epoch 21/30
 - 134s - loss: 6.0744 - c1_loss: 0.4257 - c2_loss: 0.0800 -
c3_loss: 0.2587 - c4_loss: 0.5632 - c5_loss: 1.0965 - c6_loss: 1
.8023 - c7_loss: 1.8480 - c1_acc: 0.8909 - c2_acc: 0.9841 -
c3_acc: 0.9331 - c4_acc: 0.8378 - c5_acc: 0.6994 - c6_acc: 0.
5325 - c7_acc: 0.5119 - val_loss: 6.0408 - val_c1_loss: 0.5541
 - val_c2_loss: 0.2419 - val_c3_loss: 0.3408 - val_c4_loss: 0.
6145 - val_c5_loss: 1.0695 - val_c6_loss: 1.7036 - val_c7_loss:
1.5164 - val_c1_acc: 0.9094 - val_c2_acc: 0.9812 - val_c3_acc: 0
.9531 - val_c4_acc: 0.8781 - val_c5_acc: 0.7406 - val_c6_acc: 0.
5781 - val_c7_acc: 0.6062
Epoch 22/30
```

```
 - 103s - loss: 5.9436 - c1_loss: 0.4494 - c2_loss: 0.1149 - c3_loss: 0.2965 - c4_loss: 0.5424 - c5_loss: 1.0558 - c6_loss: 1.7224 - c7_loss: 1.7624 - c1_acc: 0.8944 - c2_acc: 0.9853 - c3_acc: 0.9269 - c4_acc: 0.8559 - c5_acc: 0.7144 - c6_acc: 0.5475 - c7_acc: 0.5238 - val_loss: 5.3417 - val_c1_loss: 0.2878 - val_c2_loss: 0.1606 - val_c3_loss: 0.2039 - val_c4_loss: 0.5369 - val_c5_loss: 0.9499 - val_c6_loss: 1.6465 - val_c7_loss: 1.5560 - val_c1_acc: 0.9563 - val_c2_acc: 0.9844 - val_c3_acc: 0.9594 - val_c4_acc: 0.8938 - val_c5_acc: 0.7469 - val_c6_acc: 0.5813 - val_c7_acc: 0.5625
Epoch 23/30
 - 103s - loss: 5.5528 - c1_loss: 0.3766 - c2_loss: 0.0665 - c3_loss: 0.2141 - c4_loss: 0.4772 - c5_loss: 1.0131 - c6_loss: 1.6973 - c7_loss: 1.7080 - c1_acc: 0.9087 - c2_acc: 0.9850 - c3_acc: 0.9503 - c4_acc: 0.8675 - c5_acc: 0.7231 - c6_acc: 0.5438 - c7_acc: 0.5441 - val_loss: 4.7794 - val_c1_loss: 0.2888 - val_c2_loss: 0.0630 - val_c3_loss: 0.1740 - val_c4_loss: 0.4423 - val_c5_loss: 0.9306 - val_c6_loss: 1.4572 - val_c7_loss: 1.4234 - val_c1_acc: 0.9437 - val_c2_acc: 0.9906 - val_c3_acc: 0.9563 - val_c4_acc: 0.8812 - val_c5_acc: 0.7656 - val_c6_acc: 0.5938 - val_c7_acc: 0.6438
Epoch 24/30
 - 119s - loss: 5.3038 - c1_loss: 0.3781 - c2_loss: 0.0555 - c3_loss: 0.2101 - c4_loss: 0.4675 - c5_loss: 0.9901 - c6_loss: 1.5961 - c7_loss: 1.6066 - c1_acc: 0.9075 - c2_acc: 0.9884 - c3_acc: 0.9441 - c4_acc: 0.8634 - c5_acc: 0.7447 - c6_acc: 0.5822 - c7_acc: 0.5809 - val_loss: 4.8915 - val_c1_loss: 0.3442 - val_c2_loss: 0.0487 - val_c3_loss: 0.2143 - val_c4_loss: 0.3969 - val_c5_loss: 0.8759 - val_c6_loss: 1.5088 - val_c7_loss: 1.5027 - val_c1_acc: 0.9406 - val_c2_acc: 0.9938 - val_c3_acc: 0.9437 - val_c4_acc: 0.9187 - val_c5_acc: 0.7438 - val_c6_acc: 0.6562 - val_c7_acc: 0.6250
Epoch 25/30
 - 123s - loss: 5.1879 - c1_loss: 0.3488 - c2_loss: 0.0599 - c3_loss: 0.1897 - c4_loss: 0.4346 - c5_loss: 0.9290 - c6_loss: 1.6435 - c7_loss: 1.5824 - c1_acc: 0.9116 - c2_acc: 0.9891 - c3_acc: 0.9519 - c4_acc: 0.8722 - c5_acc: 0.7497 - c6_acc: 0.
```

```
5722 - c7_acc: 0.5775 - val_loss: 4.3525 - val_c1_loss: 0.2717
 - val_c2_loss: 0.0531 - val_c3_loss: 0.1440 - val_c4_loss: 0.
3296 - val_c5_loss: 0.8825 - val_c6_loss: 1.4050 - val_c7_loss:
1.2667 - val_c1_acc: 0.9344 - val_c2_acc: 0.9875 - val_c3_acc: 0
.9656 - val_c4_acc: 0.9094 - val_c5_acc: 0.7875 - val_c6_acc: 0.
6562 - val_c7_acc: 0.6687
Epoch 26/30
 - 101s - loss: 4.8982 - c1_loss: 0.3273 - c2_loss: 0.0480 -
c3_loss: 0.1909 - c4_loss: 0.4203 - c5_loss: 0.8540 - c6_loss: 1
.5072 - c7_loss: 1.5505 - c1_acc: 0.9150 - c2_acc: 0.9891 -
c3_acc: 0.9478 - c4_acc: 0.8794 - c5_acc: 0.7703 - c6_acc: 0.
5981 - c7_acc: 0.5916 - val_loss: 4.0295 - val_c1_loss: 0.2326
 - val_c2_loss: 0.0499 - val_c3_loss: 0.1454 - val_c4_loss: 0.
3565 - val_c5_loss: 0.7052 - val_c6_loss: 1.3113 - val_c7_loss:
1.2286 - val_c1_acc: 0.9656 - val_c2_acc: 0.9906 - val_c3_acc: 0
.9750 - val_c4_acc: 0.9031 - val_c5_acc: 0.8281 - val_c6_acc: 0.
6438 - val_c7_acc: 0.7000
Epoch 27/30
 - 99s - loss: 4.7858 - c1_loss: 0.3222 - c2_loss: 0.0510 -
c3_loss: 0.1709 - c4_loss: 0.3957 - c5_loss: 0.8626 - c6_loss: 1
.5081 - c7_loss: 1.4751 - c1_acc: 0.9166 - c2_acc: 0.9881 -
c3_acc: 0.9541 - c4_acc: 0.8956 - c5_acc: 0.7703 - c6_acc: 0.
6109 - c7_acc: 0.6191 - val_loss: 3.7060 - val_c1_loss: 0.1820
 - val_c2_loss: 0.0195 - val_c3_loss: 0.0956 - val_c4_loss: 0.
2631 - val_c5_loss: 0.6728 - val_c6_loss: 1.2766 - val_c7_loss:
1.1965 - val_c1_acc: 0.9563 - val_c2_acc: 1.0000 - val_c3_acc: 0
.9688 - val_c4_acc: 0.9469 - val_c5_acc: 0.8313 - val_c6_acc: 0.
7031 - val_c7_acc: 0.7094
Epoch 28/30
 - 100s - loss: 4.3971 - c1_loss: 0.2721 - c2_loss: 0.0344 -
c3_loss: 0.1477 - c4_loss: 0.3449 - c5_loss: 0.7872 - c6_loss: 1
.4279 - c7_loss: 1.3829 - c1_acc: 0.9322 - c2_acc: 0.9938 -
c3_acc: 0.9609 - c4_acc: 0.8984 - c5_acc: 0.7909 - c6_acc: 0.
6238 - c7_acc: 0.6387 - val_loss: 4.1098 - val_c1_loss: 0.2725
 - val_c2_loss: 0.0592 - val_c3_loss: 0.1623 - val_c4_loss: 0.
3637 - val_c5_loss: 0.7356 - val_c6_loss: 1.1974 - val_c7_loss:
1.3191 - val_c1_acc: 0.9375 - val_c2_acc: 0.9969 - val_c3_acc: 0
```

```
.9688 - val_c4_acc: 0.9000 - val_c5_acc: 0.8031 - val_c6_acc: 0.
7000 - val_c7_acc: 0.6937
Epoch 29/30
 - 138s - loss: 4.3571 - c1_loss: 0.2786 - c2_loss: 0.0557 -
c3_loss: 0.1529 - c4_loss: 0.3408 - c5_loss: 0.7675 - c6_loss: 1
.4131 - c7_loss: 1.3485 - c1_acc: 0.9328 - c2_acc: 0.9919 -
c3_acc: 0.9628 - c4_acc: 0.9038 - c5_acc: 0.7934 - c6_acc: 0.
6359 - c7_acc: 0.6550 - val_loss: 4.1854 - val_c1_loss: 0.3184
 - val_c2_loss: 0.0407 - val_c3_loss: 0.1707 - val_c4_loss: 0.
3145 - val_c5_loss: 0.6911 - val_c6_loss: 1.3815 - val_c7_loss:
1.2686 - val_c1_acc: 0.9313 - val_c2_acc: 0.9969 - val_c3_acc: 0
.9656 - val_c4_acc: 0.9187 - val_c5_acc: 0.8375 - val_c6_acc: 0.
6094 - val_c7_acc: 0.6844
Epoch 30/30
 - 113s - loss: 4.0056 - c1_loss: 0.2282 - c2_loss: 0.0380 -
c3_loss: 0.1343 - c4_loss: 0.2923 - c5_loss: 0.7042 - c6_loss: 1
.3140 - c7_loss: 1.2945 - c1_acc: 0.9403 - c2_acc: 0.9916 -
c3_acc: 0.9659 - c4_acc: 0.9163 - c5_acc: 0.8097 - c6_acc: 0.
6569 - c7_acc: 0.6559 - val_loss: 3.2225 - val_c1_loss: 0.1504
 - val_c2_loss: 0.0330 - val_c3_loss: 0.1051 - val_c4_loss: 0.
2220 - val_c5_loss: 0.5334 - val_c6_loss: 1.1098 - val_c7_loss:
1.0688 - val_c1_acc: 0.9750 - val_c2_acc: 0.9906 - val_c3_acc: 0
.9781 - val_c4_acc: 0.9437 - val_c5_acc: 0.8594 - val_c6_acc: 0.
7438 - val_c7_acc: 0.7281
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 35 41 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]
 [ 3 53 47 54 48 62 63]
 [27 54 47 52 62 56 38]
 [26 60 31 58 41 48 42]
 [23 63 50 64 36 45 52]
 [24 54 32 33 50 31 31]
 [ 4 64 33 55 56 44 32]
 [14 47 39 50 64 45 37]
 [19 52 54 54 58 48 46]]
key 云
key L
key M
key Z
key 4
key A
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 渝
key N
key G
key P
key H
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 B
```

```
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 0
key 0
key 冀
key Z
key 2
key Q
key R
key D
key 1
key 赣
key G
key 8
key K
key Z
key E
key 6
key 粤
key M
key P
key P
key T
key H
key F
predict_plate_str type : <class 'list'>
predict_plate_str
```

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

Process finished with exit code 0

```