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 10:41:21.740701: 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 10:41:21.741701: 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  - 115s - loss: 26.5922 - c1_loss: 3.7894 - c2_loss: 3.4959 -
   c3_loss: 3.8662 - c4_loss: 3.8392 - c5_loss: 3.8488 - c6_loss: 3.
   8899 - c7_loss: 3.8629 - c1_acc: 0.0303 - c2_acc: 0.0425 - c3_acc
   : 0.0325 - c4_acc: 0.0341 - c5_acc: 0.0322 - c6_acc: 0.0306 -
   c7_acc: 0.0262 - val_loss: 24.4233 - val_c1_loss: 3.4696 -
   val_c2_loss: 3.2009 - val_c3_loss: 3.5290 - val_c4_loss: 3.5447
    - val_c5_loss: 3.5700 - val_c6_loss: 3.5520 - val_c7_loss: 3.
   5571 - val_c1_acc: 0.0250 - val_c2_acc: 0.0437 - val_c3_acc: 0.
   0250 - val_c4_acc: 0.0406 - val_c5_acc: 0.0219 - val_c6_acc: 0.
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0312 - val_c7_acc: 0.0250
Epoch 2/30
 - 104s - loss: 24.1633 - c1_loss: 3.4621 - c2_loss: 3.0433 - c3_loss: 3.5089 - c4_loss: 3.5194 - c5_loss: 3.5286 - c6_loss: 3.5446 - c7_loss: 3.5564 - c1_acc: 0.0350 - c2_acc: 0.1013 - c3_acc: 0.0472 - c4_acc: 0.0400 - c5_acc: 0.0381 - c6_acc: 0.0384 - c7_acc: 0.0331 - val_loss: 23.3809 - val_c1_loss: 3.4647 - val_c2_loss: 2.6819 - val_c3_loss: 3.3579 - val_c4_loss: 3.3814 - val_c5_loss: 3.4780 - val_c6_loss: 3.5001 - val_c7_loss: 3.5169 - val_c1_acc: 0.0531 - val_c2_acc: 0.2531 - val_c3_acc: 0.0813 - val_c4_acc: 0.1000 - val_c5_acc: 0.0406 - val_c6_acc: 0.0719 - val_c7_acc: 0.0531
Epoch 3/30
 - 101s - loss: 22.2506 - c1_loss: 3.4351 - c2_loss: 2.2990 - c3_loss: 3.1077 - c4_loss: 3.1554 - c5_loss: 3.3150 - c6_loss: 3.4387 - c7_loss: 3.4997 - c1_acc: 0.0631 - c2_acc: 0.3278 - c3_acc: 0.1319 - c4_acc: 0.1256 - c5_acc: 0.0919 - c6_acc: 0.0700 - c7_acc: 0.0566 - val_loss: 20.7371 - val_c1_loss: 3.2862 - val_c2_loss: 1.8821 - val_c3_loss: 2.7431 - val_c4_loss: 2.8550 - val_c5_loss: 3.1818 - val_c6_loss: 3.3613 - val_c7_loss: 3.4276 - val_c1_acc: 0.0906 - val_c2_acc: 0.4437 - val_c3_acc: 0.2313 - val_c4_acc: 0.1969 - val_c5_acc: 0.1031 - val_c6_acc: 0.0625 - val_c7_acc: 0.0563
Epoch 4/30
 - 101s - loss: 20.3499 - c1_loss: 3.2074 - c2_loss: 1.7756 - c3_loss: 2.6289 - c4_loss: 2.8681 - c5_loss: 3.1084 - c6_loss: 3.3224 - c7_loss: 3.4391 - c1_acc: 0.1169 - c2_acc: 0.4722 - c3_acc: 0.2412 - c4_acc: 0.1894 - c5_acc: 0.1475 - c6_acc: 0.0978 - c7_acc: 0.0756 - val_loss: 18.6516 - val_c1_loss: 2.9417 - val_c2_loss: 1.3154 - val_c3_loss: 2.2481 - val_c4_loss: 2.5680 - val_c5_loss: 3.0452 - val_c6_loss: 3.1603 - val_c7_loss: 3.3728 - val_c1_acc: 0.1781 - val_c2_acc: 0.6344 - val_c3_acc: 0.3688 - val_c4_acc: 0.2531 - val_c5_acc: 0.1688 - val_c6_acc: 0.1344 - val_c7_acc: 0.1000
Epoch 5/30
 - 100s - loss: 18.0268 - c1_loss: 2.7953 - c2_loss: 1.2103 - c3_loss: 2.1185 - c4_loss: 2.4945 - c5_loss: 2.9039 - c6_loss: 3.
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1937 - c7_loss: 3.3105 - c1_acc: 0.2122 - c2_acc: 0.6394 - c3_acc
: 0.3650 - c4_acc: 0.2778 - c5_acc: 0.1850 - c6_acc: 0.1294 -
c7_acc: 0.1100 - val_loss: 15.7564 - val_c1_loss: 2.5807 -
val_c2_loss: 0.9049 - val_c3_loss: 1.5935 - val_c4_loss: 2.1429
 - val_c5_loss: 2.4850 - val_c6_loss: 2.9104 - val_c7_loss: 3.
1390 - val_c1_acc: 0.2531 - val_c2_acc: 0.7031 - val_c3_acc: 0.
5375 - val_c4_acc: 0.3438 - val_c5_acc: 0.2812 - val_c6_acc: 0.
2156 - val_c7_acc: 0.1969
Epoch 6/30
 - 100s - loss: 15.9285 - c1_loss: 2.3565 - c2_loss: 0.9068 -
c3_loss: 1.6624 - c4_loss: 2.1830 - c5_loss: 2.6267 - c6_loss: 2.
9956 - c7_loss: 3.1974 - c1_acc: 0.3144 - c2_acc: 0.7294 - c3_acc
: 0.4925 - c4_acc: 0.3559 - c5_acc: 0.2600 - c6_acc: 0.1716 -
c7_acc: 0.1319 - val_loss: 14.0821 - val_c1_loss: 2.0074 -
val_c2_loss: 0.6782 - val_c3_loss: 1.3663 - val_c4_loss: 1.8612
 - val_c5_loss: 2.2537 - val_c6_loss: 2.9438 - val_c7_loss: 2.
9716 - val_c1_acc: 0.4313 - val_c2_acc: 0.8094 - val_c3_acc: 0.
5906 - val_c4_acc: 0.4531 - val_c5_acc: 0.3344 - val_c6_acc: 0.
2094 - val_c7_acc: 0.1844
Epoch 7/30
 - 100s - loss: 13.9389 - c1_loss: 1.9206 - c2_loss: 0.6204 -
c3_loss: 1.3664 - c4_loss: 1.8290 - c5_loss: 2.3666 - c6_loss: 2.
8445 - c7_loss: 2.9913 - c1_acc: 0.4406 - c2_acc: 0.8131 - c3_acc
: 0.5700 - c4_acc: 0.4456 - c5_acc: 0.3131 - c6_acc: 0.2134 -
c7_acc: 0.1778 - val_loss: 12.1547 - val_c1_loss: 1.5825 -
val_c2_loss: 0.4690 - val_c3_loss: 1.0231 - val_c4_loss: 1.6958
 - val_c5_loss: 2.1051 - val_c6_loss: 2.5534 - val_c7_loss: 2.
7258 - val_c1_acc: 0.5375 - val_c2_acc: 0.8688 - val_c3_acc: 0.
6562 - val_c4_acc: 0.4750 - val_c5_acc: 0.4062 - val_c6_acc: 0.
2969 - val_c7_acc: 0.2875
Epoch 8/30
 - 101s - loss: 12.4850 - c1_loss: 1.5571 - c2_loss: 0.4924 -
c3_loss: 1.1134 - c4_loss: 1.6018 - c5_loss: 2.1639 - c6_loss: 2.
7096 - c7_loss: 2.8468 - c1_acc: 0.5363 - c2_acc: 0.8462 - c3_acc
: 0.6372 - c4_acc: 0.4903 - c5_acc: 0.3628 - c6_acc: 0.2550 -
c7_acc: 0.2222 - val_loss: 11.3239 - val_c1_loss: 1.4262 -
val_c2_loss: 0.4340 - val_c3_loss: 1.0461 - val_c4_loss: 1.4498
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 - val_c5_loss: 1.9818 - val_c6_loss: 2.3792 - val_c7_loss: 2.
6068 - val_c1_acc: 0.6094 - val_c2_acc: 0.8938 - val_c3_acc: 0.
6562 - val_c4_acc: 0.5594 - val_c5_acc: 0.4469 - val_c6_acc: 0.
3125 - val_c7_acc: 0.2844
Epoch 9/30
 - 101s - loss: 11.5767 - c1_loss: 1.3769 - c2_loss: 0.4032 -
c3_loss: 1.0011 - c4_loss: 1.4522 - c5_loss: 2.0097 - c6_loss: 2
.6300 - c7_loss: 2.7036 - c1_acc: 0.5978 - c2_acc: 0.8778 -
c3_acc: 0.6756 - c4_acc: 0.5516 - c5_acc: 0.4156 - c6_acc: 0.
2838 - c7_acc: 0.2609 - val_loss: 9.7175 - val_c1_loss: 1.0668
 - val_c2_loss: 0.2361 - val_c3_loss: 0.6994 - val_c4_loss: 1.
2477 - val_c5_loss: 1.7470 - val_c6_loss: 2.2573 - val_c7_loss:
2.4633 - val_c1_acc: 0.7188 - val_c2_acc: 0.9344 - val_c3_acc: 0
.7906 - val_c4_acc: 0.6000 - val_c5_acc: 0.4625 - val_c6_acc: 0.
3625 - val_c7_acc: 0.3156
Epoch 10/30
 - 100s - loss: 10.6548 - c1_loss: 1.1697 - c2_loss: 0.3485 -
c3_loss: 0.8462 - c4_loss: 1.3275 - c5_loss: 1.8933 - c6_loss: 2
.4637 - c7_loss: 2.6058 - c1_acc: 0.6584 - c2_acc: 0.8947 -
c3_acc: 0.7231 - c4_acc: 0.5725 - c5_acc: 0.4472 - c6_acc: 0.
3150 - c7_acc: 0.2725 - val_loss: 8.5328 - val_c1_loss: 0.9364
 - val_c2_loss: 0.1995 - val_c3_loss: 0.5568 - val_c4_loss: 0.
9073 - val_c5_loss: 1.5078 - val_c6_loss: 2.2020 - val_c7_loss:
2.2230 - val_c1_acc: 0.7469 - val_c2_acc: 0.9531 - val_c3_acc: 0
.8219 - val_c4_acc: 0.7188 - val_c5_acc: 0.5750 - val_c6_acc: 0.
3594 - val_c7_acc: 0.3844
Epoch 11/30
 - 100s - loss: 9.8244 - c1_loss: 1.0442 - c2_loss: 0.2873 -
c3_loss: 0.7502 - c4_loss: 1.1640 - c5_loss: 1.7208 - c6_loss: 2
.3924 - c7_loss: 2.4655 - c1_acc: 0.6941 - c2_acc: 0.9134 -
c3_acc: 0.7587 - c4_acc: 0.6350 - c5_acc: 0.4938 - c6_acc: 0.
3331 - c7_acc: 0.3175 - val_loss: 8.8456 - val_c1_loss: 0.9938
 - val_c2_loss: 0.2293 - val_c3_loss: 0.6486 - val_c4_loss: 0.
9463 - val_c5_loss: 1.5313 - val_c6_loss: 2.3074 - val_c7_loss:
2.1889 - val_c1_acc: 0.7344 - val_c2_acc: 0.9375 - val_c3_acc: 0
.8094 - val_c4_acc: 0.7063 - val_c5_acc: 0.5594 - val_c6_acc: 0.
3469 - val_c7_acc: 0.3688
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Epoch 12/30
 - 101s - loss: 9.1337 - c1_loss: 0.9139 - c2_loss: 0.2524 - c3_loss: 0.5983 - c4_loss: 1.0595 - c5_loss: 1.6414 - c6_loss: 2.2909 - c7_loss: 2.3774 - c1_acc: 0.7262 - c2_acc: 0.9222 - c3_acc: 0.8181 - c4_acc: 0.6797 - c5_acc: 0.5222 - c6_acc: 0.3647 - c7_acc: 0.3494 - val_loss: 8.0405 - val_c1_loss: 0.5833 - val_c2_loss: 0.1338 - val_c3_loss: 0.4276 - val_c4_loss: 0.9189 - val_c5_loss: 1.5913 - val_c6_loss: 2.1294 - val_c7_loss: 2.2563 - val_c1_acc: 0.8438 - val_c2_acc: 0.9781 - val_c3_acc: 0.9156 - val_c4_acc: 0.7344 - val_c5_acc: 0.5375 - val_c6_acc: 0.4375 - val_c7_acc: 0.4250
Epoch 13/30
 - 102s - loss: 8.5782 - c1_loss: 0.8356 - c2_loss: 0.2179 - c3_loss: 0.5642 - c4_loss: 0.9762 - c5_loss: 1.5454 - c6_loss: 2.2072 - c7_loss: 2.2317 - c1_acc: 0.7413 - c2_acc: 0.9366 - c3_acc: 0.8219 - c4_acc: 0.7034 - c5_acc: 0.5563 - c6_acc: 0.3947 - c7_acc: 0.3806 - val_loss: 7.3823 - val_c1_loss: 0.6383 - val_c2_loss: 0.1480 - val_c3_loss: 0.4180 - val_c4_loss: 0.8304 - val_c5_loss: 1.2551 - val_c6_loss: 1.9898 - val_c7_loss: 2.1027 - val_c1_acc: 0.8344 - val_c2_acc: 0.9594 - val_c3_acc: 0.8812 - val_c4_acc: 0.7469 - val_c5_acc: 0.6594 - val_c6_acc: 0.4469 - val_c7_acc: 0.4688
Epoch 14/30
 - 124s - loss: 7.9006 - c1_loss: 0.6849 - c2_loss: 0.2129 - c3_loss: 0.5070 - c4_loss: 0.8354 - c5_loss: 1.4102 - c6_loss: 2.1407 - c7_loss: 2.1095 - c1_acc: 0.8028 - c2_acc: 0.9341 - c3_acc: 0.8353 - c4_acc: 0.7419 - c5_acc: 0.5900 - c6_acc: 0.4081 - c7_acc: 0.4116 - val_loss: 6.6707 - val_c1_loss: 0.5376 - val_c2_loss: 0.1477 - val_c3_loss: 0.3700 - val_c4_loss: 0.7590 - val_c5_loss: 1.1251 - val_c6_loss: 1.7768 - val_c7_loss: 1.9544 - val_c1_acc: 0.8625 - val_c2_acc: 0.9531 - val_c3_acc: 0.8906 - val_c4_acc: 0.7750 - val_c5_acc: 0.6750 - val_c6_acc: 0.5094 - val_c7_acc: 0.4594
Epoch 15/30
 - 132s - loss: 7.3142 - c1_loss: 0.6434 - c2_loss: 0.1724 - c3_loss: 0.4001 - c4_loss: 0.7929 - c5_loss: 1.3158 - c6_loss: 1.9918 - c7_loss: 1.9977 - c1_acc: 0.8216 - c2_acc: 0.9494 -
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c3_acc: 0.8788 - c4_acc: 0.7494 - c5_acc: 0.6188 - c6_acc: 0.
4537 - c7_acc: 0.4359 - val_loss: 7.1427 - val_c1_loss: 0.6444
 - val_c2_loss: 0.1197 - val_c3_loss: 0.3666 - val_c4_loss: 0.
8113 - val_c5_loss: 1.2395 - val_c6_loss: 1.9460 - val_c7_loss:
2.0151 - val_c1_acc: 0.8281 - val_c2_acc: 0.9844 - val_c3_acc: 0
.9000 - val_c4_acc: 0.7344 - val_c5_acc: 0.6781 - val_c6_acc: 0.
4469 - val_c7_acc: 0.4562
Epoch 16/30
 - 107s - loss: 6.9891 - c1_loss: 0.6431 - c2_loss: 0.1528 -
c3_loss: 0.3846 - c4_loss: 0.7225 - c5_loss: 1.2193 - c6_loss: 1
.9543 - c7_loss: 1.9125 - c1_acc: 0.8097 - c2_acc: 0.9591 -
c3_acc: 0.8825 - c4_acc: 0.7725 - c5_acc: 0.6391 - c6_acc: 0.
4778 - c7_acc: 0.4672 - val_loss: 5.8906 - val_c1_loss: 0.4594
 - val_c2_loss: 0.1299 - val_c3_loss: 0.2771 - val_c4_loss: 0.
5869 - val_c5_loss: 1.0153 - val_c6_loss: 1.7628 - val_c7_loss:
1.6591 - val_c1_acc: 0.9031 - val_c2_acc: 0.9750 - val_c3_acc: 0
.9344 - val_c4_acc: 0.8313 - val_c5_acc: 0.7406 - val_c6_acc: 0.
5531 - val_c7_acc: 0.5656
Epoch 17/30
 - 100s - loss: 6.6576 - c1_loss: 0.5353 - c2_loss: 0.1612 -
c3_loss: 0.3746 - c4_loss: 0.6676 - c5_loss: 1.2115 - c6_loss: 1
.8701 - c7_loss: 1.8373 - c1_acc: 0.8428 - c2_acc: 0.9547 -
c3_acc: 0.8803 - c4_acc: 0.7972 - c5_acc: 0.6556 - c6_acc: 0.
4863 - c7_acc: 0.4819 - val_loss: 6.0331 - val_c1_loss: 0.5833
 - val_c2_loss: 0.1832 - val_c3_loss: 0.3549 - val_c4_loss: 0.
5740 - val_c5_loss: 1.0558 - val_c6_loss: 1.5889 - val_c7_loss:
1.6930 - val_c1_acc: 0.8375 - val_c2_acc: 0.9688 - val_c3_acc: 0
.9187 - val_c4_acc: 0.8313 - val_c5_acc: 0.7094 - val_c6_acc: 0.
5813 - val_c7_acc: 0.5437
Epoch 18/30
 - 99s - loss: 6.2922 - c1_loss: 0.5112 - c2_loss: 0.1283 -
c3_loss: 0.3271 - c4_loss: 0.6311 - c5_loss: 1.1123 - c6_loss: 1
.7905 - c7_loss: 1.7916 - c1_acc: 0.8484 - c2_acc: 0.9631 -
c3_acc: 0.9019 - c4_acc: 0.8081 - c5_acc: 0.6766 - c6_acc: 0.
5097 - c7_acc: 0.4922 - val_loss: 5.1807 - val_c1_loss: 0.3625
 - val_c2_loss: 0.0856 - val_c3_loss: 0.2033 - val_c4_loss: 0.
4634 - val_c5_loss: 0.8430 - val_c6_loss: 1.6913 - val_c7_loss:
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1.5315 - val_c1_acc: 0.9125 - val_c2_acc: 0.9812 - val_c3_acc: 0
.9469 - val_c4_acc: 0.8594 - val_c5_acc: 0.7656 - val_c6_acc: 0.
5188 - val_c7_acc: 0.5875
Epoch 19/30
 - 98s - loss: 5.8984 - c1_loss: 0.5050 - c2_loss: 0.1238 -
c3_loss: 0.2752 - c4_loss: 0.5665 - c5_loss: 1.0268 - c6_loss: 1
.7489 - c7_loss: 1.6522 - c1_acc: 0.8506 - c2_acc: 0.9725 -
c3_acc: 0.9181 - c4_acc: 0.8266 - c5_acc: 0.7072 - c6_acc: 0.
5222 - c7_acc: 0.5466 - val_loss: 5.3142 - val_c1_loss: 0.4516
 - val_c2_loss: 0.2117 - val_c3_loss: 0.4248 - val_c4_loss: 0.
4797 - val_c5_loss: 0.9973 - val_c6_loss: 1.4024 - val_c7_loss:
1.3466 - val_c1_acc: 0.9250 - val_c2_acc: 0.9781 - val_c3_acc: 0
.9156 - val_c4_acc: 0.8781 - val_c5_acc: 0.7625 - val_c6_acc: 0.
6312 - val_c7_acc: 0.6469
Epoch 20/30
 - 99s - loss: 5.5348 - c1_loss: 0.4359 - c2_loss: 0.0905 -
c3_loss: 0.2421 - c4_loss: 0.5021 - c5_loss: 0.9708 - c6_loss: 1
.6359 - c7_loss: 1.6575 - c1_acc: 0.8741 - c2_acc: 0.9762 -
c3_acc: 0.9319 - c4_acc: 0.8466 - c5_acc: 0.7259 - c6_acc: 0.
5569 - c7_acc: 0.5481 - val_loss: 4.6356 - val_c1_loss: 0.2715
 - val_c2_loss: 0.0299 - val_c3_loss: 0.1501 - val_c4_loss: 0.
3238 - val_c5_loss: 0.7745 - val_c6_loss: 1.4965 - val_c7_loss:
1.5894 - val_c1_acc: 0.9250 - val_c2_acc: 1.0000 - val_c3_acc: 0
.9594 - val_c4_acc: 0.9125 - val_c5_acc: 0.7844 - val_c6_acc: 0.
5938 - val_c7_acc: 0.5469
Epoch 21/30
 - 101s - loss: 5.1538 - c1_loss: 0.4222 - c2_loss: 0.0913 -
c3_loss: 0.2276 - c4_loss: 0.4570 - c5_loss: 0.8942 - c6_loss: 1
.5471 - c7_loss: 1.5143 - c1_acc: 0.8709 - c2_acc: 0.9728 -
c3_acc: 0.9291 - c4_acc: 0.8675 - c5_acc: 0.7431 - c6_acc: 0.
5847 - c7_acc: 0.5803 - val_loss: 4.7473 - val_c1_loss: 0.2950
 - val_c2_loss: 0.0901 - val_c3_loss: 0.2161 - val_c4_loss: 0.
4552 - val_c5_loss: 0.8076 - val_c6_loss: 1.5635 - val_c7_loss:
1.3198 - val_c1_acc: 0.9219 - val_c2_acc: 0.9875 - val_c3_acc: 0
.9500 - val_c4_acc: 0.9031 - val_c5_acc: 0.7750 - val_c6_acc: 0.
5781 - val_c7_acc: 0.6375
Epoch 22/30
```

```
 - 100s - loss: 5.0320 - c1_loss: 0.4025 - c2_loss: 0.0838 - c3_loss: 0.2383 - c4_loss: 0.4501 - c5_loss: 0.8592 - c6_loss: 1.5253 - c7_loss: 1.4729 - c1_acc: 0.8847 - c2_acc: 0.9775 - c3_acc: 0.9278 - c4_acc: 0.8678 - c5_acc: 0.7472 - c6_acc: 0.5925 - c7_acc: 0.5956 - val_loss: 5.0803 - val_c1_loss: 0.5068 - val_c2_loss: 0.2734 - val_c3_loss: 0.3913 - val_c4_loss: 0.5490 - val_c5_loss: 0.7785 - val_c6_loss: 1.3276 - val_c7_loss: 1.2536 - val_c1_acc: 0.9031 - val_c2_acc: 0.9656 - val_c3_acc: 0.9344 - val_c4_acc: 0.8688 - val_c5_acc: 0.8125 - val_c6_acc: 0.6469 - val_c7_acc: 0.6656
Epoch 23/30
 - 100s - loss: 4.8885 - c1_loss: 0.3916 - c2_loss: 0.0878 - c3_loss: 0.1916 - c4_loss: 0.4156 - c5_loss: 0.9104 - c6_loss: 1.4836 - c7_loss: 1.4078 - c1_acc: 0.8884 - c2_acc: 0.9791 - c3_acc: 0.9450 - c4_acc: 0.8788 - c5_acc: 0.7534 - c6_acc: 0.6003 - c7_acc: 0.6141 - val_loss: 3.8085 - val_c1_loss: 0.1902 - val_c2_loss: 0.0488 - val_c3_loss: 0.1499 - val_c4_loss: 0.2802 - val_c5_loss: 0.5990 - val_c6_loss: 1.2745 - val_c7_loss: 1.2659 - val_c1_acc: 0.9563 - val_c2_acc: 0.9875 - val_c3_acc: 0.9531 - val_c4_acc: 0.9187 - val_c5_acc: 0.8281 - val_c6_acc: 0.6562 - val_c7_acc: 0.6312
Epoch 24/30
 - 101s - loss: 4.3977 - c1_loss: 0.3556 - c2_loss: 0.0694 - c3_loss: 0.1763 - c4_loss: 0.3666 - c5_loss: 0.7708 - c6_loss: 1.3804 - c7_loss: 1.2787 - c1_acc: 0.8916 - c2_acc: 0.9788 - c3_acc: 0.9478 - c4_acc: 0.8862 - c5_acc: 0.7747 - c6_acc: 0.6297 - c7_acc: 0.6378 - val_loss: 4.1994 - val_c1_loss: 0.2282 - val_c2_loss: 0.0760 - val_c3_loss: 0.1388 - val_c4_loss: 0.3915 - val_c5_loss: 0.7618 - val_c6_loss: 1.3585 - val_c7_loss: 1.2447 - val_c1_acc: 0.9656 - val_c2_acc: 0.9844 - val_c3_acc: 0.9750 - val_c4_acc: 0.8969 - val_c5_acc: 0.7750 - val_c6_acc: 0.6469 - val_c7_acc: 0.6906
Epoch 25/30
 - 100s - loss: 4.2304 - c1_loss: 0.3180 - c2_loss: 0.0771 - c3_loss: 0.1814 - c4_loss: 0.3352 - c5_loss: 0.7259 - c6_loss: 1.3599 - c7_loss: 1.2329 - c1_acc: 0.9059 - c2_acc: 0.9784 - c3_acc: 0.9441 - c4_acc: 0.8944 - c5_acc: 0.7922 - c6_acc: 0.
```

```
6387 - c7_acc: 0.6616 - val_loss: 3.3022 - val_c1_loss: 0.1770
 - val_c2_loss: 0.0742 - val_c3_loss: 0.0651 - val_c4_loss: 0.
2309 - val_c5_loss: 0.5122 - val_c6_loss: 1.1443 - val_c7_loss:
1.0986 - val_c1_acc: 0.9688 - val_c2_acc: 0.9906 - val_c3_acc: 0
.9875 - val_c4_acc: 0.9313 - val_c5_acc: 0.8531 - val_c6_acc: 0.
6969 - val_c7_acc: 0.6750
Epoch 26/30
 - 100s - loss: 4.0624 - c1_loss: 0.3380 - c2_loss: 0.0630 -
c3_loss: 0.1604 - c4_loss: 0.3202 - c5_loss: 0.6565 - c6_loss: 1
.3251 - c7_loss: 1.1993 - c1_acc: 0.8978 - c2_acc: 0.9828 -
c3_acc: 0.9531 - c4_acc: 0.8984 - c5_acc: 0.8075 - c6_acc: 0.
6462 - c7_acc: 0.6650 - val_loss: 3.2798 - val_c1_loss: 0.1242
 - val_c2_loss: 0.0072 - val_c3_loss: 0.0859 - val_c4_loss: 0.
1961 - val_c5_loss: 0.6076 - val_c6_loss: 1.2068 - val_c7_loss:
1.0520 - val_c1_acc: 0.9656 - val_c2_acc: 1.0000 - val_c3_acc: 0
.9750 - val_c4_acc: 0.9375 - val_c5_acc: 0.8125 - val_c6_acc: 0.
6844 - val_c7_acc: 0.7125
Epoch 27/30
 - 123s - loss: 3.9107 - c1_loss: 0.2976 - c2_loss: 0.0468 -
c3_loss: 0.1413 - c4_loss: 0.3071 - c5_loss: 0.6907 - c6_loss: 1
.2929 - c7_loss: 1.1342 - c1_acc: 0.9125 - c2_acc: 0.9866 -
c3_acc: 0.9528 - c4_acc: 0.9053 - c5_acc: 0.8003 - c6_acc: 0.
6478 - c7_acc: 0.6863 - val_loss: 2.9455 - val_c1_loss: 0.1754
 - val_c2_loss: 0.0204 - val_c3_loss: 0.1128 - val_c4_loss: 0.
2026 - val_c5_loss: 0.5505 - val_c6_loss: 0.9559 - val_c7_loss:
0.9279 - val_c1_acc: 0.9531 - val_c2_acc: 0.9969 - val_c3_acc: 0
.9750 - val_c4_acc: 0.9437 - val_c5_acc: 0.8406 - val_c6_acc: 0.
7500 - val_c7_acc: 0.7344
Epoch 28/30
 - 135s - loss: 3.8729 - c1_loss: 0.3163 - c2_loss: 0.0726 -
c3_loss: 0.1534 - c4_loss: 0.2883 - c5_loss: 0.6402 - c6_loss: 1
.2439 - c7_loss: 1.1582 - c1_acc: 0.9078 - c2_acc: 0.9816 -
c3_acc: 0.9556 - c4_acc: 0.9128 - c5_acc: 0.8128 - c6_acc: 0.
6700 - c7_acc: 0.6887 - val_loss: 3.4527 - val_c1_loss: 0.3280
 - val_c2_loss: 0.1121 - val_c3_loss: 0.1406 - val_c4_loss: 0.
2479 - val_c5_loss: 0.4515 - val_c6_loss: 1.1290 - val_c7_loss:
1.0436 - val_c1_acc: 0.9313 - val_c2_acc: 0.9844 - val_c3_acc: 0
```

```
.9563 - val_c4_acc: 0.9375 - val_c5_acc: 0.8531 - val_c6_acc: 0.
6937 - val_c7_acc: 0.7312
Epoch 29/30
 - 120s - loss: 3.4202 - c1_loss: 0.2683 - c2_loss: 0.0526 -
c3_loss: 0.1140 - c4_loss: 0.2622 - c5_loss: 0.5945 - c6_loss: 1
.1416 - c7_loss: 0.9870 - c1_acc: 0.9175 - c2_acc: 0.9863 -
c3_acc: 0.9669 - c4_acc: 0.9206 - c5_acc: 0.8300 - c6_acc: 0.
6956 - c7_acc: 0.7100 - val_loss: 2.8243 - val_c1_loss: 0.1781
 - val_c2_loss: 0.0857 - val_c3_loss: 0.1327 - val_c4_loss: 0.
1645 - val_c5_loss: 0.4938 - val_c6_loss: 0.8784 - val_c7_loss:
0.8912 - val_c1_acc: 0.9437 - val_c2_acc: 0.9875 - val_c3_acc: 0
.9719 - val_c4_acc: 0.9594 - val_c5_acc: 0.8531 - val_c6_acc: 0.
7719 - val_c7_acc: 0.7406
Epoch 30/30
 - 127s - loss: 3.5724 - c1_loss: 0.2687 - c2_loss: 0.0398 -
c3_loss: 0.1336 - c4_loss: 0.2729 - c5_loss: 0.5947 - c6_loss: 1
.1826 - c7_loss: 1.0801 - c1_acc: 0.9206 - c2_acc: 0.9900 -
c3_acc: 0.9544 - c4_acc: 0.9128 - c5_acc: 0.8253 - c6_acc: 0.
6856 - c7_acc: 0.6937 - val_loss: 2.9313 - val_c1_loss: 0.1302
 - val_c2_loss: 0.0215 - val_c3_loss: 0.0599 - val_c4_loss: 0.
1988 - val_c5_loss: 0.5381 - val_c6_loss: 0.9879 - val_c7_loss:
0.9949 - val_c1_acc: 0.9781 - val_c2_acc: 0.9969 - val_c3_acc: 0
.9812 - val_c4_acc: 0.9469 - val_c5_acc: 0.8469 - val_c6_acc: 0.
7344 - val_c7_acc: 0.7469
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 60 53 45]
 [21 55 52 46 39 42 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 38 62 50]
 [27 54 47 52 62 56 38]
 [ 6 60 31 58 41 48 44]
 [23 63 50 64 36 45 52]
 [24 54 32 33 50 55 31]
 [ 4 64 33 55 56 44 32]
 [14 47 39 50 64 37 33]
 [19 52 54 54 58 59 45]]
key 云
key L
key M
key Z
key V
key N
key E
key 琼
key Q
key M
key F
key 8
key B
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 7
key X
key K
key 甘
key P
key G
key M
key X
key R
key 7
key 蒙
key V
key 0
key T
key A
key H
key D
```

```
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 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 6
key 2
key 粤
key M
key P
key P
key T
key U
key E
predict_plate_str type : <class 'list'>
predict_plate_str
```

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

Process finished with exit code 0

```