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1 "C:\Program Files\Anaconda3\python.exe" "D:/Program Files/
  JetBrains/Local anacondapy3/Chinese_Vehicle_plate_recognition/
  keras_train_test.py"
```

```
2 Using TensorFlow backend.
```

```
3 building network ...
```

```
4
```

```
5 Layer (type)                Output Shape          Param #
  Connected to
```

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6 =====
  =====
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```
7 input_1 (InputLayer)        (None, 72, 272, 3)    0
```

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8
```

```
9 conv2d_1 (Conv2D)            (None, 70, 270, 32)   896
  input_1[0][0]
```

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10
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```
11 conv2d_2 (Conv2D)            (None, 68, 268, 32)   9248
  conv2d_1[0][0]
```

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12
```

```
13 max_pooling2d_1 (MaxPooling2D) (None, 34, 134, 32)   0
  conv2d_2[0][0]
```

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14
```

```
15 conv2d_3 (Conv2D)            (None, 32, 132, 64)   18496
  max_pooling2d_1[0][0]
```

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16
```

```
17 conv2d_4 (Conv2D)            (None, 30, 130, 64)   36928
  conv2d_3[0][0]
```

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18
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```
19 max_pooling2d_2 (MaxPooling2D) (None, 15, 65, 64)    0
  conv2d_4[0][0]
```

20			
21	conv2d_5 (Conv2D)	(None, 13, 63, 128)	73856
22	max_pooling2d_2[0][0]		
23	conv2d_6 (Conv2D)	(None, 11, 61, 128)	147584
24	conv2d_5[0][0]		
25	max_pooling2d_3 (MaxPooling2D)	(None, 5, 30, 128)	0
26	conv2d_6[0][0]		
27	flatten_1 (Flatten)	(None, 19200)	0
28	max_pooling2d_3[0][0]		
29	dropout_1 (Dropout)	(None, 19200)	0
30	flatten_1[0][0]		
31	c1 (Dense)	(None, 65)	1248065
32	dropout_1[0][0]		
33	c2 (Dense)	(None, 65)	1248065
34	dropout_1[0][0]		
35	c3 (Dense)	(None, 65)	1248065
36	dropout_1[0][0]		
37	c4 (Dense)	(None, 65)	1248065
38	dropout_1[0][0]		

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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 13:49:28.517701: 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 13:49:28.519701: 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 - 111s - loss: 109.1282 - c1_loss: 15.5336 - c2_loss: 15.3684 -
   c3_loss: 15.6326 - c4_loss: 15.6455 - c5_loss: 15.6280 - c6_loss
   : 15.6602 - c7_loss: 15.6599 - c1_acc: 0.0362 - c2_acc: 0.0456 -
   c3_acc: 0.0291 - c4_acc: 0.0291 - c5_acc: 0.0303 - c6_acc: 0.0278
   - c7_acc: 0.0278 - val_loss: 109.6534 - val_c1_loss: 15.7655 -
   val_c2_loss: 15.5640 - val_c3_loss: 15.4633 - val_c4_loss: 15.
   9166 - val_c5_loss: 15.7655 - val_c6_loss: 15.4633 - val_c7_loss
   : 15.7151 - val_c1_acc: 0.0219 - val_c2_acc: 0.0344 - val_c3_acc
   : 0.0406 - val_c4_acc: 0.0125 - val_c5_acc: 0.0219 - val_c6_acc:

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54 0.0406 - val_c7_acc: 0.0250

55 Epoch 2/30

56 - 126s - loss: 109.3915 - c1_loss: 15.6346 - c2_loss: 15.4633 -
 c3_loss: 15.7000 - c4_loss: 15.7051 - c5_loss: 15.6396 - c6_loss
 : 15.6698 - c7_loss: 15.5791 - c1_acc: 0.0300 - c2_acc: 0.0406 -
 c3_acc: 0.0259 - c4_acc: 0.0256 - c5_acc: 0.0297 - c6_acc: 0.0278
 - c7_acc: 0.0334 - val_loss: 109.1497 - val_c1_loss: 15.5640 -
 val_c2_loss: 15.4633 - val_c3_loss: 15.6648 - val_c4_loss: 15.
 4633 - val_c5_loss: 15.7151 - val_c6_loss: 15.5640 - val_c7_loss
 : 15.7151 - val_c1_acc: 0.0344 - val_c2_acc: 0.0406 - val_c3_acc
 : 0.0281 - val_c4_acc: 0.0406 - val_c5_acc: 0.0250 - val_c6_acc:
 0.0344 - val_c7_acc: 0.0250

57 Epoch 3/30

58 - 123s - loss: 109.3210 - c1_loss: 15.6900 - c2_loss: 15.4633 -
 c3_loss: 15.5791 - c4_loss: 15.6194 - c5_loss: 15.7051 - c6_loss
 : 15.6194 - c7_loss: 15.6446 - c1_acc: 0.0266 - c2_acc: 0.0406 -
 c3_acc: 0.0334 - c4_acc: 0.0309 - c5_acc: 0.0256 - c6_acc: 0.0309
 - c7_acc: 0.0294 - val_loss: 108.6460 - val_c1_loss: 15.4129 -
 val_c2_loss: 15.3122 - val_c3_loss: 15.5640 - val_c4_loss: 15.
 7655 - val_c5_loss: 15.3626 - val_c6_loss: 15.6648 - val_c7_loss
 : 15.5640 - val_c1_acc: 0.0437 - val_c2_acc: 0.0500 - val_c3_acc
 : 0.0344 - val_c4_acc: 0.0219 - val_c5_acc: 0.0469 - val_c6_acc:
 0.0281 - val_c7_acc: 0.0344

59 Epoch 4/30

60 - 126s - loss: 109.3411 - c1_loss: 15.6043 - c2_loss: 15.5086 -
 c3_loss: 15.6748 - c4_loss: 15.6346 - c5_loss: 15.5993 - c6_loss
 : 15.6799 - c7_loss: 15.6396 - c1_acc: 0.0319 - c2_acc: 0.0378 -
 c3_acc: 0.0275 - c4_acc: 0.0300 - c5_acc: 0.0322 - c6_acc: 0.0272
 - c7_acc: 0.0297 - val_loss: 109.1497 - val_c1_loss: 15.5137 -
 val_c2_loss: 15.4129 - val_c3_loss: 15.6648 - val_c4_loss: 15.
 8159 - val_c5_loss: 15.5137 - val_c6_loss: 15.7151 - val_c7_loss
 : 15.5137 - val_c1_acc: 0.0375 - val_c2_acc: 0.0437 - val_c3_acc
 : 0.0281 - val_c4_acc: 0.0187 - val_c5_acc: 0.0375 - val_c6_acc:
 0.0250 - val_c7_acc: 0.0375

61 Epoch 5/30

62 - 109s - loss: 109.2354 - c1_loss: 15.5943 - c2_loss: 15.5237 -
 c3_loss: 15.6295 - c4_loss: 15.6295 - c5_loss: 15.5943 - c6_loss

62 : 15.6648 - c7_loss: 15.5993 - c1_acc: 0.0325 - c2_acc: 0.0369 -
c3_acc: 0.0303 - c4_acc: 0.0303 - c5_acc: 0.0325 - c6_acc: 0.0281
- c7_acc: 0.0322 - val_loss: 109.2505 - val_c1_loss: 15.7151 -
val_c2_loss: 15.1611 - val_c3_loss: 15.7655 - val_c4_loss: 15.
6648 - val_c5_loss: 15.4129 - val_c6_loss: 15.6648 - val_c7_loss
: 15.8663 - val_c1_acc: 0.0250 - val_c2_acc: 0.0594 - val_c3_acc
: 0.0219 - val_c4_acc: 0.0281 - val_c5_acc: 0.0437 - val_c6_acc:
0.0281 - val_c7_acc: 0.0156

63 Epoch 6/30

64 - 106s - loss: 109.2555 - c1_loss: 15.6094 - c2_loss: 15.4381 -
c3_loss: 15.6698 - c4_loss: 15.6446 - c5_loss: 15.6043 - c6_loss
: 15.7101 - c7_loss: 15.5791 - c1_acc: 0.0316 - c2_acc: 0.0422 -
c3_acc: 0.0278 - c4_acc: 0.0294 - c5_acc: 0.0319 - c6_acc: 0.0253
- c7_acc: 0.0334 - val_loss: 109.4519 - val_c1_loss: 15.6648 -
val_c2_loss: 15.4633 - val_c3_loss: 15.8159 - val_c4_loss: 15.
6648 - val_c5_loss: 15.7151 - val_c6_loss: 15.5137 - val_c7_loss
: 15.6144 - val_c1_acc: 0.0281 - val_c2_acc: 0.0406 - val_c3_acc
: 0.0187 - val_c4_acc: 0.0281 - val_c5_acc: 0.0250 - val_c6_acc:
0.0375 - val_c7_acc: 0.0312

65 Epoch 7/30

66 - 136s - loss: 109.4721 - c1_loss: 15.6396 - c2_loss: 15.4734 -
c3_loss: 15.7303 - c4_loss: 15.6799 - c5_loss: 15.7202 - c6_loss
: 15.5489 - c7_loss: 15.6799 - c1_acc: 0.0297 - c2_acc: 0.0400 -
c3_acc: 0.0241 - c4_acc: 0.0272 - c5_acc: 0.0247 - c6_acc: 0.0353
- c7_acc: 0.0272 - val_loss: 109.2001 - val_c1_loss: 15.7655 -
val_c2_loss: 15.5137 - val_c3_loss: 15.8159 - val_c4_loss: 15.
3122 - val_c5_loss: 15.6144 - val_c6_loss: 15.6648 - val_c7_loss
: 15.5137 - val_c1_acc: 0.0219 - val_c2_acc: 0.0375 - val_c3_acc
: 0.0187 - val_c4_acc: 0.0500 - val_c5_acc: 0.0312 - val_c6_acc:
0.0281 - val_c7_acc: 0.0375

67 Epoch 8/30

68 - 119s - loss: 109.1447 - c1_loss: 15.5741 - c2_loss: 15.4331 -
c3_loss: 15.5842 - c4_loss: 15.5791 - c5_loss: 15.6900 - c6_loss
: 15.6396 - c7_loss: 15.6446 - c1_acc: 0.0338 - c2_acc: 0.0425 -
c3_acc: 0.0331 - c4_acc: 0.0334 - c5_acc: 0.0266 - c6_acc: 0.0297
- c7_acc: 0.0294 - val_loss: 109.8045 - val_c1_loss: 15.6648 -
val_c2_loss: 15.7151 - val_c3_loss: 15.5640 - val_c4_loss: 15.

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68 8663 - val_c5_loss: 15.5640 - val_c6_loss: 15.7151 - val_c7_loss
   : 15.7151 - val_c1_acc: 0.0281 - val_c2_acc: 0.0250 - val_c3_acc
   : 0.0344 - val_c4_acc: 0.0156 - val_c5_acc: 0.0344 - val_c6_acc
   : 0.0250 - val_c7_acc: 0.0250
69 Epoch 9/30
70 - 102s - loss: 109.2706 - c1_loss: 15.5691 - c2_loss: 15.4280
   - c3_loss: 15.6396 - c4_loss: 15.6194 - c5_loss: 15.6245 -
   c6_loss: 15.6698 - c7_loss: 15.7202 - c1_acc: 0.0341 - c2_acc: 0
   .0428 - c3_acc: 0.0297 - c4_acc: 0.0309 - c5_acc: 0.0306 -
   c6_acc: 0.0278 - c7_acc: 0.0247 - val_loss: 109.0994 -
   val_c1_loss: 15.3626 - val_c2_loss: 15.4633 - val_c3_loss: 15.
   4633 - val_c4_loss: 15.6648 - val_c5_loss: 15.6144 - val_c6_loss
   : 15.8159 - val_c7_loss: 15.7151 - val_c1_acc: 0.0469 -
   val_c2_acc: 0.0406 - val_c3_acc: 0.0406 - val_c4_acc: 0.0281 -
   val_c5_acc: 0.0312 - val_c6_acc: 0.0187 - val_c7_acc: 0.0250
71 Epoch 10/30
72 - 101s - loss: 109.3159 - c1_loss: 15.5640 - c2_loss: 15.4683
   - c3_loss: 15.6698 - c4_loss: 15.6446 - c5_loss: 15.6900 -
   c6_loss: 15.6245 - c7_loss: 15.6547 - c1_acc: 0.0344 - c2_acc: 0
   .0403 - c3_acc: 0.0278 - c4_acc: 0.0294 - c5_acc: 0.0266 -
   c6_acc: 0.0306 - c7_acc: 0.0287 - val_loss: 108.3438 -
   val_c1_loss: 15.5137 - val_c2_loss: 15.3122 - val_c3_loss: 15.
   3122 - val_c4_loss: 15.5137 - val_c5_loss: 15.5640 - val_c6_loss
   : 15.5640 - val_c7_loss: 15.5640 - val_c1_acc: 0.0375 -
   val_c2_acc: 0.0500 - val_c3_acc: 0.0500 - val_c4_acc: 0.0375 -
   val_c5_acc: 0.0344 - val_c6_acc: 0.0344 - val_c7_acc: 0.0344
73 Epoch 11/30
74 - 125s - loss: 109.3663 - c1_loss: 15.6194 - c2_loss: 15.5237
   - c3_loss: 15.6799 - c4_loss: 15.5540 - c5_loss: 15.6748 -
   c6_loss: 15.6900 - c7_loss: 15.6245 - c1_acc: 0.0309 - c2_acc: 0
   .0369 - c3_acc: 0.0272 - c4_acc: 0.0350 - c5_acc: 0.0275 -
   c6_acc: 0.0266 - c7_acc: 0.0306 - val_loss: 108.9483 -
   val_c1_loss: 15.8663 - val_c2_loss: 15.5137 - val_c3_loss: 15.
   4129 - val_c4_loss: 15.6144 - val_c5_loss: 15.5137 - val_c6_loss
   : 15.5137 - val_c7_loss: 15.5137 - val_c1_acc: 0.0156 -
   val_c2_acc: 0.0375 - val_c3_acc: 0.0437 - val_c4_acc: 0.0312 -
   val_c5_acc: 0.0375 - val_c6_acc: 0.0375 - val_c7_acc: 0.0375

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75 Epoch 12/30
76 - 112s - loss: 109.3915 - c1_loss: 15.6547 - c2_loss: 15.3726
  - c3_loss: 15.6346 - c4_loss: 15.6446 - c5_loss: 15.7151 -
c6_loss: 15.6900 - c7_loss: 15.6799 - c1_acc: 0.0287 - c2_acc: 0
.0462 - c3_acc: 0.0300 - c4_acc: 0.0294 - c5_acc: 0.0250 -
c6_acc: 0.0266 - c7_acc: 0.0272 - val_loss: 108.8979 -
val_c1_loss: 15.2618 - val_c2_loss: 15.5137 - val_c3_loss: 15.
1611 - val_c4_loss: 15.6648 - val_c5_loss: 15.8663 - val_c6_loss
: 15.5137 - val_c7_loss: 15.9166 - val_c1_acc: 0.0531 -
val_c2_acc: 0.0375 - val_c3_acc: 0.0594 - val_c4_acc: 0.0281 -
val_c5_acc: 0.0156 - val_c6_acc: 0.0375 - val_c7_acc: 0.0125
77 Epoch 13/30
78 - 100s - loss: 109.3613 - c1_loss: 15.5338 - c2_loss: 15.4683
  - c3_loss: 15.6497 - c4_loss: 15.7151 - c5_loss: 15.6597 -
c6_loss: 15.6698 - c7_loss: 15.6648 - c1_acc: 0.0362 - c2_acc: 0
.0403 - c3_acc: 0.0291 - c4_acc: 0.0250 - c5_acc: 0.0284 -
c6_acc: 0.0278 - c7_acc: 0.0281 - val_loss: 108.7468 -
val_c1_loss: 15.6648 - val_c2_loss: 14.8589 - val_c3_loss: 15.
6648 - val_c4_loss: 15.5137 - val_c5_loss: 15.7151 - val_c6_loss
: 15.7151 - val_c7_loss: 15.6144 - val_c1_acc: 0.0281 -
val_c2_acc: 0.0781 - val_c3_acc: 0.0281 - val_c4_acc: 0.0375 -
val_c5_acc: 0.0250 - val_c6_acc: 0.0250 - val_c7_acc: 0.0312
79 Epoch 14/30
80 - 101s - loss: 109.3915 - c1_loss: 15.6144 - c2_loss: 15.5086
  - c3_loss: 15.6295 - c4_loss: 15.7101 - c5_loss: 15.6043 -
c6_loss: 15.6648 - c7_loss: 15.6597 - c1_acc: 0.0312 - c2_acc: 0
.0378 - c3_acc: 0.0303 - c4_acc: 0.0253 - c5_acc: 0.0319 -
c6_acc: 0.0281 - c7_acc: 0.0284 - val_loss: 108.8979 -
val_c1_loss: 15.8159 - val_c2_loss: 15.4129 - val_c3_loss: 15.
5137 - val_c4_loss: 15.5640 - val_c5_loss: 15.7151 - val_c6_loss
: 15.5640 - val_c7_loss: 15.3122 - val_c1_acc: 0.0187 -
val_c2_acc: 0.0437 - val_c3_acc: 0.0375 - val_c4_acc: 0.0344 -
val_c5_acc: 0.0250 - val_c6_acc: 0.0344 - val_c7_acc: 0.0500
81 Epoch 15/30
82 - 104s - loss: 109.2202 - c1_loss: 15.5590 - c2_loss: 15.3323
  - c3_loss: 15.6799 - c4_loss: 15.6497 - c5_loss: 15.6497 -
c6_loss: 15.6346 - c7_loss: 15.7151 - c1_acc: 0.0347 - c2_acc: 0

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82 .0488 - c3_acc: 0.0272 - c4_acc: 0.0291 - c5_acc: 0.0291 -
c6_acc: 0.0300 - c7_acc: 0.0250 - val_loss: 109.3512 -
val_c1_loss: 15.5640 - val_c2_loss: 15.8663 - val_c3_loss: 15.
5137 - val_c4_loss: 15.6648 - val_c5_loss: 15.4633 - val_c6_loss
: 15.7655 - val_c7_loss: 15.5137 - val_c1_acc: 0.0344 -
val_c2_acc: 0.0156 - val_c3_acc: 0.0375 - val_c4_acc: 0.0281 -
val_c5_acc: 0.0406 - val_c6_acc: 0.0219 - val_c7_acc: 0.0375
83 Epoch 16/30
84 - 116s - loss: 109.2857 - c1_loss: 15.5741 - c2_loss: 15.4532
- c3_loss: 15.6547 - c4_loss: 15.6597 - c5_loss: 15.6396 -
c6_loss: 15.6446 - c7_loss: 15.6597 - c1_acc: 0.0338 - c2_acc: 0
.0413 - c3_acc: 0.0287 - c4_acc: 0.0284 - c5_acc: 0.0297 -
c6_acc: 0.0294 - c7_acc: 0.0284 - val_loss: 109.3512 -
val_c1_loss: 15.4633 - val_c2_loss: 15.4129 - val_c3_loss: 15.
6648 - val_c4_loss: 15.7655 - val_c5_loss: 15.3122 - val_c6_loss
: 15.8159 - val_c7_loss: 15.9166 - val_c1_acc: 0.0406 -
val_c2_acc: 0.0437 - val_c3_acc: 0.0281 - val_c4_acc: 0.0219 -
val_c5_acc: 0.0500 - val_c6_acc: 0.0187 - val_c7_acc: 0.0125
85 Epoch 17/30
86 - 101s - loss: 109.1195 - c1_loss: 15.5691 - c2_loss: 15.4230
- c3_loss: 15.7454 - c4_loss: 15.5640 - c5_loss: 15.5993 -
c6_loss: 15.5389 - c7_loss: 15.6799 - c1_acc: 0.0341 - c2_acc: 0
.0431 - c3_acc: 0.0231 - c4_acc: 0.0344 - c5_acc: 0.0322 -
c6_acc: 0.0359 - c7_acc: 0.0272 - val_loss: 109.8045 -
val_c1_loss: 15.5640 - val_c2_loss: 15.5137 - val_c3_loss: 15.
9670 - val_c4_loss: 15.7151 - val_c5_loss: 15.4129 - val_c6_loss
: 15.9166 - val_c7_loss: 15.7151 - val_c1_acc: 0.0344 -
val_c2_acc: 0.0375 - val_c3_acc: 0.0094 - val_c4_acc: 0.0250 -
val_c5_acc: 0.0437 - val_c6_acc: 0.0125 - val_c7_acc: 0.0250
87 Epoch 18/30
88 - 117s - loss: 109.2202 - c1_loss: 15.6295 - c2_loss: 15.3777
- c3_loss: 15.6446 - c4_loss: 15.5892 - c5_loss: 15.7454 -
c6_loss: 15.6446 - c7_loss: 15.5892 - c1_acc: 0.0303 - c2_acc: 0
.0459 - c3_acc: 0.0294 - c4_acc: 0.0328 - c5_acc: 0.0231 -
c6_acc: 0.0294 - c7_acc: 0.0328 - val_loss: 108.4949 -
val_c1_loss: 15.2618 - val_c2_loss: 15.1611 - val_c3_loss: 15.
5640 - val_c4_loss: 15.5640 - val_c5_loss: 15.5640 - val_c6_loss

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88 : 15.5640 - val_c7_loss: 15.8159 - val_c1_acc: 0.0531 -
    val_c2_acc: 0.0594 - val_c3_acc: 0.0344 - val_c4_acc: 0.0344 -
    val_c5_acc: 0.0344 - val_c6_acc: 0.0344 - val_c7_acc: 0.0187
89 Epoch 19/30
90 - 102s - loss: 109.3008 - c1_loss: 15.5338 - c2_loss: 15.4784
    - c3_loss: 15.6698 - c4_loss: 15.6799 - c5_loss: 15.6648 -
    c6_loss: 15.5943 - c7_loss: 15.6799 - c1_acc: 0.0362 - c2_acc: 0
    .0397 - c3_acc: 0.0278 - c4_acc: 0.0272 - c5_acc: 0.0281 -
    c6_acc: 0.0325 - c7_acc: 0.0272 - val_loss: 109.7542 -
    val_c1_loss: 15.6648 - val_c2_loss: 15.5137 - val_c3_loss: 15.
    5137 - val_c4_loss: 15.8159 - val_c5_loss: 15.8159 - val_c6_loss
    : 15.5640 - val_c7_loss: 15.8663 - val_c1_acc: 0.0281 -
    val_c2_acc: 0.0375 - val_c3_acc: 0.0375 - val_c4_acc: 0.0187 -
    val_c5_acc: 0.0187 - val_c6_acc: 0.0344 - val_c7_acc: 0.0156
91 Epoch 20/30
92 - 101s - loss: 109.2404 - c1_loss: 15.6194 - c2_loss: 15.5640
    - c3_loss: 15.6245 - c4_loss: 15.5741 - c5_loss: 15.6446 -
    c6_loss: 15.6346 - c7_loss: 15.5791 - c1_acc: 0.0309 - c2_acc: 0
    .0344 - c3_acc: 0.0306 - c4_acc: 0.0338 - c5_acc: 0.0294 -
    c6_acc: 0.0300 - c7_acc: 0.0334 - val_loss: 109.1497 -
    val_c1_loss: 15.3626 - val_c2_loss: 15.6144 - val_c3_loss: 15.
    5640 - val_c4_loss: 15.7655 - val_c5_loss: 15.5640 - val_c6_loss
    : 15.8663 - val_c7_loss: 15.4129 - val_c1_acc: 0.0469 -
    val_c2_acc: 0.0312 - val_c3_acc: 0.0344 - val_c4_acc: 0.0219 -
    val_c5_acc: 0.0344 - val_c6_acc: 0.0156 - val_c7_acc: 0.0437
93 Epoch 21/30
94 - 107s - loss: 109.2253 - c1_loss: 15.5842 - c2_loss: 15.3978
    - c3_loss: 15.6497 - c4_loss: 15.7151 - c5_loss: 15.6043 -
    c6_loss: 15.6396 - c7_loss: 15.6346 - c1_acc: 0.0331 - c2_acc: 0
    .0447 - c3_acc: 0.0291 - c4_acc: 0.0250 - c5_acc: 0.0319 -
    c6_acc: 0.0297 - c7_acc: 0.0300 - val_loss: 109.3008 -
    val_c1_loss: 15.6648 - val_c2_loss: 15.4633 - val_c3_loss: 15.
    5137 - val_c4_loss: 15.6144 - val_c5_loss: 15.7655 - val_c6_loss
    : 15.5137 - val_c7_loss: 15.7655 - val_c1_acc: 0.0281 -
    val_c2_acc: 0.0406 - val_c3_acc: 0.0375 - val_c4_acc: 0.0312 -
    val_c5_acc: 0.0219 - val_c6_acc: 0.0375 - val_c7_acc: 0.0219
95 Epoch 22/30

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96 - 116s - loss: 109.0742 - c1_loss: 15.5389 - c2_loss: 15.4583
   - c3_loss: 15.5892 - c4_loss: 15.6396 - c5_loss: 15.6497 - 
c6_loss: 15.5842 - c7_loss: 15.6144 - c1_acc: 0.0359 - c2_acc: 0
.0409 - c3_acc: 0.0328 - c4_acc: 0.0297 - c5_acc: 0.0291 - 
c6_acc: 0.0331 - c7_acc: 0.0312 - val_loss: 109.5527 - 
val_c1_loss: 15.5137 - val_c2_loss: 15.5640 - val_c3_loss: 15.
9166 - val_c4_loss: 15.7151 - val_c5_loss: 15.8159 - val_c6_loss
: 15.8159 - val_c7_loss: 15.2115 - val_c1_acc: 0.0375 - 
val_c2_acc: 0.0344 - val_c3_acc: 0.0125 - val_c4_acc: 0.0250 - 
val_c5_acc: 0.0187 - val_c6_acc: 0.0187 - val_c7_acc: 0.0563
97 Epoch 23/30
98 - 102s - loss: 109.1699 - c1_loss: 15.5842 - c2_loss: 15.4683
   - c3_loss: 15.6295 - c4_loss: 15.5842 - c5_loss: 15.6799 - 
c6_loss: 15.6497 - c7_loss: 15.5741 - c1_acc: 0.0331 - c2_acc: 0
.0403 - c3_acc: 0.0303 - c4_acc: 0.0331 - c5_acc: 0.0272 - 
c6_acc: 0.0291 - c7_acc: 0.0338 - val_loss: 108.7468 - 
val_c1_loss: 15.6648 - val_c2_loss: 15.5137 - val_c3_loss: 15.
6648 - val_c4_loss: 15.3122 - val_c5_loss: 15.8663 - val_c6_loss
: 15.3626 - val_c7_loss: 15.3626 - val_c1_acc: 0.0281 - 
val_c2_acc: 0.0375 - val_c3_acc: 0.0281 - val_c4_acc: 0.0500 - 
val_c5_acc: 0.0156 - val_c6_acc: 0.0469 - val_c7_acc: 0.0469
99 Epoch 24/30
100 - 102s - loss: 109.4771 - c1_loss: 15.6094 - c2_loss: 15.4482
    - c3_loss: 15.6799 - c4_loss: 15.7554 - c5_loss: 15.7000 - 
c6_loss: 15.5691 - c7_loss: 15.7151 - c1_acc: 0.0316 - c2_acc: 0
.0416 - c3_acc: 0.0272 - c4_acc: 0.0225 - c5_acc: 0.0259 - 
c6_acc: 0.0341 - c7_acc: 0.0250 - val_loss: 109.5023 - 
val_c1_loss: 15.6144 - val_c2_loss: 15.6648 - val_c3_loss: 15.
7151 - val_c4_loss: 15.5137 - val_c5_loss: 15.6144 - val_c6_loss
: 15.6144 - val_c7_loss: 15.7655 - val_c1_acc: 0.0312 - 
val_c2_acc: 0.0281 - val_c3_acc: 0.0250 - val_c4_acc: 0.0375 - 
val_c5_acc: 0.0312 - val_c6_acc: 0.0312 - val_c7_acc: 0.0219
101 Epoch 25/30
102 - 113s - loss: 109.1094 - c1_loss: 15.6346 - c2_loss: 15.3323
    - c3_loss: 15.6245 - c4_loss: 15.5993 - c5_loss: 15.6144 - 
c6_loss: 15.7303 - c7_loss: 15.5741 - c1_acc: 0.0300 - c2_acc: 0
.0488 - c3_acc: 0.0306 - c4_acc: 0.0322 - c5_acc: 0.0312 - 

```

```

102 c6_acc: 0.0241 - c7_acc: 0.0338 - val_loss: 109.3512 -
    val_c1_loss: 15.5640 - val_c2_loss: 15.6144 - val_c3_loss: 15.
6648 - val_c4_loss: 15.5640 - val_c5_loss: 15.7655 - val_c6_loss
: 15.6144 - val_c7_loss: 15.5640 - val_c1_acc: 0.0344 -
    val_c2_acc: 0.0312 - val_c3_acc: 0.0281 - val_c4_acc: 0.0344 -
    val_c5_acc: 0.0219 - val_c6_acc: 0.0312 - val_c7_acc: 0.0344
103 Epoch 26/30
104 - 108s - loss: 109.2857 - c1_loss: 15.6346 - c2_loss: 15.4683
    - c3_loss: 15.6849 - c4_loss: 15.6295 - c5_loss: 15.6094 -
    c6_loss: 15.6799 - c7_loss: 15.5791 - c1_acc: 0.0300 - c2_acc: 0
.0403 - c3_acc: 0.0269 - c4_acc: 0.0303 - c5_acc: 0.0316 -
    c6_acc: 0.0272 - c7_acc: 0.0334 - val_loss: 109.3512 -
    val_c1_loss: 15.7655 - val_c2_loss: 15.2618 - val_c3_loss: 15.
3122 - val_c4_loss: 15.6648 - val_c5_loss: 15.7151 - val_c6_loss
: 15.8159 - val_c7_loss: 15.8159 - val_c1_acc: 0.0219 -
    val_c2_acc: 0.0531 - val_c3_acc: 0.0500 - val_c4_acc: 0.0281 -
    val_c5_acc: 0.0250 - val_c6_acc: 0.0187 - val_c7_acc: 0.0187
105 Epoch 27/30
106 - 100s - loss: 109.3210 - c1_loss: 15.6446 - c2_loss: 15.4734
    - c3_loss: 15.6849 - c4_loss: 15.5943 - c5_loss: 15.6396 -
    c6_loss: 15.7101 - c7_loss: 15.5741 - c1_acc: 0.0294 - c2_acc: 0
.0400 - c3_acc: 0.0269 - c4_acc: 0.0325 - c5_acc: 0.0297 -
    c6_acc: 0.0253 - c7_acc: 0.0338 - val_loss: 109.0490 -
    val_c1_loss: 15.4129 - val_c2_loss: 15.5640 - val_c3_loss: 15.
6144 - val_c4_loss: 15.7151 - val_c5_loss: 15.7151 - val_c6_loss
: 15.2618 - val_c7_loss: 15.7655 - val_c1_acc: 0.0437 -
    val_c2_acc: 0.0344 - val_c3_acc: 0.0312 - val_c4_acc: 0.0250 -
    val_c5_acc: 0.0250 - val_c6_acc: 0.0531 - val_c7_acc: 0.0219
107 Epoch 28/30
108 - 102s - loss: 109.1145 - c1_loss: 15.5993 - c2_loss: 15.4079
    - c3_loss: 15.5943 - c4_loss: 15.6245 - c5_loss: 15.5691 -
    c6_loss: 15.6396 - c7_loss: 15.6799 - c1_acc: 0.0322 - c2_acc: 0
.0441 - c3_acc: 0.0325 - c4_acc: 0.0306 - c5_acc: 0.0341 -
    c6_acc: 0.0297 - c7_acc: 0.0272 - val_loss: 109.4016 -
    val_c1_loss: 15.8663 - val_c2_loss: 15.3626 - val_c3_loss: 15.
6144 - val_c4_loss: 15.5137 - val_c5_loss: 15.6144 - val_c6_loss
: 15.5640 - val_c7_loss: 15.8663 - val_c1_acc: 0.0156 -

```

```

108 val_c2_acc: 0.0469 - val_c3_acc: 0.0312 - val_c4_acc: 0.0375 -
    val_c5_acc: 0.0312 - val_c6_acc: 0.0344 - val_c7_acc: 0.0156
109 Epoch 29/30
110 - 102s - loss: 109.3764 - c1_loss: 15.5892 - c2_loss: 15.4482
    - c3_loss: 15.7000 - c4_loss: 15.6346 - c5_loss: 15.6748 -
    c6_loss: 15.6849 - c7_loss: 15.6446 - c1_acc: 0.0328 - c2_acc: 0.
    .0416 - c3_acc: 0.0259 - c4_acc: 0.0300 - c5_acc: 0.0275 -
    c6_acc: 0.0269 - c7_acc: 0.0294 - val_loss: 108.7971 -
    val_c1_loss: 15.4633 - val_c2_loss: 15.5640 - val_c3_loss: 15.
    4633 - val_c4_loss: 15.5640 - val_c5_loss: 15.8159 - val_c6_loss
    : 15.3122 - val_c7_loss: 15.6144 - val_c1_acc: 0.0406 -
    val_c2_acc: 0.0344 - val_c3_acc: 0.0406 - val_c4_acc: 0.0344 -
    val_c5_acc: 0.0187 - val_c6_acc: 0.0500 - val_c7_acc: 0.0312
111 Epoch 30/30
112 - 101s - loss: 109.3210 - c1_loss: 15.5439 - c2_loss: 15.3978
    - c3_loss: 15.6748 - c4_loss: 15.6295 - c5_loss: 15.6950 -
    c6_loss: 15.7252 - c7_loss: 15.6547 - c1_acc: 0.0356 - c2_acc: 0.
    .0447 - c3_acc: 0.0275 - c4_acc: 0.0303 - c5_acc: 0.0262 -
    c6_acc: 0.0244 - c7_acc: 0.0287 - val_loss: 109.7542 -
    val_c1_loss: 15.6648 - val_c2_loss: 15.5137 - val_c3_loss: 15.
    8663 - val_c4_loss: 15.5137 - val_c5_loss: 15.5640 - val_c6_loss
    : 15.8159 - val_c7_loss: 15.8159 - val_c1_acc: 0.0281 -
    val_c2_acc: 0.0375 - val_c3_acc: 0.0156 - val_c4_acc: 0.0375 -
    val_c5_acc: 0.0344 - val_c6_acc: 0.0187 - val_c7_acc: 0.0187
113 loading plate data ...
114 picture Screen Shot 2016-08-07 at 12.51.56 AM.png size error,
    maybe resize before load !
115 picture Screen Shot 2016-08-07 at 12.53.41 AM.png size error,
    maybe resize before load !
116 picture Screen Shot 2016-08-07 at 12.55.45 AM.png size error,
    maybe resize before load !
117 test_name ['00', '01', '02', '03', '04', '05', '06', '07', '08'
    , '09', '10', '11', '12']
118 load the trained model
119 #####model predict#####
120 results type : <class 'list'>
121 results type : <class 'numpy.ndarray'>

```

```
122 result_s.dtype : float32
123 result_s.shape : (7, 13, 65)
124 result_s.dtype : int64
125 result_s.shape : (13, 7)
126 result_s
127 [[19 46 51 44 43 35 46]
128 [19 46 51 44 43 35 46]
129 [19 46 51 44 43 35 46]
130 [19 46 51 44 43 35 46]
131 [19 46 51 44 43 35 46]
132 [19 46 51 44 43 35 46]
133 [19 46 51 44 43 35 46]
134 [19 46 51 44 43 35 46]
135 [19 46 51 44 43 35 46]
136 [19 46 51 44 43 35 46]
137 [19 46 51 44 43 35 46]
138 [19 46 51 44 43 35 46]
139 [19 46 51 44 43 35 46]]
140 key 粵
141 key F
142 key L
143 key D
144 key C
145 key 4
146 key F
147 key 粵
148 key F
149 key L
150 key D
151 key C
152 key 4
153 key F
154 key 粵
155 key F
156 key L
157 key D
158 key C
```

159 key 4
160 key F
161 key 粵
162 key F
163 key L
164 key D
165 key C
166 key 4
167 key F
168 key 粵
169 key F
170 key L
171 key D
172 key C
173 key 4
174 key F
175 key 粵
176 key F
177 key L
178 key D
179 key C
180 key 4
181 key F
182 key 粵
183 key F
184 key L
185 key D
186 key C
187 key 4
188 key F
189 key 粵
190 key F
191 key L
192 key D
193 key C
194 key 4
195 key F

```
196 key 粵
197 key F
198 key L
199 key D
200 key C
201 key 4
202 key F
203 key 粵
204 key F
205 key L
206 key D
207 key C
208 key 4
209 key F
210 key 粵
211 key F
212 key L
213 key D
214 key C
215 key 4
216 key F
217 key 粵
218 key F
219 key L
220 key D
221 key C
222 key 4
223 key F
224 key 粵
225 key F
226 key L
227 key D
228 key C
229 key 4
230 key F
231 predict_plate_str type : <class 'list'>
232 predict_plate_str
```

```
233 [['粤', 'F', 'L', 'D', 'C', '4', 'F'], ['粤', 'F', 'L', 'D', 'C',  
, '4', 'F'], ['粤', 'F', 'L', 'D', 'C', '4', 'F'], ['粤', 'F',  
, 'L', 'D', 'C', '4', 'F'], ['粤', 'F', 'L', 'D', 'C', '4', 'F'],  
, ['粤', 'F', 'L', 'D', 'C', '4', 'F'], ['粤', 'F', 'L', 'D',  
, 'C', '4', 'F'], ['粤', 'F', 'L', 'D', 'C', '4', 'F'], ['粤',  
, 'F', 'L', 'D', 'C', '4', 'F'], ['粤', 'F', 'L', 'D', 'C', '4',  
, 'F'], ['粤', 'F', 'L', 'D', 'C', '4', 'F'], ['粤', 'F', 'L',  
, 'D', 'C', '4', 'F'], ['粤', 'F', 'L', 'D', 'C', '4', 'F']]  
234 #####plt results#####  
235  
236 Process finished with exit code 0  
237
```