```
1  "C:\Program Files\Anaconda3\python.exe" "D:/Program Files/
   JetBrains/localanacondapy3/Chinese_Vehicle_plate_recognition/
   keras_train_test.py"
2  Using TensorFlow backend.
3  building network ...
4  _____

5  Layer (type)                    Output Shape         Param #
   Connected to
6  ============================================================
   ============================
7  input_1 (InputLayer)            (None, 72, 272, 3)   0


8  _____

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

11 conv2d_2 (Conv2D)               (None, 68, 268, 32)  9248
   conv2d_1[0][0]
12 _____

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

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

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

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

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

```
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 16:08:08.603701: 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 16:08:08.607701: 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: 109.3048 - c1_loss: 15.5992 - c2_loss: 15.4080 -
   c3_loss: 15.6818 - c4_loss: 15.6582 - c5_loss: 15.6212 - c6_loss
   : 15.6845 - c7_loss: 15.6518 - c1_acc: 0.0316 - c2_acc: 0.0428 -
   c3_acc: 0.0266 - c4_acc: 0.0281 - c5_acc: 0.0303 - c6_acc: 0.0259
    - c7_acc: 0.0278 - val_loss: 109.3008 - val_c1_loss: 15.4633 -
   val_c2_loss: 15.5640 - val_c3_loss: 15.6144 - val_c4_loss: 15.
   4633 - val_c5_loss: 15.7151 - val_c6_loss: 15.8663 - val_c7_loss
   : 15.6144 - val_c1_acc: 0.0406 - val_c2_acc: 0.0344 - val_c3_acc
   : 0.0312 - val_c4_acc: 0.0406 - val_c5_acc: 0.0250 - val_c6_acc:
```

54 `0.0156 - val_c7_acc: 0.0312`

55 `Epoch 2/30`

56 ` - 101s - loss: 109.3562 - c1_loss: 15.6597 - c2_loss: 15.4079 - c3_loss: 15.6597 - c4_loss: 15.7101 - c5_loss: 15.6900 - c6_loss: 15.6295 - c7_loss: 15.5993 - c1_acc: 0.0284 - c2_acc: 0.0441 - c3_acc: 0.0284 - c4_acc: 0.0253 - c5_acc: 0.0266 - c6_acc: 0.0303 - c7_acc: 0.0322 - val_loss: 109.3008 - val_c1_loss: 15.7151 - val_c2_loss: 15.0603 - val_c3_loss: 15.9166 - val_c4_loss: 15.8159 - val_c5_loss: 15.5137 - val_c6_loss: 15.6648 - val_c7_loss: 15.6144 - val_c1_acc: 0.0250 - val_c2_acc: 0.0656 - val_c3_acc: 0.0125 - val_c4_acc: 0.0187 - val_c5_acc: 0.0375 - val_c6_acc: 0.0281 - val_c7_acc: 0.0312`

57 `Epoch 3/30`

58 ` - 101s - loss: 109.5124 - c1_loss: 15.6497 - c2_loss: 15.5137 - c3_loss: 15.6245 - c4_loss: 15.6194 - c5_loss: 15.6900 - c6_loss: 15.6950 - c7_loss: 15.7202 - c1_acc: 0.0291 - c2_acc: 0.0375 - c3_acc: 0.0306 - c4_acc: 0.0309 - c5_acc: 0.0266 - c6_acc: 0.0262 - c7_acc: 0.0247 - val_loss: 109.6030 - val_c1_loss: 15.8159 - val_c2_loss: 15.3626 - val_c3_loss: 15.6144 - val_c4_loss: 15.5640 - val_c5_loss: 15.8159 - val_c6_loss: 15.8663 - val_c7_loss: 15.5640 - val_c1_acc: 0.0187 - val_c2_acc: 0.0469 - val_c3_acc: 0.0312 - val_c4_acc: 0.0344 - val_c5_acc: 0.0187 - val_c6_acc: 0.0156 - val_c7_acc: 0.0344`

59 `Epoch 4/30`

60 ` - 100s - loss: 109.4368 - c1_loss: 15.5943 - c2_loss: 15.4331 - c3_loss: 15.6900 - c4_loss: 15.6849 - c5_loss: 15.7605 - c6_loss: 15.6597 - c7_loss: 15.6144 - c1_acc: 0.0325 - c2_acc: 0.0425 - c3_acc: 0.0266 - c4_acc: 0.0269 - c5_acc: 0.0222 - c6_acc: 0.0284 - c7_acc: 0.0312 - val_loss: 109.7038 - val_c1_loss: 15.7151 - val_c2_loss: 15.5640 - val_c3_loss: 15.7151 - val_c4_loss: 15.7655 - val_c5_loss: 15.6144 - val_c6_loss: 15.5640 - val_c7_loss: 15.7655 - val_c1_acc: 0.0250 - val_c2_acc: 0.0344 - val_c3_acc: 0.0250 - val_c4_acc: 0.0219 - val_c5_acc: 0.0312 - val_c6_acc: 0.0344 - val_c7_acc: 0.0219`

61 `Epoch 5/30`

62 ` - 101s - loss: 109.1447 - c1_loss: 15.6849 - c2_loss: 15.3122 - c3_loss: 15.5540 - c4_loss: 15.7101 - c5_loss: 15.5993 - c6_loss`

62 : 15.5892 - c7_loss: 15.6950 - c1_acc: 0.0269 - c2_acc: 0.0500 - c3_acc: 0.0350 - c4_acc: 0.0253 - c5_acc: 0.0322 - c6_acc: 0.0328 - c7_acc: 0.0262 - val_loss: 109.8045 - val_c1_loss: 15.7655 - val_c2_loss: 15.5137 - val_c3_loss: 15.5640 - val_c4_loss: 15.4633 - val_c5_loss: 15.9670 - val_c6_loss: 15.7655 - val_c7_loss: 15.7655 - val_c1_acc: 0.0219 - val_c2_acc: 0.0375 - val_c3_acc: 0.0344 - val_c4_acc: 0.0406 - val_c5_acc: 0.0094 - val_c6_acc: 0.0219 - val_c7_acc: 0.0219

63 Epoch 6/30

64 - 100s - loss: 109.3059 - c1_loss: 15.6346 - c2_loss: 15.4079 - c3_loss: 15.7101 - c4_loss: 15.6849 - c5_loss: 15.6194 - c6_loss: 15.6245 - c7_loss: 15.6245 - c1_acc: 0.0300 - c2_acc: 0.0441 - c3_acc: 0.0253 - c4_acc: 0.0269 - c5_acc: 0.0309 - c6_acc: 0.0306 - c7_acc: 0.0306 - val_loss: 109.2001 - val_c1_loss: 15.5640 - val_c2_loss: 15.4129 - val_c3_loss: 15.7151 - val_c4_loss: 15.3122 - val_c5_loss: 15.7151 - val_c6_loss: 15.9166 - val_c7_loss: 15.5640 - val_c1_acc: 0.0344 - val_c2_acc: 0.0437 - val_c3_acc: 0.0250 - val_c4_acc: 0.0500 - val_c5_acc: 0.0250 - val_c6_acc: 0.0125 - val_c7_acc: 0.0344

65 Epoch 7/30

66 - 101s - loss: 109.4519 - c1_loss: 15.6547 - c2_loss: 15.3827 - c3_loss: 15.6597 - c4_loss: 15.6497 - c5_loss: 15.7051 - c6_loss: 15.7554 - c7_loss: 15.6446 - c1_acc: 0.0287 - c2_acc: 0.0456 - c3_acc: 0.0284 - c4_acc: 0.0291 - c5_acc: 0.0256 - c6_acc: 0.0225 - c7_acc: 0.0294 - val_loss: 109.8549 - val_c1_loss: 15.8159 - val_c2_loss: 15.6648 - val_c3_loss: 15.7655 - val_c4_loss: 15.8159 - val_c5_loss: 15.4633 - val_c6_loss: 15.4633 - val_c7_loss: 15.8663 - val_c1_acc: 0.0187 - val_c2_acc: 0.0281 - val_c3_acc: 0.0219 - val_c4_acc: 0.0187 - val_c5_acc: 0.0406 - val_c6_acc: 0.0406 - val_c7_acc: 0.0156

67 Epoch 8/30

68 - 101s - loss: 109.1346 - c1_loss: 15.5842 - c2_loss: 15.4129 - c3_loss: 15.6396 - c4_loss: 15.5640 - c5_loss: 15.6396 - c6_loss: 15.6849 - c7_loss: 15.6094 - c1_acc: 0.0331 - c2_acc: 0.0437 - c3_acc: 0.0297 - c4_acc: 0.0344 - c5_acc: 0.0297 - c6_acc: 0.0269 - c7_acc: 0.0316 - val_loss: 109.7542 - val_c1_loss: 15.7151 - val_c2_loss: 15.7151 - val_c3_loss: 15.4633 - val_c4_loss: 15.

```
68    5137 - val_c5_loss: 15.8159 - val_c6_loss: 15.8159 - val_c7_loss
      : 15.7151 - val_c1_acc: 0.0250 - val_c2_acc: 0.0250 - val_c3_acc
      : 0.0406 - val_c4_acc: 0.0375 - val_c5_acc: 0.0187 - val_c6_acc
      : 0.0187 - val_c7_acc: 0.0250
69    Epoch 9/30
70     - 101s - loss: 109.2857 - c1_loss: 15.6346 - c2_loss: 15.3928
       - c3_loss: 15.7252 - c4_loss: 15.6799 - c5_loss: 15.6547 -
      c6_loss: 15.5993 - c7_loss: 15.5993 - c1_acc: 0.0300 - c2_acc: 0
      .0450 - c3_acc: 0.0244 - c4_acc: 0.0272 - c5_acc: 0.0287 -
      c6_acc: 0.0322 - c7_acc: 0.0322 - val_loss: 109.7038 -
      val_c1_loss: 15.6648 - val_c2_loss: 15.3626 - val_c3_loss: 15.
      8159 - val_c4_loss: 15.9166 - val_c5_loss: 15.6648 - val_c6_loss
      : 15.6144 - val_c7_loss: 15.6648 - val_c1_acc: 0.0281 -
      val_c2_acc: 0.0469 - val_c3_acc: 0.0187 - val_c4_acc: 0.0125 -
      val_c5_acc: 0.0281 - val_c6_acc: 0.0312 - val_c7_acc: 0.0281
71    Epoch 10/30
72     - 100s - loss: 109.2001 - c1_loss: 15.6245 - c2_loss: 15.4280
       - c3_loss: 15.6900 - c4_loss: 15.5842 - c5_loss: 15.7051 -
      c6_loss: 15.5943 - c7_loss: 15.5741 - c1_acc: 0.0306 - c2_acc: 0
      .0428 - c3_acc: 0.0266 - c4_acc: 0.0331 - c5_acc: 0.0256 -
      c6_acc: 0.0325 - c7_acc: 0.0338 - val_loss: 108.7468 -
      val_c1_loss: 15.7151 - val_c2_loss: 15.3626 - val_c3_loss: 15.
      6144 - val_c4_loss: 15.3626 - val_c5_loss: 15.5640 - val_c6_loss
      : 15.6648 - val_c7_loss: 15.4633 - val_c1_acc: 0.0250 -
      val_c2_acc: 0.0469 - val_c3_acc: 0.0312 - val_c4_acc: 0.0469 -
      val_c5_acc: 0.0344 - val_c6_acc: 0.0281 - val_c7_acc: 0.0406
73    Epoch 11/30
74     - 99s - loss: 109.1900 - c1_loss: 15.5993 - c2_loss: 15.3978 -
      c3_loss: 15.5338 - c4_loss: 15.6245 - c5_loss: 15.6698 - c6_loss
      : 15.7000 - c7_loss: 15.6648 - c1_acc: 0.0322 - c2_acc: 0.0447
       - c3_acc: 0.0362 - c4_acc: 0.0306 - c5_acc: 0.0278 - c6_acc: 0.
      0259 - c7_acc: 0.0281 - val_loss: 110.2075 - val_c1_loss: 15.
      6144 - val_c2_loss: 15.6648 - val_c3_loss: 15.8159 - val_c4_loss
      : 15.8159 - val_c5_loss: 15.5137 - val_c6_loss: 16.1181 -
      val_c7_loss: 15.6648 - val_c1_acc: 0.0312 - val_c2_acc: 0.0281
       - val_c3_acc: 0.0187 - val_c4_acc: 0.0187 - val_c5_acc: 0.0375
       - val_c6_acc: 0.0000e+00 - val_c7_acc: 0.0281
```

```
75  Epoch 12/30
76   - 99s - loss: 109.4671 - c1_loss: 15.6144 - c2_loss: 15.4583 -
    c3_loss: 15.7202 - c4_loss: 15.6597 - c5_loss: 15.7051 - c6_loss
    : 15.6849 - c7_loss: 15.6245 - c1_acc: 0.0312 - c2_acc: 0.0409
     - c3_acc: 0.0247 - c4_acc: 0.0284 - c5_acc: 0.0256 - c6_acc: 0.
    0269 - c7_acc: 0.0306 - val_loss: 109.4519 - val_c1_loss: 15.
    5137 - val_c2_loss: 15.5640 - val_c3_loss: 15.7151 - val_c4_loss
    : 15.5640 - val_c5_loss: 15.6648 - val_c6_loss: 15.5137 -
    val_c7_loss: 15.9166 - val_c1_acc: 0.0375 - val_c2_acc: 0.0344
     - val_c3_acc: 0.0250 - val_c4_acc: 0.0344 - val_c5_acc: 0.0281
     - val_c6_acc: 0.0375 - val_c7_acc: 0.0125
77  Epoch 13/30
78   - 119s - loss: 109.4771 - c1_loss: 15.5842 - c2_loss: 15.5540
     - c3_loss: 15.7051 - c4_loss: 15.6698 - c5_loss: 15.6849 -
    c6_loss: 15.6346 - c7_loss: 15.6446 - c1_acc: 0.0331 - c2_acc: 0
    .0350 - c3_acc: 0.0256 - c4_acc: 0.0278 - c5_acc: 0.0269 -
    c6_acc: 0.0300 - c7_acc: 0.0294 - val_loss: 109.2001 -
    val_c1_loss: 15.5137 - val_c2_loss: 15.0603 - val_c3_loss: 15.
    8663 - val_c4_loss: 15.6144 - val_c5_loss: 15.6144 - val_c6_loss
    : 15.8159 - val_c7_loss: 15.7151 - val_c1_acc: 0.0375 -
    val_c2_acc: 0.0656 - val_c3_acc: 0.0156 - val_c4_acc: 0.0312 -
    val_c5_acc: 0.0312 - val_c6_acc: 0.0187 - val_c7_acc: 0.0250
79  Epoch 14/30
80   - 140s - loss: 109.0137 - c1_loss: 15.5036 - c2_loss: 15.3877
     - c3_loss: 15.5842 - c4_loss: 15.5489 - c5_loss: 15.7000 -
    c6_loss: 15.6446 - c7_loss: 15.6446 - c1_acc: 0.0381 - c2_acc: 0
    .0453 - c3_acc: 0.0331 - c4_acc: 0.0353 - c5_acc: 0.0259 -
    c6_acc: 0.0294 - c7_acc: 0.0294 - val_loss: 109.3512 -
    val_c1_loss: 15.4129 - val_c2_loss: 15.4129 - val_c3_loss: 15.
    7151 - val_c4_loss: 15.9670 - val_c5_loss: 15.6648 - val_c6_loss
    : 15.5137 - val_c7_loss: 15.6648 - val_c1_acc: 0.0437 -
    val_c2_acc: 0.0437 - val_c3_acc: 0.0250 - val_c4_acc: 0.0094 -
    val_c5_acc: 0.0281 - val_c6_acc: 0.0375 - val_c7_acc: 0.0281
81  Epoch 15/30
82   - 121s - loss: 109.2908 - c1_loss: 15.6396 - c2_loss: 15.5137
     - c3_loss: 15.6900 - c4_loss: 15.6094 - c5_loss: 15.6346 -
    c6_loss: 15.5741 - c7_loss: 15.6295 - c1_acc: 0.0297 - c2_acc: 0
```

82 .0375 - c3_acc: 0.0266 - c4_acc: 0.0316 - c5_acc: 0.0300 - c6_acc: 0.0338 - c7_acc: 0.0303 - val_loss: 109.6534 - val_c1_loss: 15.6144 - val_c2_loss: 15.7655 - val_c3_loss: 15.7151 - val_c4_loss: 15.6648 - val_c5_loss: 15.6144 - val_c6_loss: 15.4633 - val_c7_loss: 15.8159 - val_c1_acc: 0.0312 - val_c2_acc: 0.0219 - val_c3_acc: 0.0250 - val_c4_acc: 0.0281 - val_c5_acc: 0.0312 - val_c6_acc: 0.0406 - val_c7_acc: 0.0187

83 Epoch 16/30

84 - 125s - loss: 109.3008 - c1_loss: 15.5489 - c2_loss: 15.4482 - c3_loss: 15.7202 - c4_loss: 15.7303 - c5_loss: 15.6094 - c6_loss: 15.6346 - c7_loss: 15.6094 - c1_acc: 0.0353 - c2_acc: 0.0416 - c3_acc: 0.0247 - c4_acc: 0.0241 - c5_acc: 0.0316 - c6_acc: 0.0300 - c7_acc: 0.0316 - val_loss: 108.7468 - val_c1_loss: 15.7151 - val_c2_loss: 15.2618 - val_c3_loss: 15.4633 - val_c4_loss: 15.5640 - val_c5_loss: 15.6648 - val_c6_loss: 15.6144 - val_c7_loss: 15.4633 - val_c1_acc: 0.0250 - val_c2_acc: 0.0531 - val_c3_acc: 0.0406 - val_c4_acc: 0.0344 - val_c5_acc: 0.0281 - val_c6_acc: 0.0312 - val_c7_acc: 0.0406

85 Epoch 17/30

86 - 113s - loss: 109.3411 - c1_loss: 15.6144 - c2_loss: 15.3877 - c3_loss: 15.6245 - c4_loss: 15.7504 - c5_loss: 15.6648 - c6_loss: 15.5892 - c7_loss: 15.7101 - c1_acc: 0.0312 - c2_acc: 0.0453 - c3_acc: 0.0306 - c4_acc: 0.0228 - c5_acc: 0.0281 - c6_acc: 0.0328 - c7_acc: 0.0253 - val_loss: 109.3512 - val_c1_loss: 15.5640 - val_c2_loss: 15.7151 - val_c3_loss: 15.7151 - val_c4_loss: 15.7655 - val_c5_loss: 15.6144 - val_c6_loss: 15.4633 - val_c7_loss: 15.5137 - val_c1_acc: 0.0344 - val_c2_acc: 0.0250 - val_c3_acc: 0.0250 - val_c4_acc: 0.0219 - val_c5_acc: 0.0312 - val_c6_acc: 0.0406 - val_c7_acc: 0.0375

87 Epoch 18/30

88 - 116s - loss: 109.3865 - c1_loss: 15.5741 - c2_loss: 15.4633 - c3_loss: 15.7907 - c4_loss: 15.6446 - c5_loss: 15.6497 - c6_loss: 15.5439 - c7_loss: 15.7202 - c1_acc: 0.0338 - c2_acc: 0.0406 - c3_acc: 0.0203 - c4_acc: 0.0294 - c5_acc: 0.0291 - c6_acc: 0.0356 - c7_acc: 0.0247 - val_loss: 109.0994 - val_c1_loss: 15.8159 - val_c2_loss: 15.4129 - val_c3_loss: 15.3122 - val_c4_loss: 15.7151 - val_c5_loss: 15.6144 - val_c6_loss

88 : 15.8159 - val_c7_loss: 15.4129 - val_c1_acc: 0.0187 - val_c2_acc: 0.0437 - val_c3_acc: 0.0500 - val_c4_acc: 0.0250 - val_c5_acc: 0.0312 - val_c6_acc: 0.0187 - val_c7_acc: 0.0437

89 Epoch 19/30

90 - 117s - loss: 109.3361 - c1_loss: 15.6194 - c2_loss: 15.4532 - c3_loss: 15.5338 - c4_loss: 15.6799 - c5_loss: 15.7051 - c6_loss: 15.7303 - c7_loss: 15.6144 - c1_acc: 0.0309 - c2_acc: 0.0413 - c3_acc: 0.0362 - c4_acc: 0.0272 - c5_acc: 0.0256 - c6_acc: 0.0241 - c7_acc: 0.0312 - val_loss: 108.9482 - val_c1_loss: 15.7655 - val_c2_loss: 15.2618 - val_c3_loss: 15.3626 - val_c4_loss: 15.7655 - val_c5_loss: 15.7151 - val_c6_loss: 15.6648 - val_c7_loss: 15.4129 - val_c1_acc: 0.0219 - val_c2_acc: 0.0531 - val_c3_acc: 0.0469 - val_c4_acc: 0.0219 - val_c5_acc: 0.0250 - val_c6_acc: 0.0281 - val_c7_acc: 0.0437

91 Epoch 20/30

92 - 111s - loss: 109.2051 - c1_loss: 15.5640 - c2_loss: 15.4079 - c3_loss: 15.6748 - c4_loss: 15.6043 - c5_loss: 15.6245 - c6_loss: 15.6446 - c7_loss: 15.6849 - c1_acc: 0.0344 - c2_acc: 0.0441 - c3_acc: 0.0275 - c4_acc: 0.0319 - c5_acc: 0.0306 - c6_acc: 0.0294 - c7_acc: 0.0269 - val_loss: 109.0490 - val_c1_loss: 15.7151 - val_c2_loss: 15.4129 - val_c3_loss: 15.5640 - val_c4_loss: 15.3626 - val_c5_loss: 15.6648 - val_c6_loss: 15.7151 - val_c7_loss: 15.6144 - val_c1_acc: 0.0250 - val_c2_acc: 0.0437 - val_c3_acc: 0.0344 - val_c4_acc: 0.0469 - val_c5_acc: 0.0281 - val_c6_acc: 0.0250 - val_c7_acc: 0.0312

93 Epoch 21/30

94 - 115s - loss: 109.3714 - c1_loss: 15.6799 - c2_loss: 15.4129 - c3_loss: 15.5439 - c4_loss: 15.6799 - c5_loss: 15.6698 - c6_loss: 15.7101 - c7_loss: 15.6748 - c1_acc: 0.0272 - c2_acc: 0.0437 - c3_acc: 0.0356 - c4_acc: 0.0272 - c5_acc: 0.0278 - c6_acc: 0.0253 - c7_acc: 0.0275 - val_loss: 108.9986 - val_c1_loss: 15.5640 - val_c2_loss: 15.5137 - val_c3_loss: 15.8663 - val_c4_loss: 15.5640 - val_c5_loss: 15.5640 - val_c6_loss: 15.4633 - val_c7_loss: 15.4633 - val_c1_acc: 0.0344 - val_c2_acc: 0.0375 - val_c3_acc: 0.0156 - val_c4_acc: 0.0344 - val_c5_acc: 0.0344 - val_c6_acc: 0.0406 - val_c7_acc: 0.0406

95 Epoch 22/30

96   - 107s - loss: 109.4419 - c1_loss: 15.5640 - c2_loss: 15.5338
- c3_loss: 15.7000 - c4_loss: 15.6446 - c5_loss: 15.6748 -
c6_loss: 15.6547 - c7_loss: 15.6698 - c1_acc: 0.0344 - c2_acc: 0
.0362 - c3_acc: 0.0259 - c4_acc: 0.0294 - c5_acc: 0.0275 -
c6_acc: 0.0287 - c7_acc: 0.0278 - val_loss: 108.7971 -
val_c1_loss: 15.5137 - val_c2_loss: 15.3626 - val_c3_loss: 15.
5640 - val_c4_loss: 15.6144 - val_c5_loss: 15.4633 - val_c6_loss
: 15.7151 - val_c7_loss: 15.5640 - val_c1_acc: 0.0375 -
val_c2_acc: 0.0469 - val_c3_acc: 0.0344 - val_c4_acc: 0.0312 -
val_c5_acc: 0.0406 - val_c6_acc: 0.0250 - val_c7_acc: 0.0344

97 Epoch 23/30

98   - 102s - loss: 109.3714 - c1_loss: 15.6446 - c2_loss: 15.3323
- c3_loss: 15.6698 - c4_loss: 15.6144 - c5_loss: 15.6547 -
c6_loss: 15.7202 - c7_loss: 15.7353 - c1_acc: 0.0294 - c2_acc: 0
.0488 - c3_acc: 0.0278 - c4_acc: 0.0312 - c5_acc: 0.0287 -
c6_acc: 0.0247 - c7_acc: 0.0238 - val_loss: 109.5023 -
val_c1_loss: 15.5137 - val_c2_loss: 15.3626 - val_c3_loss: 15.
7151 - val_c4_loss: 15.8663 - val_c5_loss: 15.6144 - val_c6_loss
: 15.5640 - val_c7_loss: 15.8663 - val_c1_acc: 0.0375 -
val_c2_acc: 0.0469 - val_c3_acc: 0.0250 - val_c4_acc: 0.0156 -
val_c5_acc: 0.0312 - val_c6_acc: 0.0344 - val_c7_acc: 0.0156

99 Epoch 24/30

100   - 117s - loss: 109.3210 - c1_loss: 15.4986 - c2_loss: 15.5389
- c3_loss: 15.6346 - c4_loss: 15.6547 - c5_loss: 15.6396 -
c6_loss: 15.6698 - c7_loss: 15.6849 - c1_acc: 0.0384 - c2_acc: 0
.0359 - c3_acc: 0.0300 - c4_acc: 0.0287 - c5_acc: 0.0297 -
c6_acc: 0.0278 - c7_acc: 0.0269 - val_loss: 109.6534 -
val_c1_loss: 15.8159 - val_c2_loss: 15.5640 - val_c3_loss: 15.
5640 - val_c4_loss: 15.5640 - val_c5_loss: 15.6648 - val_c6_loss
: 15.8663 - val_c7_loss: 15.6144 - val_c1_acc: 0.0187 -
val_c2_acc: 0.0344 - val_c3_acc: 0.0344 - val_c4_acc: 0.0344 -
val_c5_acc: 0.0281 - val_c6_acc: 0.0156 - val_c7_acc: 0.0312

101 Epoch 25/30

102   - 122s - loss: 108.9432 - c1_loss: 15.5086 - c2_loss: 15.4935
- c3_loss: 15.5237 - c4_loss: 15.6849 - c5_loss: 15.5791 -
c6_loss: 15.5791 - c7_loss: 15.5741 - c1_acc: 0.0378 - c2_acc: 0
.0387 - c3_acc: 0.0369 - c4_acc: 0.0269 - c5_acc: 0.0334 -

102 c6_acc: 0.0334 - c7_acc: 0.0338 - val_loss: 109.4016 - val_c1_loss: 15.7655 - val_c2_loss: 15.5640 - val_c3_loss: 15.6648 - val_c4_loss: 15.3626 - val_c5_loss: 15.7151 - val_c6_loss: 15.8159 - val_c7_loss: 15.5137 - val_c1_acc: 0.0219 - val_c2_acc: 0.0344 - val_c3_acc: 0.0281 - val_c4_acc: 0.0469 - val_c5_acc: 0.0250 - val_c6_acc: 0.0187 - val_c7_acc: 0.0375

103 Epoch 26/30

104 - 115s - loss: 109.4368 - c1_loss: 15.6245 - c2_loss: 15.4986 - c3_loss: 15.6194 - c4_loss: 15.6547 - c5_loss: 15.6446 - c6_loss: 15.7554 - c7_loss: 15.6396 - c1_acc: 0.0306 - c2_acc: 0.0384 - c3_acc: 0.0309 - c4_acc: 0.0287 - c5_acc: 0.0294 - c6_acc: 0.0225 - c7_acc: 0.0297 - val_loss: 109.5023 - val_c1_loss: 15.5137 - val_c2_loss: 15.5137 - val_c3_loss: 15.5137 - val_c4_loss: 15.8159 - val_c5_loss: 15.7151 - val_c6_loss: 15.7151 - val_c7_loss: 15.7151 - val_c1_acc: 0.0375 - val_c2_acc: 0.0375 - val_c3_acc: 0.0375 - val_c4_acc: 0.0187 - val_c5_acc: 0.0250 - val_c6_acc: 0.0250 - val_c7_acc: 0.0250

105 Epoch 27/30

106 - 111s - loss: 109.0339 - c1_loss: 15.6194 - c2_loss: 15.4230 - c3_loss: 15.6396 - c4_loss: 15.6648 - c5_loss: 15.4935 - c6_loss: 15.6295 - c7_loss: 15.5640 - c1_acc: 0.0309 - c2_acc: 0.0431 - c3_acc: 0.0297 - c4_acc: 0.0281 - c5_acc: 0.0387 - c6_acc: 0.0303 - c7_acc: 0.0344 - val_loss: 109.4519 - val_c1_loss: 15.8159 - val_c2_loss: 15.5137 - val_c3_loss: 15.6648 - val_c4_loss: 15.5640 - val_c5_loss: 15.5137 - val_c6_loss: 15.6648 - val_c7_loss: 15.7151 - val_c1_acc: 0.0187 - val_c2_acc: 0.0375 - val_c3_acc: 0.0281 - val_c4_acc: 0.0344 - val_c5_acc: 0.0375 - val_c6_acc: 0.0281 - val_c7_acc: 0.0250

107 Epoch 28/30

108 - 114s - loss: 108.9986 - c1_loss: 15.5187 - c2_loss: 15.3928 - c3_loss: 15.6698 - c4_loss: 15.6144 - c5_loss: 15.5590 - c6_loss: 15.6799 - c7_loss: 15.5640 - c1_acc: 0.0372 - c2_acc: 0.0450 - c3_acc: 0.0278 - c4_acc: 0.0312 - c5_acc: 0.0347 - c6_acc: 0.0272 - c7_acc: 0.0344 - val_loss: 109.0994 - val_c1_loss: 15.7151 - val_c2_loss: 15.4633 - val_c3_loss: 15.4633 - val_c4_loss: 15.5137 - val_c5_loss: 15.7151 - val_c6_loss: 15.6144 - val_c7_loss: 15.6144 - val_c1_acc: 0.0250 -

```
108  val_c2_acc: 0.0406 - val_c3_acc: 0.0406 - val_c4_acc: 0.0375 -
     val_c5_acc: 0.0250 - val_c6_acc: 0.0312 - val_c7_acc: 0.0312
109  Epoch 29/30
110   - 129s - loss: 109.2354 - c1_loss: 15.5389 - c2_loss: 15.3928
      - c3_loss: 15.7000 - c4_loss: 15.6799 - c5_loss: 15.5842 -
     c6_loss: 15.6799 - c7_loss: 15.6597 - c1_acc: 0.0359 - c2_acc: 0
     .0450 - c3_acc: 0.0259 - c4_acc: 0.0272 - c5_acc: 0.0331 -
     c6_acc: 0.0272 - c7_acc: 0.0284 - val_loss: 110.0060 -
     val_c1_loss: 15.6648 - val_c2_loss: 15.6648 - val_c3_loss: 15.
     7655 - val_c4_loss: 15.7151 - val_c5_loss: 15.5137 - val_c6_loss
     : 15.7655 - val_c7_loss: 15.9166 - val_c1_acc: 0.0281 -
     val_c2_acc: 0.0281 - val_c3_acc: 0.0219 - val_c4_acc: 0.0250 -
     val_c5_acc: 0.0375 - val_c6_acc: 0.0219 - val_c7_acc: 0.0125
111  Epoch 30/30
112   - 118s - loss: 109.1699 - c1_loss: 15.6144 - c2_loss: 15.4180
      - c3_loss: 15.5842 - c4_loss: 15.6446 - c5_loss: 15.7000 -
     c6_loss: 15.6346 - c7_loss: 15.5741 - c1_acc: 0.0312 - c2_acc: 0
     .0434 - c3_acc: 0.0331 - c4_acc: 0.0294 - c5_acc: 0.0259 -
     c6_acc: 0.0300 - c7_acc: 0.0338 - val_loss: 109.5023 -
     val_c1_loss: 15.7151 - val_c2_loss: 15.5137 - val_c3_loss: 15.
     7151 - val_c4_loss: 15.4633 - val_c5_loss: 15.7655 - val_c6_loss
     : 15.6648 - val_c7_loss: 15.6648 - val_c1_acc: 0.0250 -
     val_c2_acc: 0.0375 - val_c3_acc: 0.0250 - val_c4_acc: 0.0406 -
     val_c5_acc: 0.0219 - val_c6_acc: 0.0281 - val_c7_acc: 0.0281
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  results.dtype : float32
123  results.shape : (7, 13, 65)
124  results.dtype : int64
125  results.shape : (13, 7)
126  results
127   [[23 52 58 64 58 52 32]
128   [23 52 58 64 58 52 32]
129   [23 52 58 64 58 52 32]
130   [23 52 58 64 58 52 32]
131   [23 52 58 64 58 52 32]
132   [23 52 58 64 58 52 32]
133   [23 52 58 64 58 52 32]
134   [23 52 58 64 58 52 32]
135   [23 52 58 64 58 52 32]
136   [23 52 58 64 58 52 32]
137   [23 52 58 64 58 52 32]
138   [23 52 58 64 58 52 32]
139   [23 52 58 64 58 52 32]]
140  key 贵
141  key M
142  key T
143  key Z
144  key T
145  key M
146  key 1
147  key 贵
148  key M
149  key T
150  key Z
151  key T
152  key M
153  key 1
154  key 贵
155  key M
156  key T
157  key Z
158  key T
```

159 key M
160 key 1
161 key 贵
162 key M
163 key T
164 key Z
165 key T
166 key M
167 key 1
168 key 贵
169 key M
170 key T
171 key Z
172 key T
173 key M
174 key 1
175 key 贵
176 key M
177 key T
178 key Z
179 key T
180 key M
181 key 1
182 key 贵
183 key M
184 key T
185 key Z
186 key T
187 key M
188 key 1
189 key 贵
190 key M
191 key T
192 key Z
193 key T
194 key M
195 key 1

```
196 key 贵
197 key M
198 key T
199 key Z
200 key T
201 key M
202 key 1
203 key 贵
204 key M
205 key T
206 key Z
207 key T
208 key M
209 key 1
210 key 贵
211 key M
212 key T
213 key Z
214 key T
215 key M
216 key 1
217 key 贵
218 key M
219 key T
220 key Z
221 key T
222 key M
223 key 1
224 key 贵
225 key M
226 key T
227 key Z
228 key T
229 key M
230 key 1
231 predict_plate_str type : <class 'list'>
232 predict_plate_str
```

```
233   [['贵', 'M', 'T', 'Z', 'T', 'M', '1'], ['贵', 'M', 'T', 'Z', 'T
      ', 'M', '1'], ['贵', 'M', 'T', 'Z', 'T', 'M', '1'], ['贵', 'M
      ', 'T', 'Z', 'T', 'M', '1'], ['贵', 'M', 'T', 'Z', 'T', 'M', '1
      '], ['贵', 'M', 'T', 'Z', 'T', 'M', '1'], ['贵', 'M', 'T', 'Z
      ', 'T', 'M', '1'], ['贵', 'M', 'T', 'Z', 'T', 'M', '1'], ['贵
      ', 'M', 'T', 'Z', 'T', 'M', '1'], ['贵', 'M', 'T', 'Z', 'T', 'M
      ', '1'], ['贵', 'M', 'T', 'Z', 'T', 'M', '1'], ['贵', 'M', 'T
      ', 'Z', 'T', 'M', '1'], ['贵', 'M', 'T', 'Z', 'T', 'M', '1']]
234   ###############plt results###############
235
236   Process finished with exit code 0
237
```