我在Dense layer使用了units=1024，以及dropout一些神經元

```
model.add(Dense(units=1024)) # Add dense layer with 512 neurons
model.add(Activation('relu')) # Add Relu activation for non-linearity
model.add(Dropout(0.25))
model.add(Dense(units=512)) # Add dense layer with 512 neurons
model.add(Activation('relu')) # Add Relu activation for non-linearity
```

並且在嘗試過許多optimizer後，發現使用Adam optimizer的效果會較好

```
opt = keras.optimizers.Adam()
```

在data augentmation方面，我使用了隨機旋轉跟上下左右平移跟左右對稱
還增加batch_size到256，epoch增加到30，來增加準確度

```
Epoch 1/30
196/196 [==============================] - 18s 94ms/step - loss: 1.7105 - accuracy: 0.3673 - val_loss: 1.4283 - val_accuracy: 0.4784
Epoch 2/30
196/196 [==============================] - 17s 88ms/step - loss: 1.4438 - accuracy: 0.4743 - val_loss: 1.2741 - val_accuracy: 0.5458
Epoch 3/30
196/196 [==============================] - 18s 90ms/step - loss: 1.3147 - accuracy: 0.5246 - val_loss: 1.1317 - val_accuracy: 0.6005
Epoch 4/30
196/196 [==============================] - 18s 90ms/step - loss: 1.2489 - accuracy: 0.5478 - val_loss: 1.0521 - val_accuracy: 0.6268
Epoch 5/30
196/196 [==============================] - 18s 90ms/step - loss: 1.1888 - accuracy: 0.5731 - val_loss: 1.0812 - val_accuracy: 0.6084
Epoch 6/30
196/196 [==============================] - 17s 89ms/step - loss: 1.1441 - accuracy: 0.5892 - val_loss: 1.0389 - val_accuracy: 0.6355
Epoch 7/30
196/196 [==============================] - 18s 90ms/step - loss: 1.1053 - accuracy: 0.6029 - val_loss: 1.0323 - val_accuracy: 0.6391
Epoch 8/30
196/196 [==============================] - 17s 86ms/step - loss: 1.0786 - accuracy: 0.6140 - val_loss: 0.9326 - val_accuracy: 0.6745
Epoch 9/30
196/196 [==============================] - 17s 89ms/step - loss: 1.0622 - accuracy: 0.6219 - val_loss: 0.9068 - val_accuracy: 0.6849
Epoch 10/30
196/196 [==============================] - 18s 93ms/step - loss: 1.0346 - accuracy: 0.6323 - val_loss: 0.9925 - val_accuracy: 0.6611
Epoch 11/30
196/196 [==============================] - 17s 89ms/step - loss: 1.0147 - accuracy: 0.6388 - val_loss: 0.8816 - val_accuracy: 0.6923
Epoch 12/30
196/196 [==============================] - 18s 90ms/step - loss: 0.9958 - accuracy: 0.6459 - val_loss: 0.8983 - val_accuracy: 0.6824
Epoch 13/30
196/196 [==============================] - 17s 87ms/step - loss: 0.9795 - accuracy: 0.6513 - val_loss: 0.8834 - val_accuracy: 0.6909
Epoch 14/30
196/196 [==============================] - 17s 89ms/step - loss: 0.9664 - accuracy: 0.6557 - val_loss: 0.8334 - val_accuracy: 0.7058
Epoch 15/30
196/196 [==============================] - 18s 89ms/step - loss: 0.9481 - accuracy: 0.6639 - val_loss: 0.8891 - val_accuracy: 0.6918
Epoch 16/30
196/196 [==============================] - 18s 91ms/step - loss: 0.9345 - accuracy: 0.6692 - val_loss: 0.8736 - val_accuracy: 0.6963
Epoch 17/30
196/196 [==============================] - 18s 90ms/step - loss: 0.9264 - accuracy: 0.6729 - val_loss: 0.8476 - val_accuracy: 0.7054
Epoch 18/30
196/196 [==============================] - 18s 90ms/step - loss: 0.9117 - accuracy: 0.6785 - val_loss: 0.7582 - val_accuracy: 0.7361
Epoch 19/30
196/196 [==============================] - 17s 88ms/step - loss: 0.9022 - accuracy: 0.6809 - val_loss: 0.7877 - val_accuracy: 0.7253
Epoch 20/30
196/196 [==============================] - 17s 89ms/step - loss: 0.8966 - accuracy: 0.6816 - val_loss: 0.7471 - val_accuracy: 0.7395
Epoch 21/30
196/196 [==============================] - 18s 90ms/step - loss: 0.8805 - accuracy: 0.6896 - val_loss: 0.8068 - val_accuracy: 0.7257
Epoch 22/30
196/196 [==============================] - 18s 91ms/step - loss: 0.8738 - accuracy: 0.6909 - val_loss: 0.7757 - val_accuracy: 0.7286
Epoch 23/30
196/196 [==============================] - 18s 89ms/step - loss: 0.8684 - accuracy: 0.6939 - val_loss: 0.7457 - val_accuracy: 0.7411
Epoch 24/30
196/196 [==============================] - 18s 94ms/step - loss: 0.8559 - accuracy: 0.6971 - val_loss: 0.7364 - val_accuracy: 0.7429
Epoch 25/30
196/196 [==============================] - 18s 91ms/step - loss: 0.8630 - accuracy: 0.6948 - val_loss: 0.7307 - val_accuracy: 0.7439
Epoch 26/30
196/196 [==============================] - 18s 91ms/step - loss: 0.8380 - accuracy: 0.7011 - val_loss: 0.7708 - val_accuracy: 0.7355
Epoch 27/30
196/196 [==============================] - 17s 89ms/step - loss: 0.8305 - accuracy: 0.7078 - val_loss: 0.7208 - val_accuracy: 0.7491
Epoch 28/30
196/196 [==============================] - 18s 91ms/step - loss: 0.8289 - accuracy: 0.7068 - val_loss: 0.7012 - val_accuracy: 0.7544
Epoch 29/30
196/196 [==============================] - 17s 88ms/step - loss: 0.8211 - accuracy: 0.7107 - val_loss: 0.7474 - val_accuracy: 0.7449
Epoch 30/30
196/196 [==============================] - 18s 92ms/step - loss: 0.8164 - accuracy: 0.7113 - val_loss: 0.7047 - val_accuracy: 0.7608
(10000, 10)
('Accuracy of my model on test-set: ', 0.7608)
```

Accuracy：0.7608