ResNet

× 구조

```
Layer (type)              Output Shape           Param #     Connected to
==================================================================================
input_2 (InputLayer)      (None, 28, 28, 1)      0
----------------------------------------------------------------------------------
conv2d_2 (Conv2D)         (None, 28, 28, 3)      30          input_2[0][0]
----------------------------------------------------------------------------------
add_1 (Add)               (None, 28, 28, 3)      0           input_2[0][0]
                                                              conv2d_2[0][0]
----------------------------------------------------------------------------------
flatten_1 (Flatten)       (None, 2352)           0           add_1[0][0]
----------------------------------------------------------------------------------
dense_1 (Dense)           (None, 10)             23530       flatten_1[0][0]
==================================================================================
Total params: 23,560
Trainable params: 23,560
Non-trainable params: 0
```
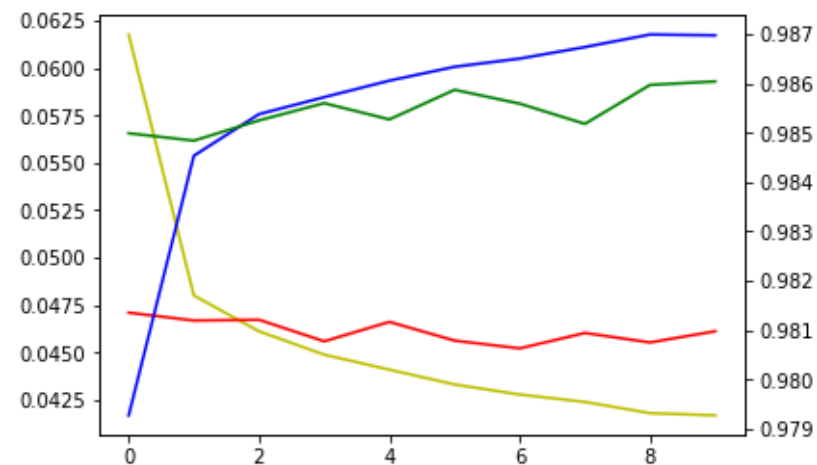

빨강 : Val_loss (0.0461)
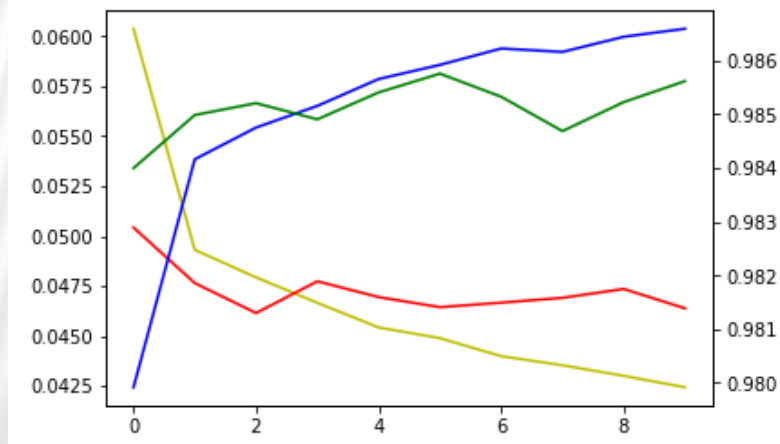**노랑 : Loss (0.0417)**

녹색 : Val acc (0.9860)
파랑 : acc (0.9870)

연산 시간 120 second

ResNet

✖ 구조

```
Layer (type)                 Output Shape         Param #     Connected to
================================================================================
input_2 (InputLayer)         (None, 28, 28, 1)    0
--------------------------------------------------------------------------------
conv2d_3 (Conv2D)            (None, 28, 28, 3)    30          input_2[0][0]
--------------------------------------------------------------------------------
add_3 (Add)                  (None, 28, 28, 3)    0           input_2[0][0]
                                                              conv2d_3[0][0]
--------------------------------------------------------------------------------
conv2d_4 (Conv2D)            (None, 28, 28, 3)    84          add_3[0][0]
--------------------------------------------------------------------------------
add_4 (Add)                  (None, 28, 28, 3)    0           add_3[0][0]
                                                              conv2d_4[0][0]
--------------------------------------------------------------------------------
conv2d_5 (Conv2D)            (None, 28, 28, 3)    84          add_4[0][0]
--------------------------------------------------------------------------------
add_5 (Add)                  (None, 28, 28, 3)    0           add_4[0][0]
                                                              conv2d_5[0][0]
--------------------------------------------------------------------------------
flatten_2 (Flatten)          (None, 2352)         0           add_5[0][0]
--------------------------------------------------------------------------------
dense_2 (Dense)              (None, 10)           23530       flatten_2[0][0]
================================================================================
Total params: 23,728
Trainable params: 23,728
Non-trainable params: 0
--------------------------------------------------------------------------------
```

빨강 : Val_loss 0.0464
노랑 : Loss 0.0424

파랑 : acc 0.9866
녹색 : Val acc 0.9856
연산 시간 : 370 second

Inception

✕ 구조

```
Layer (type)                    Output Shape          Param #      Connected to
================================================================================
input_6 (InputLayer)            (None, 28, 28, 1)     0
_____
conv2d_26 (Conv2D)              (None, 28, 28, 64)    128          input_6[0][0]
_____
conv2d_28 (Conv2D)              (None, 28, 28, 64)    128          input_6[0][0]
_____
max_pooling2d_6 (MaxPooling2D)  (None, 28, 28, 1)     0            input_6[0][0]
_____
conv2d_27 (Conv2D)              (None, 28, 28, 64)    36928        conv2d_26[0][0]
_____
conv2d_29 (Conv2D)              (None, 28, 28, 64)    102464       conv2d_28[0][0]
_____
conv2d_30 (Conv2D)              (None, 28, 28, 64)    128          max_pooling2d_6[0][0]
_____
concatenate_5 (Concatenate)     (None, 84, 28, 64)    0            conv2d_27[0][0]
                                                                   conv2d_29[0][0]
                                                                   conv2d_30[0][0]
_____
flatten_1 (Flatten)             (None, 150528)        0            concatenate_5[0][0]
_____
dense_2 (Dense)                 (None, 10)            1505290      flatten_1[0][0]
================================================================================
Total params: 1,645,066
Trainable params: 1,645,066
Non-trainable params: 0
```
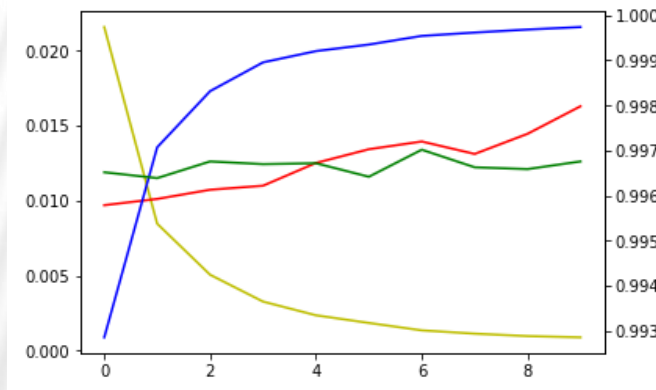

빨강 : Val_loss 0.0163
노랑 : Loss 0.0008

파랑 : acc 0.9997
녹색 : Val acc 0.9968
연산 시간 : 6 hour

Inception

✕ 구조

```
Layer (type)                    Output Shape        Param #   Connected to
=====================================================================
input_13 (InputLayer)           (None, 28, 28, 1)   0
_____
conv2d_61 (Conv2D)              (None, 28, 28, 64)  128       input_13[0][0]
_____
max_pooling2d_14 (MaxPooling2D) (None, 28, 28, 1)   0         input_13[0][0]
_____
conv2d_62 (Conv2D)              (None, 28, 28, 64)  36928     conv2d_61[0][0]
_____
conv2d_63 (Conv2D)              (None, 28, 28, 64)  128       max_pooling2d_14[0][0]
_____
add_35 (Add)                    (None, 28, 28, 64)  0         input_13[0][0]
                                                              conv2d_62[0][0]
_____
add_36 (Add)                    (None, 28, 28, 64)  0         input_13[0][0]
                                                              conv2d_63[0][0]
_____
concatenate_13 (Concatenate)    (None, 56, 28, 64)  0         add_35[0][0]
                                                              add_36[0][0]
_____
flatten_12 (Flatten)            (None, 100352)      0         concatenate_13[0][0]
_____
dropout_3 (Dropout)             (None, 100352)      0         flatten_12[0][0]
_____
dense_4 (Dense)                 (None, 10)          1003530   dropout_3[0][0]
=====================================================================
Total params: 1,040,714
Trainable params: 1,040,714
Non-trainable params: 0
```
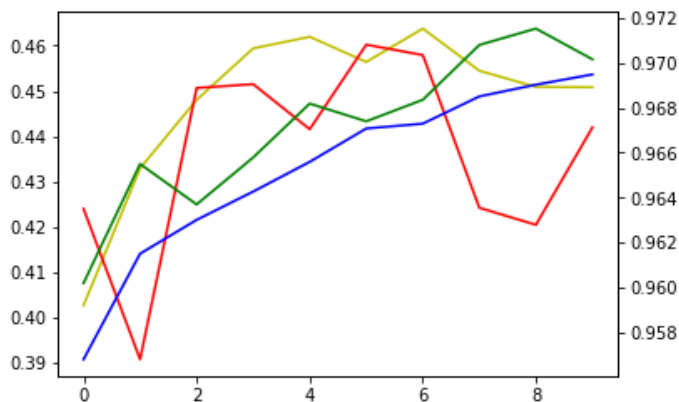

빨강 : Val_loss 0.4468
노랑 : Loss 0.4492

파랑 : acc 0.9696
녹색 : Val acc 0.9741
연산 시간 : 4 hour