

## 1. epochs=100, batch\_size=10

```
47/47 [=====] - 0s 2ms/step - loss: 0.4066 - accuracy: 0.8468
Epoch 95/100
47/47 [=====] - 0s 2ms/step - loss: 0.3931 - accuracy: 0.8511
Epoch 96/100
47/47 [=====] - 0s 2ms/step - loss: 0.4511 - accuracy: 0.8383
Epoch 97/100
47/47 [=====] - 0s 2ms/step - loss: 0.4403 - accuracy: 0.8340
Epoch 98/100
47/47 [=====] - 0s 2ms/step - loss: 0.4074 - accuracy: 0.8447
Epoch 99/100
47/47 [=====] - 0s 2ms/step - loss: 0.4296 - accuracy: 0.8596
Epoch 100/100
47/47 [=====] - 0s 2ms/step - loss: 0.3958 - accuracy: 0.8489

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1/1 [=====] - 0s 89ms/step

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Actual Class: [0. 0. 1. 1. 0.]
Predict Class:
[[0.02983091]
 [0.05353622]
 [0.29495192]
 [0.1394937 ]
 [0.13072431]]
```

## 2. epochs=1000, batch\_size=10 (epoch만 증가)

```
Epoch 993/1000
47/47 [=====] - 0s 3ms/step - loss: 0.3095 - accuracy: 0.8787
Epoch 994/1000
47/47 [=====] - 0s 4ms/step - loss: 0.3031 - accuracy: 0.8851
Epoch 995/1000
47/47 [=====] - 0s 4ms/step - loss: 0.3006 - accuracy: 0.8830
Epoch 996/1000
47/47 [=====] - 0s 4ms/step - loss: 0.3048 - accuracy: 0.8830
Epoch 997/1000
47/47 [=====] - 0s 4ms/step - loss: 0.2951 - accuracy: 0.8787
Epoch 998/1000
47/47 [=====] - 0s 5ms/step - loss: 0.3192 - accuracy: 0.8915
Epoch 999/1000
47/47 [=====] - 0s 4ms/step - loss: 0.3143 - accuracy: 0.8809
Epoch 1000/1000
47/47 [=====] - 0s 3ms/step - loss: 0.3091 - accuracy: 0.8894

-----
1/1 [=====] - 0s 22ms/step

-----
Actual Class: [0. 0. 1. 1. 0.]
Predict Class:
[[1.4983982e-01]
 [2.6745395e-09]
 [9.4849372e-01]
 [7.5916715e-02]
 [2.1451269e-05]]
```

### 3. epochs=100, batch\_size=94 (batch\_size만 증가)

```
5/5 [=====] - 0s 5ms/step - loss: 0.2776 - accuracy: 0.9021
Epoch 93/100
5/5 [=====] - 0s 5ms/step - loss: 0.2765 - accuracy: 0.9021
Epoch 94/100
5/5 [=====] - 0s 5ms/step - loss: 0.2762 - accuracy: 0.9000
Epoch 95/100
5/5 [=====] - 0s 4ms/step - loss: 0.2770 - accuracy: 0.9000
Epoch 96/100
5/5 [=====] - 0s 8ms/step - loss: 0.2763 - accuracy: 0.9021
Epoch 97/100
5/5 [=====] - 0s 7ms/step - loss: 0.2773 - accuracy: 0.9043
Epoch 98/100
5/5 [=====] - 0s 6ms/step - loss: 0.2763 - accuracy: 0.9021
Epoch 99/100
5/5 [=====] - 0s 6ms/step - loss: 0.2791 - accuracy: 0.8979
Epoch 100/100
5/5 [=====] - 0s 4ms/step - loss: 0.2765 - accuracy: 0.9021

-----
1/1 [=====] - 0s 37ms/step

-----
Actual Class: [0. 0. 1. 1. 0.]
Predict Class:
[[7.10556060e-02]
 [1.15952936e-07]
 [9.99494970e-01]
 [9.78558064e-01]
 [1.32659893e-03]]
batch_size 증가
```

### 4. epochs=1000, batch\_size=94 (epoch 증가, batch\_size 증가)

```
Epoch 992/1000
5/5 [=====] - 0s 4ms/step - loss: 0.2595 - accuracy: 0.9106
Epoch 993/1000
5/5 [=====] - 0s 8ms/step - loss: 0.2595 - accuracy: 0.9085
Epoch 994/1000
5/5 [=====] - 0s 6ms/step - loss: 0.2580 - accuracy: 0.9064
Epoch 995/1000
5/5 [=====] - 0s 8ms/step - loss: 0.2613 - accuracy: 0.9064
Epoch 996/1000
5/5 [=====] - 0s 7ms/step - loss: 0.2586 - accuracy: 0.9043
Epoch 997/1000
5/5 [=====] - 0s 6ms/step - loss: 0.2648 - accuracy: 0.9043
Epoch 998/1000
5/5 [=====] - 0s 5ms/step - loss: 0.2625 - accuracy: 0.9043
Epoch 999/1000
5/5 [=====] - 0s 4ms/step - loss: 0.2605 - accuracy: 0.9064
Epoch 1000/1000
5/5 [=====] - 0s 4ms/step - loss: 0.2586 - accuracy: 0.9106

-----
1/1 [=====] - 0s 33ms/step

-----
Actual Class: [0. 0. 1. 1. 0.]
Predict Class:
[[7.2462805e-02]
 [6.3937172e-08]
 [9.9998212e-01]
 [9.9621695e-01]
 [5.3192583e-05]]
```

## 결론

- epoch를 늘릴수록 **accuracy**가 높아진다.
- **batch\_size**를 늘리면 동작하는 시간이 늘어나고 안정적인 결과가 나올 확률이 높아진다.