Neural Networks - intro

Part 1 - XOR

1. Using the XOR dataset below, train (400 epochs) a neural network (NN) using 2, 3, 4, and 5 hidden layers (where each layer has only 2 neurons). For each n layers, store the resulting accuracy along with n. Plot the results to find what the optimal number of layers is.
2. Repeat the above with 3 neurons in each Hidden layers. How do these results compare to the 2 neuron layers?
3. Repeat the above with 4 neurons in each Hidden layers. How do these results compare to the 2 and 3 neuron layers?
4. Using the most optimal configuraion (n-layers, k-neurons per layer), compare how `tanh`, `sigmoid`, `softplus` and `relu` effect the loss after 400 epochs. Try other Activation functions as well (https://keras.io/activations/)
5. Again with the most optimal setup, try other optimizers (instead of `SGD`) and report on the loss score. (https://keras.io/optimizers/)

Part 2 - BYOD (Bring your own Dataset)

Using your own dataset, experiment and find the best Neural Network configuration. You may use any resource to improve results, just reference it.

While you may use any dataset, I'd prefer you didn't use the diabetes dataset used in the lesson.

https://stackoverflow.com/questions/34673164/how-to-train-and-tune-an-artificial-multilayer-perceptron-neural-network-using-k

https://keras.io/

```
In [ ]:   !pip3 install tensorflow keras
```

```
In [43]:  from keras.models import Sequential
          from keras.layers import Dense
          from keras.optimizers import Adam
          import pandas as pd

          import numpy as np
          np.random.seed(7)

          import matplotlib.pyplot as plt
          %matplotlib inline
```
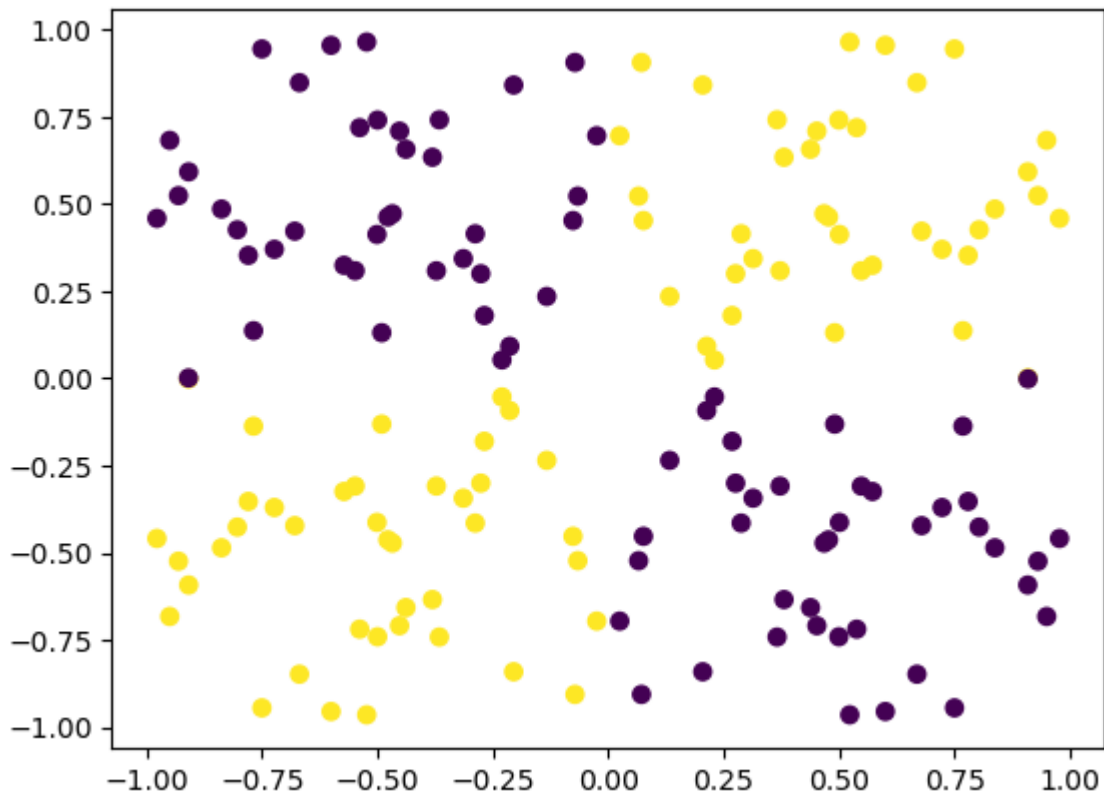
```
In [4]:   n = 40
          xx = np.random.random((n,1))
          yy = np.random.random((n,1))
```

In [5]:
```python
X = np.array([np.array([xx,-xx,-xx,xx]),np.array([yy,-yy,yy,-yy])]).reshape(2,4*n).T
Y = np.array([np.ones([2*n]),np.zeros([2*n])]).reshape(4*n)
```

In [6]:
```python
plt.scatter(*zip(*X), c = Y)
```

Out[6]:
```
<matplotlib.collections.PathCollection at 0x171038c8820>
```


Using Diabetes data

http://archive.ics.uci.edu/ml/machine-learning-databases/pima-indians-diabetes/pima-indians-diabetes.data

1. Number of times pregnant
2. Plasma glucose concentration a 2 hours in an oral glucose tolerance test
3. Diastolic blood pressure (mm Hg)
4. Triceps skin fold thickness (mm)
5. 2-Hour serum insulin (mu U/ml)
6. Body mass index (weight in kg/(height in m)^2)
7. Diabetes pedigree function
8. Age (years)
9. Class variable (0 or 1)

In [ ]:
```python
# load pima indians dataset
dataset = numpy.loadtxt("../../data/pima-indians-diabetes.data", delimiter=",")
# split into input (X) and output (Y) variables
X = dataset[:,0:8]
Y = dataset[:,8]
```

In [ ]:
```python
# create model
model = Sequential()
model.add(Dense(16, input_dim=8, activation='tanh'))
model.add(Dense(16, activation='tanh'))
model.add(Dense(1, activation='sigmoid'))
# Compile model
model.compile(loss='binary_crossentropy', optimizer='adam', metrics=['accuracy'])
# Fit the model
model.fit(X, Y, epochs=1000, batch_size=10)
# evaluate the model
scores = model.evaluate(X, Y)
print("\n%s: %.2f%%" % (model.metrics_names[1], scores[1]*100))
```

In [69]:
```python
## PART 1 - 1
num_layers = [2,3,4,5]
scores = []
layernum = []
model = Sequential()
model.add(Dense(1, input_dim = 2, activation = 'tanh'))
layer = Dense(1, activation = 'sigmoid')

for num_layer in num_layers:

    print(num_layer)
    model.add(layer)
    model.compile(loss = 'binary_crossentropy', optimizer = 'adam', metrics = ['accura
    model.fit(X, Y, epochs = 400, batch_size = 2)
    score = model.evaluate(X, Y)
    scores.append(score)
    layernum.append(num_layer)
plt.scatter(*zip(*X), c = model.predict(X))
```

```
2
Epoch 1/400
80/80 [==============================] - 1s 1ms/step - loss: 0.7029 - accuracy: 0.500
0
Epoch 2/400
80/80 [==============================] - 0s 1ms/step - loss: 0.7017 - accuracy: 0.500
0
Epoch 3/400
80/80 [==============================] - 0s 2ms/step - loss: 0.7007 - accuracy: 0.506
3
Epoch 4/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6999 - accuracy: 0.537
5
Epoch 5/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6992 - accuracy: 0.550
0
Epoch 6/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6983 - accuracy: 0.556
2
Epoch 7/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6976 - accuracy: 0.562
5
Epoch 8/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6971 - accuracy: 0.587
5
Epoch 9/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6965 - accuracy: 0.581
3
Epoch 10/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6962 - accuracy: 0.606
2
Epoch 11/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6959 - accuracy: 0.581
3
Epoch 12/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6951 - accuracy: 0.606
2
Epoch 13/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6949 - accuracy: 0.612
5
Epoch 14/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6944 - accuracy: 0.612
5
Epoch 15/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6942 - accuracy: 0.612
5
Epoch 16/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6937 - accuracy: 0.612
5
Epoch 17/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6935 - accuracy: 0.612
5
Epoch 18/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6931 - accuracy: 0.618
7
Epoch 19/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6928 - accuracy: 0.612
5
Epoch 20/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6927 - accuracy: 0.612
```

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5
Epoch 21/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6924 - accuracy: 0.612
5
Epoch 22/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6920 - accuracy: 0.612
5
Epoch 23/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6917 - accuracy: 0.618
7
Epoch 24/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6917 - accuracy: 0.618
7
Epoch 25/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6913 - accuracy: 0.612
5
Epoch 26/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6911 - accuracy: 0.631
3
Epoch 27/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6908 - accuracy: 0.612
5
Epoch 28/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6904 - accuracy: 0.625
0
Epoch 29/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6902 - accuracy: 0.625
0
Epoch 30/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6901 - accuracy: 0.618
7
Epoch 31/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6895 - accuracy: 0.625
0
Epoch 32/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6895 - accuracy: 0.631
3
Epoch 33/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6890 - accuracy: 0.631
3
Epoch 34/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6888 - accuracy: 0.637
5
Epoch 35/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6884 - accuracy: 0.625
0
Epoch 36/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6882 - accuracy: 0.631
3
Epoch 37/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6880 - accuracy: 0.631
3
Epoch 38/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6878 - accuracy: 0.625
0
Epoch 39/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6872 - accuracy: 0.631
3
Epoch 40/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6870 - accuracy: 0.631
```

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3
Epoch 41/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6865 - accuracy: 0.631
3
Epoch 42/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6861 - accuracy: 0.625
0
Epoch 43/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6858 - accuracy: 0.625
0
Epoch 44/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6853 - accuracy: 0.625
0
Epoch 45/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6851 - accuracy: 0.625
0
Epoch 46/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6847 - accuracy: 0.625
0
Epoch 47/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6841 - accuracy: 0.637
5
Epoch 48/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6836 - accuracy: 0.631
3
Epoch 49/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6834 - accuracy: 0.625
0
Epoch 50/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6828 - accuracy: 0.643
8
Epoch 51/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6821 - accuracy: 0.631
3
Epoch 52/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6815 - accuracy: 0.631
3
Epoch 53/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6811 - accuracy: 0.637
5
Epoch 54/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6805 - accuracy: 0.631
3
Epoch 55/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6800 - accuracy: 0.631
3
Epoch 56/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6793 - accuracy: 0.643
8
Epoch 57/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6789 - accuracy: 0.643
8
Epoch 58/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6781 - accuracy: 0.637
5
Epoch 59/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6777 - accuracy: 0.656
2
Epoch 60/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6770 - accuracy: 0.650
```

```
0
Epoch 61/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6763 - accuracy: 0.662
5
Epoch 62/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6757 - accuracy: 0.643
8
Epoch 63/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6749 - accuracy: 0.662
5
Epoch 64/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6740 - accuracy: 0.656
2
Epoch 65/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6734 - accuracy: 0.662
5
Epoch 66/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6726 - accuracy: 0.662
5
Epoch 67/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6720 - accuracy: 0.662
5
Epoch 68/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6712 - accuracy: 0.662
5
Epoch 69/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6705 - accuracy: 0.668
7
Epoch 70/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6697 - accuracy: 0.662
5
Epoch 71/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6691 - accuracy: 0.675
0
Epoch 72/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6681 - accuracy: 0.668
7
Epoch 73/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6671 - accuracy: 0.675
0
Epoch 74/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6664 - accuracy: 0.675
0
Epoch 75/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6656 - accuracy: 0.668
7
Epoch 76/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6647 - accuracy: 0.675
0
Epoch 77/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6639 - accuracy: 0.675
0
Epoch 78/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6632 - accuracy: 0.675
0
Epoch 79/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6623 - accuracy: 0.675
0
Epoch 80/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6615 - accuracy: 0.675
```

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0
Epoch 81/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6606 - accuracy: 0.675
0
Epoch 82/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6597 - accuracy: 0.681
2
Epoch 83/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6587 - accuracy: 0.675
0
Epoch 84/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6578 - accuracy: 0.675
0
Epoch 85/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6571 - accuracy: 0.675
0
Epoch 86/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6563 - accuracy: 0.681
2
Epoch 87/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6553 - accuracy: 0.681
2
Epoch 88/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6544 - accuracy: 0.681
2
Epoch 89/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6537 - accuracy: 0.681
2
Epoch 90/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6527 - accuracy: 0.681
2
Epoch 91/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6522 - accuracy: 0.681
2
Epoch 92/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6511 - accuracy: 0.681
2
Epoch 93/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6504 - accuracy: 0.681
2
Epoch 94/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6496 - accuracy: 0.681
2
Epoch 95/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6488 - accuracy: 0.675
0
Epoch 96/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6479 - accuracy: 0.681
2
Epoch 97/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6470 - accuracy: 0.681
2
Epoch 98/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6462 - accuracy: 0.681
2
Epoch 99/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6457 - accuracy: 0.681
2
Epoch 100/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6446 - accuracy: 0.681
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2
Epoch 101/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6438 - accuracy: 0.681
2
Epoch 102/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6431 - accuracy: 0.681
2
Epoch 103/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6423 - accuracy: 0.681
2
Epoch 104/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6416 - accuracy: 0.681
2
Epoch 105/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6409 - accuracy: 0.675
0
Epoch 106/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6401 - accuracy: 0.675
0
Epoch 107/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6394 - accuracy: 0.681
2
Epoch 108/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6386 - accuracy: 0.681
2
Epoch 109/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6378 - accuracy: 0.681
2
Epoch 110/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6370 - accuracy: 0.681
2
Epoch 111/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6363 - accuracy: 0.675
0
Epoch 112/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6357 - accuracy: 0.681
2
Epoch 113/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6351 - accuracy: 0.675
0
Epoch 114/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6344 - accuracy: 0.675
0
Epoch 115/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6337 - accuracy: 0.675
0
Epoch 116/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6329 - accuracy: 0.675
0
Epoch 117/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6326 - accuracy: 0.675
0
Epoch 118/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6317 - accuracy: 0.675
0
Epoch 119/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6313 - accuracy: 0.675
0
Epoch 120/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6303 - accuracy: 0.675
```

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0
Epoch 121/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6301 - accuracy: 0.681
2
Epoch 122/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6292 - accuracy: 0.681
2
Epoch 123/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6287 - accuracy: 0.687
5
Epoch 124/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6279 - accuracy: 0.681
2
Epoch 125/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6276 - accuracy: 0.675
0
Epoch 126/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6268 - accuracy: 0.681
2
Epoch 127/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6263 - accuracy: 0.681
2
Epoch 128/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6257 - accuracy: 0.681
2
Epoch 129/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6251 - accuracy: 0.681
2
Epoch 130/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6246 - accuracy: 0.687
5
Epoch 131/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6239 - accuracy: 0.687
5
Epoch 132/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6235 - accuracy: 0.687
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Epoch 133/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6229 - accuracy: 0.687
5
Epoch 134/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6224 - accuracy: 0.687
5
Epoch 135/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6220 - accuracy: 0.687
5
Epoch 136/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6215 - accuracy: 0.687
5
Epoch 137/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6209 - accuracy: 0.687
5
Epoch 138/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6205 - accuracy: 0.687
5
Epoch 139/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6198 - accuracy: 0.687
5
Epoch 140/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6194 - accuracy: 0.687
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5
Epoch 141/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6198 - accuracy: 0.687
5
Epoch 142/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6186 - accuracy: 0.687
5
Epoch 143/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6181 - accuracy: 0.687
5
Epoch 144/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6176 - accuracy: 0.687
5
Epoch 145/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6173 - accuracy: 0.687
5
Epoch 146/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6167 - accuracy: 0.687
5
Epoch 147/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6163 - accuracy: 0.687
5
Epoch 148/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6159 - accuracy: 0.687
5
Epoch 149/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6156 - accuracy: 0.687
5
Epoch 150/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6153 - accuracy: 0.687
5
Epoch 151/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6147 - accuracy: 0.687
5
Epoch 152/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6143 - accuracy: 0.687
5
Epoch 153/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6138 - accuracy: 0.687
5
Epoch 154/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6133 - accuracy: 0.687
5
Epoch 155/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6132 - accuracy: 0.687
5
Epoch 156/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6130 - accuracy: 0.687
5
Epoch 157/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6123 - accuracy: 0.687
5
Epoch 158/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6118 - accuracy: 0.687
5
Epoch 159/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6118 - accuracy: 0.687
5
Epoch 160/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6111 - accuracy: 0.687
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5
Epoch 161/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6110 - accuracy: 0.687
5
Epoch 162/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6104 - accuracy: 0.687
5
Epoch 163/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6101 - accuracy: 0.687
5
Epoch 164/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6098 - accuracy: 0.687
5
Epoch 165/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6096 - accuracy: 0.687
5
Epoch 166/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6090 - accuracy: 0.687
5
Epoch 167/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6089 - accuracy: 0.687
5
Epoch 168/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6089 - accuracy: 0.687
5
Epoch 169/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6081 - accuracy: 0.687
5
Epoch 170/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6078 - accuracy: 0.687
5
Epoch 171/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6075 - accuracy: 0.687
5
Epoch 172/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6072 - accuracy: 0.687
5
Epoch 173/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6069 - accuracy: 0.687
5
Epoch 174/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6065 - accuracy: 0.687
5
Epoch 175/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6063 - accuracy: 0.687
5
Epoch 176/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6060 - accuracy: 0.687
5
Epoch 177/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6056 - accuracy: 0.687
5
Epoch 178/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6054 - accuracy: 0.687
5
Epoch 179/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6054 - accuracy: 0.687
5
Epoch 180/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6049 - accuracy: 0.687
```

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5
Epoch 181/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6046 - accuracy: 0.687
5
Epoch 182/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6042 - accuracy: 0.687
5
Epoch 183/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6041 - accuracy: 0.687
5
Epoch 184/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6038 - accuracy: 0.687
5
Epoch 185/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6035 - accuracy: 0.687
5
Epoch 186/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6033 - accuracy: 0.687
5
Epoch 187/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6030 - accuracy: 0.687
5
Epoch 188/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6028 - accuracy: 0.687
5
Epoch 189/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6024 - accuracy: 0.687
5
Epoch 190/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6022 - accuracy: 0.687
5
Epoch 191/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6020 - accuracy: 0.687
5
Epoch 192/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6017 - accuracy: 0.687
5
Epoch 193/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6015 - accuracy: 0.687
5
Epoch 194/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6013 - accuracy: 0.687
5
Epoch 195/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6009 - accuracy: 0.687
5
Epoch 196/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6007 - accuracy: 0.687
5
Epoch 197/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6006 - accuracy: 0.687
5
Epoch 198/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6003 - accuracy: 0.687
5
Epoch 199/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6000 - accuracy: 0.687
5
Epoch 200/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6000 - accuracy: 0.687
```

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5
Epoch 201/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5998 - accuracy: 0.687
5
Epoch 202/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5995 - accuracy: 0.687
5
Epoch 203/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5992 - accuracy: 0.687
5
Epoch 204/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5991 - accuracy: 0.687
5
Epoch 205/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5987 - accuracy: 0.687
5
Epoch 206/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5987 - accuracy: 0.687
5
Epoch 207/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5985 - accuracy: 0.687
5
Epoch 208/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5984 - accuracy: 0.687
5
Epoch 209/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5980 - accuracy: 0.687
5
Epoch 210/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5978 - accuracy: 0.687
5
Epoch 211/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5977 - accuracy: 0.687
5
Epoch 212/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5975 - accuracy: 0.687
5
Epoch 213/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5972 - accuracy: 0.687
5
Epoch 214/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5970 - accuracy: 0.687
5
Epoch 215/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5969 - accuracy: 0.687
5
Epoch 216/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5967 - accuracy: 0.687
5
Epoch 217/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5968 - accuracy: 0.687
5
Epoch 218/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5963 - accuracy: 0.687
5
Epoch 219/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5966 - accuracy: 0.687
5
Epoch 220/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5959 - accuracy: 0.687
```

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5
Epoch 221/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5960 - accuracy: 0.687
5
Epoch 222/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5956 - accuracy: 0.687
5
Epoch 223/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5956 - accuracy: 0.687
5
Epoch 224/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5954 - accuracy: 0.687
5
Epoch 225/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5952 - accuracy: 0.687
5
Epoch 226/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5949 - accuracy: 0.687
5
Epoch 227/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5949 - accuracy: 0.687
5
Epoch 228/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5947 - accuracy: 0.693
8
Epoch 229/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5948 - accuracy: 0.687
5
Epoch 230/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5944 - accuracy: 0.693
8
Epoch 231/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5942 - accuracy: 0.687
5
Epoch 232/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5940 - accuracy: 0.693
8
Epoch 233/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5942 - accuracy: 0.687
5
Epoch 234/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5938 - accuracy: 0.687
5
Epoch 235/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5936 - accuracy: 0.687
5
Epoch 236/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5935 - accuracy: 0.687
5
Epoch 237/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5933 - accuracy: 0.693
8
Epoch 238/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5933 - accuracy: 0.687
5
Epoch 239/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5930 - accuracy: 0.687
5
Epoch 240/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5928 - accuracy: 0.693
```

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8
Epoch 241/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5928 - accuracy: 0.693
8
Epoch 242/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5927 - accuracy: 0.693
8
Epoch 243/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5925 - accuracy: 0.693
8
Epoch 244/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5922 - accuracy: 0.693
8
Epoch 245/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5921 - accuracy: 0.693
8
Epoch 246/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5920 - accuracy: 0.693
8
Epoch 247/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5924 - accuracy: 0.693
8
Epoch 248/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5920 - accuracy: 0.687
5
Epoch 249/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5918 - accuracy: 0.693
8
Epoch 250/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5915 - accuracy: 0.693
8
Epoch 251/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5916 - accuracy: 0.687
5
Epoch 252/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5913 - accuracy: 0.693
8
Epoch 253/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5913 - accuracy: 0.693
8
Epoch 254/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5911 - accuracy: 0.693
8
Epoch 255/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5910 - accuracy: 0.693
8
Epoch 256/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5908 - accuracy: 0.693
8
Epoch 257/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5908 - accuracy: 0.693
8
Epoch 258/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5905 - accuracy: 0.693
8
Epoch 259/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5904 - accuracy: 0.693
8
Epoch 260/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5905 - accuracy: 0.693
```

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8
Epoch 261/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5901 - accuracy: 0.693
8
Epoch 262/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5902 - accuracy: 0.693
8
Epoch 263/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5901 - accuracy: 0.693
8
Epoch 264/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5899 - accuracy: 0.693
8
Epoch 265/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5900 - accuracy: 0.693
8
Epoch 266/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5897 - accuracy: 0.693
8
Epoch 267/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5895 - accuracy: 0.693
8
Epoch 268/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5896 - accuracy: 0.693
8
Epoch 269/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5892 - accuracy: 0.693
8
Epoch 270/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5892 - accuracy: 0.693
8
Epoch 271/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5892 - accuracy: 0.693
8
Epoch 272/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5892 - accuracy: 0.693
8
Epoch 273/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5889 - accuracy: 0.693
8
Epoch 274/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5888 - accuracy: 0.693
8
Epoch 275/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5888 - accuracy: 0.693
8
Epoch 276/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5886 - accuracy: 0.693
8
Epoch 277/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5887 - accuracy: 0.693
8
Epoch 278/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5885 - accuracy: 0.693
8
Epoch 279/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5884 - accuracy: 0.693
8
Epoch 280/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5882 - accuracy: 0.693
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8
Epoch 281/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5882 - accuracy: 0.693
8
Epoch 282/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5881 - accuracy: 0.693
8
Epoch 283/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5881 - accuracy: 0.693
8
Epoch 284/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5879 - accuracy: 0.687
5
Epoch 285/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5877 - accuracy: 0.693
8
Epoch 286/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5877 - accuracy: 0.693
8
Epoch 287/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5876 - accuracy: 0.693
8
Epoch 288/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5874 - accuracy: 0.693
8
Epoch 289/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5874 - accuracy: 0.693
8
Epoch 290/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5877 - accuracy: 0.693
8
Epoch 291/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5874 - accuracy: 0.693
8
Epoch 292/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5872 - accuracy: 0.693
8
Epoch 293/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5871 - accuracy: 0.693
8
Epoch 294/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5872 - accuracy: 0.693
8
Epoch 295/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5869 - accuracy: 0.693
8
Epoch 296/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5869 - accuracy: 0.687
5
Epoch 297/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5867 - accuracy: 0.693
8
Epoch 298/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5867 - accuracy: 0.687
5
Epoch 299/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5865 - accuracy: 0.693
8
Epoch 300/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5864 - accuracy: 0.693
```

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8
Epoch 301/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5864 - accuracy: 0.693
8
Epoch 302/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5863 - accuracy: 0.693
8
Epoch 303/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5861 - accuracy: 0.693
8
Epoch 304/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5864 - accuracy: 0.693
8
Epoch 305/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5863 - accuracy: 0.693
8
Epoch 306/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5863 - accuracy: 0.693
8
Epoch 307/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5858 - accuracy: 0.687
5
Epoch 308/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5858 - accuracy: 0.687
5
Epoch 309/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5860 - accuracy: 0.687
5
Epoch 310/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5856 - accuracy: 0.687
5
Epoch 311/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5856 - accuracy: 0.687
5
Epoch 312/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5855 - accuracy: 0.687
5
Epoch 313/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5854 - accuracy: 0.687
5
Epoch 314/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5855 - accuracy: 0.687
5
Epoch 315/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5853 - accuracy: 0.687
5
Epoch 316/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5852 - accuracy: 0.687
5
Epoch 317/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5852 - accuracy: 0.687
5
Epoch 318/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5852 - accuracy: 0.693
8
Epoch 319/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5852 - accuracy: 0.693
8
Epoch 320/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5849 - accuracy: 0.687
```

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5
Epoch 321/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5848 - accuracy: 0.687
5
Epoch 322/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5850 - accuracy: 0.687
5
Epoch 323/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5848 - accuracy: 0.687
5
Epoch 324/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5846 - accuracy: 0.687
5
Epoch 325/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5847 - accuracy: 0.687
5
Epoch 326/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5847 - accuracy: 0.687
5
Epoch 327/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5846 - accuracy: 0.687
5
Epoch 328/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5844 - accuracy: 0.687
5
Epoch 329/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5845 - accuracy: 0.687
5
Epoch 330/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5844 - accuracy: 0.687
5
Epoch 331/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5842 - accuracy: 0.687
5
Epoch 332/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5842 - accuracy: 0.687
5
Epoch 333/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5841 - accuracy: 0.687
5
Epoch 334/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5841 - accuracy: 0.687
5
Epoch 335/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5841 - accuracy: 0.687
5
Epoch 336/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5840 - accuracy: 0.687
5
Epoch 337/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5840 - accuracy: 0.687
5
Epoch 338/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5837 - accuracy: 0.687
5
Epoch 339/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5836 - accuracy: 0.687
5
Epoch 340/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5837 - accuracy: 0.687
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5
Epoch 341/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5837 - accuracy: 0.687
5
Epoch 342/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5836 - accuracy: 0.687
5
Epoch 343/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5835 - accuracy: 0.687
5
Epoch 344/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5834 - accuracy: 0.687
5
Epoch 345/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5836 - accuracy: 0.687
5
Epoch 346/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5835 - accuracy: 0.687
5
Epoch 347/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5834 - accuracy: 0.687
5
Epoch 348/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5832 - accuracy: 0.687
5
Epoch 349/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5832 - accuracy: 0.687
5
Epoch 350/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5834 - accuracy: 0.687
5
Epoch 351/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5831 - accuracy: 0.687
5
Epoch 352/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5831 - accuracy: 0.687
5
Epoch 353/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5830 - accuracy: 0.687
5
Epoch 354/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5830 - accuracy: 0.687
5
Epoch 355/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5830 - accuracy: 0.687
5
Epoch 356/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5829 - accuracy: 0.687
5
Epoch 357/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5828 - accuracy: 0.687
5
Epoch 358/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5826 - accuracy: 0.687
5
Epoch 359/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5827 - accuracy: 0.687
5
Epoch 360/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5825 - accuracy: 0.687
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5
Epoch 361/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5826 - accuracy: 0.687
5
Epoch 362/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5827 - accuracy: 0.687
5
Epoch 363/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5824 - accuracy: 0.687
5
Epoch 364/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5824 - accuracy: 0.687
5
Epoch 365/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5826 - accuracy: 0.687
5
Epoch 366/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5824 - accuracy: 0.687
5
Epoch 367/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5822 - accuracy: 0.687
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Epoch 368/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5823 - accuracy: 0.687
5
Epoch 369/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5824 - accuracy: 0.687
5
Epoch 370/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5826 - accuracy: 0.687
5
Epoch 371/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5822 - accuracy: 0.687
5
Epoch 372/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5820 - accuracy: 0.687
5
Epoch 373/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5820 - accuracy: 0.687
5
Epoch 374/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5822 - accuracy: 0.687
5
Epoch 375/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5820 - accuracy: 0.687
5
Epoch 376/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5819 - accuracy: 0.687
5
Epoch 377/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5818 - accuracy: 0.687
5
Epoch 378/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5817 - accuracy: 0.687
5
Epoch 379/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5820 - accuracy: 0.687
5
Epoch 380/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5819 - accuracy: 0.687
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5
Epoch 381/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5816 - accuracy: 0.687
5
Epoch 382/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5816 - accuracy: 0.687
5
Epoch 383/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5815 - accuracy: 0.687
5
Epoch 384/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5817 - accuracy: 0.687
5
Epoch 385/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5815 - accuracy: 0.687
5
Epoch 386/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5815 - accuracy: 0.687
5
Epoch 387/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5813 - accuracy: 0.687
5
Epoch 388/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5812 - accuracy: 0.687
5
Epoch 389/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5815 - accuracy: 0.687
5
Epoch 390/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5814 - accuracy: 0.687
5
Epoch 391/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5812 - accuracy: 0.687
5
Epoch 392/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5812 - accuracy: 0.687
5
Epoch 393/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5810 - accuracy: 0.687
5
Epoch 394/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5810 - accuracy: 0.687
5
Epoch 395/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5812 - accuracy: 0.687
5
Epoch 396/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5811 - accuracy: 0.687
5
Epoch 397/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5809 - accuracy: 0.687
5
Epoch 398/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5810 - accuracy: 0.687
5
Epoch 399/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5807 - accuracy: 0.687
5
Epoch 400/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5809 - accuracy: 0.687
```

```
5
5/5 [==============================] - 0s 2ms/step - loss: 0.5805 - accuracy: 0.6875
3
Epoch 1/400
80/80 [==============================] - 1s 1ms/step - loss: 1.0880 - accuracy: 0.500
0
Epoch 2/400
80/80 [==============================] - 0s 1ms/step - loss: 1.0551 - accuracy: 0.500
0
Epoch 3/400
80/80 [==============================] - 0s 1ms/step - loss: 1.0233 - accuracy: 0.500
0
Epoch 4/400
80/80 [==============================] - 0s 1ms/step - loss: 0.9931 - accuracy: 0.500
0
Epoch 5/400
80/80 [==============================] - 0s 1ms/step - loss: 0.9640 - accuracy: 0.500
0
Epoch 6/400
80/80 [==============================] - 0s 1ms/step - loss: 0.9362 - accuracy: 0.500
0
Epoch 7/400
80/80 [==============================] - 0s 1ms/step - loss: 0.9093 - accuracy: 0.500
0
Epoch 8/400
80/80 [==============================] - 0s 1ms/step - loss: 0.8847 - accuracy: 0.500
0
Epoch 9/400
80/80 [==============================] - 0s 1ms/step - loss: 0.8598 - accuracy: 0.500
0
Epoch 10/400
80/80 [==============================] - 0s 1ms/step - loss: 0.8374 - accuracy: 0.500
0
Epoch 11/400
80/80 [==============================] - 0s 1ms/step - loss: 0.8161 - accuracy: 0.500
0
Epoch 12/400
80/80 [==============================] - 0s 2ms/step - loss: 0.7963 - accuracy: 0.500
0
Epoch 13/400
80/80 [==============================] - 0s 1ms/step - loss: 0.7780 - accuracy: 0.500
0
Epoch 14/400
80/80 [==============================] - 0s 1ms/step - loss: 0.7615 - accuracy: 0.500
0
Epoch 15/400
80/80 [==============================] - 0s 1ms/step - loss: 0.7458 - accuracy: 0.500
0
Epoch 16/400
80/80 [==============================] - 0s 1ms/step - loss: 0.7316 - accuracy: 0.500
0
Epoch 17/400
80/80 [==============================] - 0s 1ms/step - loss: 0.7187 - accuracy: 0.500
0
Epoch 18/400
80/80 [==============================] - 0s 1ms/step - loss: 0.7067 - accuracy: 0.500
0
Epoch 19/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6958 - accuracy: 0.500
0
```

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Epoch 20/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6860 - accuracy: 0.500
0
Epoch 21/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6768 - accuracy: 0.500
0
Epoch 22/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6686 - accuracy: 0.500
0
Epoch 23/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6613 - accuracy: 0.500
0
Epoch 24/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6542 - accuracy: 0.500
0
Epoch 25/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6480 - accuracy: 0.500
0
Epoch 26/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6423 - accuracy: 0.500
0
Epoch 27/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6369 - accuracy: 0.500
0
Epoch 28/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6322 - accuracy: 0.500
0
Epoch 29/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6278 - accuracy: 0.500
0
Epoch 30/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6237 - accuracy: 0.500
0
Epoch 31/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6199 - accuracy: 0.500
0
Epoch 32/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6166 - accuracy: 0.500
0
Epoch 33/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6133 - accuracy: 0.500
0
Epoch 34/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6105 - accuracy: 0.500
0
Epoch 35/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6080 - accuracy: 0.500
0
Epoch 36/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6053 - accuracy: 0.500
0
Epoch 37/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6032 - accuracy: 0.500
0
Epoch 38/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6011 - accuracy: 0.500
0
Epoch 39/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5990 - accuracy: 0.481
2
```

```
Epoch 40/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5974 - accuracy: 0.600
0
Epoch 41/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5956 - accuracy: 0.675
0
Epoch 42/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5941 - accuracy: 0.681
2
Epoch 43/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5926 - accuracy: 0.687
5
Epoch 44/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5914 - accuracy: 0.687
5
Epoch 45/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5904 - accuracy: 0.687
5
Epoch 46/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5893 - accuracy: 0.681
2
Epoch 47/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5880 - accuracy: 0.681
2
Epoch 48/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5872 - accuracy: 0.675
0
Epoch 49/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5862 - accuracy: 0.675
0
Epoch 50/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5855 - accuracy: 0.668
7
Epoch 51/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5850 - accuracy: 0.675
0
Epoch 52/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5840 - accuracy: 0.668
7
Epoch 53/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5834 - accuracy: 0.675
0
Epoch 54/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5828 - accuracy: 0.681
2
Epoch 55/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5823 - accuracy: 0.681
2
Epoch 56/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5819 - accuracy: 0.675
0
Epoch 57/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5815 - accuracy: 0.675
0
Epoch 58/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5810 - accuracy: 0.675
0
Epoch 59/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5806 - accuracy: 0.675
0
```

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Epoch 60/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5801 - accuracy: 0.675
0
Epoch 61/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5801 - accuracy: 0.675
0
Epoch 62/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5796 - accuracy: 0.675
0
Epoch 63/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5791 - accuracy: 0.681
2
Epoch 64/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5790 - accuracy: 0.681
2
Epoch 65/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5787 - accuracy: 0.675
0
Epoch 66/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5785 - accuracy: 0.675
0
Epoch 67/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5783 - accuracy: 0.675
0
Epoch 68/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5780 - accuracy: 0.675
0
Epoch 69/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5778 - accuracy: 0.675
0
Epoch 70/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5776 - accuracy: 0.675
0
Epoch 71/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5774 - accuracy: 0.675
0
Epoch 72/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5777 - accuracy: 0.675
0
Epoch 73/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5771 - accuracy: 0.675
0
Epoch 74/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5773 - accuracy: 0.675
0
Epoch 75/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5772 - accuracy: 0.675
0
Epoch 76/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5768 - accuracy: 0.675
0
Epoch 77/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5768 - accuracy: 0.675
0
Epoch 78/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5767 - accuracy: 0.675
0
Epoch 79/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5765 - accuracy: 0.675
0
```

```
Epoch 80/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5764 - accuracy: 0.668
7
Epoch 81/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5764 - accuracy: 0.668
7
Epoch 82/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5763 - accuracy: 0.675
0
Epoch 83/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5762 - accuracy: 0.668
7
Epoch 84/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5761 - accuracy: 0.668
7
Epoch 85/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5760 - accuracy: 0.675
0
Epoch 86/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5760 - accuracy: 0.668
7
Epoch 87/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5759 - accuracy: 0.668
7
Epoch 88/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5759 - accuracy: 0.668
7
Epoch 89/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5758 - accuracy: 0.668
7
Epoch 90/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5758 - accuracy: 0.668
7
Epoch 91/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5758 - accuracy: 0.668
7
Epoch 92/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5757 - accuracy: 0.668
7
Epoch 93/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5757 - accuracy: 0.668
7
Epoch 94/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5760 - accuracy: 0.668
7
Epoch 95/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5756 - accuracy: 0.668
7
Epoch 96/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5756 - accuracy: 0.668
7
Epoch 97/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5755 - accuracy: 0.668
7
Epoch 98/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5754 - accuracy: 0.668
7
Epoch 99/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5754 - accuracy: 0.668
7
```

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Epoch 100/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5754 - accuracy: 0.668
7
Epoch 101/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5753 - accuracy: 0.668
7
Epoch 102/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5752 - accuracy: 0.668
7
Epoch 103/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5753 - accuracy: 0.662
5
Epoch 104/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5752 - accuracy: 0.668
7
Epoch 105/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5751 - accuracy: 0.668
7
Epoch 106/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5754 - accuracy: 0.668
7
Epoch 107/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5752 - accuracy: 0.662
5
Epoch 108/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5751 - accuracy: 0.662
5
Epoch 109/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5752 - accuracy: 0.668
7
Epoch 110/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5751 - accuracy: 0.662
5
Epoch 111/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5750 - accuracy: 0.662
5
Epoch 112/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5750 - accuracy: 0.662
5
Epoch 113/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5751 - accuracy: 0.662
5
Epoch 114/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5749 - accuracy: 0.662
5
Epoch 115/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5750 - accuracy: 0.662
5
Epoch 116/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5749 - accuracy: 0.662
5
Epoch 117/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5750 - accuracy: 0.662
5
Epoch 118/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5749 - accuracy: 0.662
5
Epoch 119/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5750 - accuracy: 0.662
5
```

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Epoch 120/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5748 - accuracy: 0.662
5
Epoch 121/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5748 - accuracy: 0.662
5
Epoch 122/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5750 - accuracy: 0.662
5
Epoch 123/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5747 - accuracy: 0.662
5
Epoch 124/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5748 - accuracy: 0.662
5
Epoch 125/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5747 - accuracy: 0.662
5
Epoch 126/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5748 - accuracy: 0.662
5
Epoch 127/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5748 - accuracy: 0.662
5
Epoch 128/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5748 - accuracy: 0.662
5
Epoch 129/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5748 - accuracy: 0.662
5
Epoch 130/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5747 - accuracy: 0.662
5
Epoch 131/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5748 - accuracy: 0.662
5
Epoch 132/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5749 - accuracy: 0.662
5
Epoch 133/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5747 - accuracy: 0.662
5
Epoch 134/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5747 - accuracy: 0.662
5
Epoch 135/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5746 - accuracy: 0.662
5
Epoch 136/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5745 - accuracy: 0.662
5
Epoch 137/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5745 - accuracy: 0.662
5
Epoch 138/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5746 - accuracy: 0.662
5
Epoch 139/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5746 - accuracy: 0.662
5
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Epoch 140/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5745 - accuracy: 0.662
5
Epoch 141/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5744 - accuracy: 0.662
5
Epoch 142/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5746 - accuracy: 0.662
5
Epoch 143/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5745 - accuracy: 0.662
5
Epoch 144/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5744 - accuracy: 0.662
5
Epoch 145/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5744 - accuracy: 0.662
5
Epoch 146/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5745 - accuracy: 0.662
5
Epoch 147/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5746 - accuracy: 0.662
5
Epoch 148/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5746 - accuracy: 0.662
5
Epoch 149/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5744 - accuracy: 0.662
5
Epoch 150/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5744 - accuracy: 0.662
5
Epoch 151/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5744 - accuracy: 0.662
5
Epoch 152/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5743 - accuracy: 0.662
5
Epoch 153/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5742 - accuracy: 0.662
5
Epoch 154/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5743 - accuracy: 0.662
5
Epoch 155/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5742 - accuracy: 0.662
5
Epoch 156/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5744 - accuracy: 0.662
5
Epoch 157/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5742 - accuracy: 0.662
5
Epoch 158/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5742 - accuracy: 0.662
5
Epoch 159/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5742 - accuracy: 0.662
5
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Epoch 160/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5741 - accuracy: 0.662
5
Epoch 161/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5743 - accuracy: 0.662
5
Epoch 162/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5743 - accuracy: 0.662
5
Epoch 163/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5741 - accuracy: 0.662
5
Epoch 164/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5742 - accuracy: 0.662
5
Epoch 165/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5742 - accuracy: 0.662
5
Epoch 166/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5741 - accuracy: 0.662
5
Epoch 167/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5741 - accuracy: 0.662
5
Epoch 168/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5742 - accuracy: 0.662
5
Epoch 169/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5740 - accuracy: 0.662
5
Epoch 170/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5740 - accuracy: 0.662
5
Epoch 171/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5740 - accuracy: 0.662
5
Epoch 172/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5740 - accuracy: 0.662
5
Epoch 173/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5741 - accuracy: 0.662
5
Epoch 174/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5741 - accuracy: 0.662
5
Epoch 175/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5741 - accuracy: 0.662
5
Epoch 176/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5741 - accuracy: 0.662
5
Epoch 177/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5741 - accuracy: 0.662
5
Epoch 178/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5740 - accuracy: 0.662
5
Epoch 179/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5740 - accuracy: 0.662
5
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Epoch 180/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5739 - accuracy: 0.662
5
Epoch 181/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5740 - accuracy: 0.662
5
Epoch 182/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5740 - accuracy: 0.662
5
Epoch 183/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5743 - accuracy: 0.662
5
Epoch 184/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5739 - accuracy: 0.662
5
Epoch 185/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5738 - accuracy: 0.662
5
Epoch 186/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5740 - accuracy: 0.662
5
Epoch 187/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5738 - accuracy: 0.662
5
Epoch 188/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5740 - accuracy: 0.662
5
Epoch 189/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5739 - accuracy: 0.662
5
Epoch 190/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5740 - accuracy: 0.662
5
Epoch 191/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5738 - accuracy: 0.662
5
Epoch 192/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5739 - accuracy: 0.662
5
Epoch 193/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5738 - accuracy: 0.662
5
Epoch 194/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5737 - accuracy: 0.662
5
Epoch 195/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5738 - accuracy: 0.662
5
Epoch 196/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5738 - accuracy: 0.662
5
Epoch 197/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5737 - accuracy: 0.662
5
Epoch 198/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5738 - accuracy: 0.662
5
Epoch 199/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5738 - accuracy: 0.662
5
```

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Epoch 200/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5736 - accuracy: 0.662
5
Epoch 201/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5737 - accuracy: 0.662
5
Epoch 202/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5737 - accuracy: 0.662
5
Epoch 203/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5737 - accuracy: 0.662
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Epoch 204/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5737 - accuracy: 0.662
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Epoch 205/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5736 - accuracy: 0.662
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Epoch 206/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5736 - accuracy: 0.662
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Epoch 207/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5736 - accuracy: 0.662
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Epoch 208/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5737 - accuracy: 0.662
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Epoch 209/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5735 - accuracy: 0.662
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Epoch 210/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5736 - accuracy: 0.662
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Epoch 211/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5737 - accuracy: 0.662
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Epoch 212/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5739 - accuracy: 0.662
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Epoch 213/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5734 - accuracy: 0.662
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Epoch 214/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5736 - accuracy: 0.662
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Epoch 215/400
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Epoch 216/400
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Epoch 217/400
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Epoch 218/400
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Epoch 219/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5734 - accuracy: 0.662
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Epoch 220/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5734 - accuracy: 0.662
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Epoch 221/400
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Epoch 222/400
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Epoch 223/400
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Epoch 226/400
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Epoch 227/400
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Epoch 234/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5734 - accuracy: 0.662
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Epoch 235/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5732 - accuracy: 0.662
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Epoch 236/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5738 - accuracy: 0.662
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Epoch 237/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5732 - accuracy: 0.662
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Epoch 238/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5733 - accuracy: 0.662
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Epoch 239/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5732 - accuracy: 0.662
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Epoch 240/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5731 - accuracy: 0.662
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Epoch 241/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5733 - accuracy: 0.662
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Epoch 242/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5732 - accuracy: 0.662
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Epoch 243/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5732 - accuracy: 0.662
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Epoch 244/400
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Epoch 245/400
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Epoch 246/400
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Epoch 247/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5733 - accuracy: 0.662
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Epoch 248/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5731 - accuracy: 0.662
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Epoch 249/400
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Epoch 250/400
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Epoch 251/400
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Epoch 253/400
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Epoch 254/400
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Epoch 255/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5731 - accuracy: 0.662
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Epoch 256/400
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Epoch 257/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5731 - accuracy: 0.662
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Epoch 258/400
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Epoch 259/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5733 - accuracy: 0.662
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Epoch 260/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5731 - accuracy: 0.662
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Epoch 261/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5730 - accuracy: 0.662
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Epoch 262/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5732 - accuracy: 0.662
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Epoch 263/400
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Epoch 264/400
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Epoch 265/400
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Epoch 266/400
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Epoch 267/400
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Epoch 268/400
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Epoch 271/400
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Epoch 273/400
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Epoch 276/400
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Epoch 277/400
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Epoch 278/400
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Epoch 279/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5728 - accuracy: 0.662
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Epoch 280/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5728 - accuracy: 0.662
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Epoch 281/400
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Epoch 282/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5732 - accuracy: 0.662
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Epoch 283/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5728 - accuracy: 0.662
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Epoch 284/400
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Epoch 285/400
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Epoch 299/400
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Epoch 300/400
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Epoch 301/400
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Epoch 304/400
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Epoch 305/400
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Epoch 306/400
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Epoch 307/400
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Epoch 313/400
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Epoch 317/400
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Epoch 318/400
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Epoch 319/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5726 - accuracy: 0.662
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Epoch 320/400
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Epoch 321/400
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Epoch 333/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5728 - accuracy: 0.662
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Epoch 334/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5724 - accuracy: 0.662
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Epoch 335/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5727 - accuracy: 0.662
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Epoch 336/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5725 - accuracy: 0.662
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Epoch 337/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5723 - accuracy: 0.662
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Epoch 338/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5725 - accuracy: 0.662
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Epoch 339/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5725 - accuracy: 0.662
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Epoch 340/400
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Epoch 341/400
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Epoch 343/400
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Epoch 345/400
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Epoch 347/400
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Epoch 348/400
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Epoch 349/400
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Epoch 350/400
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Epoch 353/400
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Epoch 354/400
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Epoch 355/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5724 - accuracy: 0.662
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Epoch 356/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5727 - accuracy: 0.662
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Epoch 357/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5724 - accuracy: 0.662
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Epoch 358/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5722 - accuracy: 0.662
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Epoch 359/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5723 - accuracy: 0.662
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Epoch 360/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5723 - accuracy: 0.662
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Epoch 361/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5722 - accuracy: 0.662
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Epoch 362/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5723 - accuracy: 0.662
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Epoch 363/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5724 - accuracy: 0.662
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Epoch 364/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5724 - accuracy: 0.662
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Epoch 365/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5724 - accuracy: 0.662
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Epoch 366/400
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Epoch 367/400
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Epoch 368/400
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Epoch 370/400
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Epoch 371/400
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Epoch 372/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5722 - accuracy: 0.662
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Epoch 373/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5723 - accuracy: 0.662
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Epoch 374/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5724 - accuracy: 0.662
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Epoch 375/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5724 - accuracy: 0.662
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Epoch 376/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5722 - accuracy: 0.662
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Epoch 377/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5722 - accuracy: 0.662
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Epoch 378/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5722 - accuracy: 0.662
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Epoch 379/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5722 - accuracy: 0.662
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Epoch 380/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5723 - accuracy: 0.662
5
Epoch 381/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5721 - accuracy: 0.662
5
Epoch 382/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5724 - accuracy: 0.662
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Epoch 383/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5724 - accuracy: 0.662
5
Epoch 384/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5722 - accuracy: 0.662
5
Epoch 385/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5722 - accuracy: 0.662
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Epoch 386/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5721 - accuracy: 0.662
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Epoch 387/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5722 - accuracy: 0.662
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Epoch 388/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5724 - accuracy: 0.662
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Epoch 389/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5723 - accuracy: 0.662
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Epoch 390/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5723 - accuracy: 0.662
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Epoch 391/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5722 - accuracy: 0.662
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Epoch 392/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5723 - accuracy: 0.662
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Epoch 393/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5723 - accuracy: 0.662
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Epoch 394/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5722 - accuracy: 0.662
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Epoch 395/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5721 - accuracy: 0.662
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Epoch 396/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5722 - accuracy: 0.662
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Epoch 397/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5723 - accuracy: 0.662
5
Epoch 398/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5720 - accuracy: 0.662
5
Epoch 399/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5723 - accuracy: 0.662
5
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Epoch 400/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5721 - accuracy: 0.662
5
5/5 [==============================] - 0s 2ms/step - loss: 0.5717 - accuracy: 0.6625
4
Epoch 1/400
80/80 [==============================] - 1s 1ms/step - loss: 0.9979 - accuracy: 0.500
0
Epoch 2/400
80/80 [==============================] - 0s 1ms/step - loss: 0.9413 - accuracy: 0.500
0
Epoch 3/400
80/80 [==============================] - 0s 1ms/step - loss: 0.8914 - accuracy: 0.500
0
Epoch 4/400
80/80 [==============================] - 0s 1ms/step - loss: 0.8479 - accuracy: 0.500
0
Epoch 5/400
80/80 [==============================] - 0s 1ms/step - loss: 0.8095 - accuracy: 0.500
0
Epoch 6/400
80/80 [==============================] - 0s 1ms/step - loss: 0.7756 - accuracy: 0.500
0
Epoch 7/400
80/80 [==============================] - 0s 1ms/step - loss: 0.7459 - accuracy: 0.500
0
Epoch 8/400
80/80 [==============================] - 0s 2ms/step - loss: 0.7208 - accuracy: 0.500
0
Epoch 9/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6997 - accuracy: 0.500
0
Epoch 10/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6810 - accuracy: 0.500
0
Epoch 11/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6659 - accuracy: 0.500
0
Epoch 12/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6524 - accuracy: 0.500
0
Epoch 13/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6417 - accuracy: 0.500
0
Epoch 14/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6320 - accuracy: 0.500
0
Epoch 15/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6243 - accuracy: 0.500
0
Epoch 16/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6178 - accuracy: 0.500
0
Epoch 17/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6120 - accuracy: 0.500
0
Epoch 18/400
80/80 [==============================] - 0s 1ms/step - loss: 0.6070 - accuracy: 0.500
0
Epoch 19/400
```

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80/80 [==============================] - 0s 1ms/step - loss: 0.6032 - accuracy: 0.500
0
Epoch 20/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5993 - accuracy: 0.500
0
Epoch 21/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5965 - accuracy: 0.500
0
Epoch 22/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5940 - accuracy: 0.568
8
Epoch 23/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5918 - accuracy: 0.681
2
Epoch 24/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5897 - accuracy: 0.675
0
Epoch 25/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5880 - accuracy: 0.675
0
Epoch 26/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5866 - accuracy: 0.668
7
Epoch 27/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5854 - accuracy: 0.662
5
Epoch 28/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5841 - accuracy: 0.662
5
Epoch 29/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5832 - accuracy: 0.662
5
Epoch 30/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5826 - accuracy: 0.662
5
Epoch 31/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5818 - accuracy: 0.662
5
Epoch 32/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5811 - accuracy: 0.662
5
Epoch 33/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5805 - accuracy: 0.662
5
Epoch 34/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5801 - accuracy: 0.662
5
Epoch 35/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5795 - accuracy: 0.662
5
Epoch 36/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5791 - accuracy: 0.662
5
Epoch 37/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5789 - accuracy: 0.662
5
Epoch 38/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5786 - accuracy: 0.662
5
Epoch 39/400
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80/80 [==============================] - 0s 2ms/step - loss: 0.5783 - accuracy: 0.662
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Epoch 40/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5781 - accuracy: 0.662
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Epoch 41/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5782 - accuracy: 0.662
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Epoch 42/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5779 - accuracy: 0.662
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Epoch 43/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5776 - accuracy: 0.662
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Epoch 44/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5780 - accuracy: 0.662
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Epoch 45/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5775 - accuracy: 0.662
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Epoch 46/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5775 - accuracy: 0.662
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Epoch 47/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5771 - accuracy: 0.662
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Epoch 48/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5773 - accuracy: 0.662
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Epoch 49/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5772 - accuracy: 0.662
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Epoch 50/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5768 - accuracy: 0.662
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Epoch 51/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5767 - accuracy: 0.662
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Epoch 52/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5768 - accuracy: 0.662
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Epoch 53/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5767 - accuracy: 0.662
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Epoch 54/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5767 - accuracy: 0.662
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Epoch 55/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5768 - accuracy: 0.662
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Epoch 56/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5766 - accuracy: 0.662
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Epoch 57/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5764 - accuracy: 0.662
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Epoch 58/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5767 - accuracy: 0.662
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Epoch 59/400
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80/80 [==============================] - 0s 2ms/step - loss: 0.5767 - accuracy: 0.662
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Epoch 60/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5765 - accuracy: 0.662
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Epoch 61/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5765 - accuracy: 0.662
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Epoch 62/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5768 - accuracy: 0.662
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Epoch 63/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5766 - accuracy: 0.662
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Epoch 64/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5762 - accuracy: 0.662
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Epoch 65/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5764 - accuracy: 0.662
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Epoch 66/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5761 - accuracy: 0.662
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Epoch 67/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5763 - accuracy: 0.662
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Epoch 68/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5760 - accuracy: 0.662
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Epoch 69/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5762 - accuracy: 0.662
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Epoch 70/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5766 - accuracy: 0.662
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Epoch 71/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5760 - accuracy: 0.662
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Epoch 72/400
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Epoch 73/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5762 - accuracy: 0.662
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Epoch 74/400
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Epoch 75/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5761 - accuracy: 0.662
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Epoch 76/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5759 - accuracy: 0.662
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Epoch 77/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5761 - accuracy: 0.662
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Epoch 78/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5761 - accuracy: 0.662
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Epoch 79/400
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80/80 [==============================] - 0s 1ms/step - loss: 0.5761 - accuracy: 0.662
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Epoch 80/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5760 - accuracy: 0.662
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Epoch 81/400
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Epoch 82/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5760 - accuracy: 0.662
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Epoch 83/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5758 - accuracy: 0.662
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Epoch 84/400
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Epoch 85/400
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Epoch 86/400
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Epoch 87/400
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Epoch 88/400
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Epoch 89/400
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Epoch 90/400
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Epoch 97/400
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Epoch 98/400
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Epoch 99/400
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80/80 [==============================] - 0s 1ms/step - loss: 0.5757 - accuracy: 0.662
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Epoch 100/400
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Epoch 101/400
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Epoch 104/400
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Epoch 105/400
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Epoch 106/400
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Epoch 117/400
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Epoch 118/400
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Epoch 119/400
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80/80 [==============================] - 0s 2ms/step - loss: 0.5754 - accuracy: 0.662
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Epoch 120/400
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Epoch 121/400
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Epoch 122/400
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Epoch 123/400
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Epoch 126/400
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Epoch 127/400
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Epoch 128/400
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Epoch 129/400
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Epoch 130/400
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Epoch 131/400
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Epoch 133/400
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Epoch 134/400
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Epoch 135/400
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Epoch 136/400
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Epoch 137/400
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Epoch 138/400
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Epoch 139/400
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80/80 [==============================] - 0s 1ms/step - loss: 0.5749 - accuracy: 0.662
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Epoch 140/400
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Epoch 141/400
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Epoch 142/400
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Epoch 147/400
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Epoch 150/400
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Epoch 156/400
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Epoch 158/400
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Epoch 159/400
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80/80 [==============================] - 0s 2ms/step - loss: 0.5750 - accuracy: 0.662
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Epoch 160/400
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Epoch 161/400
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Epoch 162/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5746 - accuracy: 0.662
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Epoch 163/400
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Epoch 164/400
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Epoch 165/400
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Epoch 176/400
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Epoch 178/400
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Epoch 179/400
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80/80 [==============================] - 0s 2ms/step - loss: 0.5747 - accuracy: 0.662
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Epoch 180/400
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Epoch 181/400
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Epoch 183/400
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Epoch 184/400
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Epoch 185/400
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Epoch 186/400
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Epoch 187/400
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Epoch 188/400
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Epoch 189/400
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Epoch 198/400
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Epoch 199/400
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80/80 [==============================] - 0s 2ms/step - loss: 0.5744 - accuracy: 0.662
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Epoch 200/400
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Epoch 201/400
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Epoch 202/400
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Epoch 203/400
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Epoch 204/400
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Epoch 205/400
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Epoch 206/400
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Epoch 211/400
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Epoch 212/400
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Epoch 213/400
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Epoch 219/400
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Epoch 227/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5743 - accuracy: 0.662
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Epoch 228/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5740 - accuracy: 0.662
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Epoch 229/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5741 - accuracy: 0.662
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Epoch 230/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5740 - accuracy: 0.662
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Epoch 231/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5741 - accuracy: 0.662
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Epoch 232/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5742 - accuracy: 0.662
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Epoch 233/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5742 - accuracy: 0.662
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Epoch 234/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5745 - accuracy: 0.662
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Epoch 235/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5740 - accuracy: 0.662
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Epoch 236/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5739 - accuracy: 0.662
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Epoch 237/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5740 - accuracy: 0.662
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Epoch 238/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5743 - accuracy: 0.662
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Epoch 239/400
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80/80 [==============================] - 0s 2ms/step - loss: 0.5741 - accuracy: 0.662
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Epoch 240/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5742 - accuracy: 0.662
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Epoch 241/400
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Epoch 242/400
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Epoch 247/400
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Epoch 248/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5737 - accuracy: 0.662
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Epoch 249/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5738 - accuracy: 0.662
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Epoch 250/400
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Epoch 254/400
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Epoch 255/400
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Epoch 256/400
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Epoch 257/400
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Epoch 258/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5738 - accuracy: 0.662
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Epoch 259/400
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80/80 [==============================] - 0s 2ms/step - loss: 0.5739 - accuracy: 0.662
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Epoch 260/400
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Epoch 279/400
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Epoch 298/400
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Epoch 299/400
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Epoch 318/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5735 - accuracy: 0.662
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Epoch 319/400
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80/80 [==============================] - 0s 2ms/step - loss: 0.5734 - accuracy: 0.662
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Epoch 320/400
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Epoch 321/400
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Epoch 322/400
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Epoch 323/400
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Epoch 324/400
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Epoch 325/400
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Epoch 326/400
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Epoch 333/400
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Epoch 334/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5735 - accuracy: 0.662
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Epoch 335/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5732 - accuracy: 0.662
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Epoch 336/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5737 - accuracy: 0.662
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Epoch 337/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5732 - accuracy: 0.662
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Epoch 338/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5735 - accuracy: 0.662
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Epoch 339/400
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80/80 [==============================] - 0s 2ms/step - loss: 0.5731 - accuracy: 0.662
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Epoch 340/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5734 - accuracy: 0.662
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Epoch 341/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5733 - accuracy: 0.662
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Epoch 342/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5732 - accuracy: 0.662
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Epoch 343/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5734 - accuracy: 0.662
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Epoch 344/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5732 - accuracy: 0.662
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Epoch 345/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5738 - accuracy: 0.662
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Epoch 346/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5733 - accuracy: 0.662
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Epoch 347/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5731 - accuracy: 0.662
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Epoch 348/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5733 - accuracy: 0.662
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Epoch 349/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5732 - accuracy: 0.662
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Epoch 350/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5738 - accuracy: 0.662
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Epoch 351/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5731 - accuracy: 0.662
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Epoch 352/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5734 - accuracy: 0.662
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Epoch 353/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5733 - accuracy: 0.662
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Epoch 354/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5732 - accuracy: 0.662
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Epoch 355/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5733 - accuracy: 0.662
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Epoch 356/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5735 - accuracy: 0.662
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Epoch 357/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5730 - accuracy: 0.662
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Epoch 358/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5733 - accuracy: 0.662
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Epoch 359/400
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80/80 [==============================] - 0s 2ms/step - loss: 0.5730 - accuracy: 0.662
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Epoch 360/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5731 - accuracy: 0.662
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Epoch 361/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5732 - accuracy: 0.662
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Epoch 362/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5730 - accuracy: 0.662
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Epoch 363/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5731 - accuracy: 0.662
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Epoch 364/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5731 - accuracy: 0.662
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Epoch 365/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5732 - accuracy: 0.662
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Epoch 366/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5730 - accuracy: 0.662
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Epoch 367/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5731 - accuracy: 0.662
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Epoch 368/400
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Epoch 369/400
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Epoch 370/400
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Epoch 371/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5732 - accuracy: 0.662
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Epoch 372/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5730 - accuracy: 0.662
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Epoch 373/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5729 - accuracy: 0.662
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Epoch 374/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5732 - accuracy: 0.662
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Epoch 375/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5729 - accuracy: 0.662
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Epoch 376/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5730 - accuracy: 0.662
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Epoch 377/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5732 - accuracy: 0.662
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Epoch 378/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5735 - accuracy: 0.662
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Epoch 379/400
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80/80 [==============================] - 0s 1ms/step - loss: 0.5732 - accuracy: 0.662
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Epoch 380/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5731 - accuracy: 0.662
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Epoch 381/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5731 - accuracy: 0.662
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Epoch 382/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5734 - accuracy: 0.662
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Epoch 383/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5730 - accuracy: 0.662
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Epoch 384/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5732 - accuracy: 0.662
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Epoch 385/400
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Epoch 386/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5732 - accuracy: 0.662
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Epoch 387/400
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Epoch 388/400
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Epoch 390/400
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80/80 [==============================] - 0s 2ms/step - loss: 0.5731 - accuracy: 0.662
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80/80 [==============================] - 0s 2ms/step - loss: 0.5729 - accuracy: 0.662
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Epoch 393/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5729 - accuracy: 0.662
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Epoch 394/400
80/80 [==============================] - 0s 3ms/step - loss: 0.5730 - accuracy: 0.662
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Epoch 395/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5737 - accuracy: 0.662
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Epoch 396/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5730 - accuracy: 0.662
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Epoch 397/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5732 - accuracy: 0.662
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Epoch 398/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5730 - accuracy: 0.662
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Epoch 399/400
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80/80 [==============================] - 0s 2ms/step - loss: 0.5728 - accuracy: 0.662
5
Epoch 400/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5730 - accuracy: 0.662
5
5/5 [==============================] - 0s 4ms/step - loss: 0.5723 - accuracy: 0.6625
5
Epoch 1/400
80/80 [==============================] - 1s 2ms/step - loss: 0.7256 - accuracy: 0.500
0
Epoch 2/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6831 - accuracy: 0.500
0
Epoch 3/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6513 - accuracy: 0.500
0
Epoch 4/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6288 - accuracy: 0.500
0
Epoch 5/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6127 - accuracy: 0.500
0
Epoch 6/400
80/80 [==============================] - 0s 2ms/step - loss: 0.6022 - accuracy: 0.500
0
Epoch 7/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5950 - accuracy: 0.500
0
Epoch 8/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5898 - accuracy: 0.637
5
Epoch 9/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5868 - accuracy: 0.675
0
Epoch 10/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5835 - accuracy: 0.662
5
Epoch 11/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5813 - accuracy: 0.662
5
Epoch 12/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5801 - accuracy: 0.662
5
Epoch 13/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5787 - accuracy: 0.662
5
Epoch 14/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5781 - accuracy: 0.662
5
Epoch 15/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5774 - accuracy: 0.662
5
Epoch 16/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5770 - accuracy: 0.662
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Epoch 17/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5766 - accuracy: 0.662
5
Epoch 18/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5760 - accuracy: 0.662
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Epoch 19/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5760 - accuracy: 0.662
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Epoch 20/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5759 - accuracy: 0.662
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Epoch 21/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5757 - accuracy: 0.662
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Epoch 22/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5753 - accuracy: 0.662
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Epoch 23/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5755 - accuracy: 0.662
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Epoch 24/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5749 - accuracy: 0.662
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Epoch 25/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5750 - accuracy: 0.662
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Epoch 26/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5749 - accuracy: 0.662
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Epoch 27/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5748 - accuracy: 0.662
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Epoch 28/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5749 - accuracy: 0.662
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Epoch 29/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5750 - accuracy: 0.662
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Epoch 30/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5755 - accuracy: 0.662
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Epoch 31/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5750 - accuracy: 0.662
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Epoch 32/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5748 - accuracy: 0.662
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Epoch 33/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5748 - accuracy: 0.662
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Epoch 34/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5747 - accuracy: 0.662
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Epoch 35/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5746 - accuracy: 0.662
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Epoch 36/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5747 - accuracy: 0.662
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Epoch 37/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5751 - accuracy: 0.662
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Epoch 38/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5749 - accuracy: 0.662
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Epoch 39/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5748 - accuracy: 0.662
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Epoch 40/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5746 - accuracy: 0.662
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Epoch 41/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5747 - accuracy: 0.662
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Epoch 42/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5748 - accuracy: 0.662
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Epoch 43/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5747 - accuracy: 0.662
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Epoch 44/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5747 - accuracy: 0.662
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Epoch 45/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5749 - accuracy: 0.662
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Epoch 46/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5750 - accuracy: 0.662
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Epoch 47/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5750 - accuracy: 0.662
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Epoch 48/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5744 - accuracy: 0.662
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Epoch 49/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5744 - accuracy: 0.662
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Epoch 50/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5747 - accuracy: 0.662
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Epoch 51/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5755 - accuracy: 0.662
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Epoch 52/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5747 - accuracy: 0.662
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Epoch 53/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5746 - accuracy: 0.662
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Epoch 54/400
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Epoch 55/400
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Epoch 56/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5744 - accuracy: 0.662
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Epoch 57/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5746 - accuracy: 0.662
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Epoch 58/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5747 - accuracy: 0.662
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Epoch 59/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5754 - accuracy: 0.662
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Epoch 60/400
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Epoch 61/400
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Epoch 62/400
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Epoch 63/400
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Epoch 64/400
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Epoch 71/400
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Epoch 75/400
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Epoch 76/400
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Epoch 77/400
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Epoch 78/400
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Epoch 79/400
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Epoch 98/400
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Epoch 99/400
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Epoch 139/400
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Epoch 252/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5734 - accuracy: 0.662
5
Epoch 253/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5736 - accuracy: 0.662
5
Epoch 254/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5733 - accuracy: 0.662
5
Epoch 255/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5734 - accuracy: 0.662
5
Epoch 256/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5738 - accuracy: 0.662
5
Epoch 257/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5733 - accuracy: 0.662
5
Epoch 258/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5738 - accuracy: 0.662
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5
Epoch 259/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5734 - accuracy: 0.662
5
Epoch 260/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5733 - accuracy: 0.662
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Epoch 261/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5733 - accuracy: 0.662
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Epoch 262/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5733 - accuracy: 0.662
5
Epoch 263/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5737 - accuracy: 0.662
5
Epoch 264/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5736 - accuracy: 0.662
5
Epoch 265/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5733 - accuracy: 0.662
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Epoch 266/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5733 - accuracy: 0.662
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Epoch 267/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5736 - accuracy: 0.662
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Epoch 268/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5734 - accuracy: 0.662
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Epoch 269/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5735 - accuracy: 0.662
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Epoch 270/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5736 - accuracy: 0.662
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Epoch 271/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5741 - accuracy: 0.662
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Epoch 272/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5733 - accuracy: 0.662
5
Epoch 273/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5738 - accuracy: 0.662
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Epoch 274/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5733 - accuracy: 0.662
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Epoch 275/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5736 - accuracy: 0.662
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Epoch 276/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5736 - accuracy: 0.662
5
Epoch 277/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5732 - accuracy: 0.662
5
Epoch 278/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5736 - accuracy: 0.662
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5
Epoch 279/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5733 - accuracy: 0.662
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Epoch 280/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5733 - accuracy: 0.662
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Epoch 281/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5732 - accuracy: 0.662
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Epoch 282/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5733 - accuracy: 0.662
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Epoch 283/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5734 - accuracy: 0.662
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Epoch 284/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5732 - accuracy: 0.662
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Epoch 285/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5740 - accuracy: 0.662
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Epoch 286/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5736 - accuracy: 0.662
5
Epoch 287/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5731 - accuracy: 0.662
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Epoch 288/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5734 - accuracy: 0.662
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Epoch 289/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5731 - accuracy: 0.662
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Epoch 290/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5732 - accuracy: 0.662
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Epoch 291/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5732 - accuracy: 0.662
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Epoch 292/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5735 - accuracy: 0.662
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Epoch 293/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5733 - accuracy: 0.662
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Epoch 294/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5732 - accuracy: 0.662
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Epoch 295/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5738 - accuracy: 0.662
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Epoch 296/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5736 - accuracy: 0.662
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Epoch 297/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5735 - accuracy: 0.662
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Epoch 298/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5733 - accuracy: 0.662
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Epoch 299/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5732 - accuracy: 0.662
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Epoch 300/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5732 - accuracy: 0.662
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Epoch 301/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5733 - accuracy: 0.662
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Epoch 302/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5730 - accuracy: 0.662
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Epoch 303/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5734 - accuracy: 0.662
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Epoch 304/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5738 - accuracy: 0.662
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Epoch 305/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5737 - accuracy: 0.662
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Epoch 306/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5734 - accuracy: 0.662
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Epoch 307/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5736 - accuracy: 0.662
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Epoch 308/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5734 - accuracy: 0.662
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Epoch 309/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5732 - accuracy: 0.662
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Epoch 310/400
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Epoch 311/400
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Epoch 312/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5734 - accuracy: 0.662
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Epoch 313/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5736 - accuracy: 0.662
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Epoch 314/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5731 - accuracy: 0.662
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Epoch 315/400
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Epoch 316/400
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Epoch 317/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5735 - accuracy: 0.662
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Epoch 318/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5730 - accuracy: 0.662
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Epoch 319/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5733 - accuracy: 0.662
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Epoch 320/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5732 - accuracy: 0.662
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Epoch 321/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5732 - accuracy: 0.662
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Epoch 322/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5732 - accuracy: 0.662
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Epoch 323/400
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Epoch 324/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5729 - accuracy: 0.662
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Epoch 325/400
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Epoch 326/400
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Epoch 327/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5733 - accuracy: 0.662
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Epoch 328/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5739 - accuracy: 0.662
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Epoch 329/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5727 - accuracy: 0.662
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Epoch 330/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5729 - accuracy: 0.662
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Epoch 331/400
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Epoch 332/400
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Epoch 333/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5732 - accuracy: 0.662
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Epoch 334/400
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Epoch 335/400
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Epoch 336/400
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Epoch 337/400
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Epoch 338/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5733 - accuracy: 0.662
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Epoch 339/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5728 - accuracy: 0.662
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Epoch 340/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5734 - accuracy: 0.662
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Epoch 341/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5731 - accuracy: 0.662
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Epoch 342/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5731 - accuracy: 0.662
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Epoch 343/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5733 - accuracy: 0.662
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Epoch 344/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5731 - accuracy: 0.662
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Epoch 345/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5729 - accuracy: 0.662
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Epoch 346/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5735 - accuracy: 0.662
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Epoch 347/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5728 - accuracy: 0.662
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Epoch 348/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5732 - accuracy: 0.662
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Epoch 349/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5733 - accuracy: 0.662
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Epoch 350/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5730 - accuracy: 0.662
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Epoch 351/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5732 - accuracy: 0.662
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Epoch 352/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5730 - accuracy: 0.662
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Epoch 353/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5732 - accuracy: 0.662
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Epoch 354/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5730 - accuracy: 0.662
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Epoch 355/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5728 - accuracy: 0.662
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Epoch 356/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5732 - accuracy: 0.662
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Epoch 357/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5730 - accuracy: 0.662
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Epoch 358/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5729 - accuracy: 0.662
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5
Epoch 359/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5733 - accuracy: 0.662
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Epoch 360/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5731 - accuracy: 0.662
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Epoch 361/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5729 - accuracy: 0.662
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Epoch 362/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5734 - accuracy: 0.662
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Epoch 363/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5732 - accuracy: 0.662
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Epoch 364/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5730 - accuracy: 0.662
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Epoch 365/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5732 - accuracy: 0.662
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Epoch 366/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5736 - accuracy: 0.662
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Epoch 367/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5735 - accuracy: 0.662
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Epoch 368/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5732 - accuracy: 0.662
5
Epoch 369/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5735 - accuracy: 0.662
5
Epoch 370/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5737 - accuracy: 0.662
5
Epoch 371/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5730 - accuracy: 0.662
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Epoch 372/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5730 - accuracy: 0.662
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Epoch 373/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5732 - accuracy: 0.662
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Epoch 374/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5730 - accuracy: 0.662
5
Epoch 375/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5739 - accuracy: 0.662
5
Epoch 376/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5730 - accuracy: 0.662
5
Epoch 377/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5734 - accuracy: 0.662
5
Epoch 378/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5726 - accuracy: 0.662
```

```
5
Epoch 379/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5732 - accuracy: 0.662
5
Epoch 380/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5731 - accuracy: 0.662
5
Epoch 381/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5731 - accuracy: 0.662
5
Epoch 382/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5727 - accuracy: 0.662
5
Epoch 383/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5735 - accuracy: 0.662
5
Epoch 384/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5735 - accuracy: 0.662
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Epoch 385/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5730 - accuracy: 0.662
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Epoch 386/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5734 - accuracy: 0.662
5
Epoch 387/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5732 - accuracy: 0.662
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Epoch 388/400
80/80 [==============================] - 0s 1ms/step - loss: 0.5729 - accuracy: 0.662
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Epoch 389/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5729 - accuracy: 0.662
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Epoch 390/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5729 - accuracy: 0.662
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Epoch 391/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5733 - accuracy: 0.662
5
Epoch 392/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5727 - accuracy: 0.662
5
Epoch 393/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5736 - accuracy: 0.662
5
Epoch 394/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5729 - accuracy: 0.662
5
Epoch 395/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5730 - accuracy: 0.662
5
Epoch 396/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5729 - accuracy: 0.662
5
Epoch 397/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5731 - accuracy: 0.662
5
Epoch 398/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5728 - accuracy: 0.662
```

```
5
Epoch 399/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5727 - accuracy: 0.662
5
Epoch 400/400
80/80 [==============================] - 0s 2ms/step - loss: 0.5732 - accuracy: 0.662
5
5/5 [==============================] - 0s 3ms/step - loss: 0.5721 - accuracy: 0.6625
5/5 [==============================] - 0s 1ms/step
```

Out[69]:   `<matplotlib.collections.PathCollection at 0x1711d0bdd20>`
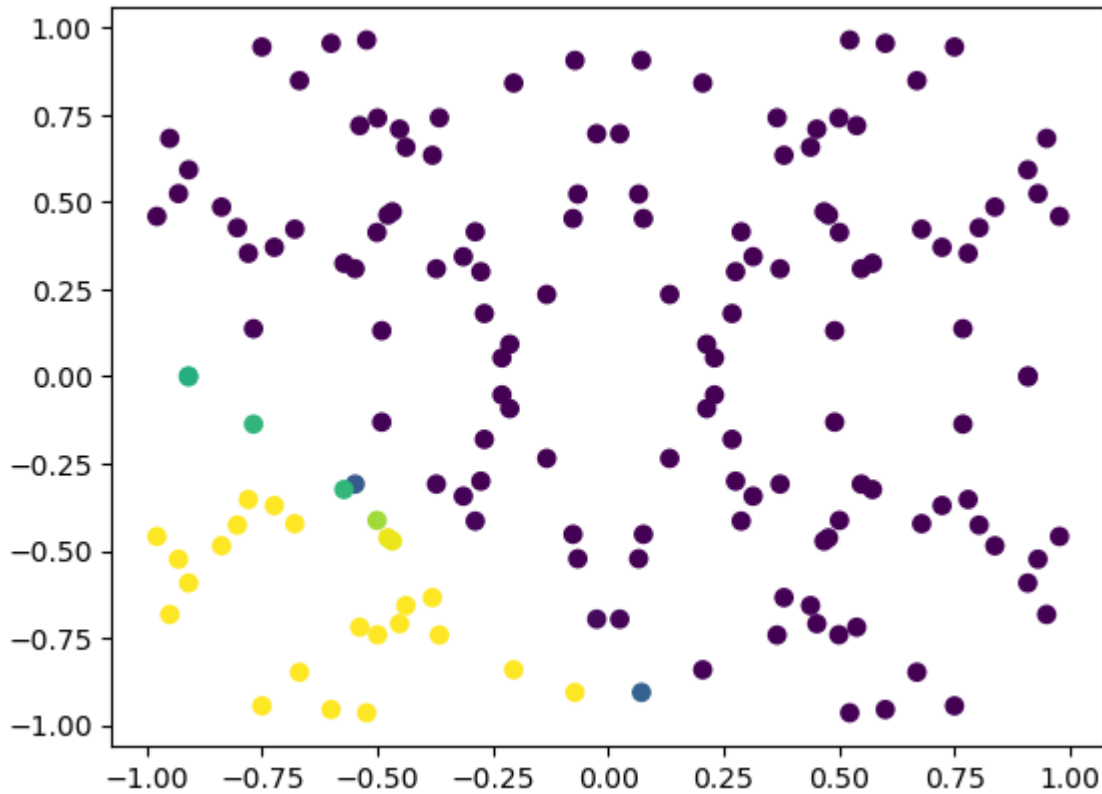
In [70]:
```python
scores
#Most optimal = 4 hidden layers
```

Out[70]:
```
[[0.580464243888855, 0.6875],
 [0.571671187877655, 0.6625000238418579],
 [0.5723119378089905, 0.6625000238418579],
 [0.57209712266922, 0.6625000238418579]]
```

In [64]:
```python
## PART 1 - 2
num_layers = [2,3,4,5]
scores2 = []
layernum2 = []
model2 = Sequential()
model2.add(Dense(1, input_dim = 2, activation = 'sigmoid'))
layer2 = Dense(1, activation = 'sigmoid')

for num_layer in num_layers:

    print(num_layer)
    model2.add(layer2)
    model2.compile(loss = 'binary_crossentropy', optimizer = 'adam', metrics = ['accur
    model2.fit(X, Y, epochs = 400, batch_size = 3)
    score2 = model2.evaluate(X, Y)
```

```
    scores2.append(score2)
    layernum2.append(num_layer)
plt.scatter(*zip(*X), c = model2.predict(X))
```

```
2
Epoch 1/400
54/54 [==============================] - 1s 2ms/step - loss: 0.7304 - accuracy: 0.500
0
Epoch 2/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7251 - accuracy: 0.500
0
Epoch 3/400
54/54 [==============================] - 0s 1ms/step - loss: 0.7205 - accuracy: 0.500
0
Epoch 4/400
54/54 [==============================] - 0s 1ms/step - loss: 0.7165 - accuracy: 0.500
0
Epoch 5/400
54/54 [==============================] - 0s 1ms/step - loss: 0.7131 - accuracy: 0.500
0
Epoch 6/400
54/54 [==============================] - 0s 1ms/step - loss: 0.7104 - accuracy: 0.500
0
Epoch 7/400
54/54 [==============================] - 0s 1ms/step - loss: 0.7082 - accuracy: 0.500
0
Epoch 8/400
54/54 [==============================] - 0s 1ms/step - loss: 0.7060 - accuracy: 0.500
0
Epoch 9/400
54/54 [==============================] - 0s 1ms/step - loss: 0.7046 - accuracy: 0.500
0
Epoch 10/400
54/54 [==============================] - 0s 1ms/step - loss: 0.7027 - accuracy: 0.500
0
Epoch 11/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7015 - accuracy: 0.500
0
Epoch 12/400
54/54 [==============================] - 0s 1ms/step - loss: 0.7006 - accuracy: 0.500
0
Epoch 13/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6997 - accuracy: 0.500
0
Epoch 14/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6988 - accuracy: 0.500
0
Epoch 15/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6978 - accuracy: 0.500
0
Epoch 16/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6975 - accuracy: 0.500
0
Epoch 17/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6967 - accuracy: 0.500
0
Epoch 18/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6962 - accuracy: 0.500
0
Epoch 19/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6959 - accuracy: 0.500
0
Epoch 20/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6956 - accuracy: 0.500
```

```
0
Epoch 21/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6952 - accuracy: 0.500
0
Epoch 22/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6950 - accuracy: 0.500
0
Epoch 23/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6949 - accuracy: 0.487
5
Epoch 24/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6946 - accuracy: 0.500
0
Epoch 25/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6945 - accuracy: 0.468
8
Epoch 26/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6943 - accuracy: 0.437
5
Epoch 27/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6941 - accuracy: 0.443
7
Epoch 28/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6941 - accuracy: 0.456
3
Epoch 29/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6937 - accuracy: 0.418
7
Epoch 30/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6936 - accuracy: 0.393
8
Epoch 31/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6937 - accuracy: 0.368
8
Epoch 32/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6937 - accuracy: 0.375
0
Epoch 33/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6940 - accuracy: 0.356
2
Epoch 34/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6937 - accuracy: 0.381
2
Epoch 35/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6935 - accuracy: 0.375
0
Epoch 36/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6935 - accuracy: 0.362
5
Epoch 37/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6934 - accuracy: 0.362
5
Epoch 38/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6935 - accuracy: 0.368
8
Epoch 39/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6935 - accuracy: 0.362
5
Epoch 40/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6934 - accuracy: 0.375
```

```
0
Epoch 41/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.381
2
Epoch 42/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6934 - accuracy: 0.375
0
Epoch 43/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6935 - accuracy: 0.375
0
Epoch 44/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.375
0
Epoch 45/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.368
8
Epoch 46/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.368
8
Epoch 47/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6934 - accuracy: 0.368
8
Epoch 48/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.368
8
Epoch 49/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.381
2
Epoch 50/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6934 - accuracy: 0.431
3
Epoch 51/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6937 - accuracy: 0.368
8
Epoch 52/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6934 - accuracy: 0.437
5
Epoch 53/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.418
7
Epoch 54/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.381
2
Epoch 55/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.387
5
Epoch 56/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.425
0
Epoch 57/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6935 - accuracy: 0.425
0
Epoch 58/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.412
5
Epoch 59/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.425
0
Epoch 60/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.431
```

```
3
Epoch 61/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.400
0
Epoch 62/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.387
5
Epoch 63/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.406
2
Epoch 64/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.481
2
Epoch 65/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.412
5
Epoch 66/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.418
7
Epoch 67/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.425
0
Epoch 68/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.418
7
Epoch 69/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.475
0
Epoch 70/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.468
8
Epoch 71/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.531
2
Epoch 72/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.475
0
Epoch 73/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.506
3
Epoch 74/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.418
7
Epoch 75/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.437
5
Epoch 76/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.418
7
Epoch 77/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.418
7
Epoch 78/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.425
0
Epoch 79/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.468
8
Epoch 80/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.462
```

```
5
Epoch 81/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.481
2
Epoch 82/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.506
3
Epoch 83/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6931 - accuracy: 0.493
8
Epoch 84/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 85/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.531
2
Epoch 86/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.518
8
Epoch 87/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.506
3
Epoch 88/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.537
5
Epoch 89/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.506
3
Epoch 90/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.475
0
Epoch 91/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.531
2
Epoch 92/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.512
5
Epoch 93/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.506
3
Epoch 94/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.518
8
Epoch 95/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.537
5
Epoch 96/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.543
7
Epoch 97/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.568
8
Epoch 98/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.562
5
Epoch 99/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.506
3
Epoch 100/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.550
```

```
0
Epoch 101/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.543
7
Epoch 102/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.562
5
Epoch 103/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.518
8
Epoch 104/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.525
0
Epoch 105/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.531
2
Epoch 106/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6934 - accuracy: 0.581
3
Epoch 107/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.581
3
Epoch 108/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.531
2
Epoch 109/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6931 - accuracy: 0.525
0
Epoch 110/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6934 - accuracy: 0.600
0
Epoch 111/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6931 - accuracy: 0.537
5
Epoch 112/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6931 - accuracy: 0.531
2
Epoch 113/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6931 - accuracy: 0.525
0
Epoch 114/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6930 - accuracy: 0.518
8
Epoch 115/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.493
8
Epoch 116/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.518
8
Epoch 117/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6931 - accuracy: 0.550
0
Epoch 118/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.575
0
Epoch 119/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.512
5
Epoch 120/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.512
```

```
5
Epoch 121/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6931 - accuracy: 0.512
5
Epoch 122/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6931 - accuracy: 0.512
5
Epoch 123/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6931 - accuracy: 0.543
7
Epoch 124/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6930 - accuracy: 0.550
0
Epoch 125/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6931 - accuracy: 0.550
0
Epoch 126/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6931 - accuracy: 0.581
3
Epoch 127/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.537
5
Epoch 128/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.556
2
Epoch 129/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6931 - accuracy: 0.593
8
Epoch 130/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6930 - accuracy: 0.525
0
Epoch 131/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.518
8
Epoch 132/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6930 - accuracy: 0.537
5
Epoch 133/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6930 - accuracy: 0.512
5
Epoch 134/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.581
3
Epoch 135/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6931 - accuracy: 0.562
5
Epoch 136/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6930 - accuracy: 0.593
8
Epoch 137/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.512
5
Epoch 138/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.600
0
Epoch 139/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6931 - accuracy: 0.593
8
Epoch 140/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6930 - accuracy: 0.550
```

```
0
Epoch 141/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6931 - accuracy: 0.543
7
Epoch 142/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6930 - accuracy: 0.537
5
Epoch 143/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6936 - accuracy: 0.475
0
Epoch 144/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6931 - accuracy: 0.481
2
Epoch 145/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.550
0
Epoch 146/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6930 - accuracy: 0.518
8
Epoch 147/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.481
2
Epoch 148/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6930 - accuracy: 0.506
3
Epoch 149/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6931 - accuracy: 0.512
5
Epoch 150/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6930 - accuracy: 0.512
5
Epoch 151/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6930 - accuracy: 0.537
5
Epoch 152/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6929 - accuracy: 0.525
0
Epoch 153/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6930 - accuracy: 0.543
7
Epoch 154/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6930 - accuracy: 0.531
2
Epoch 155/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6931 - accuracy: 0.556
2
Epoch 156/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6929 - accuracy: 0.537
5
Epoch 157/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6930 - accuracy: 0.525
0
Epoch 158/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6929 - accuracy: 0.550
0
Epoch 159/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6930 - accuracy: 0.562
5
Epoch 160/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6929 - accuracy: 0.556
```

```
2
Epoch 161/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6930 - accuracy: 0.575
0
Epoch 162/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.556
2
Epoch 163/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6929 - accuracy: 0.556
2
Epoch 164/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6929 - accuracy: 0.543
7
Epoch 165/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6929 - accuracy: 0.550
0
Epoch 166/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6930 - accuracy: 0.581
3
Epoch 167/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.550
0
Epoch 168/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6929 - accuracy: 0.543
7
Epoch 169/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.493
8
Epoch 170/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6929 - accuracy: 0.500
0
Epoch 171/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6929 - accuracy: 0.512
5
Epoch 172/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6928 - accuracy: 0.512
5
Epoch 173/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6929 - accuracy: 0.487
5
Epoch 174/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6929 - accuracy: 0.506
3
Epoch 175/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6928 - accuracy: 0.506
3
Epoch 176/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6929 - accuracy: 0.468
8
Epoch 177/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6930 - accuracy: 0.518
8
Epoch 178/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6929 - accuracy: 0.475
0
Epoch 179/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6928 - accuracy: 0.506
3
Epoch 180/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6928 - accuracy: 0.512
```

```
5
Epoch 181/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6928 - accuracy: 0.531
2
Epoch 182/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6928 - accuracy: 0.531
2
Epoch 183/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6928 - accuracy: 0.543
7
Epoch 184/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6927 - accuracy: 0.556
2
Epoch 185/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6928 - accuracy: 0.537
5
Epoch 186/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6927 - accuracy: 0.525
0
Epoch 187/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6927 - accuracy: 0.543
7
Epoch 188/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6927 - accuracy: 0.525
0
Epoch 189/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6927 - accuracy: 0.550
0
Epoch 190/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6929 - accuracy: 0.543
7
Epoch 191/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6927 - accuracy: 0.543
7
Epoch 192/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6927 - accuracy: 0.543
7
Epoch 193/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6928 - accuracy: 0.531
2
Epoch 194/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6927 - accuracy: 0.550
0
Epoch 195/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6927 - accuracy: 0.525
0
Epoch 196/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6928 - accuracy: 0.537
5
Epoch 197/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6927 - accuracy: 0.493
8
Epoch 198/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6926 - accuracy: 0.512
5
Epoch 199/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6926 - accuracy: 0.512
5
Epoch 200/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6926 - accuracy: 0.506
```

```
3
Epoch 201/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6926 - accuracy: 0.506
3
Epoch 202/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6926 - accuracy: 0.525
0
Epoch 203/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6926 - accuracy: 0.512
5
Epoch 204/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6926 - accuracy: 0.481
2
Epoch 205/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6927 - accuracy: 0.531
2
Epoch 206/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6925 - accuracy: 0.531
2
Epoch 207/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6926 - accuracy: 0.518
8
Epoch 208/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6926 - accuracy: 0.493
8
Epoch 209/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6927 - accuracy: 0.518
8
Epoch 210/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6926 - accuracy: 0.506
3
Epoch 211/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6925 - accuracy: 0.531
2
Epoch 212/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6927 - accuracy: 0.493
8
Epoch 213/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6924 - accuracy: 0.493
8
Epoch 214/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6925 - accuracy: 0.500
0
Epoch 215/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6926 - accuracy: 0.481
2
Epoch 216/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6925 - accuracy: 0.456
3
Epoch 217/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6925 - accuracy: 0.475
0
Epoch 218/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6925 - accuracy: 0.506
3
Epoch 219/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6924 - accuracy: 0.493
8
Epoch 220/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6924 - accuracy: 0.481
```

```
2
Epoch 221/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6924 - accuracy: 0.475
0
Epoch 222/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6924 - accuracy: 0.493
8
Epoch 223/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6923 - accuracy: 0.512
5
Epoch 224/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6923 - accuracy: 0.531
2
Epoch 225/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6923 - accuracy: 0.500
0
Epoch 226/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6923 - accuracy: 0.506
3
Epoch 227/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6923 - accuracy: 0.518
8
Epoch 228/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6922 - accuracy: 0.525
0
Epoch 229/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6922 - accuracy: 0.512
5
Epoch 230/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6922 - accuracy: 0.506
3
Epoch 231/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6922 - accuracy: 0.531
2
Epoch 232/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6922 - accuracy: 0.537
5
Epoch 233/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6921 - accuracy: 0.543
7
Epoch 234/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6921 - accuracy: 0.556
2
Epoch 235/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6920 - accuracy: 0.550
0
Epoch 236/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6921 - accuracy: 0.531
2
Epoch 237/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6920 - accuracy: 0.525
0
Epoch 238/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6919 - accuracy: 0.562
5
Epoch 239/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6919 - accuracy: 0.550
0
Epoch 240/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6919 - accuracy: 0.543
```

```
7
Epoch 241/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6919 - accuracy: 0.556
2
Epoch 242/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6919 - accuracy: 0.556
2
Epoch 243/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6918 - accuracy: 0.543
7
Epoch 244/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6919 - accuracy: 0.543
7
Epoch 245/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6919 - accuracy: 0.556
2
Epoch 246/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6918 - accuracy: 0.543
7
Epoch 247/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6917 - accuracy: 0.550
0
Epoch 248/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6917 - accuracy: 0.556
2
Epoch 249/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6918 - accuracy: 0.575
0
Epoch 250/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6916 - accuracy: 0.562
5
Epoch 251/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6917 - accuracy: 0.562
5
Epoch 252/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6917 - accuracy: 0.575
0
Epoch 253/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6915 - accuracy: 0.562
5
Epoch 254/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6916 - accuracy: 0.568
8
Epoch 255/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6916 - accuracy: 0.543
7
Epoch 256/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6915 - accuracy: 0.543
7
Epoch 257/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6913 - accuracy: 0.543
7
Epoch 258/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6914 - accuracy: 0.543
7
Epoch 259/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6913 - accuracy: 0.543
7
Epoch 260/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6913 - accuracy: 0.543
```

```
7
Epoch 261/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6912 - accuracy: 0.531
2
Epoch 262/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6912 - accuracy: 0.543
7
Epoch 263/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6911 - accuracy: 0.543
7
Epoch 264/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6912 - accuracy: 0.562
5
Epoch 265/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6910 - accuracy: 0.543
7
Epoch 266/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6910 - accuracy: 0.550
0
Epoch 267/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6910 - accuracy: 0.543
7
Epoch 268/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6910 - accuracy: 0.568
8
Epoch 269/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6909 - accuracy: 0.562
5
Epoch 270/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6908 - accuracy: 0.562
5
Epoch 271/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6907 - accuracy: 0.562
5
Epoch 272/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6907 - accuracy: 0.562
5
Epoch 273/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6907 - accuracy: 0.562
5
Epoch 274/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6906 - accuracy: 0.568
8
Epoch 275/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6907 - accuracy: 0.562
5
Epoch 276/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6904 - accuracy: 0.562
5
Epoch 277/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6908 - accuracy: 0.593
8
Epoch 278/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6905 - accuracy: 0.575
0
Epoch 279/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6903 - accuracy: 0.562
5
Epoch 280/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6903 - accuracy: 0.581
```

```
3
Epoch 281/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6903 - accuracy: 0.581
3
Epoch 282/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6901 - accuracy: 0.581
3
Epoch 283/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6901 - accuracy: 0.568
8
Epoch 284/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6899 - accuracy: 0.562
5
Epoch 285/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6901 - accuracy: 0.587
5
Epoch 286/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6897 - accuracy: 0.562
5
Epoch 287/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6898 - accuracy: 0.575
0
Epoch 288/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6896 - accuracy: 0.562
5
Epoch 289/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6895 - accuracy: 0.562
5
Epoch 290/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6895 - accuracy: 0.543
7
Epoch 291/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6894 - accuracy: 0.543
7
Epoch 292/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6893 - accuracy: 0.550
0
Epoch 293/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6893 - accuracy: 0.562
5
Epoch 294/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6891 - accuracy: 0.562
5
Epoch 295/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6891 - accuracy: 0.562
5
Epoch 296/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6892 - accuracy: 0.543
7
Epoch 297/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6888 - accuracy: 0.537
5
Epoch 298/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6888 - accuracy: 0.562
5
Epoch 299/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6886 - accuracy: 0.550
0
Epoch 300/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6886 - accuracy: 0.568
```

8
Epoch 301/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6884 - accuracy: 0.562
5
Epoch 302/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6883 - accuracy: 0.556
2
Epoch 303/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6882 - accuracy: 0.562
5
Epoch 304/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6880 - accuracy: 0.562
5
Epoch 305/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6880 - accuracy: 0.562
5
Epoch 306/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6878 - accuracy: 0.562
5
Epoch 307/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6877 - accuracy: 0.562
5
Epoch 308/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6875 - accuracy: 0.562
5
Epoch 309/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6874 - accuracy: 0.562
5
Epoch 310/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6874 - accuracy: 0.562
5
Epoch 311/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6872 - accuracy: 0.556
2
Epoch 312/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6871 - accuracy: 0.550
0
Epoch 313/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6868 - accuracy: 0.550
0
Epoch 314/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6868 - accuracy: 0.562
5
Epoch 315/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6866 - accuracy: 0.562
5
Epoch 316/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6866 - accuracy: 0.562
5
Epoch 317/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6863 - accuracy: 0.562
5
Epoch 318/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6861 - accuracy: 0.562
5
Epoch 319/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6862 - accuracy: 0.550
0
Epoch 320/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6858 - accuracy: 0.562

```
5
Epoch 321/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6857 - accuracy: 0.562
5
Epoch 322/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6855 - accuracy: 0.562
5
Epoch 323/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6852 - accuracy: 0.562
5
Epoch 324/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6853 - accuracy: 0.562
5
Epoch 325/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6849 - accuracy: 0.562
5
Epoch 326/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6848 - accuracy: 0.562
5
Epoch 327/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6847 - accuracy: 0.568
8
Epoch 328/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6844 - accuracy: 0.568
8
Epoch 329/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6842 - accuracy: 0.575
0
Epoch 330/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6840 - accuracy: 0.562
5
Epoch 331/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6838 - accuracy: 0.562
5
Epoch 332/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6839 - accuracy: 0.562
5
Epoch 333/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6834 - accuracy: 0.562
5
Epoch 334/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6835 - accuracy: 0.556
2
Epoch 335/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6830 - accuracy: 0.562
5
Epoch 336/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6829 - accuracy: 0.575
0
Epoch 337/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6825 - accuracy: 0.562
5
Epoch 338/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6824 - accuracy: 0.562
5
Epoch 339/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6821 - accuracy: 0.562
5
Epoch 340/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6819 - accuracy: 0.562
```

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5
Epoch 341/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6816 - accuracy: 0.562
5
Epoch 342/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6813 - accuracy: 0.562
5
Epoch 343/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6812 - accuracy: 0.568
8
Epoch 344/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6809 - accuracy: 0.575
0
Epoch 345/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6807 - accuracy: 0.568
8
Epoch 346/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6804 - accuracy: 0.562
5
Epoch 347/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6801 - accuracy: 0.562
5
Epoch 348/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6798 - accuracy: 0.568
8
Epoch 349/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6796 - accuracy: 0.568
8
Epoch 350/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6793 - accuracy: 0.587
5
Epoch 351/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6789 - accuracy: 0.581
3
Epoch 352/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6788 - accuracy: 0.562
5
Epoch 353/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6784 - accuracy: 0.562
5
Epoch 354/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6781 - accuracy: 0.575
0
Epoch 355/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6778 - accuracy: 0.581
3
Epoch 356/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6777 - accuracy: 0.593
8
Epoch 357/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6773 - accuracy: 0.593
8
Epoch 358/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6769 - accuracy: 0.581
3
Epoch 359/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6766 - accuracy: 0.587
5
Epoch 360/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6764 - accuracy: 0.587
```

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5
Epoch 361/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6760 - accuracy: 0.587
5
Epoch 362/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6759 - accuracy: 0.575
0
Epoch 363/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6754 - accuracy: 0.581
3
Epoch 364/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6751 - accuracy: 0.587
5
Epoch 365/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6747 - accuracy: 0.587
5
Epoch 366/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6744 - accuracy: 0.581
3
Epoch 367/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6741 - accuracy: 0.581
3
Epoch 368/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6737 - accuracy: 0.575
0
Epoch 369/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6735 - accuracy: 0.575
0
Epoch 370/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6730 - accuracy: 0.581
3
Epoch 371/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6726 - accuracy: 0.581
3
Epoch 372/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6725 - accuracy: 0.581
3
Epoch 373/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6720 - accuracy: 0.575
0
Epoch 374/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6718 - accuracy: 0.587
5
Epoch 375/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6713 - accuracy: 0.581
3
Epoch 376/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6711 - accuracy: 0.587
5
Epoch 377/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6706 - accuracy: 0.587
5
Epoch 378/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6701 - accuracy: 0.587
5
Epoch 379/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6697 - accuracy: 0.581
3
Epoch 380/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6694 - accuracy: 0.587
```

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5
Epoch 381/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6691 - accuracy: 0.575
0
Epoch 382/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6686 - accuracy: 0.587
5
Epoch 383/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6682 - accuracy: 0.587
5
Epoch 384/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6678 - accuracy: 0.587
5
Epoch 385/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6674 - accuracy: 0.587
5
Epoch 386/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6670 - accuracy: 0.587
5
Epoch 387/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6667 - accuracy: 0.587
5
Epoch 388/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6661 - accuracy: 0.587
5
Epoch 389/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6658 - accuracy: 0.587
5
Epoch 390/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6656 - accuracy: 0.581
3
Epoch 391/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6650 - accuracy: 0.587
5
Epoch 392/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6646 - accuracy: 0.587
5
Epoch 393/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6643 - accuracy: 0.587
5
Epoch 394/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6637 - accuracy: 0.593
8
Epoch 395/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6633 - accuracy: 0.600
0
Epoch 396/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6630 - accuracy: 0.600
0
Epoch 397/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6626 - accuracy: 0.600
0
Epoch 398/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6622 - accuracy: 0.606
2
Epoch 399/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6616 - accuracy: 0.606
2
Epoch 400/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6613 - accuracy: 0.612
```

```
5
5/5 [==============================] - 0s 2ms/step - loss: 0.6609 - accuracy: 0.6125
3
Epoch 1/400
54/54 [==============================] - 1s 2ms/step - loss: 0.7275 - accuracy: 0.500
0
Epoch 2/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7248 - accuracy: 0.500
0
Epoch 3/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7224 - accuracy: 0.500
0
Epoch 4/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7202 - accuracy: 0.500
0
Epoch 5/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7185 - accuracy: 0.500
0
Epoch 6/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7164 - accuracy: 0.500
0
Epoch 7/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7147 - accuracy: 0.500
0
Epoch 8/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7132 - accuracy: 0.500
0
Epoch 9/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7120 - accuracy: 0.500
0
Epoch 10/400
54/54 [==============================] - 0s 1ms/step - loss: 0.7109 - accuracy: 0.500
0
Epoch 11/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7098 - accuracy: 0.487
5
Epoch 12/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7086 - accuracy: 0.487
5
Epoch 13/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7080 - accuracy: 0.487
5
Epoch 14/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7071 - accuracy: 0.468
8
Epoch 15/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7059 - accuracy: 0.450
0
Epoch 16/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7051 - accuracy: 0.443
7
Epoch 17/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7044 - accuracy: 0.443
7
Epoch 18/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7039 - accuracy: 0.425
0
Epoch 19/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7032 - accuracy: 0.425
0
```

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Epoch 20/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7028 - accuracy: 0.418
7
Epoch 21/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7022 - accuracy: 0.387
5
Epoch 22/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7019 - accuracy: 0.381
2
Epoch 23/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7014 - accuracy: 0.375
0
Epoch 24/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7012 - accuracy: 0.350
0
Epoch 25/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7007 - accuracy: 0.350
0
Epoch 26/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7005 - accuracy: 0.337
5
Epoch 27/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7003 - accuracy: 0.343
8
Epoch 28/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7001 - accuracy: 0.331
3
Epoch 29/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6997 - accuracy: 0.337
5
Epoch 30/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6996 - accuracy: 0.337
5
Epoch 31/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6993 - accuracy: 0.318
7
Epoch 32/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6992 - accuracy: 0.312
5
Epoch 33/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6991 - accuracy: 0.312
5
Epoch 34/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6987 - accuracy: 0.312
5
Epoch 35/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6985 - accuracy: 0.312
5
Epoch 36/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6985 - accuracy: 0.312
5
Epoch 37/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6983 - accuracy: 0.325
0
Epoch 38/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6981 - accuracy: 0.306
3
Epoch 39/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6981 - accuracy: 0.331
3
```

```
Epoch 40/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6979 - accuracy: 0.356
2
Epoch 41/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6977 - accuracy: 0.343
8
Epoch 42/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6976 - accuracy: 0.325
0
Epoch 43/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6975 - accuracy: 0.337
5
Epoch 44/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6976 - accuracy: 0.425
0
Epoch 45/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6974 - accuracy: 0.381
2
Epoch 46/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6975 - accuracy: 0.412
5
Epoch 47/400
54/54 [==============================] - 0s 3ms/step - loss: 0.6971 - accuracy: 0.375
0
Epoch 48/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6970 - accuracy: 0.387
5
Epoch 49/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6969 - accuracy: 0.412
5
Epoch 50/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6970 - accuracy: 0.381
2
Epoch 51/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6967 - accuracy: 0.387
5
Epoch 52/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6968 - accuracy: 0.450
0
Epoch 53/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6965 - accuracy: 0.431
3
Epoch 54/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6965 - accuracy: 0.418
7
Epoch 55/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6964 - accuracy: 0.493
8
Epoch 56/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6963 - accuracy: 0.437
5
Epoch 57/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6964 - accuracy: 0.568
8
Epoch 58/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6962 - accuracy: 0.562
5
Epoch 59/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6960 - accuracy: 0.493
8
```

```
Epoch 60/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6960 - accuracy: 0.481
2
Epoch 61/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6959 - accuracy: 0.493
8
Epoch 62/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6958 - accuracy: 0.468
8
Epoch 63/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6957 - accuracy: 0.512
5
Epoch 64/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6956 - accuracy: 0.518
8
Epoch 65/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6956 - accuracy: 0.406
2
Epoch 66/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6954 - accuracy: 0.468
8
Epoch 67/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6956 - accuracy: 0.587
5
Epoch 68/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6953 - accuracy: 0.618
7
Epoch 69/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6952 - accuracy: 0.587
5
Epoch 70/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6951 - accuracy: 0.612
5
Epoch 71/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6953 - accuracy: 0.562
5
Epoch 72/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6950 - accuracy: 0.618
7
Epoch 73/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6951 - accuracy: 0.637
5
Epoch 74/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6951 - accuracy: 0.637
5
Epoch 75/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6950 - accuracy: 0.650
0
Epoch 76/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6948 - accuracy: 0.681
2
Epoch 77/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6949 - accuracy: 0.631
3
Epoch 78/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6948 - accuracy: 0.593
8
Epoch 79/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6946 - accuracy: 0.668
7
```

```
Epoch 80/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6946 - accuracy: 0.625
0
Epoch 81/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6946 - accuracy: 0.531
2
Epoch 82/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6945 - accuracy: 0.512
5
Epoch 83/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6945 - accuracy: 0.631
3
Epoch 84/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6944 - accuracy: 0.581
3
Epoch 85/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6944 - accuracy: 0.531
2
Epoch 86/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6943 - accuracy: 0.650
0
Epoch 87/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6943 - accuracy: 0.643
8
Epoch 88/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6943 - accuracy: 0.643
8
Epoch 89/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6942 - accuracy: 0.643
8
Epoch 90/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6941 - accuracy: 0.606
2
Epoch 91/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6941 - accuracy: 0.643
8
Epoch 92/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6941 - accuracy: 0.575
0
Epoch 93/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6941 - accuracy: 0.643
8
Epoch 94/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6942 - accuracy: 0.631
3
Epoch 95/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6944 - accuracy: 0.593
8
Epoch 96/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6941 - accuracy: 0.418
7
Epoch 97/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6942 - accuracy: 0.606
2
Epoch 98/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6938 - accuracy: 0.618
7
Epoch 99/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6938 - accuracy: 0.456
3
```

```
Epoch 100/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6940 - accuracy: 0.618
7
Epoch 101/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6939 - accuracy: 0.637
5
Epoch 102/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6937 - accuracy: 0.600
0
Epoch 103/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6938 - accuracy: 0.656
2
Epoch 104/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6938 - accuracy: 0.625
0
Epoch 105/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6936 - accuracy: 0.593
8
Epoch 106/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6937 - accuracy: 0.562
5
Epoch 107/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6938 - accuracy: 0.481
2
Epoch 108/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6936 - accuracy: 0.481
2
Epoch 109/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6936 - accuracy: 0.568
8
Epoch 110/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6936 - accuracy: 0.575
0
Epoch 111/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6937 - accuracy: 0.562
5
Epoch 112/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6935 - accuracy: 0.537
5
Epoch 113/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6935 - accuracy: 0.400
0
Epoch 114/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6936 - accuracy: 0.512
5
Epoch 115/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6935 - accuracy: 0.450
0
Epoch 116/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6935 - accuracy: 0.425
0
Epoch 117/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6934 - accuracy: 0.412
5
Epoch 118/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6936 - accuracy: 0.456
3
Epoch 119/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6934 - accuracy: 0.400
0
```

```
Epoch 120/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6936 - accuracy: 0.387
5
Epoch 121/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6934 - accuracy: 0.481
2
Epoch 122/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6934 - accuracy: 0.475
0
Epoch 123/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.468
8
Epoch 124/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6934 - accuracy: 0.450
0
Epoch 125/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.506
3
Epoch 126/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.500
0
Epoch 127/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.475
0
Epoch 128/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6935 - accuracy: 0.500
0
Epoch 129/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.531
2
Epoch 130/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.462
5
Epoch 131/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6936 - accuracy: 0.468
8
Epoch 132/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.487
5
Epoch 133/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.481
2
Epoch 134/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.525
0
Epoch 135/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.500
0
Epoch 136/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 137/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.506
3
Epoch 138/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.475
0
Epoch 139/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6934 - accuracy: 0.450
0
```

```
Epoch 140/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6931 - accuracy: 0.468
8
Epoch 141/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.468
8
Epoch 142/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.468
8
Epoch 143/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.412
5
Epoch 144/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.406
2
Epoch 145/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6931 - accuracy: 0.393
8
Epoch 146/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.506
3
Epoch 147/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6931 - accuracy: 0.562
5
Epoch 148/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.462
5
Epoch 149/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6931 - accuracy: 0.400
0
Epoch 150/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6930 - accuracy: 0.425
0
Epoch 151/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6931 - accuracy: 0.500
0
Epoch 152/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6930 - accuracy: 0.393
8
Epoch 153/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6930 - accuracy: 0.368
8
Epoch 154/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6930 - accuracy: 0.525
0
Epoch 155/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6930 - accuracy: 0.606
2
Epoch 156/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6930 - accuracy: 0.512
5
Epoch 157/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6929 - accuracy: 0.462
5
Epoch 158/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6929 - accuracy: 0.418
7
Epoch 159/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6929 - accuracy: 0.556
2
```

```
Epoch 160/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6929 - accuracy: 0.587
5
Epoch 161/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6928 - accuracy: 0.437
5
Epoch 162/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6928 - accuracy: 0.575
0
Epoch 163/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6928 - accuracy: 0.612
5
Epoch 164/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6927 - accuracy: 0.618
7
Epoch 165/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6927 - accuracy: 0.437
5
Epoch 166/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6927 - accuracy: 0.531
2
Epoch 167/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6927 - accuracy: 0.418
7
Epoch 168/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6927 - accuracy: 0.618
7
Epoch 169/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6926 - accuracy: 0.581
3
Epoch 170/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6926 - accuracy: 0.568
8
Epoch 171/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6925 - accuracy: 0.631
3
Epoch 172/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6924 - accuracy: 0.612
5
Epoch 173/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6924 - accuracy: 0.612
5
Epoch 174/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6924 - accuracy: 0.581
3
Epoch 175/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6924 - accuracy: 0.487
5
Epoch 176/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6924 - accuracy: 0.437
5
Epoch 177/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6923 - accuracy: 0.400
0
Epoch 178/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6922 - accuracy: 0.543
7
Epoch 179/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6922 - accuracy: 0.468
8
```

```
Epoch 180/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6921 - accuracy: 0.525
0
Epoch 181/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6921 - accuracy: 0.562
5
Epoch 182/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6921 - accuracy: 0.412
5
Epoch 183/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6920 - accuracy: 0.375
0
Epoch 184/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6921 - accuracy: 0.312
5
Epoch 185/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6919 - accuracy: 0.512
5
Epoch 186/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6919 - accuracy: 0.487
5
Epoch 187/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6917 - accuracy: 0.493
8
Epoch 188/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6917 - accuracy: 0.550
0
Epoch 189/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6916 - accuracy: 0.562
5
Epoch 190/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6915 - accuracy: 0.568
8
Epoch 191/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6916 - accuracy: 0.462
5
Epoch 192/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6915 - accuracy: 0.537
5
Epoch 193/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6913 - accuracy: 0.543
7
Epoch 194/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6912 - accuracy: 0.543
7
Epoch 195/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6911 - accuracy: 0.587
5
Epoch 196/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6910 - accuracy: 0.618
7
Epoch 197/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6911 - accuracy: 0.662
5
Epoch 198/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6909 - accuracy: 0.631
3
Epoch 199/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6908 - accuracy: 0.637
5
```

```
Epoch 200/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6908 - accuracy: 0.650
0
Epoch 201/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6906 - accuracy: 0.675
0
Epoch 202/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6907 - accuracy: 0.668
7
Epoch 203/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6905 - accuracy: 0.675
0
Epoch 204/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6905 - accuracy: 0.693
8
Epoch 205/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6903 - accuracy: 0.656
2
Epoch 206/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6902 - accuracy: 0.643
8
Epoch 207/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6901 - accuracy: 0.675
0
Epoch 208/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6901 - accuracy: 0.681
2
Epoch 209/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6900 - accuracy: 0.681
2
Epoch 210/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6898 - accuracy: 0.687
5
Epoch 211/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6897 - accuracy: 0.687
5
Epoch 212/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6896 - accuracy: 0.675
0
Epoch 213/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6895 - accuracy: 0.681
2
Epoch 214/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6894 - accuracy: 0.687
5
Epoch 215/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6893 - accuracy: 0.693
8
Epoch 216/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6892 - accuracy: 0.687
5
Epoch 217/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6890 - accuracy: 0.687
5
Epoch 218/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6890 - accuracy: 0.687
5
Epoch 219/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6888 - accuracy: 0.687
5
```

```
Epoch 220/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6888 - accuracy: 0.675
0
Epoch 221/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6886 - accuracy: 0.687
5
Epoch 222/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6890 - accuracy: 0.637
5
Epoch 223/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6886 - accuracy: 0.681
2
Epoch 224/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6884 - accuracy: 0.675
0
Epoch 225/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6882 - accuracy: 0.687
5
Epoch 226/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6881 - accuracy: 0.687
5
Epoch 227/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6883 - accuracy: 0.681
2
Epoch 228/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6878 - accuracy: 0.687
5
Epoch 229/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6877 - accuracy: 0.687
5
Epoch 230/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6876 - accuracy: 0.693
8
Epoch 231/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6875 - accuracy: 0.687
5
Epoch 232/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6874 - accuracy: 0.687
5
Epoch 233/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6872 - accuracy: 0.687
5
Epoch 234/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6872 - accuracy: 0.675
0
Epoch 235/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6870 - accuracy: 0.675
0
Epoch 236/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6869 - accuracy: 0.675
0
Epoch 237/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6868 - accuracy: 0.687
5
Epoch 238/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6866 - accuracy: 0.687
5
Epoch 239/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6865 - accuracy: 0.681
2
```

```
Epoch 240/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6864 - accuracy: 0.675
0
Epoch 241/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6863 - accuracy: 0.681
2
Epoch 242/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6862 - accuracy: 0.693
8
Epoch 243/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6860 - accuracy: 0.693
8
Epoch 244/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6859 - accuracy: 0.687
5
Epoch 245/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6858 - accuracy: 0.693
8
Epoch 246/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6858 - accuracy: 0.681
2
Epoch 247/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6855 - accuracy: 0.687
5
Epoch 248/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6855 - accuracy: 0.693
8
Epoch 249/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6853 - accuracy: 0.693
8
Epoch 250/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6853 - accuracy: 0.681
2
Epoch 251/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6850 - accuracy: 0.687
5
Epoch 252/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6849 - accuracy: 0.687
5
Epoch 253/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6847 - accuracy: 0.687
5
Epoch 254/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6846 - accuracy: 0.687
5
Epoch 255/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6847 - accuracy: 0.675
0
Epoch 256/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6843 - accuracy: 0.681
2
Epoch 257/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6842 - accuracy: 0.675
0
Epoch 258/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6840 - accuracy: 0.681
2
Epoch 259/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6839 - accuracy: 0.687
5
```

```
Epoch 260/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6839 - accuracy: 0.687
5
Epoch 261/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6839 - accuracy: 0.675
0
Epoch 262/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6835 - accuracy: 0.687
5
Epoch 263/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6834 - accuracy: 0.675
0
Epoch 264/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6833 - accuracy: 0.681
2
Epoch 265/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6830 - accuracy: 0.687
5
Epoch 266/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6829 - accuracy: 0.687
5
Epoch 267/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6827 - accuracy: 0.687
5
Epoch 268/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6826 - accuracy: 0.687
5
Epoch 269/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6824 - accuracy: 0.681
2
Epoch 270/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6823 - accuracy: 0.687
5
Epoch 271/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6821 - accuracy: 0.687
5
Epoch 272/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6819 - accuracy: 0.687
5
Epoch 273/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6819 - accuracy: 0.687
5
Epoch 274/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6816 - accuracy: 0.687
5
Epoch 275/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6815 - accuracy: 0.687
5
Epoch 276/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6815 - accuracy: 0.693
8
Epoch 277/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6811 - accuracy: 0.687
5
Epoch 278/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6809 - accuracy: 0.687
5
Epoch 279/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6808 - accuracy: 0.687
5
```

```
Epoch 280/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6806 - accuracy: 0.687
5
Epoch 281/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6805 - accuracy: 0.687
5
Epoch 282/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6803 - accuracy: 0.687
5
Epoch 283/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6801 - accuracy: 0.687
5
Epoch 284/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6799 - accuracy: 0.687
5
Epoch 285/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6798 - accuracy: 0.687
5
Epoch 286/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6798 - accuracy: 0.687
5
Epoch 287/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6794 - accuracy: 0.681
2
Epoch 288/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6793 - accuracy: 0.681
2
Epoch 289/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6792 - accuracy: 0.681
2
Epoch 290/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6789 - accuracy: 0.687
5
Epoch 291/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6787 - accuracy: 0.687
5
Epoch 292/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6786 - accuracy: 0.687
5
Epoch 293/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6783 - accuracy: 0.687
5
Epoch 294/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6782 - accuracy: 0.687
5
Epoch 295/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6780 - accuracy: 0.681
2
Epoch 296/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6777 - accuracy: 0.681
2
Epoch 297/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6775 - accuracy: 0.681
2
Epoch 298/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6773 - accuracy: 0.675
0
Epoch 299/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6771 - accuracy: 0.681
2
```

```
Epoch 300/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6769 - accuracy: 0.681
2
Epoch 301/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6769 - accuracy: 0.687
5
Epoch 302/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6765 - accuracy: 0.687
5
Epoch 303/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6764 - accuracy: 0.681
2
Epoch 304/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6762 - accuracy: 0.681
2
Epoch 305/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6760 - accuracy: 0.681
2
Epoch 306/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6758 - accuracy: 0.681
2
Epoch 307/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6756 - accuracy: 0.681
2
Epoch 308/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6753 - accuracy: 0.681
2
Epoch 309/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6751 - accuracy: 0.681
2
Epoch 310/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6749 - accuracy: 0.681
2
Epoch 311/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6747 - accuracy: 0.681
2
Epoch 312/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6745 - accuracy: 0.675
0
Epoch 313/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6742 - accuracy: 0.675
0
Epoch 314/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6740 - accuracy: 0.675
0
Epoch 315/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6738 - accuracy: 0.681
2
Epoch 316/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6736 - accuracy: 0.681
2
Epoch 317/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6735 - accuracy: 0.675
0
Epoch 318/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6734 - accuracy: 0.687
5
Epoch 319/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6729 - accuracy: 0.681
2
```

```
Epoch 320/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6727 - accuracy: 0.687
5
Epoch 321/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6725 - accuracy: 0.687
5
Epoch 322/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6722 - accuracy: 0.687
5
Epoch 323/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6721 - accuracy: 0.681
2
Epoch 324/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6718 - accuracy: 0.681
2
Epoch 325/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6715 - accuracy: 0.687
5
Epoch 326/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6713 - accuracy: 0.687
5
Epoch 327/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6711 - accuracy: 0.681
2
Epoch 328/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6709 - accuracy: 0.687
5
Epoch 329/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6706 - accuracy: 0.687
5
Epoch 330/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6703 - accuracy: 0.681
2
Epoch 331/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6701 - accuracy: 0.687
5
Epoch 332/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6700 - accuracy: 0.681
2
Epoch 333/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6696 - accuracy: 0.681
2
Epoch 334/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6694 - accuracy: 0.681
2
Epoch 335/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6692 - accuracy: 0.687
5
Epoch 336/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6689 - accuracy: 0.687
5
Epoch 337/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6686 - accuracy: 0.687
5
Epoch 338/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6684 - accuracy: 0.687
5
Epoch 339/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6681 - accuracy: 0.687
5
```

```
Epoch 340/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6679 - accuracy: 0.687
5
Epoch 341/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6678 - accuracy: 0.681
2
Epoch 342/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6676 - accuracy: 0.681
2
Epoch 343/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6672 - accuracy: 0.681
2
Epoch 344/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6669 - accuracy: 0.687
5
Epoch 345/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6667 - accuracy: 0.687
5
Epoch 346/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6664 - accuracy: 0.687
5
Epoch 347/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6663 - accuracy: 0.681
2
Epoch 348/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6659 - accuracy: 0.681
2
Epoch 349/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6657 - accuracy: 0.687
5
Epoch 350/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6653 - accuracy: 0.687
5
Epoch 351/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6652 - accuracy: 0.687
5
Epoch 352/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6648 - accuracy: 0.687
5
Epoch 353/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6646 - accuracy: 0.687
5
Epoch 354/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6644 - accuracy: 0.687
5
Epoch 355/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6641 - accuracy: 0.687
5
Epoch 356/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6638 - accuracy: 0.687
5
Epoch 357/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6636 - accuracy: 0.687
5
Epoch 358/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6633 - accuracy: 0.687
5
Epoch 359/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6630 - accuracy: 0.687
5
```

```
Epoch 360/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6628 - accuracy: 0.687
5
Epoch 361/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6625 - accuracy: 0.687
5
Epoch 362/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6622 - accuracy: 0.687
5
Epoch 363/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6619 - accuracy: 0.687
5
Epoch 364/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6617 - accuracy: 0.687
5
Epoch 365/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6615 - accuracy: 0.687
5
Epoch 366/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6611 - accuracy: 0.687
5
Epoch 367/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6608 - accuracy: 0.687
5
Epoch 368/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6606 - accuracy: 0.687
5
Epoch 369/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6604 - accuracy: 0.687
5
Epoch 370/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6600 - accuracy: 0.687
5
Epoch 371/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6598 - accuracy: 0.687
5
Epoch 372/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6595 - accuracy: 0.687
5
Epoch 373/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6593 - accuracy: 0.687
5
Epoch 374/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6590 - accuracy: 0.687
5
Epoch 375/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6587 - accuracy: 0.687
5
Epoch 376/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6584 - accuracy: 0.687
5
Epoch 377/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6583 - accuracy: 0.687
5
Epoch 378/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6579 - accuracy: 0.687
5
Epoch 379/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6576 - accuracy: 0.687
5
```

```
Epoch 380/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6573 - accuracy: 0.687
5
Epoch 381/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6571 - accuracy: 0.687
5
Epoch 382/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6568 - accuracy: 0.687
5
Epoch 383/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6565 - accuracy: 0.687
5
Epoch 384/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6563 - accuracy: 0.687
5
Epoch 385/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6560 - accuracy: 0.687
5
Epoch 386/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6557 - accuracy: 0.687
5
Epoch 387/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6554 - accuracy: 0.687
5
Epoch 388/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6552 - accuracy: 0.687
5
Epoch 389/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6549 - accuracy: 0.687
5
Epoch 390/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6546 - accuracy: 0.687
5
Epoch 391/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6544 - accuracy: 0.687
5
Epoch 392/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6542 - accuracy: 0.687
5
Epoch 393/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6538 - accuracy: 0.687
5
Epoch 394/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6535 - accuracy: 0.687
5
Epoch 395/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6533 - accuracy: 0.687
5
Epoch 396/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6530 - accuracy: 0.687
5
Epoch 397/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6527 - accuracy: 0.687
5
Epoch 398/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6525 - accuracy: 0.687
5
Epoch 399/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6524 - accuracy: 0.687
5
```

```
Epoch 400/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6520 - accuracy: 0.687
5
5/5 [==============================] - 0s 1ms/step - loss: 0.6517 - accuracy: 0.6875
4
Epoch 1/400
54/54 [==============================] - 1s 1ms/step - loss: 0.7245 - accuracy: 0.368
8
Epoch 2/400
54/54 [==============================] - 0s 1ms/step - loss: 0.7235 - accuracy: 0.368
8
Epoch 3/400
54/54 [==============================] - 0s 1ms/step - loss: 0.7227 - accuracy: 0.381
2
Epoch 4/400
54/54 [==============================] - 0s 1ms/step - loss: 0.7216 - accuracy: 0.381
2
Epoch 5/400
54/54 [==============================] - 0s 1ms/step - loss: 0.7209 - accuracy: 0.387
5
Epoch 6/400
54/54 [==============================] - 0s 1ms/step - loss: 0.7203 - accuracy: 0.387
5
Epoch 7/400
54/54 [==============================] - 0s 1ms/step - loss: 0.7193 - accuracy: 0.387
5
Epoch 8/400
54/54 [==============================] - 0s 1ms/step - loss: 0.7186 - accuracy: 0.400
0
Epoch 9/400
54/54 [==============================] - 0s 1ms/step - loss: 0.7180 - accuracy: 0.406
2
Epoch 10/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7172 - accuracy: 0.412
5
Epoch 11/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7166 - accuracy: 0.400
0
Epoch 12/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7159 - accuracy: 0.406
2
Epoch 13/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7154 - accuracy: 0.418
7
Epoch 14/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7148 - accuracy: 0.412
5
Epoch 15/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7142 - accuracy: 0.418
7
Epoch 16/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7137 - accuracy: 0.418
7
Epoch 17/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7133 - accuracy: 0.437
5
Epoch 18/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7127 - accuracy: 0.431
3
Epoch 19/400
```

```
54/54 [==============================] - 0s 2ms/step - loss: 0.7123 - accuracy: 0.443
7
Epoch 20/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7118 - accuracy: 0.443
7
Epoch 21/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7115 - accuracy: 0.431
3
Epoch 22/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7109 - accuracy: 0.443
7
Epoch 23/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7105 - accuracy: 0.450
0
Epoch 24/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7101 - accuracy: 0.456
3
Epoch 25/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7098 - accuracy: 0.456
3
Epoch 26/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7094 - accuracy: 0.450
0
Epoch 27/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7090 - accuracy: 0.450
0
Epoch 28/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7086 - accuracy: 0.462
5
Epoch 29/400
54/54 [==============================] - 0s 1ms/step - loss: 0.7083 - accuracy: 0.487
5
Epoch 30/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7080 - accuracy: 0.500
0
Epoch 31/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7077 - accuracy: 0.500
0
Epoch 32/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7074 - accuracy: 0.500
0
Epoch 33/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7071 - accuracy: 0.500
0
Epoch 34/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7068 - accuracy: 0.493
8
Epoch 35/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7065 - accuracy: 0.500
0
Epoch 36/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7062 - accuracy: 0.500
0
Epoch 37/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7060 - accuracy: 0.500
0
Epoch 38/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7057 - accuracy: 0.493
8
Epoch 39/400
```

```
54/54 [==============================] - 0s 2ms/step - loss: 0.7054 - accuracy: 0.468
8
Epoch 40/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7052 - accuracy: 0.493
8
Epoch 41/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7050 - accuracy: 0.468
8
Epoch 42/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7047 - accuracy: 0.450
0
Epoch 43/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7044 - accuracy: 0.450
0
Epoch 44/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7043 - accuracy: 0.493
8
Epoch 45/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7040 - accuracy: 0.500
0
Epoch 46/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7038 - accuracy: 0.475
0
Epoch 47/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7036 - accuracy: 0.468
8
Epoch 48/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7036 - accuracy: 0.462
5
Epoch 49/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7033 - accuracy: 0.500
0
Epoch 50/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7032 - accuracy: 0.500
0
Epoch 51/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7032 - accuracy: 0.481
2
Epoch 52/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7028 - accuracy: 0.500
0
Epoch 53/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7025 - accuracy: 0.500
0
Epoch 54/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7024 - accuracy: 0.487
5
Epoch 55/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7022 - accuracy: 0.500
0
Epoch 56/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7021 - accuracy: 0.500
0
Epoch 57/400
54/54 [==============================] - 0s 1ms/step - loss: 0.7020 - accuracy: 0.493
8
Epoch 58/400
54/54 [==============================] - 0s 1ms/step - loss: 0.7020 - accuracy: 0.487
5
Epoch 59/400
```

```
54/54 [==============================] - 0s 1ms/step - loss: 0.7016 - accuracy: 0.500
0
Epoch 60/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7015 - accuracy: 0.500
0
Epoch 61/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7013 - accuracy: 0.500
0
Epoch 62/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7012 - accuracy: 0.500
0
Epoch 63/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7010 - accuracy: 0.500
0
Epoch 64/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7009 - accuracy: 0.500
0
Epoch 65/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7007 - accuracy: 0.500
0
Epoch 66/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7007 - accuracy: 0.500
0
Epoch 67/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7005 - accuracy: 0.500
0
Epoch 68/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7005 - accuracy: 0.487
5
Epoch 69/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7002 - accuracy: 0.500
0
Epoch 70/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7002 - accuracy: 0.500
0
Epoch 71/400
54/54 [==============================] - 0s 1ms/step - loss: 0.7000 - accuracy: 0.500
0
Epoch 72/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7001 - accuracy: 0.500
0
Epoch 73/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6998 - accuracy: 0.500
0
Epoch 74/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6997 - accuracy: 0.500
0
Epoch 75/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6996 - accuracy: 0.493
8
Epoch 76/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6996 - accuracy: 0.431
3
Epoch 77/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6994 - accuracy: 0.493
8
Epoch 78/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6992 - accuracy: 0.468
8
Epoch 79/400
```

```
54/54 [==============================] - 0s 1ms/step - loss: 0.6992 - accuracy: 0.481
2
Epoch 80/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6990 - accuracy: 0.418
7
Epoch 81/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6989 - accuracy: 0.443
7
Epoch 82/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6988 - accuracy: 0.400
0
Epoch 83/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6987 - accuracy: 0.393
8
Epoch 84/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6987 - accuracy: 0.368
8
Epoch 85/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6984 - accuracy: 0.381
2
Epoch 86/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6985 - accuracy: 0.393
8
Epoch 87/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6983 - accuracy: 0.375
0
Epoch 88/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6983 - accuracy: 0.418
7
Epoch 89/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6981 - accuracy: 0.381
2
Epoch 90/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6981 - accuracy: 0.381
2
Epoch 91/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6979 - accuracy: 0.368
8
Epoch 92/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6981 - accuracy: 0.418
7
Epoch 93/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6979 - accuracy: 0.337
5
Epoch 94/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6977 - accuracy: 0.343
8
Epoch 95/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6976 - accuracy: 0.331
3
Epoch 96/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6975 - accuracy: 0.337
5
Epoch 97/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6974 - accuracy: 0.331
3
Epoch 98/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6974 - accuracy: 0.331
3
Epoch 99/400
```

```
54/54 [==============================] - 0s 2ms/step - loss: 0.6973 - accuracy: 0.331
3
Epoch 100/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6972 - accuracy: 0.350
0
Epoch 101/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6970 - accuracy: 0.356
2
Epoch 102/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6970 - accuracy: 0.343
8
Epoch 103/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6969 - accuracy: 0.350
0
Epoch 104/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6968 - accuracy: 0.331
3
Epoch 105/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6968 - accuracy: 0.337
5
Epoch 106/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6966 - accuracy: 0.331
3
Epoch 107/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6965 - accuracy: 0.337
5
Epoch 108/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6966 - accuracy: 0.325
0
Epoch 109/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6964 - accuracy: 0.331
3
Epoch 110/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6963 - accuracy: 0.337
5
Epoch 111/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6963 - accuracy: 0.337
5
Epoch 112/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6961 - accuracy: 0.337
5
Epoch 113/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6961 - accuracy: 0.337
5
Epoch 114/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6961 - accuracy: 0.337
5
Epoch 115/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6959 - accuracy: 0.325
0
Epoch 116/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6959 - accuracy: 0.318
7
Epoch 117/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6959 - accuracy: 0.312
5
Epoch 118/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6958 - accuracy: 0.318
7
Epoch 119/400
```

```
54/54 [==============================] - 0s 2ms/step - loss: 0.6956 - accuracy: 0.325
0
Epoch 120/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6956 - accuracy: 0.306
3
Epoch 121/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6954 - accuracy: 0.306
3
Epoch 122/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6953 - accuracy: 0.318
7
Epoch 123/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6952 - accuracy: 0.325
0
Epoch 124/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6952 - accuracy: 0.312
5
Epoch 125/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6951 - accuracy: 0.318
7
Epoch 126/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6950 - accuracy: 0.325
0
Epoch 127/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6949 - accuracy: 0.318
7
Epoch 128/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6950 - accuracy: 0.350
0
Epoch 129/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6949 - accuracy: 0.306
3
Epoch 130/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6947 - accuracy: 0.325
0
Epoch 131/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6946 - accuracy: 0.312
5
Epoch 132/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6945 - accuracy: 0.312
5
Epoch 133/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6944 - accuracy: 0.325
0
Epoch 134/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6944 - accuracy: 0.318
7
Epoch 135/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6943 - accuracy: 0.312
5
Epoch 136/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6941 - accuracy: 0.362
5
Epoch 137/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6941 - accuracy: 0.375
0
Epoch 138/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6940 - accuracy: 0.387
5
Epoch 139/400
```

```
54/54 [==============================] - 0s 1ms/step - loss: 0.6939 - accuracy: 0.375
0
Epoch 140/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6938 - accuracy: 0.375
0
Epoch 141/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6937 - accuracy: 0.406
2
Epoch 142/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6936 - accuracy: 0.425
0
Epoch 143/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6936 - accuracy: 0.456
3
Epoch 144/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6934 - accuracy: 0.443
7
Epoch 145/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6936 - accuracy: 0.406
2
Epoch 146/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.481
2
Epoch 147/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.475
0
Epoch 148/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.525
0
Epoch 149/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6929 - accuracy: 0.481
2
Epoch 150/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6929 - accuracy: 0.487
5
Epoch 151/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6928 - accuracy: 0.493
8
Epoch 152/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6927 - accuracy: 0.475
0
Epoch 153/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6927 - accuracy: 0.481
2
Epoch 154/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6927 - accuracy: 0.462
5
Epoch 155/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6924 - accuracy: 0.512
5
Epoch 156/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6924 - accuracy: 0.493
8
Epoch 157/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6924 - accuracy: 0.556
2
Epoch 158/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6922 - accuracy: 0.575
0
Epoch 159/400
```

```
54/54 [==============================] - 0s 2ms/step - loss: 0.6921 - accuracy: 0.518
8
Epoch 160/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6921 - accuracy: 0.562
5
Epoch 161/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6920 - accuracy: 0.537
5
Epoch 162/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6918 - accuracy: 0.562
5
Epoch 163/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6917 - accuracy: 0.581
3
Epoch 164/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6916 - accuracy: 0.575
0
Epoch 165/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6915 - accuracy: 0.600
0
Epoch 166/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6914 - accuracy: 0.625
0
Epoch 167/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6914 - accuracy: 0.612
5
Epoch 168/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6913 - accuracy: 0.643
8
Epoch 169/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6912 - accuracy: 0.637
5
Epoch 170/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6911 - accuracy: 0.668
7
Epoch 171/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6910 - accuracy: 0.650
0
Epoch 172/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6911 - accuracy: 0.675
0
Epoch 173/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6909 - accuracy: 0.668
7
Epoch 174/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6908 - accuracy: 0.637
5
Epoch 175/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6908 - accuracy: 0.656
2
Epoch 176/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6906 - accuracy: 0.675
0
Epoch 177/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6906 - accuracy: 0.675
0
Epoch 178/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6906 - accuracy: 0.693
8
Epoch 179/400
```

```
54/54 [==============================] - 0s 2ms/step - loss: 0.6905 - accuracy: 0.668
7
Epoch 180/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6903 - accuracy: 0.687
5
Epoch 181/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6902 - accuracy: 0.675
0
Epoch 182/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6901 - accuracy: 0.687
5
Epoch 183/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6901 - accuracy: 0.687
5
Epoch 184/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6901 - accuracy: 0.693
8
Epoch 185/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6899 - accuracy: 0.687
5
Epoch 186/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6898 - accuracy: 0.693
8
Epoch 187/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6898 - accuracy: 0.687
5
Epoch 188/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6897 - accuracy: 0.687
5
Epoch 189/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6897 - accuracy: 0.675
0
Epoch 190/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6895 - accuracy: 0.675
0
Epoch 191/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6895 - accuracy: 0.687
5
Epoch 192/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6893 - accuracy: 0.681
2
Epoch 193/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6894 - accuracy: 0.662
5
Epoch 194/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6893 - accuracy: 0.681
2
Epoch 195/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6892 - accuracy: 0.675
0
Epoch 196/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6892 - accuracy: 0.675
0
Epoch 197/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6890 - accuracy: 0.675
0
Epoch 198/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6892 - accuracy: 0.675
0
Epoch 199/400
```

```
54/54 [==============================] - 0s 2ms/step - loss: 0.6889 - accuracy: 0.681
2
Epoch 200/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6888 - accuracy: 0.675
0
Epoch 201/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6887 - accuracy: 0.681
2
Epoch 202/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6886 - accuracy: 0.675
0
Epoch 203/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6886 - accuracy: 0.675
0
Epoch 204/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6885 - accuracy: 0.675
0
Epoch 205/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6885 - accuracy: 0.675
0
Epoch 206/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6883 - accuracy: 0.675
0
Epoch 207/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6884 - accuracy: 0.668
7
Epoch 208/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6883 - accuracy: 0.668
7
Epoch 209/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6882 - accuracy: 0.675
0
Epoch 210/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6882 - accuracy: 0.675
0
Epoch 211/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6882 - accuracy: 0.668
7
Epoch 212/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6881 - accuracy: 0.675
0
Epoch 213/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6879 - accuracy: 0.675
0
Epoch 214/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6878 - accuracy: 0.662
5
Epoch 215/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6877 - accuracy: 0.668
7
Epoch 216/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6879 - accuracy: 0.662
5
Epoch 217/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6876 - accuracy: 0.662
5
Epoch 218/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6875 - accuracy: 0.662
5
Epoch 219/400
```

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54/54 [==============================] - 0s 2ms/step - loss: 0.6875 - accuracy: 0.662
5
Epoch 220/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6874 - accuracy: 0.662
5
Epoch 221/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6873 - accuracy: 0.662
5
Epoch 222/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6872 - accuracy: 0.662
5
Epoch 223/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6871 - accuracy: 0.662
5
Epoch 224/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6872 - accuracy: 0.662
5
Epoch 225/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6870 - accuracy: 0.668
7
Epoch 226/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6869 - accuracy: 0.662
5
Epoch 227/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6868 - accuracy: 0.668
7
Epoch 228/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6867 - accuracy: 0.668
7
Epoch 229/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6868 - accuracy: 0.675
0
Epoch 230/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6866 - accuracy: 0.675
0
Epoch 231/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6864 - accuracy: 0.675
0
Epoch 232/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6863 - accuracy: 0.668
7
Epoch 233/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6864 - accuracy: 0.668
7
Epoch 234/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6862 - accuracy: 0.662
5
Epoch 235/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6861 - accuracy: 0.662
5
Epoch 236/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6860 - accuracy: 0.662
5
Epoch 237/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6859 - accuracy: 0.662
5
Epoch 238/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6860 - accuracy: 0.668
7
Epoch 239/400
```

```
54/54 [==============================] - 0s 2ms/step - loss: 0.6858 - accuracy: 0.662
5
Epoch 240/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6856 - accuracy: 0.668
7
Epoch 241/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6856 - accuracy: 0.668
7
Epoch 242/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6855 - accuracy: 0.668
7
Epoch 243/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6854 - accuracy: 0.662
5
Epoch 244/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6852 - accuracy: 0.662
5
Epoch 245/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6852 - accuracy: 0.662
5
Epoch 246/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6851 - accuracy: 0.662
5
Epoch 247/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6849 - accuracy: 0.662
5
Epoch 248/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6851 - accuracy: 0.662
5
Epoch 249/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6848 - accuracy: 0.662
5
Epoch 250/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6847 - accuracy: 0.668
7
Epoch 251/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6846 - accuracy: 0.662
5
Epoch 252/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6844 - accuracy: 0.662
5
Epoch 253/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6844 - accuracy: 0.662
5
Epoch 254/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6843 - accuracy: 0.668
7
Epoch 255/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6841 - accuracy: 0.668
7
Epoch 256/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6840 - accuracy: 0.662
5
Epoch 257/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6838 - accuracy: 0.668
7
Epoch 258/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6839 - accuracy: 0.662
5
Epoch 259/400
```

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54/54 [==============================] - 0s 1ms/step - loss: 0.6837 - accuracy: 0.662
5
Epoch 260/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6835 - accuracy: 0.681
2
Epoch 261/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6834 - accuracy: 0.668
7
Epoch 262/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6833 - accuracy: 0.668
7
Epoch 263/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6832 - accuracy: 0.668
7
Epoch 264/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6833 - accuracy: 0.662
5
Epoch 265/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6830 - accuracy: 0.668
7
Epoch 266/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6828 - accuracy: 0.668
7
Epoch 267/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6827 - accuracy: 0.675
0
Epoch 268/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6825 - accuracy: 0.675
0
Epoch 269/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6824 - accuracy: 0.675
0
Epoch 270/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6822 - accuracy: 0.675
0
Epoch 271/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6822 - accuracy: 0.675
0
Epoch 272/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6820 - accuracy: 0.675
0
Epoch 273/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6819 - accuracy: 0.675
0
Epoch 274/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6817 - accuracy: 0.675
0
Epoch 275/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6816 - accuracy: 0.675
0
Epoch 276/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6815 - accuracy: 0.675
0
Epoch 277/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6813 - accuracy: 0.675
0
Epoch 278/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6812 - accuracy: 0.675
0
Epoch 279/400
```

```
54/54 [==============================] - 0s 2ms/step - loss: 0.6809 - accuracy: 0.675
0
Epoch 280/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6808 - accuracy: 0.668
7
Epoch 281/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6807 - accuracy: 0.668
7
Epoch 282/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6805 - accuracy: 0.668
7
Epoch 283/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6803 - accuracy: 0.681
2
Epoch 284/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6802 - accuracy: 0.675
0
Epoch 285/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6801 - accuracy: 0.675
0
Epoch 286/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6799 - accuracy: 0.668
7
Epoch 287/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6797 - accuracy: 0.675
0
Epoch 288/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6796 - accuracy: 0.668
7
Epoch 289/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6794 - accuracy: 0.675
0
Epoch 290/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6792 - accuracy: 0.668
7
Epoch 291/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6790 - accuracy: 0.675
0
Epoch 292/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6788 - accuracy: 0.675
0
Epoch 293/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6787 - accuracy: 0.675
0
Epoch 294/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6784 - accuracy: 0.681
2
Epoch 295/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6783 - accuracy: 0.675
0
Epoch 296/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6781 - accuracy: 0.675
0
Epoch 297/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6780 - accuracy: 0.675
0
Epoch 298/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6777 - accuracy: 0.675
0
Epoch 299/400
```

```
54/54 [==============================] - 0s 2ms/step - loss: 0.6777 - accuracy: 0.675
0
Epoch 300/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6774 - accuracy: 0.681
2
Epoch 301/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6773 - accuracy: 0.675
0
Epoch 302/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6769 - accuracy: 0.675
0
Epoch 303/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6767 - accuracy: 0.675
0
Epoch 304/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6766 - accuracy: 0.675
0
Epoch 305/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6763 - accuracy: 0.675
0
Epoch 306/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6762 - accuracy: 0.675
0
Epoch 307/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6761 - accuracy: 0.675
0
Epoch 308/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6758 - accuracy: 0.675
0
Epoch 309/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6756 - accuracy: 0.668
7
Epoch 310/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6754 - accuracy: 0.675
0
Epoch 311/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6753 - accuracy: 0.668
7
Epoch 312/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6751 - accuracy: 0.675
0
Epoch 313/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6746 - accuracy: 0.675
0
Epoch 314/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6745 - accuracy: 0.675
0
Epoch 315/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6743 - accuracy: 0.675
0
Epoch 316/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6739 - accuracy: 0.675
0
Epoch 317/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6738 - accuracy: 0.675
0
Epoch 318/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6736 - accuracy: 0.675
0
Epoch 319/400
```

```
54/54 [==============================] - 0s 2ms/step - loss: 0.6734 - accuracy: 0.675
0
Epoch 320/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6730 - accuracy: 0.675
0
Epoch 321/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6728 - accuracy: 0.675
0
Epoch 322/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6725 - accuracy: 0.675
0
Epoch 323/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6723 - accuracy: 0.675
0
Epoch 324/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6721 - accuracy: 0.675
0
Epoch 325/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6718 - accuracy: 0.675
0
Epoch 326/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6716 - accuracy: 0.675
0
Epoch 327/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6713 - accuracy: 0.675
0
Epoch 328/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6710 - accuracy: 0.675
0
Epoch 329/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6708 - accuracy: 0.675
0
Epoch 330/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6707 - accuracy: 0.675
0
Epoch 331/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6703 - accuracy: 0.675
0
Epoch 332/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6700 - accuracy: 0.675
0
Epoch 333/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6699 - accuracy: 0.675
0
Epoch 334/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6695 - accuracy: 0.675
0
Epoch 335/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6692 - accuracy: 0.675
0
Epoch 336/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6690 - accuracy: 0.675
0
Epoch 337/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6687 - accuracy: 0.675
0
Epoch 338/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6685 - accuracy: 0.675
0
Epoch 339/400
```

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54/54 [==============================] - 0s 2ms/step - loss: 0.6681 - accuracy: 0.675
0
Epoch 340/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6679 - accuracy: 0.675
0
Epoch 341/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6678 - accuracy: 0.668
7
Epoch 342/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6674 - accuracy: 0.668
7
Epoch 343/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6670 - accuracy: 0.675
0
Epoch 344/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6668 - accuracy: 0.675
0
Epoch 345/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6664 - accuracy: 0.675
0
Epoch 346/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6661 - accuracy: 0.675
0
Epoch 347/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6658 - accuracy: 0.675
0
Epoch 348/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6655 - accuracy: 0.675
0
Epoch 349/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6653 - accuracy: 0.675
0
Epoch 350/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6650 - accuracy: 0.675
0
Epoch 351/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6647 - accuracy: 0.681
2
Epoch 352/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6643 - accuracy: 0.681
2
Epoch 353/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6641 - accuracy: 0.675
0
Epoch 354/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6638 - accuracy: 0.675
0
Epoch 355/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6634 - accuracy: 0.675
0
Epoch 356/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6631 - accuracy: 0.675
0
Epoch 357/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6628 - accuracy: 0.675
0
Epoch 358/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6625 - accuracy: 0.675
0
Epoch 359/400
```

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54/54 [==============================] - 0s 1ms/step - loss: 0.6622 - accuracy: 0.675
0
Epoch 360/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6620 - accuracy: 0.675
0
Epoch 361/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6616 - accuracy: 0.675
0
Epoch 362/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6612 - accuracy: 0.675
0
Epoch 363/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6610 - accuracy: 0.681
2
Epoch 364/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6608 - accuracy: 0.681
2
Epoch 365/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6603 - accuracy: 0.681
2
Epoch 366/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6600 - accuracy: 0.681
2
Epoch 367/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6598 - accuracy: 0.681
2
Epoch 368/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6594 - accuracy: 0.675
0
Epoch 369/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6590 - accuracy: 0.675
0
Epoch 370/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6586 - accuracy: 0.675
0
Epoch 371/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6583 - accuracy: 0.675
0
Epoch 372/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6580 - accuracy: 0.681
2
Epoch 373/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6577 - accuracy: 0.681
2
Epoch 374/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6575 - accuracy: 0.675
0
Epoch 375/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6571 - accuracy: 0.681
2
Epoch 376/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6566 - accuracy: 0.681
2
Epoch 377/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6563 - accuracy: 0.681
2
Epoch 378/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6560 - accuracy: 0.681
2
Epoch 379/400
```

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54/54 [==============================] - 0s 2ms/step - loss: 0.6557 - accuracy: 0.681
2
Epoch 380/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6553 - accuracy: 0.681
2
Epoch 381/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6550 - accuracy: 0.681
2
Epoch 382/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6547 - accuracy: 0.681
2
Epoch 383/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6544 - accuracy: 0.681
2
Epoch 384/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6540 - accuracy: 0.681
2
Epoch 385/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6537 - accuracy: 0.681
2
Epoch 386/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6534 - accuracy: 0.687
5
Epoch 387/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6531 - accuracy: 0.687
5
Epoch 388/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6526 - accuracy: 0.687
5
Epoch 389/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6524 - accuracy: 0.687
5
Epoch 390/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6520 - accuracy: 0.687
5
Epoch 391/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6517 - accuracy: 0.687
5
Epoch 392/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6513 - accuracy: 0.687
5
Epoch 393/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6510 - accuracy: 0.687
5
Epoch 394/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6506 - accuracy: 0.687
5
Epoch 395/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6503 - accuracy: 0.687
5
Epoch 396/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6500 - accuracy: 0.687
5
Epoch 397/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6496 - accuracy: 0.687
5
Epoch 398/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6494 - accuracy: 0.687
5
Epoch 399/400
```

```
54/54 [==============================] - 0s 2ms/step - loss: 0.6490 - accuracy: 0.687
5
Epoch 400/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6486 - accuracy: 0.687
5
5/5 [==============================] - 0s 2ms/step - loss: 0.6483 - accuracy: 0.6875
5
Epoch 1/400
54/54 [==============================] - 1s 2ms/step - loss: 0.7334 - accuracy: 0.325
0
Epoch 2/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7314 - accuracy: 0.325
0
Epoch 3/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7298 - accuracy: 0.331
3
Epoch 4/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7281 - accuracy: 0.331
3
Epoch 5/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7267 - accuracy: 0.337
5
Epoch 6/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7252 - accuracy: 0.337
5
Epoch 7/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7240 - accuracy: 0.337
5
Epoch 8/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7228 - accuracy: 0.337
5
Epoch 9/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7216 - accuracy: 0.337
5
Epoch 10/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7206 - accuracy: 0.343
8
Epoch 11/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7196 - accuracy: 0.337
5
Epoch 12/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7187 - accuracy: 0.356
2
Epoch 13/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7179 - accuracy: 0.368
8
Epoch 14/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7171 - accuracy: 0.375
0
Epoch 15/400
54/54 [==============================] - 0s 1ms/step - loss: 0.7164 - accuracy: 0.381
2
Epoch 16/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7157 - accuracy: 0.400
0
Epoch 17/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7150 - accuracy: 0.425
0
Epoch 18/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7144 - accuracy: 0.468
```

```
8
Epoch 19/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7139 - accuracy: 0.456
3
Epoch 20/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7133 - accuracy: 0.500
0
Epoch 21/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7127 - accuracy: 0.500
0
Epoch 22/400
54/54 [==============================] - 0s 1ms/step - loss: 0.7122 - accuracy: 0.500
0
Epoch 23/400
54/54 [==============================] - 0s 1ms/step - loss: 0.7118 - accuracy: 0.500
0
Epoch 24/400
54/54 [==============================] - 0s 1ms/step - loss: 0.7113 - accuracy: 0.500
0
Epoch 25/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7108 - accuracy: 0.500
0
Epoch 26/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7103 - accuracy: 0.500
0
Epoch 27/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7100 - accuracy: 0.500
0
Epoch 28/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7096 - accuracy: 0.500
0
Epoch 29/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7091 - accuracy: 0.500
0
Epoch 30/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7088 - accuracy: 0.500
0
Epoch 31/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7085 - accuracy: 0.500
0
Epoch 32/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7081 - accuracy: 0.500
0
Epoch 33/400
54/54 [==============================] - 0s 1ms/step - loss: 0.7077 - accuracy: 0.500
0
Epoch 34/400
54/54 [==============================] - 0s 1ms/step - loss: 0.7075 - accuracy: 0.500
0
Epoch 35/400
54/54 [==============================] - 0s 1ms/step - loss: 0.7071 - accuracy: 0.500
0
Epoch 36/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7069 - accuracy: 0.500
0
Epoch 37/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7066 - accuracy: 0.500
0
Epoch 38/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7063 - accuracy: 0.500
```

```
0
Epoch 39/400
54/54 [==============================] - 0s 1ms/step - loss: 0.7060 - accuracy: 0.500
0
Epoch 40/400
54/54 [==============================] - 0s 1ms/step - loss: 0.7058 - accuracy: 0.500
0
Epoch 41/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7055 - accuracy: 0.500
0
Epoch 42/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7052 - accuracy: 0.500
0
Epoch 43/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7049 - accuracy: 0.500
0
Epoch 44/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7046 - accuracy: 0.500
0
Epoch 45/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7044 - accuracy: 0.500
0
Epoch 46/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7042 - accuracy: 0.500
0
Epoch 47/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7041 - accuracy: 0.500
0
Epoch 48/400
54/54 [==============================] - 0s 1ms/step - loss: 0.7038 - accuracy: 0.500
0
Epoch 49/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7036 - accuracy: 0.500
0
Epoch 50/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7034 - accuracy: 0.500
0
Epoch 51/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7033 - accuracy: 0.500
0
Epoch 52/400
54/54 [==============================] - 0s 1ms/step - loss: 0.7031 - accuracy: 0.500
0
Epoch 53/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7030 - accuracy: 0.500
0
Epoch 54/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7027 - accuracy: 0.500
0
Epoch 55/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7025 - accuracy: 0.500
0
Epoch 56/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7024 - accuracy: 0.500
0
Epoch 57/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7022 - accuracy: 0.500
0
Epoch 58/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7020 - accuracy: 0.500
```

```
0
Epoch 59/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7018 - accuracy: 0.500
0
Epoch 60/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7017 - accuracy: 0.500
0
Epoch 61/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7016 - accuracy: 0.500
0
Epoch 62/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7014 - accuracy: 0.500
0
Epoch 63/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7013 - accuracy: 0.500
0
Epoch 64/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7011 - accuracy: 0.500
0
Epoch 65/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7010 - accuracy: 0.500
0
Epoch 66/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7009 - accuracy: 0.500
0
Epoch 67/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7007 - accuracy: 0.500
0
Epoch 68/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7006 - accuracy: 0.500
0
Epoch 69/400
54/54 [==============================] - 0s 1ms/step - loss: 0.7005 - accuracy: 0.500
0
Epoch 70/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7007 - accuracy: 0.500
0
Epoch 71/400
54/54 [==============================] - 0s 1ms/step - loss: 0.7002 - accuracy: 0.500
0
Epoch 72/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7002 - accuracy: 0.500
0
Epoch 73/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7000 - accuracy: 0.500
0
Epoch 74/400
54/54 [==============================] - 0s 2ms/step - loss: 0.7000 - accuracy: 0.500
0
Epoch 75/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6998 - accuracy: 0.500
0
Epoch 76/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6998 - accuracy: 0.500
0
Epoch 77/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6995 - accuracy: 0.500
0
Epoch 78/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6995 - accuracy: 0.500
```

```
0
Epoch 79/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6994 - accuracy: 0.500
0
Epoch 80/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6993 - accuracy: 0.500
0
Epoch 81/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6992 - accuracy: 0.500
0
Epoch 82/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6992 - accuracy: 0.500
0
Epoch 83/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6990 - accuracy: 0.500
0
Epoch 84/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6989 - accuracy: 0.500
0
Epoch 85/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6990 - accuracy: 0.500
0
Epoch 86/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6987 - accuracy: 0.500
0
Epoch 87/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6987 - accuracy: 0.500
0
Epoch 88/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6986 - accuracy: 0.500
0
Epoch 89/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6985 - accuracy: 0.500
0
Epoch 90/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6984 - accuracy: 0.500
0
Epoch 91/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6983 - accuracy: 0.500
0
Epoch 92/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6982 - accuracy: 0.500
0
Epoch 93/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6981 - accuracy: 0.500
0
Epoch 94/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6981 - accuracy: 0.500
0
Epoch 95/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6981 - accuracy: 0.500
0
Epoch 96/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6979 - accuracy: 0.500
0
Epoch 97/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6978 - accuracy: 0.500
0
Epoch 98/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6980 - accuracy: 0.500
```

```
0
Epoch 99/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6977 - accuracy: 0.500
0
Epoch 100/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6976 - accuracy: 0.500
0
Epoch 101/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6977 - accuracy: 0.500
0
Epoch 102/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6975 - accuracy: 0.500
0
Epoch 103/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6974 - accuracy: 0.500
0
Epoch 104/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6974 - accuracy: 0.500
0
Epoch 105/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6973 - accuracy: 0.500
0
Epoch 106/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6974 - accuracy: 0.500
0
Epoch 107/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6972 - accuracy: 0.500
0
Epoch 108/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6971 - accuracy: 0.500
0
Epoch 109/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6971 - accuracy: 0.500
0
Epoch 110/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6971 - accuracy: 0.500
0
Epoch 111/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6969 - accuracy: 0.500
0
Epoch 112/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6968 - accuracy: 0.500
0
Epoch 113/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6968 - accuracy: 0.500
0
Epoch 114/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6967 - accuracy: 0.500
0
Epoch 115/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6967 - accuracy: 0.500
0
Epoch 116/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6966 - accuracy: 0.500
0
Epoch 117/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6968 - accuracy: 0.500
0
Epoch 118/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6966 - accuracy: 0.500
```

```
0
Epoch 119/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6965 - accuracy: 0.500
0
Epoch 120/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6965 - accuracy: 0.500
0
Epoch 121/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6964 - accuracy: 0.500
0
Epoch 122/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6963 - accuracy: 0.500
0
Epoch 123/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6963 - accuracy: 0.500
0
Epoch 124/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6962 - accuracy: 0.500
0
Epoch 125/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6961 - accuracy: 0.500
0
Epoch 126/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6962 - accuracy: 0.500
0
Epoch 127/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6962 - accuracy: 0.500
0
Epoch 128/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6959 - accuracy: 0.500
0
Epoch 129/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6959 - accuracy: 0.500
0
Epoch 130/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6959 - accuracy: 0.500
0
Epoch 131/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6958 - accuracy: 0.500
0
Epoch 132/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6958 - accuracy: 0.500
0
Epoch 133/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6957 - accuracy: 0.500
0
Epoch 134/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6957 - accuracy: 0.500
0
Epoch 135/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6956 - accuracy: 0.500
0
Epoch 136/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6955 - accuracy: 0.500
0
Epoch 137/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6955 - accuracy: 0.500
0
Epoch 138/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6955 - accuracy: 0.487
```

```
5
Epoch 139/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6954 - accuracy: 0.500
0
Epoch 140/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6954 - accuracy: 0.500
0
Epoch 141/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6953 - accuracy: 0.368
8
Epoch 142/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6952 - accuracy: 0.343
8
Epoch 143/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6951 - accuracy: 0.331
3
Epoch 144/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6951 - accuracy: 0.400
0
Epoch 145/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6950 - accuracy: 0.418
7
Epoch 146/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6950 - accuracy: 0.325
0
Epoch 147/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6950 - accuracy: 0.312
5
Epoch 148/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6949 - accuracy: 0.325
0
Epoch 149/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6948 - accuracy: 0.312
5
Epoch 150/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6947 - accuracy: 0.325
0
Epoch 151/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6948 - accuracy: 0.306
3
Epoch 152/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6947 - accuracy: 0.312
5
Epoch 153/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6946 - accuracy: 0.312
5
Epoch 154/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6945 - accuracy: 0.318
7
Epoch 155/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6945 - accuracy: 0.375
0
Epoch 156/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6944 - accuracy: 0.306
3
Epoch 157/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6944 - accuracy: 0.312
5
Epoch 158/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6943 - accuracy: 0.331
```

```
3
Epoch 159/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6944 - accuracy: 0.343
8
Epoch 160/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6944 - accuracy: 0.375
0
Epoch 161/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6942 - accuracy: 0.368
8
Epoch 162/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6941 - accuracy: 0.362
5
Epoch 163/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6941 - accuracy: 0.306
3
Epoch 164/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6941 - accuracy: 0.362
5
Epoch 165/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6939 - accuracy: 0.362
5
Epoch 166/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6939 - accuracy: 0.375
0
Epoch 167/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6938 - accuracy: 0.387
5
Epoch 168/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6937 - accuracy: 0.393
8
Epoch 169/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6937 - accuracy: 0.375
0
Epoch 170/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6937 - accuracy: 0.400
0
Epoch 171/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6936 - accuracy: 0.400
0
Epoch 172/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6935 - accuracy: 0.381
2
Epoch 173/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6936 - accuracy: 0.412
5
Epoch 174/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6937 - accuracy: 0.393
8
Epoch 175/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6934 - accuracy: 0.368
8
Epoch 176/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.393
8
Epoch 177/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.387
5
Epoch 178/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.400
```

```
0
Epoch 179/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.437
5
Epoch 180/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.400
0
Epoch 181/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6930 - accuracy: 0.412
5
Epoch 182/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6930 - accuracy: 0.425
0
Epoch 183/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6930 - accuracy: 0.462
5
Epoch 184/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6929 - accuracy: 0.468
8
Epoch 185/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6929 - accuracy: 0.468
8
Epoch 186/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6927 - accuracy: 0.468
8
Epoch 187/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6928 - accuracy: 0.481
2
Epoch 188/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6926 - accuracy: 0.481
2
Epoch 189/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6926 - accuracy: 0.518
8
Epoch 190/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6925 - accuracy: 0.525
0
Epoch 191/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6924 - accuracy: 0.518
8
Epoch 192/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6924 - accuracy: 0.525
0
Epoch 193/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6925 - accuracy: 0.475
0
Epoch 194/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6923 - accuracy: 0.506
3
Epoch 195/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6922 - accuracy: 0.531
2
Epoch 196/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6922 - accuracy: 0.525
0
Epoch 197/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6922 - accuracy: 0.543
7
Epoch 198/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6921 - accuracy: 0.525
```

```
0
Epoch 199/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6920 - accuracy: 0.531
2
Epoch 200/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6920 - accuracy: 0.543
7
Epoch 201/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6919 - accuracy: 0.531
2
Epoch 202/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6918 - accuracy: 0.550
0
Epoch 203/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6918 - accuracy: 0.587
5
Epoch 204/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6918 - accuracy: 0.587
5
Epoch 205/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6916 - accuracy: 0.606
2
Epoch 206/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6916 - accuracy: 0.631
3
Epoch 207/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6917 - accuracy: 0.612
5
Epoch 208/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6914 - accuracy: 0.612
5
Epoch 209/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6914 - accuracy: 0.612
5
Epoch 210/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6914 - accuracy: 0.618
7
Epoch 211/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6913 - accuracy: 0.637
5
Epoch 212/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6913 - accuracy: 0.631
3
Epoch 213/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6912 - accuracy: 0.625
0
Epoch 214/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6911 - accuracy: 0.650
0
Epoch 215/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6911 - accuracy: 0.637
5
Epoch 216/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6910 - accuracy: 0.637
5
Epoch 217/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6910 - accuracy: 0.631
3
Epoch 218/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6909 - accuracy: 0.662
```

```
5
Epoch 219/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6909 - accuracy: 0.668
7
Epoch 220/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6908 - accuracy: 0.668
7
Epoch 221/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6907 - accuracy: 0.687
5
Epoch 222/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6907 - accuracy: 0.687
5
Epoch 223/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6905 - accuracy: 0.687
5
Epoch 224/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6906 - accuracy: 0.681
2
Epoch 225/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6904 - accuracy: 0.687
5
Epoch 226/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6904 - accuracy: 0.681
2
Epoch 227/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6905 - accuracy: 0.687
5
Epoch 228/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6902 - accuracy: 0.687
5
Epoch 229/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6902 - accuracy: 0.675
0
Epoch 230/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6902 - accuracy: 0.687
5
Epoch 231/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6901 - accuracy: 0.675
0
Epoch 232/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6901 - accuracy: 0.675
0
Epoch 233/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6900 - accuracy: 0.668
7
Epoch 234/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6900 - accuracy: 0.675
0
Epoch 235/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6901 - accuracy: 0.687
5
Epoch 236/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6899 - accuracy: 0.687
5
Epoch 237/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6899 - accuracy: 0.687
5
Epoch 238/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6897 - accuracy: 0.675
```

```
0
Epoch 239/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6897 - accuracy: 0.668
7
Epoch 240/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6896 - accuracy: 0.675
0
Epoch 241/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6895 - accuracy: 0.668
7
Epoch 242/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6895 - accuracy: 0.681
2
Epoch 243/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6894 - accuracy: 0.675
0
Epoch 244/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6894 - accuracy: 0.668
7
Epoch 245/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6893 - accuracy: 0.662
5
Epoch 246/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6892 - accuracy: 0.662
5
Epoch 247/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6892 - accuracy: 0.662
5
Epoch 248/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6891 - accuracy: 0.668
7
Epoch 249/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6891 - accuracy: 0.662
5
Epoch 250/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6890 - accuracy: 0.662
5
Epoch 251/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6889 - accuracy: 0.662
5
Epoch 252/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6888 - accuracy: 0.662
5
Epoch 253/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6888 - accuracy: 0.675
0
Epoch 254/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6887 - accuracy: 0.668
7
Epoch 255/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6887 - accuracy: 0.675
0
Epoch 256/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6886 - accuracy: 0.668
7
Epoch 257/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6886 - accuracy: 0.675
0
Epoch 258/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6886 - accuracy: 0.662
```

```
5
Epoch 259/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6884 - accuracy: 0.662
5
Epoch 260/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6883 - accuracy: 0.662
5
Epoch 261/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6883 - accuracy: 0.668
7
Epoch 262/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6884 - accuracy: 0.668
7
Epoch 263/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6881 - accuracy: 0.662
5
Epoch 264/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6881 - accuracy: 0.662
5
Epoch 265/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6880 - accuracy: 0.662
5
Epoch 266/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6879 - accuracy: 0.662
5
Epoch 267/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6878 - accuracy: 0.662
5
Epoch 268/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6878 - accuracy: 0.662
5
Epoch 269/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6877 - accuracy: 0.662
5
Epoch 270/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6877 - accuracy: 0.662
5
Epoch 271/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6876 - accuracy: 0.662
5
Epoch 272/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6875 - accuracy: 0.662
5
Epoch 273/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6874 - accuracy: 0.662
5
Epoch 274/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6873 - accuracy: 0.662
5
Epoch 275/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6873 - accuracy: 0.662
5
Epoch 276/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6872 - accuracy: 0.662
5
Epoch 277/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6872 - accuracy: 0.662
5
Epoch 278/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6870 - accuracy: 0.662
```

```
5
Epoch 279/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6869 - accuracy: 0.662
5
Epoch 280/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6870 - accuracy: 0.662
5
Epoch 281/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6868 - accuracy: 0.662
5
Epoch 282/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6867 - accuracy: 0.662
5
Epoch 283/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6867 - accuracy: 0.662
5
Epoch 284/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6865 - accuracy: 0.662
5
Epoch 285/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6864 - accuracy: 0.668
7
Epoch 286/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6864 - accuracy: 0.662
5
Epoch 287/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6863 - accuracy: 0.662
5
Epoch 288/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6861 - accuracy: 0.662
5
Epoch 289/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6861 - accuracy: 0.662
5
Epoch 290/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6860 - accuracy: 0.668
7
Epoch 291/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6859 - accuracy: 0.668
7
Epoch 292/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6860 - accuracy: 0.668
7
Epoch 293/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6857 - accuracy: 0.662
5
Epoch 294/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6855 - accuracy: 0.662
5
Epoch 295/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6854 - accuracy: 0.662
5
Epoch 296/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6854 - accuracy: 0.662
5
Epoch 297/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6852 - accuracy: 0.662
5
Epoch 298/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6851 - accuracy: 0.662
```

```
5
Epoch 299/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6850 - accuracy: 0.662
5
Epoch 300/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6850 - accuracy: 0.662
5
Epoch 301/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6848 - accuracy: 0.662
5
Epoch 302/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6846 - accuracy: 0.662
5
Epoch 303/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6848 - accuracy: 0.662
5
Epoch 304/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6844 - accuracy: 0.662
5
Epoch 305/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6843 - accuracy: 0.662
5
Epoch 306/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6843 - accuracy: 0.662
5
Epoch 307/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6840 - accuracy: 0.662
5
Epoch 308/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6840 - accuracy: 0.662
5
Epoch 309/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6838 - accuracy: 0.662
5
Epoch 310/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6837 - accuracy: 0.662
5
Epoch 311/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6835 - accuracy: 0.668
7
Epoch 312/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6834 - accuracy: 0.662
5
Epoch 313/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6832 - accuracy: 0.662
5
Epoch 314/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6831 - accuracy: 0.668
7
Epoch 315/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6830 - accuracy: 0.668
7
Epoch 316/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6828 - accuracy: 0.668
7
Epoch 317/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6827 - accuracy: 0.668
7
Epoch 318/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6824 - accuracy: 0.668
```

```
7
Epoch 319/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6823 - accuracy: 0.668
7
Epoch 320/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6823 - accuracy: 0.668
7
Epoch 321/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6820 - accuracy: 0.668
7
Epoch 322/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6818 - accuracy: 0.668
7
Epoch 323/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6817 - accuracy: 0.675
0
Epoch 324/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6815 - accuracy: 0.675
0
Epoch 325/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6813 - accuracy: 0.675
0
Epoch 326/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6811 - accuracy: 0.675
0
Epoch 327/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6809 - accuracy: 0.668
7
Epoch 328/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6808 - accuracy: 0.675
0
Epoch 329/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6806 - accuracy: 0.675
0
Epoch 330/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6804 - accuracy: 0.668
7
Epoch 331/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6804 - accuracy: 0.681
2
Epoch 332/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6800 - accuracy: 0.675
0
Epoch 333/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6798 - accuracy: 0.675
0
Epoch 334/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6796 - accuracy: 0.675
0
Epoch 335/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6794 - accuracy: 0.675
0
Epoch 336/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6792 - accuracy: 0.668
7
Epoch 337/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6790 - accuracy: 0.675
0
Epoch 338/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6787 - accuracy: 0.675
```

```
0
Epoch 339/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6785 - accuracy: 0.675
0
Epoch 340/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6783 - accuracy: 0.675
0
Epoch 341/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6780 - accuracy: 0.675
0
Epoch 342/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6779 - accuracy: 0.675
0
Epoch 343/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6777 - accuracy: 0.668
7
Epoch 344/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6774 - accuracy: 0.675
0
Epoch 345/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6771 - accuracy: 0.675
0
Epoch 346/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6769 - accuracy: 0.675
0
Epoch 347/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6765 - accuracy: 0.675
0
Epoch 348/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6763 - accuracy: 0.675
0
Epoch 349/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6761 - accuracy: 0.675
0
Epoch 350/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6758 - accuracy: 0.675
0
Epoch 351/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6755 - accuracy: 0.675
0
Epoch 352/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6753 - accuracy: 0.675
0
Epoch 353/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6749 - accuracy: 0.681
2
Epoch 354/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6748 - accuracy: 0.675
0
Epoch 355/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6744 - accuracy: 0.675
0
Epoch 356/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6741 - accuracy: 0.681
2
Epoch 357/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6739 - accuracy: 0.681
2
Epoch 358/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6736 - accuracy: 0.681
```

```
2
Epoch 359/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6733 - accuracy: 0.675
0
Epoch 360/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6729 - accuracy: 0.675
0
Epoch 361/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6727 - accuracy: 0.675
0
Epoch 362/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6724 - accuracy: 0.675
0
Epoch 363/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6721 - accuracy: 0.675
0
Epoch 364/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6718 - accuracy: 0.675
0
Epoch 365/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6714 - accuracy: 0.675
0
Epoch 366/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6710 - accuracy: 0.675
0
Epoch 367/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6707 - accuracy: 0.675
0
Epoch 368/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6704 - accuracy: 0.675
0
Epoch 369/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6702 - accuracy: 0.675
0
Epoch 370/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6696 - accuracy: 0.675
0
Epoch 371/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6693 - accuracy: 0.675
0
Epoch 372/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6691 - accuracy: 0.675
0
Epoch 373/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6686 - accuracy: 0.675
0
Epoch 374/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6682 - accuracy: 0.675
0
Epoch 375/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6679 - accuracy: 0.675
0
Epoch 376/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6675 - accuracy: 0.675
0
Epoch 377/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6672 - accuracy: 0.675
0
Epoch 378/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6667 - accuracy: 0.675
```

```
0
Epoch 379/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6663 - accuracy: 0.675
0
Epoch 380/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6661 - accuracy: 0.675
0
Epoch 381/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6655 - accuracy: 0.675
0
Epoch 382/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6651 - accuracy: 0.675
0
Epoch 383/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6647 - accuracy: 0.675
0
Epoch 384/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6642 - accuracy: 0.675
0
Epoch 385/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6639 - accuracy: 0.675
0
Epoch 386/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6635 - accuracy: 0.668
7
Epoch 387/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6630 - accuracy: 0.675
0
Epoch 388/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6626 - accuracy: 0.675
0
Epoch 389/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6623 - accuracy: 0.675
0
Epoch 390/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6617 - accuracy: 0.675
0
Epoch 391/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6613 - accuracy: 0.668
7
Epoch 392/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6608 - accuracy: 0.675
0
Epoch 393/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6604 - accuracy: 0.675
0
Epoch 394/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6600 - accuracy: 0.675
0
Epoch 395/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6595 - accuracy: 0.675
0
Epoch 396/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6590 - accuracy: 0.675
0
Epoch 397/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6586 - accuracy: 0.675
0
Epoch 398/400
54/54 [==============================] - 0s 2ms/step - loss: 0.6581 - accuracy: 0.675
```

```
0
Epoch 399/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6577 - accuracy: 0.675
0
Epoch 400/400
54/54 [==============================] - 0s 1ms/step - loss: 0.6573 - accuracy: 0.675
0
5/5 [==============================] - 0s 2ms/step - loss: 0.6569 - accuracy: 0.6750
5/5 [==============================] - 0s 2ms/step
```

Out[64]:   `<matplotlib.collections.PathCollection at 0x17135e3f970>`
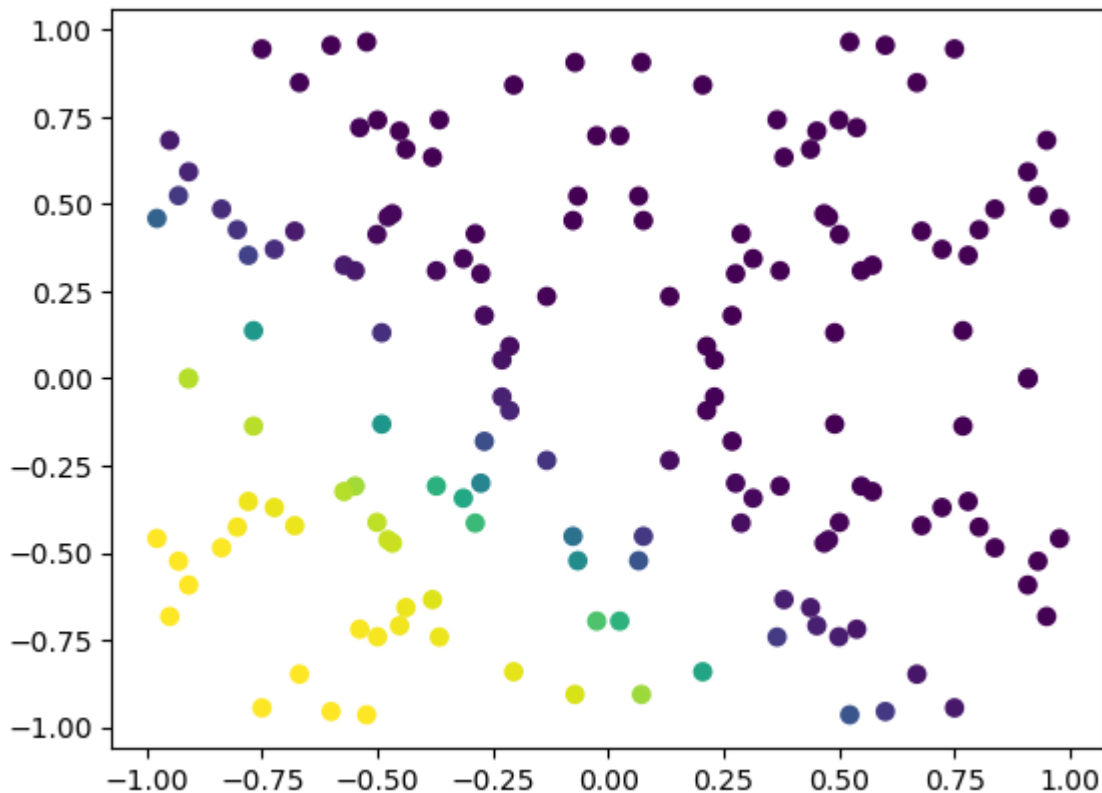
In [65]:
```
scores2
##accuracy is similar but there is a little bit greater loss so 2 neurons is better ov
```

Out[65]:
```
[[0.6609174013137817, 0.612500011920929],
 [0.651681125164032, 0.6875],
 [0.6483476758003235, 0.6875],
 [0.6569485664367676, 0.675000011920929]]
```

In [66]:
```
## PART 1 - 3
num_layers = [2,3,4,5]
scores3 = []
layernum3 = []
model3 = Sequential()
model3.add(Dense(1, input_dim = 2, activation = 'sigmoid'))
layer3 = Dense(1, activation = 'sigmoid')

for num_layer in num_layers:

    print(num_layer)
    model3.add(layer3)
    model3.compile(loss = 'binary_crossentropy', optimizer = 'adam', metrics = ['accur
    model3.fit(X, Y, epochs = 400, batch_size = 4)
    score3 = model3.evaluate(X, Y)
```

```
    scores3.append(score3)
    layernum3.append(num_layer)
plt.scatter(*zip(*X), c = model3.predict(X))
```

```
2
Epoch 1/400
40/40 [==============================] - 1s 1ms/step - loss: 0.7012 - accuracy: 0.500
0
Epoch 2/400
40/40 [==============================] - 0s 1ms/step - loss: 0.7004 - accuracy: 0.500
0
Epoch 3/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6994 - accuracy: 0.500
0
Epoch 4/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6986 - accuracy: 0.500
0
Epoch 5/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6980 - accuracy: 0.500
0
Epoch 6/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6974 - accuracy: 0.500
0
Epoch 7/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6968 - accuracy: 0.500
0
Epoch 8/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6963 - accuracy: 0.500
0
Epoch 9/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6960 - accuracy: 0.500
0
Epoch 10/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6957 - accuracy: 0.500
0
Epoch 11/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6953 - accuracy: 0.500
0
Epoch 12/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6952 - accuracy: 0.481
2
Epoch 13/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6947 - accuracy: 0.475
0
Epoch 14/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6946 - accuracy: 0.468
8
Epoch 15/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6944 - accuracy: 0.462
5
Epoch 16/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6943 - accuracy: 0.450
0
Epoch 17/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6940 - accuracy: 0.412
5
Epoch 18/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6940 - accuracy: 0.406
2
Epoch 19/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6938 - accuracy: 0.400
0
Epoch 20/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6939 - accuracy: 0.387
```

```
5
Epoch 21/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6937 - accuracy: 0.375
0
Epoch 22/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6936 - accuracy: 0.375
0
Epoch 23/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6935 - accuracy: 0.362
5
Epoch 24/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6934 - accuracy: 0.368
8
Epoch 25/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6934 - accuracy: 0.368
8
Epoch 26/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.356
2
Epoch 27/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.381
2
Epoch 28/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6934 - accuracy: 0.381
2
Epoch 29/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.368
8
Epoch 30/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.381
2
Epoch 31/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.381
2
Epoch 32/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.375
0
Epoch 33/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.381
2
Epoch 34/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.375
0
Epoch 35/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.381
2
Epoch 36/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6930 - accuracy: 0.387
5
Epoch 37/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6930 - accuracy: 0.387
5
Epoch 38/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6930 - accuracy: 0.393
8
Epoch 39/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6934 - accuracy: 0.375
0
Epoch 40/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6929 - accuracy: 0.400
```

```
0
Epoch 41/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6929 - accuracy: 0.400
0
Epoch 42/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6929 - accuracy: 0.387
5
Epoch 43/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6929 - accuracy: 0.425
0
Epoch 44/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6929 - accuracy: 0.443
7
Epoch 45/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6928 - accuracy: 0.450
0
Epoch 46/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6928 - accuracy: 0.431
3
Epoch 47/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6929 - accuracy: 0.481
2
Epoch 48/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6928 - accuracy: 0.462
5
Epoch 49/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6927 - accuracy: 0.462
5
Epoch 50/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6928 - accuracy: 0.437
5
Epoch 51/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6927 - accuracy: 0.462
5
Epoch 52/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6927 - accuracy: 0.475
0
Epoch 53/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6927 - accuracy: 0.481
2
Epoch 54/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6928 - accuracy: 0.468
8
Epoch 55/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6926 - accuracy: 0.475
0
Epoch 56/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6927 - accuracy: 0.468
8
Epoch 57/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6928 - accuracy: 0.537
5
Epoch 58/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6926 - accuracy: 0.500
0
Epoch 59/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6926 - accuracy: 0.512
5
Epoch 60/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6926 - accuracy: 0.543
```

```
7
Epoch 61/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6925 - accuracy: 0.537
5
Epoch 62/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6926 - accuracy: 0.493
8
Epoch 63/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6925 - accuracy: 0.525
0
Epoch 64/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6926 - accuracy: 0.550
0
Epoch 65/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6925 - accuracy: 0.575
0
Epoch 66/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6925 - accuracy: 0.568
8
Epoch 67/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6924 - accuracy: 0.556
2
Epoch 68/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6924 - accuracy: 0.543
7
Epoch 69/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6924 - accuracy: 0.525
0
Epoch 70/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6924 - accuracy: 0.525
0
Epoch 71/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6923 - accuracy: 0.525
0
Epoch 72/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6924 - accuracy: 0.575
0
Epoch 73/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6923 - accuracy: 0.531
2
Epoch 74/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6922 - accuracy: 0.537
5
Epoch 75/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6922 - accuracy: 0.556
2
Epoch 76/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6922 - accuracy: 0.550
0
Epoch 77/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6922 - accuracy: 0.562
5
Epoch 78/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6921 - accuracy: 0.543
7
Epoch 79/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6921 - accuracy: 0.537
5
Epoch 80/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6921 - accuracy: 0.537
```

```
5
Epoch 81/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6921 - accuracy: 0.575
0
Epoch 82/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6921 - accuracy: 0.543
7
Epoch 83/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6920 - accuracy: 0.550
0
Epoch 84/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6925 - accuracy: 0.462
5
Epoch 85/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6919 - accuracy: 0.525
0
Epoch 86/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6919 - accuracy: 0.531
2
Epoch 87/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6919 - accuracy: 0.550
0
Epoch 88/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6920 - accuracy: 0.512
5
Epoch 89/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6918 - accuracy: 0.525
0
Epoch 90/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6918 - accuracy: 0.568
8
Epoch 91/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6918 - accuracy: 0.556
2
Epoch 92/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6917 - accuracy: 0.537
5
Epoch 93/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6917 - accuracy: 0.543
7
Epoch 94/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6916 - accuracy: 0.556
2
Epoch 95/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6916 - accuracy: 0.537
5
Epoch 96/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6915 - accuracy: 0.537
5
Epoch 97/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6916 - accuracy: 0.550
0
Epoch 98/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6914 - accuracy: 0.537
5
Epoch 99/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6915 - accuracy: 0.550
0
Epoch 100/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6914 - accuracy: 0.512
```

```
5
Epoch 101/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6914 - accuracy: 0.531
2
Epoch 102/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6912 - accuracy: 0.537
5
Epoch 103/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6912 - accuracy: 0.537
5
Epoch 104/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6912 - accuracy: 0.525
0
Epoch 105/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6911 - accuracy: 0.531
2
Epoch 106/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6910 - accuracy: 0.556
2
Epoch 107/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6909 - accuracy: 0.525
0
Epoch 108/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6909 - accuracy: 0.518
8
Epoch 109/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6909 - accuracy: 0.568
8
Epoch 110/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6908 - accuracy: 0.537
5
Epoch 111/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6907 - accuracy: 0.512
5
Epoch 112/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6906 - accuracy: 0.543
7
Epoch 113/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6906 - accuracy: 0.531
2
Epoch 114/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6905 - accuracy: 0.543
7
Epoch 115/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6904 - accuracy: 0.525
0
Epoch 116/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6903 - accuracy: 0.556
2
Epoch 117/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6903 - accuracy: 0.537
5
Epoch 118/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6902 - accuracy: 0.556
2
Epoch 119/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6902 - accuracy: 0.531
2
Epoch 120/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6903 - accuracy: 0.556
```

```
2
Epoch 121/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6899 - accuracy: 0.531
2
Epoch 122/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6900 - accuracy: 0.556
2
Epoch 123/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6898 - accuracy: 0.543
7
Epoch 124/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6898 - accuracy: 0.543
7
Epoch 125/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6896 - accuracy: 0.537
5
Epoch 126/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6896 - accuracy: 0.550
0
Epoch 127/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6895 - accuracy: 0.550
0
Epoch 128/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6895 - accuracy: 0.531
2
Epoch 129/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6892 - accuracy: 0.550
0
Epoch 130/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6891 - accuracy: 0.537
5
Epoch 131/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6890 - accuracy: 0.531
2
Epoch 132/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6889 - accuracy: 0.543
7
Epoch 133/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6890 - accuracy: 0.518
8
Epoch 134/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6887 - accuracy: 0.531
2
Epoch 135/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6886 - accuracy: 0.537
5
Epoch 136/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6885 - accuracy: 0.550
0
Epoch 137/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6884 - accuracy: 0.531
2
Epoch 138/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6882 - accuracy: 0.543
7
Epoch 139/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6881 - accuracy: 0.550
0
Epoch 140/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6879 - accuracy: 0.543
```

```
7
Epoch 141/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6878 - accuracy: 0.543
7
Epoch 142/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6877 - accuracy: 0.543
7
Epoch 143/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6876 - accuracy: 0.543
7
Epoch 144/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6877 - accuracy: 0.550
0
Epoch 145/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6873 - accuracy: 0.550
0
Epoch 146/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6871 - accuracy: 0.543
7
Epoch 147/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6870 - accuracy: 0.543
7
Epoch 148/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6868 - accuracy: 0.543
7
Epoch 149/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6866 - accuracy: 0.543
7
Epoch 150/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6866 - accuracy: 0.543
7
Epoch 151/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6864 - accuracy: 0.550
0
Epoch 152/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6861 - accuracy: 0.550
0
Epoch 153/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6860 - accuracy: 0.543
7
Epoch 154/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6858 - accuracy: 0.543
7
Epoch 155/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6858 - accuracy: 0.537
5
Epoch 156/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6854 - accuracy: 0.543
7
Epoch 157/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6853 - accuracy: 0.543
7
Epoch 158/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6851 - accuracy: 0.543
7
Epoch 159/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6849 - accuracy: 0.550
0
Epoch 160/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6847 - accuracy: 0.543
```

7
Epoch 161/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6845 - accuracy: 0.543
7
Epoch 162/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6844 - accuracy: 0.543
7
Epoch 163/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6841 - accuracy: 0.543
7
Epoch 164/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6839 - accuracy: 0.550
0
Epoch 165/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6838 - accuracy: 0.556
2
Epoch 166/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6835 - accuracy: 0.556
2
Epoch 167/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6832 - accuracy: 0.543
7
Epoch 168/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6829 - accuracy: 0.543
7
Epoch 169/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6827 - accuracy: 0.550
0
Epoch 170/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6825 - accuracy: 0.556
2
Epoch 171/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6822 - accuracy: 0.543
7
Epoch 172/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6820 - accuracy: 0.543
7
Epoch 173/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6818 - accuracy: 0.543
7
Epoch 174/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6816 - accuracy: 0.543
7
Epoch 175/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6813 - accuracy: 0.543
7
Epoch 176/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6810 - accuracy: 0.556
2
Epoch 177/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6807 - accuracy: 0.556
2
Epoch 178/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6805 - accuracy: 0.543
7
Epoch 179/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6803 - accuracy: 0.556
2
Epoch 180/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6799 - accuracy: 0.556

```
2
Epoch 181/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6797 - accuracy: 0.550
0
Epoch 182/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6793 - accuracy: 0.556
2
Epoch 183/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6791 - accuracy: 0.556
2
Epoch 184/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6787 - accuracy: 0.556
2
Epoch 185/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6785 - accuracy: 0.556
2
Epoch 186/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6782 - accuracy: 0.556
2
Epoch 187/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6778 - accuracy: 0.556
2
Epoch 188/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6775 - accuracy: 0.556
2
Epoch 189/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6772 - accuracy: 0.556
2
Epoch 190/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6770 - accuracy: 0.562
5
Epoch 191/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6766 - accuracy: 0.556
2
Epoch 192/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6763 - accuracy: 0.556
2
Epoch 193/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6759 - accuracy: 0.556
2
Epoch 194/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6756 - accuracy: 0.562
5
Epoch 195/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6752 - accuracy: 0.562
5
Epoch 196/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6750 - accuracy: 0.562
5
Epoch 197/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6746 - accuracy: 0.562
5
Epoch 198/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6742 - accuracy: 0.562
5
Epoch 199/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6740 - accuracy: 0.562
5
Epoch 200/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6736 - accuracy: 0.562
```

```
5
Epoch 201/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6733 - accuracy: 0.568
8
Epoch 202/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6728 - accuracy: 0.562
5
Epoch 203/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6725 - accuracy: 0.562
5
Epoch 204/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6721 - accuracy: 0.562
5
Epoch 205/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6717 - accuracy: 0.562
5
Epoch 206/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6714 - accuracy: 0.562
5
Epoch 207/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6712 - accuracy: 0.568
8
Epoch 208/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6706 - accuracy: 0.568
8
Epoch 209/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6703 - accuracy: 0.562
5
Epoch 210/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6699 - accuracy: 0.568
8
Epoch 211/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6695 - accuracy: 0.568
8
Epoch 212/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6692 - accuracy: 0.568
8
Epoch 213/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6688 - accuracy: 0.568
8
Epoch 214/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6684 - accuracy: 0.568
8
Epoch 215/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6680 - accuracy: 0.568
8
Epoch 216/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6676 - accuracy: 0.568
8
Epoch 217/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6672 - accuracy: 0.568
8
Epoch 218/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6668 - accuracy: 0.568
8
Epoch 219/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6665 - accuracy: 0.568
8
Epoch 220/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6660 - accuracy: 0.568
```

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8
Epoch 221/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6656 - accuracy: 0.568
8
Epoch 222/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6652 - accuracy: 0.568
8
Epoch 223/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6649 - accuracy: 0.581
3
Epoch 224/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6644 - accuracy: 0.575
0
Epoch 225/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6640 - accuracy: 0.575
0
Epoch 226/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6636 - accuracy: 0.581
3
Epoch 227/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6633 - accuracy: 0.581
3
Epoch 228/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6628 - accuracy: 0.581
3
Epoch 229/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6623 - accuracy: 0.581
3
Epoch 230/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6620 - accuracy: 0.581
3
Epoch 231/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6617 - accuracy: 0.581
3
Epoch 232/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6611 - accuracy: 0.587
5
Epoch 233/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6607 - accuracy: 0.587
5
Epoch 234/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6603 - accuracy: 0.587
5
Epoch 235/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6598 - accuracy: 0.587
5
Epoch 236/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6595 - accuracy: 0.593
8
Epoch 237/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6592 - accuracy: 0.606
2
Epoch 238/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6591 - accuracy: 0.581
3
Epoch 239/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6583 - accuracy: 0.600
0
Epoch 240/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6579 - accuracy: 0.600
```

```
0
Epoch 241/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6574 - accuracy: 0.600
0
Epoch 242/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6571 - accuracy: 0.618
7
Epoch 243/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6566 - accuracy: 0.618
7
Epoch 244/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6562 - accuracy: 0.612
5
Epoch 245/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6557 - accuracy: 0.606
2
Epoch 246/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6553 - accuracy: 0.612
5
Epoch 247/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6549 - accuracy: 0.612
5
Epoch 248/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6544 - accuracy: 0.618
7
Epoch 249/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6541 - accuracy: 0.618
7
Epoch 250/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6537 - accuracy: 0.612
5
Epoch 251/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6532 - accuracy: 0.618
7
Epoch 252/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6528 - accuracy: 0.618
7
Epoch 253/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6523 - accuracy: 0.625
0
Epoch 254/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6520 - accuracy: 0.625
0
Epoch 255/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6515 - accuracy: 0.625
0
Epoch 256/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6511 - accuracy: 0.625
0
Epoch 257/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6506 - accuracy: 0.631
3
Epoch 258/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6504 - accuracy: 0.637
5
Epoch 259/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6498 - accuracy: 0.637
5
Epoch 260/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6494 - accuracy: 0.637
```

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5
Epoch 261/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6490 - accuracy: 0.631
3
Epoch 262/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6487 - accuracy: 0.637
5
Epoch 263/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6482 - accuracy: 0.631
3
Epoch 264/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6478 - accuracy: 0.637
5
Epoch 265/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6474 - accuracy: 0.637
5
Epoch 266/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6470 - accuracy: 0.637
5
Epoch 267/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6466 - accuracy: 0.631
3
Epoch 268/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6462 - accuracy: 0.631
3
Epoch 269/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6458 - accuracy: 0.631
3
Epoch 270/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6454 - accuracy: 0.631
3
Epoch 271/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6449 - accuracy: 0.631
3
Epoch 272/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6445 - accuracy: 0.631
3
Epoch 273/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6441 - accuracy: 0.631
3
Epoch 274/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6438 - accuracy: 0.631
3
Epoch 275/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6433 - accuracy: 0.631
3
Epoch 276/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6429 - accuracy: 0.631
3
Epoch 277/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6425 - accuracy: 0.631
3
Epoch 278/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6422 - accuracy: 0.631
3
Epoch 279/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6417 - accuracy: 0.637
5
Epoch 280/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6413 - accuracy: 0.631
```

```
3
Epoch 281/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6411 - accuracy: 0.631
3
Epoch 282/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6406 - accuracy: 0.631
3
Epoch 283/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6402 - accuracy: 0.637
5
Epoch 284/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6400 - accuracy: 0.631
3
Epoch 285/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6393 - accuracy: 0.631
3
Epoch 286/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6390 - accuracy: 0.631
3
Epoch 287/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6386 - accuracy: 0.631
3
Epoch 288/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6383 - accuracy: 0.631
3
Epoch 289/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6378 - accuracy: 0.631
3
Epoch 290/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6374 - accuracy: 0.631
3
Epoch 291/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6370 - accuracy: 0.631
3
Epoch 292/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6367 - accuracy: 0.631
3
Epoch 293/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6364 - accuracy: 0.631
3
Epoch 294/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6360 - accuracy: 0.631
3
Epoch 295/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6356 - accuracy: 0.631
3
Epoch 296/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6352 - accuracy: 0.631
3
Epoch 297/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6348 - accuracy: 0.631
3
Epoch 298/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6346 - accuracy: 0.631
3
Epoch 299/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6342 - accuracy: 0.631
3
Epoch 300/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6337 - accuracy: 0.631
```

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3
Epoch 301/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6334 - accuracy: 0.631
3
Epoch 302/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6331 - accuracy: 0.631
3
Epoch 303/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6327 - accuracy: 0.637
5
Epoch 304/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6324 - accuracy: 0.631
3
Epoch 305/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6320 - accuracy: 0.631
3
Epoch 306/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6316 - accuracy: 0.637
5
Epoch 307/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6315 - accuracy: 0.631
3
Epoch 308/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6310 - accuracy: 0.637
5
Epoch 309/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6306 - accuracy: 0.643
8
Epoch 310/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6303 - accuracy: 0.643
8
Epoch 311/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6299 - accuracy: 0.643
8
Epoch 312/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6296 - accuracy: 0.643
8
Epoch 313/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6292 - accuracy: 0.643
8
Epoch 314/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6289 - accuracy: 0.643
8
Epoch 315/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6287 - accuracy: 0.643
8
Epoch 316/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6282 - accuracy: 0.650
0
Epoch 317/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6279 - accuracy: 0.643
8
Epoch 318/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6275 - accuracy: 0.650
0
Epoch 319/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6274 - accuracy: 0.650
0
Epoch 320/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6270 - accuracy: 0.650
```

```
0
Epoch 321/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6267 - accuracy: 0.650
0
Epoch 322/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6263 - accuracy: 0.650
0
Epoch 323/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6260 - accuracy: 0.650
0
Epoch 324/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6257 - accuracy: 0.650
0
Epoch 325/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6253 - accuracy: 0.650
0
Epoch 326/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6250 - accuracy: 0.650
0
Epoch 327/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6247 - accuracy: 0.650
0
Epoch 328/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6244 - accuracy: 0.656
2
Epoch 329/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6241 - accuracy: 0.656
2
Epoch 330/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6238 - accuracy: 0.662
5
Epoch 331/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6235 - accuracy: 0.656
2
Epoch 332/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6232 - accuracy: 0.656
2
Epoch 333/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6229 - accuracy: 0.656
2
Epoch 334/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6227 - accuracy: 0.656
2
Epoch 335/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6223 - accuracy: 0.656
2
Epoch 336/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6220 - accuracy: 0.656
2
Epoch 337/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6216 - accuracy: 0.656
2
Epoch 338/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6214 - accuracy: 0.656
2
Epoch 339/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6212 - accuracy: 0.656
2
Epoch 340/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6211 - accuracy: 0.656
```

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2
Epoch 341/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6207 - accuracy: 0.656
2
Epoch 342/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6203 - accuracy: 0.656
2
Epoch 343/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6201 - accuracy: 0.662
5
Epoch 344/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6197 - accuracy: 0.668
7
Epoch 345/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6194 - accuracy: 0.662
5
Epoch 346/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6191 - accuracy: 0.668
7
Epoch 347/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6189 - accuracy: 0.662
5
Epoch 348/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6186 - accuracy: 0.662
5
Epoch 349/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6183 - accuracy: 0.662
5
Epoch 350/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6182 - accuracy: 0.668
7
Epoch 351/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6178 - accuracy: 0.668
7
Epoch 352/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6176 - accuracy: 0.668
7
Epoch 353/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6173 - accuracy: 0.668
7
Epoch 354/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6171 - accuracy: 0.668
7
Epoch 355/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6168 - accuracy: 0.668
7
Epoch 356/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6166 - accuracy: 0.675
0
Epoch 357/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6163 - accuracy: 0.675
0
Epoch 358/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6161 - accuracy: 0.675
0
Epoch 359/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6158 - accuracy: 0.675
0
Epoch 360/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6155 - accuracy: 0.675
```

```
0
Epoch 361/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6153 - accuracy: 0.675
0
Epoch 362/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6151 - accuracy: 0.675
0
Epoch 363/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6148 - accuracy: 0.675
0
Epoch 364/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6146 - accuracy: 0.675
0
Epoch 365/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6144 - accuracy: 0.675
0
Epoch 366/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6142 - accuracy: 0.675
0
Epoch 367/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6140 - accuracy: 0.675
0
Epoch 368/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6136 - accuracy: 0.675
0
Epoch 369/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6134 - accuracy: 0.675
0
Epoch 370/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6133 - accuracy: 0.675
0
Epoch 371/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6130 - accuracy: 0.675
0
Epoch 372/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6128 - accuracy: 0.675
0
Epoch 373/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6125 - accuracy: 0.675
0
Epoch 374/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6126 - accuracy: 0.675
0
Epoch 375/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6120 - accuracy: 0.675
0
Epoch 376/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6119 - accuracy: 0.675
0
Epoch 377/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6116 - accuracy: 0.675
0
Epoch 378/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6114 - accuracy: 0.675
0
Epoch 379/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6112 - accuracy: 0.675
0
Epoch 380/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6111 - accuracy: 0.675
```

```
0
Epoch 381/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6108 - accuracy: 0.675
0
Epoch 382/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6105 - accuracy: 0.675
0
Epoch 383/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6103 - accuracy: 0.675
0
Epoch 384/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6102 - accuracy: 0.675
0
Epoch 385/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6101 - accuracy: 0.675
0
Epoch 386/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6098 - accuracy: 0.681
2
Epoch 387/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6096 - accuracy: 0.675
0
Epoch 388/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6093 - accuracy: 0.675
0
Epoch 389/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6091 - accuracy: 0.681
2
Epoch 390/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6090 - accuracy: 0.681
2
Epoch 391/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6087 - accuracy: 0.681
2
Epoch 392/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6085 - accuracy: 0.681
2
Epoch 393/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6083 - accuracy: 0.681
2
Epoch 394/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6082 - accuracy: 0.681
2
Epoch 395/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6080 - accuracy: 0.681
2
Epoch 396/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6077 - accuracy: 0.681
2
Epoch 397/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6076 - accuracy: 0.681
2
Epoch 398/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6074 - accuracy: 0.681
2
Epoch 399/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6072 - accuracy: 0.681
2
Epoch 400/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6070 - accuracy: 0.681
```

```
2
5/5 [==============================] - 0s 2ms/step - loss: 0.6068 - accuracy: 0.6812
3
Epoch 1/400
40/40 [==============================] - 1s 2ms/step - loss: 0.9077 - accuracy: 0.418
7
Epoch 2/400
40/40 [==============================] - 0s 2ms/step - loss: 0.9016 - accuracy: 0.418
7
Epoch 3/400
40/40 [==============================] - 0s 2ms/step - loss: 0.8956 - accuracy: 0.412
5
Epoch 4/400
40/40 [==============================] - 0s 2ms/step - loss: 0.8894 - accuracy: 0.412
5
Epoch 5/400
40/40 [==============================] - 0s 2ms/step - loss: 0.8834 - accuracy: 0.412
5
Epoch 6/400
40/40 [==============================] - 0s 2ms/step - loss: 0.8773 - accuracy: 0.406
2
Epoch 7/400
40/40 [==============================] - 0s 2ms/step - loss: 0.8713 - accuracy: 0.393
8
Epoch 8/400
40/40 [==============================] - 0s 2ms/step - loss: 0.8654 - accuracy: 0.387
5
Epoch 9/400
40/40 [==============================] - 0s 2ms/step - loss: 0.8593 - accuracy: 0.387
5
Epoch 10/400
40/40 [==============================] - 0s 2ms/step - loss: 0.8534 - accuracy: 0.387
5
Epoch 11/400
40/40 [==============================] - 0s 2ms/step - loss: 0.8477 - accuracy: 0.387
5
Epoch 12/400
40/40 [==============================] - 0s 2ms/step - loss: 0.8417 - accuracy: 0.387
5
Epoch 13/400
40/40 [==============================] - 0s 2ms/step - loss: 0.8360 - accuracy: 0.387
5
Epoch 14/400
40/40 [==============================] - 0s 2ms/step - loss: 0.8305 - accuracy: 0.381
2
Epoch 15/400
40/40 [==============================] - 0s 2ms/step - loss: 0.8250 - accuracy: 0.381
2
Epoch 16/400
40/40 [==============================] - 0s 2ms/step - loss: 0.8198 - accuracy: 0.381
2
Epoch 17/400
40/40 [==============================] - 0s 2ms/step - loss: 0.8142 - accuracy: 0.381
2
Epoch 18/400
40/40 [==============================] - 0s 2ms/step - loss: 0.8091 - accuracy: 0.381
2
Epoch 19/400
40/40 [==============================] - 0s 2ms/step - loss: 0.8042 - accuracy: 0.381
2
```

```
Epoch 20/400
40/40 [==============================] - 0s 1ms/step - loss: 0.7993 - accuracy: 0.375
0
Epoch 21/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7946 - accuracy: 0.375
0
Epoch 22/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7898 - accuracy: 0.375
0
Epoch 23/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7855 - accuracy: 0.375
0
Epoch 24/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7813 - accuracy: 0.375
0
Epoch 25/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7769 - accuracy: 0.368
8
Epoch 26/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7730 - accuracy: 0.368
8
Epoch 27/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7692 - accuracy: 0.368
8
Epoch 28/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7656 - accuracy: 0.368
8
Epoch 29/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7621 - accuracy: 0.368
8
Epoch 30/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7586 - accuracy: 0.362
5
Epoch 31/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7556 - accuracy: 0.356
2
Epoch 32/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7528 - accuracy: 0.356
2
Epoch 33/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7498 - accuracy: 0.356
2
Epoch 34/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7473 - accuracy: 0.343
8
Epoch 35/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7448 - accuracy: 0.337
5
Epoch 36/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7425 - accuracy: 0.337
5
Epoch 37/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7402 - accuracy: 0.337
5
Epoch 38/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7383 - accuracy: 0.337
5
Epoch 39/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7363 - accuracy: 0.331
3
```

```
Epoch 40/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7345 - accuracy: 0.337
5
Epoch 41/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7328 - accuracy: 0.337
5
Epoch 42/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7312 - accuracy: 0.337
5
Epoch 43/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7297 - accuracy: 0.337
5
Epoch 44/400
40/40 [==============================] - 0s 1ms/step - loss: 0.7283 - accuracy: 0.337
5
Epoch 45/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7272 - accuracy: 0.337
5
Epoch 46/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7259 - accuracy: 0.337
5
Epoch 47/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7247 - accuracy: 0.337
5
Epoch 48/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7236 - accuracy: 0.331
3
Epoch 49/400
40/40 [==============================] - 0s 1ms/step - loss: 0.7225 - accuracy: 0.331
3
Epoch 50/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7216 - accuracy: 0.325
0
Epoch 51/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7206 - accuracy: 0.318
7
Epoch 52/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7197 - accuracy: 0.318
7
Epoch 53/400
40/40 [==============================] - 0s 1ms/step - loss: 0.7190 - accuracy: 0.325
0
Epoch 54/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7182 - accuracy: 0.331
3
Epoch 55/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7174 - accuracy: 0.325
0
Epoch 56/400
40/40 [==============================] - 0s 1ms/step - loss: 0.7167 - accuracy: 0.312
5
Epoch 57/400
40/40 [==============================] - 0s 1ms/step - loss: 0.7160 - accuracy: 0.312
5
Epoch 58/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7153 - accuracy: 0.306
3
Epoch 59/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7148 - accuracy: 0.312
5
```

```
Epoch 60/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7142 - accuracy: 0.318
7
Epoch 61/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7136 - accuracy: 0.312
5
Epoch 62/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7130 - accuracy: 0.343
8
Epoch 63/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7123 - accuracy: 0.350
0
Epoch 64/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7119 - accuracy: 0.368
8
Epoch 65/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7114 - accuracy: 0.356
2
Epoch 66/400
40/40 [==============================] - 0s 1ms/step - loss: 0.7109 - accuracy: 0.400
0
Epoch 67/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7103 - accuracy: 0.437
5
Epoch 68/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7099 - accuracy: 0.543
7
Epoch 69/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7094 - accuracy: 0.531
2
Epoch 70/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7089 - accuracy: 0.625
0
Epoch 71/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7086 - accuracy: 0.556
2
Epoch 72/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7080 - accuracy: 0.668
7
Epoch 73/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7077 - accuracy: 0.525
0
Epoch 74/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7072 - accuracy: 0.500
0
Epoch 75/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7068 - accuracy: 0.500
0
Epoch 76/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7068 - accuracy: 0.525
0
Epoch 77/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7060 - accuracy: 0.500
0
Epoch 78/400
40/40 [==============================] - 0s 1ms/step - loss: 0.7057 - accuracy: 0.500
0
Epoch 79/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7053 - accuracy: 0.500
0
```

```
Epoch 80/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7051 - accuracy: 0.500
0
Epoch 81/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7046 - accuracy: 0.500
0
Epoch 82/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7043 - accuracy: 0.500
0
Epoch 83/400
40/40 [==============================] - 0s 1ms/step - loss: 0.7040 - accuracy: 0.500
0
Epoch 84/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7036 - accuracy: 0.500
0
Epoch 85/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7033 - accuracy: 0.500
0
Epoch 86/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7030 - accuracy: 0.500
0
Epoch 87/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7028 - accuracy: 0.500
0
Epoch 88/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7024 - accuracy: 0.500
0
Epoch 89/400
40/40 [==============================] - 0s 1ms/step - loss: 0.7021 - accuracy: 0.500
0
Epoch 90/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7019 - accuracy: 0.500
0
Epoch 91/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7017 - accuracy: 0.500
0
Epoch 92/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7014 - accuracy: 0.500
0
Epoch 93/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7012 - accuracy: 0.500
0
Epoch 94/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7011 - accuracy: 0.500
0
Epoch 95/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7008 - accuracy: 0.500
0
Epoch 96/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7004 - accuracy: 0.500
0
Epoch 97/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7004 - accuracy: 0.500
0
Epoch 98/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7002 - accuracy: 0.500
0
Epoch 99/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6997 - accuracy: 0.500
0
```

```
Epoch 100/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6996 - accuracy: 0.500
0
Epoch 101/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6994 - accuracy: 0.500
0
Epoch 102/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6995 - accuracy: 0.500
0
Epoch 103/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6991 - accuracy: 0.500
0
Epoch 104/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6989 - accuracy: 0.500
0
Epoch 105/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6988 - accuracy: 0.500
0
Epoch 106/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6985 - accuracy: 0.500
0
Epoch 107/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6985 - accuracy: 0.500
0
Epoch 108/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6983 - accuracy: 0.500
0
Epoch 109/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6981 - accuracy: 0.500
0
Epoch 110/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6980 - accuracy: 0.500
0
Epoch 111/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6978 - accuracy: 0.500
0
Epoch 112/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6977 - accuracy: 0.500
0
Epoch 113/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6976 - accuracy: 0.500
0
Epoch 114/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6975 - accuracy: 0.500
0
Epoch 115/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6974 - accuracy: 0.500
0
Epoch 116/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6973 - accuracy: 0.500
0
Epoch 117/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6972 - accuracy: 0.500
0
Epoch 118/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6970 - accuracy: 0.500
0
Epoch 119/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6970 - accuracy: 0.500
0
```

```
Epoch 120/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6968 - accuracy: 0.500
0
Epoch 121/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6967 - accuracy: 0.500
0
Epoch 122/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6967 - accuracy: 0.500
0
Epoch 123/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6965 - accuracy: 0.500
0
Epoch 124/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6964 - accuracy: 0.500
0
Epoch 125/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6963 - accuracy: 0.500
0
Epoch 126/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6962 - accuracy: 0.500
0
Epoch 127/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6961 - accuracy: 0.500
0
Epoch 128/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6961 - accuracy: 0.500
0
Epoch 129/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6960 - accuracy: 0.500
0
Epoch 130/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6959 - accuracy: 0.500
0
Epoch 131/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6958 - accuracy: 0.500
0
Epoch 132/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6959 - accuracy: 0.500
0
Epoch 133/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6957 - accuracy: 0.500
0
Epoch 134/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6957 - accuracy: 0.500
0
Epoch 135/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6956 - accuracy: 0.500
0
Epoch 136/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6958 - accuracy: 0.512
5
Epoch 137/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6956 - accuracy: 0.500
0
Epoch 138/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6954 - accuracy: 0.500
0
Epoch 139/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6953 - accuracy: 0.500
0
```

```
Epoch 140/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6953 - accuracy: 0.500
0
Epoch 141/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6953 - accuracy: 0.500
0
Epoch 142/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6953 - accuracy: 0.500
0
Epoch 143/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6952 - accuracy: 0.500
0
Epoch 144/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6952 - accuracy: 0.500
0
Epoch 145/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6952 - accuracy: 0.543
7
Epoch 146/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6950 - accuracy: 0.500
0
Epoch 147/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6950 - accuracy: 0.500
0
Epoch 148/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6952 - accuracy: 0.500
0
Epoch 149/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6949 - accuracy: 0.500
0
Epoch 150/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6949 - accuracy: 0.500
0
Epoch 151/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6948 - accuracy: 0.500
0
Epoch 152/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6947 - accuracy: 0.500
0
Epoch 153/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6948 - accuracy: 0.518
8
Epoch 154/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6947 - accuracy: 0.568
8
Epoch 155/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6948 - accuracy: 0.500
0
Epoch 156/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6946 - accuracy: 0.500
0
Epoch 157/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6946 - accuracy: 0.543
7
Epoch 158/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6946 - accuracy: 0.500
0
Epoch 159/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6945 - accuracy: 0.500
0
```

```
Epoch 160/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6945 - accuracy: 0.500
0
Epoch 161/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6945 - accuracy: 0.500
0
Epoch 162/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6944 - accuracy: 0.500
0
Epoch 163/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6944 - accuracy: 0.500
0
Epoch 164/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6944 - accuracy: 0.500
0
Epoch 165/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6945 - accuracy: 0.456
3
Epoch 166/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6944 - accuracy: 0.487
5
Epoch 167/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6944 - accuracy: 0.531
2
Epoch 168/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6945 - accuracy: 0.437
5
Epoch 169/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6942 - accuracy: 0.506
3
Epoch 170/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6943 - accuracy: 0.562
5
Epoch 171/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6942 - accuracy: 0.543
7
Epoch 172/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6941 - accuracy: 0.500
0
Epoch 173/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6942 - accuracy: 0.500
0
Epoch 174/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6941 - accuracy: 0.531
2
Epoch 175/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6942 - accuracy: 0.525
0
Epoch 176/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6942 - accuracy: 0.512
5
Epoch 177/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6940 - accuracy: 0.500
0
Epoch 178/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6940 - accuracy: 0.500
0
Epoch 179/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6940 - accuracy: 0.500
0
```

```
Epoch 180/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6940 - accuracy: 0.506
3
Epoch 181/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6940 - accuracy: 0.550
0
Epoch 182/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6939 - accuracy: 0.518
8
Epoch 183/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6941 - accuracy: 0.431
3
Epoch 184/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6941 - accuracy: 0.518
8
Epoch 185/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6939 - accuracy: 0.500
0
Epoch 186/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6939 - accuracy: 0.500
0
Epoch 187/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6939 - accuracy: 0.500
0
Epoch 188/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6939 - accuracy: 0.506
3
Epoch 189/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6939 - accuracy: 0.500
0
Epoch 190/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6939 - accuracy: 0.456
3
Epoch 191/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6939 - accuracy: 0.468
8
Epoch 192/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6939 - accuracy: 0.500
0
Epoch 193/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6938 - accuracy: 0.531
2
Epoch 194/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6938 - accuracy: 0.500
0
Epoch 195/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6938 - accuracy: 0.350
0
Epoch 196/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6938 - accuracy: 0.537
5
Epoch 197/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6937 - accuracy: 0.581
3
Epoch 198/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6939 - accuracy: 0.587
5
Epoch 199/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6937 - accuracy: 0.518
8
```

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Epoch 200/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6937 - accuracy: 0.593
8
Epoch 201/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6937 - accuracy: 0.531
2
Epoch 202/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6937 - accuracy: 0.518
8
Epoch 203/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6940 - accuracy: 0.500
0
Epoch 204/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6938 - accuracy: 0.506
3
Epoch 205/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6936 - accuracy: 0.500
0
Epoch 206/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6937 - accuracy: 0.531
2
Epoch 207/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6936 - accuracy: 0.443
7
Epoch 208/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6937 - accuracy: 0.368
8
Epoch 209/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6936 - accuracy: 0.550
0
Epoch 210/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6936 - accuracy: 0.475
0
Epoch 211/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6936 - accuracy: 0.368
8
Epoch 212/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6936 - accuracy: 0.412
5
Epoch 213/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6935 - accuracy: 0.500
0
Epoch 214/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6936 - accuracy: 0.500
0
Epoch 215/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6936 - accuracy: 0.406
2
Epoch 216/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6936 - accuracy: 0.412
5
Epoch 217/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6936 - accuracy: 0.468
8
Epoch 218/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6937 - accuracy: 0.412
5
Epoch 219/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6935 - accuracy: 0.443
7
```

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Epoch 220/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6936 - accuracy: 0.368
8
Epoch 221/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6937 - accuracy: 0.468
8
Epoch 222/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6935 - accuracy: 0.450
0
Epoch 223/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6935 - accuracy: 0.518
8
Epoch 224/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6935 - accuracy: 0.581
3
Epoch 225/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6934 - accuracy: 0.537
5
Epoch 226/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6935 - accuracy: 0.450
0
Epoch 227/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6935 - accuracy: 0.393
8
Epoch 228/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6935 - accuracy: 0.493
8
Epoch 229/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6935 - accuracy: 0.431
3
Epoch 230/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6935 - accuracy: 0.393
8
Epoch 231/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6935 - accuracy: 0.481
2
Epoch 232/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6935 - accuracy: 0.387
5
Epoch 233/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6935 - accuracy: 0.475
0
Epoch 234/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6935 - accuracy: 0.418
7
Epoch 235/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6935 - accuracy: 0.393
8
Epoch 236/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6934 - accuracy: 0.512
5
Epoch 237/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6934 - accuracy: 0.506
3
Epoch 238/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6934 - accuracy: 0.437
5
Epoch 239/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6934 - accuracy: 0.456
3
```

```
Epoch 240/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6934 - accuracy: 0.425
0
Epoch 241/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6934 - accuracy: 0.331
3
Epoch 242/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6934 - accuracy: 0.431
3
Epoch 243/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6935 - accuracy: 0.481
2
Epoch 244/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.412
5
Epoch 245/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6936 - accuracy: 0.481
2
Epoch 246/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6934 - accuracy: 0.468
8
Epoch 247/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6935 - accuracy: 0.437
5
Epoch 248/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6934 - accuracy: 0.456
3
Epoch 249/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6934 - accuracy: 0.381
2
Epoch 250/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.375
0
Epoch 251/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6934 - accuracy: 0.512
5
Epoch 252/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6935 - accuracy: 0.406
2
Epoch 253/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.350
0
Epoch 254/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.500
0
Epoch 255/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6934 - accuracy: 0.406
2
Epoch 256/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6934 - accuracy: 0.425
0
Epoch 257/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.506
3
Epoch 258/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.506
3
Epoch 259/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.487
5
```

```
Epoch 260/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.481
2
Epoch 261/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.487
5
Epoch 262/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.431
3
Epoch 263/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.456
3
Epoch 264/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.443
7
Epoch 265/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.393
8
Epoch 266/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6934 - accuracy: 0.500
0
Epoch 267/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.468
8
Epoch 268/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6934 - accuracy: 0.431
3
Epoch 269/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.550
0
Epoch 270/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6934 - accuracy: 0.393
8
Epoch 271/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.500
0
Epoch 272/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.381
2
Epoch 273/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.462
5
Epoch 274/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.462
5
Epoch 275/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.475
0
Epoch 276/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6934 - accuracy: 0.462
5
Epoch 277/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.375
0
Epoch 278/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.356
2
Epoch 279/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.518
8
```

```
Epoch 280/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.443
7
Epoch 281/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.400
0
Epoch 282/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6934 - accuracy: 0.500
0
Epoch 283/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.481
2
Epoch 284/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.437
5
Epoch 285/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.475
0
Epoch 286/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.431
3
Epoch 287/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.456
3
Epoch 288/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.456
3
Epoch 289/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.500
0
Epoch 290/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.475
0
Epoch 291/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.468
8
Epoch 292/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.493
8
Epoch 293/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.450
0
Epoch 294/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.450
0
Epoch 295/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 296/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.468
8
Epoch 297/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.518
8
Epoch 298/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.381
2
Epoch 299/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.425
0
```

```
Epoch 300/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6934 - accuracy: 0.456
3
Epoch 301/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6934 - accuracy: 0.462
5
Epoch 302/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 303/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.468
8
Epoch 304/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.400
0
Epoch 305/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.393
8
Epoch 306/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.512
5
Epoch 307/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.487
5
Epoch 308/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 309/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.412
5
Epoch 310/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.443
7
Epoch 311/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 312/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.487
5
Epoch 313/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 314/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.481
2
Epoch 315/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.500
0
Epoch 316/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.456
3
Epoch 317/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.393
8
Epoch 318/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.493
8
Epoch 319/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.450
0
```

```
Epoch 320/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.481
2
Epoch 321/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6935 - accuracy: 0.468
8
Epoch 322/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.468
8
Epoch 323/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 324/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.481
2
Epoch 325/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6935 - accuracy: 0.462
5
Epoch 326/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 327/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 328/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.481
2
Epoch 329/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.462
5
Epoch 330/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.468
8
Epoch 331/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.506
3
Epoch 332/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.500
0
Epoch 333/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 334/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.468
8
Epoch 335/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.475
0
Epoch 336/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.487
5
Epoch 337/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.462
5
Epoch 338/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.475
0
Epoch 339/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.468
8
```

```
Epoch 340/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.468
8
Epoch 341/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.475
0
Epoch 342/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6934 - accuracy: 0.487
5
Epoch 343/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.475
0
Epoch 344/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.468
8
Epoch 345/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.456
3
Epoch 346/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.456
3
Epoch 347/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 348/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6934 - accuracy: 0.468
8
Epoch 349/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.456
3
Epoch 350/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.487
5
Epoch 351/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.468
8
Epoch 352/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.456
3
Epoch 353/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 354/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.487
5
Epoch 355/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.512
5
Epoch 356/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.500
0
Epoch 357/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.475
0
Epoch 358/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6935 - accuracy: 0.450
0
Epoch 359/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.500
0
```

```
Epoch 360/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 361/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.437
5
Epoch 362/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.500
0
Epoch 363/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 364/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.500
0
Epoch 365/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6934 - accuracy: 0.462
5
Epoch 366/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 367/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.368
8
Epoch 368/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.475
0
Epoch 369/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.512
5
Epoch 370/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 371/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 372/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6934 - accuracy: 0.425
0
Epoch 373/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 374/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6931 - accuracy: 0.581
3
Epoch 375/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.481
2
Epoch 376/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.550
0
Epoch 377/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.525
0
Epoch 378/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.443
7
Epoch 379/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.518
8
```

```
Epoch 380/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.456
3
Epoch 381/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.462
5
Epoch 382/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.487
5
Epoch 383/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.493
8
Epoch 384/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6931 - accuracy: 0.493
8
Epoch 385/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.450
0
Epoch 386/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.506
3
Epoch 387/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.468
8
Epoch 388/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.475
0
Epoch 389/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.481
2
Epoch 390/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.493
8
Epoch 391/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6931 - accuracy: 0.475
0
Epoch 392/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.518
8
Epoch 393/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6930 - accuracy: 0.600
0
Epoch 394/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6931 - accuracy: 0.468
8
Epoch 395/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6930 - accuracy: 0.418
7
Epoch 396/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6930 - accuracy: 0.643
8
Epoch 397/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.487
5
Epoch 398/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6929 - accuracy: 0.606
2
Epoch 399/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6929 - accuracy: 0.525
0
```

```
Epoch 400/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6929 - accuracy: 0.456
3
5/5 [==============================] - 0s 2ms/step - loss: 0.6928 - accuracy: 0.6187
4
Epoch 1/400
40/40 [==============================] - 1s 1ms/step - loss: 0.7078 - accuracy: 0.500
0
Epoch 2/400
40/40 [==============================] - 0s 1ms/step - loss: 0.7067 - accuracy: 0.500
0
Epoch 3/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7059 - accuracy: 0.500
0
Epoch 4/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7050 - accuracy: 0.500
0
Epoch 5/400
40/40 [==============================] - 0s 1ms/step - loss: 0.7044 - accuracy: 0.500
0
Epoch 6/400
40/40 [==============================] - 0s 1ms/step - loss: 0.7035 - accuracy: 0.500
0
Epoch 7/400
40/40 [==============================] - 0s 1ms/step - loss: 0.7028 - accuracy: 0.500
0
Epoch 8/400
40/40 [==============================] - 0s 1ms/step - loss: 0.7022 - accuracy: 0.500
0
Epoch 9/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7016 - accuracy: 0.500
0
Epoch 10/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7011 - accuracy: 0.500
0
Epoch 11/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7007 - accuracy: 0.500
0
Epoch 12/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7002 - accuracy: 0.500
0
Epoch 13/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6997 - accuracy: 0.500
0
Epoch 14/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6992 - accuracy: 0.500
0
Epoch 15/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6989 - accuracy: 0.500
0
Epoch 16/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6985 - accuracy: 0.500
0
Epoch 17/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6982 - accuracy: 0.500
0
Epoch 18/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6980 - accuracy: 0.500
0
Epoch 19/400
```

```
40/40 [==============================] - 0s 1ms/step - loss: 0.6976 - accuracy: 0.500
0
Epoch 20/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6972 - accuracy: 0.500
0
Epoch 21/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6970 - accuracy: 0.500
0
Epoch 22/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6968 - accuracy: 0.500
0
Epoch 23/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6965 - accuracy: 0.500
0
Epoch 24/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6963 - accuracy: 0.500
0
Epoch 25/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6961 - accuracy: 0.500
0
Epoch 26/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6959 - accuracy: 0.500
0
Epoch 27/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6957 - accuracy: 0.500
0
Epoch 28/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6956 - accuracy: 0.500
0
Epoch 29/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6954 - accuracy: 0.500
0
Epoch 30/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6953 - accuracy: 0.500
0
Epoch 31/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6953 - accuracy: 0.500
0
Epoch 32/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6950 - accuracy: 0.500
0
Epoch 33/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6950 - accuracy: 0.500
0
Epoch 34/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6948 - accuracy: 0.500
0
Epoch 35/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6947 - accuracy: 0.500
0
Epoch 36/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6946 - accuracy: 0.500
0
Epoch 37/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6945 - accuracy: 0.500
0
Epoch 38/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6944 - accuracy: 0.500
0
Epoch 39/400
```

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40/40 [==============================] - 0s 2ms/step - loss: 0.6943 - accuracy: 0.500
0
Epoch 40/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6944 - accuracy: 0.500
0
Epoch 41/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6942 - accuracy: 0.500
0
Epoch 42/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6941 - accuracy: 0.500
0
Epoch 43/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6941 - accuracy: 0.500
0
Epoch 44/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6940 - accuracy: 0.500
0
Epoch 45/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6940 - accuracy: 0.500
0
Epoch 46/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6939 - accuracy: 0.500
0
Epoch 47/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6939 - accuracy: 0.500
0
Epoch 48/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6938 - accuracy: 0.500
0
Epoch 49/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6938 - accuracy: 0.500
0
Epoch 50/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6937 - accuracy: 0.500
0
Epoch 51/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6938 - accuracy: 0.500
0
Epoch 52/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6936 - accuracy: 0.500
0
Epoch 53/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6937 - accuracy: 0.500
0
Epoch 54/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6936 - accuracy: 0.500
0
Epoch 55/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6936 - accuracy: 0.500
0
Epoch 56/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6935 - accuracy: 0.500
0
Epoch 57/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6935 - accuracy: 0.500
0
Epoch 58/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6935 - accuracy: 0.500
0
Epoch 59/400
```

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40/40 [==============================] - 0s 2ms/step - loss: 0.6935 - accuracy: 0.500
0
Epoch 60/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6935 - accuracy: 0.500
0
Epoch 61/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6934 - accuracy: 0.500
0
Epoch 62/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6934 - accuracy: 0.500
0
Epoch 63/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6934 - accuracy: 0.500
0
Epoch 64/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6934 - accuracy: 0.500
0
Epoch 65/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6934 - accuracy: 0.500
0
Epoch 66/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6934 - accuracy: 0.500
0
Epoch 67/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6934 - accuracy: 0.500
0
Epoch 68/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6934 - accuracy: 0.500
0
Epoch 69/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.500
0
Epoch 70/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.500
0
Epoch 71/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.500
0
Epoch 72/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.500
0
Epoch 73/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6934 - accuracy: 0.500
0
Epoch 74/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6934 - accuracy: 0.500
0
Epoch 75/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.500
0
Epoch 76/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 77/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.500
0
Epoch 78/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.500
0
Epoch 79/400
```

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40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.500
0
Epoch 80/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 81/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 82/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 83/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6934 - accuracy: 0.500
0
Epoch 84/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 85/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.500
0
Epoch 86/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 87/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.500
0
Epoch 88/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.500
0
Epoch 89/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 90/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 91/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 92/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 93/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 94/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 95/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.500
0
Epoch 96/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6931 - accuracy: 0.500
0
Epoch 97/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 98/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 99/400
```

```
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 100/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 101/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 102/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 103/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 104/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6931 - accuracy: 0.500
0
Epoch 105/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 106/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6931 - accuracy: 0.500
0
Epoch 107/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6931 - accuracy: 0.500
0
Epoch 108/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6931 - accuracy: 0.500
0
Epoch 109/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6931 - accuracy: 0.500
0
Epoch 110/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6931 - accuracy: 0.500
0
Epoch 111/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 112/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6930 - accuracy: 0.500
0
Epoch 113/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6931 - accuracy: 0.518
8
Epoch 114/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6930 - accuracy: 0.550
0
Epoch 115/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6931 - accuracy: 0.500
0
Epoch 116/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6930 - accuracy: 0.525
0
Epoch 117/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6930 - accuracy: 0.556
2
Epoch 118/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6930 - accuracy: 0.512
5
Epoch 119/400
```

```
40/40 [==============================] - 0s 2ms/step - loss: 0.6929 - accuracy: 0.525
0
Epoch 120/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6929 - accuracy: 0.606
2
Epoch 121/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6929 - accuracy: 0.625
0
Epoch 122/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6929 - accuracy: 0.556
2
Epoch 123/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6928 - accuracy: 0.606
2
Epoch 124/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6927 - accuracy: 0.662
5
Epoch 125/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6927 - accuracy: 0.662
5
Epoch 126/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6926 - accuracy: 0.656
2
Epoch 127/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6926 - accuracy: 0.643
8
Epoch 128/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6925 - accuracy: 0.668
7
Epoch 129/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6924 - accuracy: 0.631
3
Epoch 130/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6923 - accuracy: 0.656
2
Epoch 131/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6922 - accuracy: 0.625
0
Epoch 132/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6921 - accuracy: 0.450
0
Epoch 133/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6920 - accuracy: 0.375
0
Epoch 134/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6918 - accuracy: 0.362
5
Epoch 135/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6917 - accuracy: 0.487
5
Epoch 136/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6914 - accuracy: 0.406
2
Epoch 137/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6912 - accuracy: 0.381
2
Epoch 138/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6910 - accuracy: 0.512
5
Epoch 139/400
```

```
40/40 [==============================] - 0s 2ms/step - loss: 0.6907 - accuracy: 0.418
7
Epoch 140/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6903 - accuracy: 0.406
2
Epoch 141/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6899 - accuracy: 0.375
0
Epoch 142/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6895 - accuracy: 0.318
7
Epoch 143/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6891 - accuracy: 0.431
3
Epoch 144/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6885 - accuracy: 0.443
7
Epoch 145/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6880 - accuracy: 0.368
8
Epoch 146/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6875 - accuracy: 0.468
8
Epoch 147/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6868 - accuracy: 0.387
5
Epoch 148/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6861 - accuracy: 0.468
8
Epoch 149/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6853 - accuracy: 0.406
2
Epoch 150/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6845 - accuracy: 0.487
5
Epoch 151/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6836 - accuracy: 0.500
0
Epoch 152/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6827 - accuracy: 0.443
7
Epoch 153/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6818 - accuracy: 0.500
0
Epoch 154/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6809 - accuracy: 0.406
2
Epoch 155/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6799 - accuracy: 0.343
8
Epoch 156/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6788 - accuracy: 0.393
8
Epoch 157/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6777 - accuracy: 0.356
2
Epoch 158/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6766 - accuracy: 0.306
3
Epoch 159/400
```

```
40/40 [==============================] - 0s 2ms/step - loss: 0.6753 - accuracy: 0.312
5
Epoch 160/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6742 - accuracy: 0.331
3
Epoch 161/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6729 - accuracy: 0.406
2
Epoch 162/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6715 - accuracy: 0.431
3
Epoch 163/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6702 - accuracy: 0.443
7
Epoch 164/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6688 - accuracy: 0.468
8
Epoch 165/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6675 - accuracy: 0.475
0
Epoch 166/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6660 - accuracy: 0.500
0
Epoch 167/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6646 - accuracy: 0.531
2
Epoch 168/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6632 - accuracy: 0.537
5
Epoch 169/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6617 - accuracy: 0.550
0
Epoch 170/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6603 - accuracy: 0.550
0
Epoch 171/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6588 - accuracy: 0.562
5
Epoch 172/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6573 - accuracy: 0.575
0
Epoch 173/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6559 - accuracy: 0.581
3
Epoch 174/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6545 - accuracy: 0.587
5
Epoch 175/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6529 - accuracy: 0.600
0
Epoch 176/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6515 - accuracy: 0.606
2
Epoch 177/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6501 - accuracy: 0.631
3
Epoch 178/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6486 - accuracy: 0.631
3
Epoch 179/400
```

```
40/40 [==============================] - 0s 1ms/step - loss: 0.6472 - accuracy: 0.631
3
Epoch 180/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6458 - accuracy: 0.631
3
Epoch 181/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6445 - accuracy: 0.631
3
Epoch 182/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6431 - accuracy: 0.631
3
Epoch 183/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6417 - accuracy: 0.631
3
Epoch 184/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6404 - accuracy: 0.631
3
Epoch 185/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6391 - accuracy: 0.643
8
Epoch 186/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6378 - accuracy: 0.643
8
Epoch 187/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6366 - accuracy: 0.650
0
Epoch 188/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6353 - accuracy: 0.656
2
Epoch 189/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6341 - accuracy: 0.656
2
Epoch 190/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6329 - accuracy: 0.656
2
Epoch 191/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6318 - accuracy: 0.668
7
Epoch 192/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6307 - accuracy: 0.668
7
Epoch 193/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6295 - accuracy: 0.668
7
Epoch 194/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6286 - accuracy: 0.675
0
Epoch 195/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6274 - accuracy: 0.675
0
Epoch 196/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6265 - accuracy: 0.675
0
Epoch 197/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6254 - accuracy: 0.681
2
Epoch 198/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6244 - accuracy: 0.681
2
Epoch 199/400
```

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40/40 [==============================] - 0s 2ms/step - loss: 0.6235 - accuracy: 0.681
2
Epoch 200/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6226 - accuracy: 0.681
2
Epoch 201/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6217 - accuracy: 0.681
2
Epoch 202/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6208 - accuracy: 0.681
2
Epoch 203/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6199 - accuracy: 0.681
2
Epoch 204/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6192 - accuracy: 0.681
2
Epoch 205/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6184 - accuracy: 0.681
2
Epoch 206/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6176 - accuracy: 0.681
2
Epoch 207/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6168 - accuracy: 0.681
2
Epoch 208/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6161 - accuracy: 0.681
2
Epoch 209/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6153 - accuracy: 0.687
5
Epoch 210/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6148 - accuracy: 0.687
5
Epoch 211/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6139 - accuracy: 0.687
5
Epoch 212/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6133 - accuracy: 0.687
5
Epoch 213/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6126 - accuracy: 0.687
5
Epoch 214/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6121 - accuracy: 0.687
5
Epoch 215/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6115 - accuracy: 0.687
5
Epoch 216/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6109 - accuracy: 0.687
5
Epoch 217/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6103 - accuracy: 0.687
5
Epoch 218/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6097 - accuracy: 0.687
5
Epoch 219/400
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40/40 [==============================] - 0s 2ms/step - loss: 0.6092 - accuracy: 0.687
5
Epoch 220/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6087 - accuracy: 0.687
5
Epoch 221/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6082 - accuracy: 0.687
5
Epoch 222/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6078 - accuracy: 0.687
5
Epoch 223/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6072 - accuracy: 0.687
5
Epoch 224/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6069 - accuracy: 0.687
5
Epoch 225/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6063 - accuracy: 0.687
5
Epoch 226/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6059 - accuracy: 0.687
5
Epoch 227/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6055 - accuracy: 0.687
5
Epoch 228/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6052 - accuracy: 0.687
5
Epoch 229/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6046 - accuracy: 0.687
5
Epoch 230/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6043 - accuracy: 0.687
5
Epoch 231/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6040 - accuracy: 0.687
5
Epoch 232/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6035 - accuracy: 0.687
5
Epoch 233/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6032 - accuracy: 0.687
5
Epoch 234/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6029 - accuracy: 0.687
5
Epoch 235/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6026 - accuracy: 0.687
5
Epoch 236/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6021 - accuracy: 0.687
5
Epoch 237/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6018 - accuracy: 0.687
5
Epoch 238/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6015 - accuracy: 0.687
5
Epoch 239/400
```

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40/40 [==============================] - 0s 1ms/step - loss: 0.6013 - accuracy: 0.687
5
Epoch 240/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6010 - accuracy: 0.687
5
Epoch 241/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6006 - accuracy: 0.687
5
Epoch 242/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6004 - accuracy: 0.687
5
Epoch 243/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6001 - accuracy: 0.693
8
Epoch 244/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5998 - accuracy: 0.693
8
Epoch 245/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5996 - accuracy: 0.693
8
Epoch 246/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5993 - accuracy: 0.693
8
Epoch 247/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5990 - accuracy: 0.693
8
Epoch 248/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5990 - accuracy: 0.693
8
Epoch 249/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5986 - accuracy: 0.693
8
Epoch 250/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5983 - accuracy: 0.693
8
Epoch 251/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5981 - accuracy: 0.693
8
Epoch 252/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5978 - accuracy: 0.693
8
Epoch 253/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5976 - accuracy: 0.693
8
Epoch 254/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5974 - accuracy: 0.693
8
Epoch 255/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5973 - accuracy: 0.693
8
Epoch 256/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5971 - accuracy: 0.693
8
Epoch 257/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5968 - accuracy: 0.693
8
Epoch 258/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5967 - accuracy: 0.693
8
Epoch 259/400
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40/40 [==============================] - 0s 2ms/step - loss: 0.5965 - accuracy: 0.693
8
Epoch 260/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5964 - accuracy: 0.693
8
Epoch 261/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5960 - accuracy: 0.693
8
Epoch 262/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5959 - accuracy: 0.693
8
Epoch 263/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5958 - accuracy: 0.693
8
Epoch 264/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5957 - accuracy: 0.693
8
Epoch 265/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5955 - accuracy: 0.687
5
Epoch 266/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5952 - accuracy: 0.693
8
Epoch 267/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5950 - accuracy: 0.693
8
Epoch 268/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5948 - accuracy: 0.687
5
Epoch 269/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5948 - accuracy: 0.687
5
Epoch 270/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5946 - accuracy: 0.687
5
Epoch 271/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5944 - accuracy: 0.693
8
Epoch 272/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5943 - accuracy: 0.687
5
Epoch 273/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5941 - accuracy: 0.687
5
Epoch 274/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5940 - accuracy: 0.687
5
Epoch 275/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5938 - accuracy: 0.687
5
Epoch 276/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5937 - accuracy: 0.687
5
Epoch 277/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5935 - accuracy: 0.687
5
Epoch 278/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5933 - accuracy: 0.687
5
Epoch 279/400
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40/40 [==============================] - 0s 2ms/step - loss: 0.5933 - accuracy: 0.687
5
Epoch 280/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5931 - accuracy: 0.687
5
Epoch 281/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5930 - accuracy: 0.687
5
Epoch 282/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5929 - accuracy: 0.687
5
Epoch 283/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5927 - accuracy: 0.687
5
Epoch 284/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5926 - accuracy: 0.687
5
Epoch 285/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5925 - accuracy: 0.687
5
Epoch 286/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5923 - accuracy: 0.687
5
Epoch 287/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5922 - accuracy: 0.687
5
Epoch 288/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5921 - accuracy: 0.687
5
Epoch 289/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5920 - accuracy: 0.687
5
Epoch 290/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5919 - accuracy: 0.687
5
Epoch 291/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5919 - accuracy: 0.687
5
Epoch 292/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5916 - accuracy: 0.687
5
Epoch 293/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5917 - accuracy: 0.687
5
Epoch 294/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5915 - accuracy: 0.687
5
Epoch 295/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5914 - accuracy: 0.687
5
Epoch 296/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5911 - accuracy: 0.687
5
Epoch 297/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5911 - accuracy: 0.687
5
Epoch 298/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5910 - accuracy: 0.687
5
Epoch 299/400
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40/40 [==============================] - 0s 2ms/step - loss: 0.5909 - accuracy: 0.687
5
Epoch 300/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5908 - accuracy: 0.687
5
Epoch 301/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5907 - accuracy: 0.687
5
Epoch 302/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5905 - accuracy: 0.687
5
Epoch 303/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5905 - accuracy: 0.687
5
Epoch 304/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5904 - accuracy: 0.687
5
Epoch 305/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5902 - accuracy: 0.687
5
Epoch 306/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5902 - accuracy: 0.687
5
Epoch 307/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5902 - accuracy: 0.687
5
Epoch 308/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5900 - accuracy: 0.687
5
Epoch 309/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5900 - accuracy: 0.687
5
Epoch 310/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5898 - accuracy: 0.687
5
Epoch 311/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5897 - accuracy: 0.687
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Epoch 312/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5896 - accuracy: 0.687
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Epoch 313/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5896 - accuracy: 0.687
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Epoch 314/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5894 - accuracy: 0.687
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Epoch 315/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5894 - accuracy: 0.687
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Epoch 316/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5892 - accuracy: 0.687
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Epoch 317/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5891 - accuracy: 0.687
5
Epoch 318/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5890 - accuracy: 0.687
5
Epoch 319/400
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40/40 [==============================] - 0s 2ms/step - loss: 0.5890 - accuracy: 0.687
5
Epoch 320/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5890 - accuracy: 0.687
5
Epoch 321/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5888 - accuracy: 0.687
5
Epoch 322/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5888 - accuracy: 0.687
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Epoch 323/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5886 - accuracy: 0.687
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Epoch 324/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5885 - accuracy: 0.687
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Epoch 325/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5885 - accuracy: 0.687
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Epoch 326/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5884 - accuracy: 0.687
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Epoch 327/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5884 - accuracy: 0.687
5
Epoch 328/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5883 - accuracy: 0.687
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Epoch 329/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5882 - accuracy: 0.687
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Epoch 330/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5881 - accuracy: 0.687
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Epoch 331/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5880 - accuracy: 0.687
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Epoch 332/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5880 - accuracy: 0.687
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Epoch 333/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5878 - accuracy: 0.687
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Epoch 334/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5878 - accuracy: 0.687
5
Epoch 335/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5877 - accuracy: 0.687
5
Epoch 336/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5877 - accuracy: 0.687
5
Epoch 337/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5876 - accuracy: 0.687
5
Epoch 338/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5875 - accuracy: 0.687
5
Epoch 339/400
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40/40 [==============================] - 0s 2ms/step - loss: 0.5874 - accuracy: 0.687
5
Epoch 340/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5874 - accuracy: 0.687
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Epoch 341/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5874 - accuracy: 0.687
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Epoch 342/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5872 - accuracy: 0.687
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Epoch 343/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5872 - accuracy: 0.687
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Epoch 344/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5870 - accuracy: 0.687
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Epoch 345/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5870 - accuracy: 0.687
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Epoch 346/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5870 - accuracy: 0.687
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Epoch 347/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5869 - accuracy: 0.687
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Epoch 348/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5869 - accuracy: 0.687
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Epoch 349/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5868 - accuracy: 0.687
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Epoch 350/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5867 - accuracy: 0.687
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Epoch 351/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5866 - accuracy: 0.687
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Epoch 352/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5866 - accuracy: 0.687
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Epoch 353/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5865 - accuracy: 0.687
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Epoch 354/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5865 - accuracy: 0.687
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Epoch 355/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5864 - accuracy: 0.687
5
Epoch 356/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5863 - accuracy: 0.687
5
Epoch 357/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5862 - accuracy: 0.687
5
Epoch 358/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5862 - accuracy: 0.687
5
Epoch 359/400
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40/40 [==============================] - 0s 1ms/step - loss: 0.5861 - accuracy: 0.687
5
Epoch 360/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5860 - accuracy: 0.687
5
Epoch 361/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5862 - accuracy: 0.687
5
Epoch 362/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5859 - accuracy: 0.687
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Epoch 363/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5859 - accuracy: 0.687
5
Epoch 364/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5860 - accuracy: 0.687
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Epoch 365/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5858 - accuracy: 0.687
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Epoch 366/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5857 - accuracy: 0.687
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Epoch 367/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5856 - accuracy: 0.687
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Epoch 368/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5856 - accuracy: 0.687
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Epoch 369/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5855 - accuracy: 0.687
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Epoch 370/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5854 - accuracy: 0.687
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Epoch 371/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5855 - accuracy: 0.687
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Epoch 372/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5853 - accuracy: 0.687
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Epoch 373/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5854 - accuracy: 0.687
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Epoch 374/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5852 - accuracy: 0.687
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Epoch 375/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5852 - accuracy: 0.687
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Epoch 376/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5851 - accuracy: 0.687
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Epoch 377/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5852 - accuracy: 0.687
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Epoch 378/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5851 - accuracy: 0.687
5
Epoch 379/400
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40/40 [==============================] - 0s 1ms/step - loss: 0.5849 - accuracy: 0.687
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Epoch 380/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5849 - accuracy: 0.687
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Epoch 381/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5848 - accuracy: 0.687
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Epoch 382/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5849 - accuracy: 0.687
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Epoch 383/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5848 - accuracy: 0.687
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Epoch 384/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5848 - accuracy: 0.687
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Epoch 385/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5848 - accuracy: 0.687
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Epoch 386/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5846 - accuracy: 0.687
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Epoch 387/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5846 - accuracy: 0.687
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Epoch 388/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5846 - accuracy: 0.687
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Epoch 389/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5844 - accuracy: 0.687
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Epoch 390/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5844 - accuracy: 0.687
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Epoch 391/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5844 - accuracy: 0.687
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Epoch 392/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5843 - accuracy: 0.687
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Epoch 393/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5843 - accuracy: 0.687
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Epoch 394/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5842 - accuracy: 0.687
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Epoch 395/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5842 - accuracy: 0.687
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Epoch 396/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5842 - accuracy: 0.687
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Epoch 397/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5841 - accuracy: 0.687
5
Epoch 398/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5841 - accuracy: 0.687
5
Epoch 399/400
```

```
40/40 [==============================] - 0s 1ms/step - loss: 0.5840 - accuracy: 0.687
5
Epoch 400/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5840 - accuracy: 0.687
5
5/5 [==============================] - 0s 2ms/step - loss: 0.5838 - accuracy: 0.6875
5
Epoch 1/400
40/40 [==============================] - 1s 1ms/step - loss: 1.3715 - accuracy: 0.337
5
Epoch 2/400
40/40 [==============================] - 0s 1ms/step - loss: 1.3516 - accuracy: 0.337
5
Epoch 3/400
40/40 [==============================] - 0s 1ms/step - loss: 1.3322 - accuracy: 0.337
5
Epoch 4/400
40/40 [==============================] - 0s 1ms/step - loss: 1.3130 - accuracy: 0.343
8
Epoch 5/400
40/40 [==============================] - 0s 1ms/step - loss: 1.2943 - accuracy: 0.343
8
Epoch 6/400
40/40 [==============================] - 0s 1ms/step - loss: 1.2763 - accuracy: 0.356
2
Epoch 7/400
40/40 [==============================] - 0s 1ms/step - loss: 1.2589 - accuracy: 0.356
2
Epoch 8/400
40/40 [==============================] - 0s 1ms/step - loss: 1.2419 - accuracy: 0.362
5
Epoch 9/400
40/40 [==============================] - 0s 1ms/step - loss: 1.2252 - accuracy: 0.368
8
Epoch 10/400
40/40 [==============================] - 0s 1ms/step - loss: 1.2096 - accuracy: 0.375
0
Epoch 11/400
40/40 [==============================] - 0s 1ms/step - loss: 1.1944 - accuracy: 0.387
5
Epoch 12/400
40/40 [==============================] - 0s 1ms/step - loss: 1.1794 - accuracy: 0.400
0
Epoch 13/400
40/40 [==============================] - 0s 1ms/step - loss: 1.1657 - accuracy: 0.425
0
Epoch 14/400
40/40 [==============================] - 0s 1ms/step - loss: 1.1519 - accuracy: 0.475
0
Epoch 15/400
40/40 [==============================] - 0s 1ms/step - loss: 1.1392 - accuracy: 0.500
0
Epoch 16/400
40/40 [==============================] - 0s 1ms/step - loss: 1.1267 - accuracy: 0.500
0
Epoch 17/400
40/40 [==============================] - 0s 1ms/step - loss: 1.1152 - accuracy: 0.500
0
Epoch 18/400
40/40 [==============================] - 0s 1ms/step - loss: 1.1041 - accuracy: 0.500
```

```
0
Epoch 19/400
40/40 [==============================] - 0s 1ms/step - loss: 1.0935 - accuracy: 0.500
0
Epoch 20/400
40/40 [==============================] - 0s 1ms/step - loss: 1.0835 - accuracy: 0.500
0
Epoch 21/400
40/40 [==============================] - 0s 1ms/step - loss: 1.0743 - accuracy: 0.500
0
Epoch 22/400
40/40 [==============================] - 0s 1ms/step - loss: 1.0654 - accuracy: 0.500
0
Epoch 23/400
40/40 [==============================] - 0s 2ms/step - loss: 1.0569 - accuracy: 0.500
0
Epoch 24/400
40/40 [==============================] - 0s 2ms/step - loss: 1.0491 - accuracy: 0.500
0
Epoch 25/400
40/40 [==============================] - 0s 2ms/step - loss: 1.0417 - accuracy: 0.500
0
Epoch 26/400
40/40 [==============================] - 0s 2ms/step - loss: 1.0347 - accuracy: 0.500
0
Epoch 27/400
40/40 [==============================] - 0s 1ms/step - loss: 1.0281 - accuracy: 0.500
0
Epoch 28/400
40/40 [==============================] - 0s 1ms/step - loss: 1.0219 - accuracy: 0.500
0
Epoch 29/400
40/40 [==============================] - 0s 1ms/step - loss: 1.0159 - accuracy: 0.500
0
Epoch 30/400
40/40 [==============================] - 0s 1ms/step - loss: 1.0103 - accuracy: 0.500
0
Epoch 31/400
40/40 [==============================] - 0s 1ms/step - loss: 1.0052 - accuracy: 0.500
0
Epoch 32/400
40/40 [==============================] - 0s 2ms/step - loss: 1.0000 - accuracy: 0.500
0
Epoch 33/400
40/40 [==============================] - 0s 1ms/step - loss: 0.9951 - accuracy: 0.500
0
Epoch 34/400
40/40 [==============================] - 0s 1ms/step - loss: 0.9907 - accuracy: 0.500
0
Epoch 35/400
40/40 [==============================] - 0s 1ms/step - loss: 0.9863 - accuracy: 0.500
0
Epoch 36/400
40/40 [==============================] - 0s 1ms/step - loss: 0.9820 - accuracy: 0.500
0
Epoch 37/400
40/40 [==============================] - 0s 1ms/step - loss: 0.9780 - accuracy: 0.500
0
Epoch 38/400
40/40 [==============================] - 0s 1ms/step - loss: 0.9740 - accuracy: 0.500
```

```
0
Epoch 39/400
40/40 [==============================] - 0s 2ms/step - loss: 0.9703 - accuracy: 0.500
0
Epoch 40/400
40/40 [==============================] - 0s 1ms/step - loss: 0.9666 - accuracy: 0.500
0
Epoch 41/400
40/40 [==============================] - 0s 1ms/step - loss: 0.9630 - accuracy: 0.500
0
Epoch 42/400
40/40 [==============================] - 0s 1ms/step - loss: 0.9594 - accuracy: 0.500
0
Epoch 43/400
40/40 [==============================] - 0s 1ms/step - loss: 0.9560 - accuracy: 0.500
0
Epoch 44/400
40/40 [==============================] - 0s 1ms/step - loss: 0.9526 - accuracy: 0.500
0
Epoch 45/400
40/40 [==============================] - 0s 1ms/step - loss: 0.9492 - accuracy: 0.500
0
Epoch 46/400
40/40 [==============================] - 0s 1ms/step - loss: 0.9459 - accuracy: 0.500
0
Epoch 47/400
40/40 [==============================] - 0s 1ms/step - loss: 0.9426 - accuracy: 0.500
0
Epoch 48/400
40/40 [==============================] - 0s 1ms/step - loss: 0.9393 - accuracy: 0.500
0
Epoch 49/400
40/40 [==============================] - 0s 1ms/step - loss: 0.9359 - accuracy: 0.500
0
Epoch 50/400
40/40 [==============================] - 0s 1ms/step - loss: 0.9327 - accuracy: 0.500
0
Epoch 51/400
40/40 [==============================] - 0s 1ms/step - loss: 0.9293 - accuracy: 0.500
0
Epoch 52/400
40/40 [==============================] - 0s 1ms/step - loss: 0.9261 - accuracy: 0.500
0
Epoch 53/400
40/40 [==============================] - 0s 1ms/step - loss: 0.9227 - accuracy: 0.500
0
Epoch 54/400
40/40 [==============================] - 0s 1ms/step - loss: 0.9194 - accuracy: 0.500
0
Epoch 55/400
40/40 [==============================] - 0s 1ms/step - loss: 0.9161 - accuracy: 0.500
0
Epoch 56/400
40/40 [==============================] - 0s 1ms/step - loss: 0.9128 - accuracy: 0.500
0
Epoch 57/400
40/40 [==============================] - 0s 1ms/step - loss: 0.9094 - accuracy: 0.500
0
Epoch 58/400
40/40 [==============================] - 0s 1ms/step - loss: 0.9062 - accuracy: 0.500
```

```
0
Epoch 59/400
40/40 [==============================] - 0s 1ms/step - loss: 0.9025 - accuracy: 0.500
0
Epoch 60/400
40/40 [==============================] - 0s 1ms/step - loss: 0.8992 - accuracy: 0.500
0
Epoch 61/400
40/40 [==============================] - 0s 1ms/step - loss: 0.8957 - accuracy: 0.500
0
Epoch 62/400
40/40 [==============================] - 0s 1ms/step - loss: 0.8924 - accuracy: 0.500
0
Epoch 63/400
40/40 [==============================] - 0s 1ms/step - loss: 0.8888 - accuracy: 0.500
0
Epoch 64/400
40/40 [==============================] - 0s 1ms/step - loss: 0.8853 - accuracy: 0.500
0
Epoch 65/400
40/40 [==============================] - 0s 1ms/step - loss: 0.8817 - accuracy: 0.500
0
Epoch 66/400
40/40 [==============================] - 0s 1ms/step - loss: 0.8782 - accuracy: 0.500
0
Epoch 67/400
40/40 [==============================] - 0s 1ms/step - loss: 0.8747 - accuracy: 0.500
0
Epoch 68/400
40/40 [==============================] - 0s 1ms/step - loss: 0.8711 - accuracy: 0.500
0
Epoch 69/400
40/40 [==============================] - 0s 2ms/step - loss: 0.8676 - accuracy: 0.500
0
Epoch 70/400
40/40 [==============================] - 0s 2ms/step - loss: 0.8638 - accuracy: 0.500
0
Epoch 71/400
40/40 [==============================] - 0s 1ms/step - loss: 0.8603 - accuracy: 0.500
0
Epoch 72/400
40/40 [==============================] - 0s 1ms/step - loss: 0.8568 - accuracy: 0.500
0
Epoch 73/400
40/40 [==============================] - 0s 1ms/step - loss: 0.8530 - accuracy: 0.500
0
Epoch 74/400
40/40 [==============================] - 0s 1ms/step - loss: 0.8495 - accuracy: 0.500
0
Epoch 75/400
40/40 [==============================] - 0s 2ms/step - loss: 0.8458 - accuracy: 0.500
0
Epoch 76/400
40/40 [==============================] - 0s 2ms/step - loss: 0.8422 - accuracy: 0.500
0
Epoch 77/400
40/40 [==============================] - 0s 2ms/step - loss: 0.8386 - accuracy: 0.500
0
Epoch 78/400
40/40 [==============================] - 0s 1ms/step - loss: 0.8350 - accuracy: 0.500
```

```
0
Epoch 79/400
40/40 [==============================] - 0s 1ms/step - loss: 0.8315 - accuracy: 0.500
0
Epoch 80/400
40/40 [==============================] - 0s 1ms/step - loss: 0.8279 - accuracy: 0.500
0
Epoch 81/400
40/40 [==============================] - 0s 1ms/step - loss: 0.8243 - accuracy: 0.500
0
Epoch 82/400
40/40 [==============================] - 0s 1ms/step - loss: 0.8207 - accuracy: 0.500
0
Epoch 83/400
40/40 [==============================] - 0s 1ms/step - loss: 0.8172 - accuracy: 0.500
0
Epoch 84/400
40/40 [==============================] - 0s 1ms/step - loss: 0.8136 - accuracy: 0.500
0
Epoch 85/400
40/40 [==============================] - 0s 2ms/step - loss: 0.8103 - accuracy: 0.500
0
Epoch 86/400
40/40 [==============================] - 0s 2ms/step - loss: 0.8069 - accuracy: 0.500
0
Epoch 87/400
40/40 [==============================] - 0s 1ms/step - loss: 0.8033 - accuracy: 0.500
0
Epoch 88/400
40/40 [==============================] - 0s 1ms/step - loss: 0.8000 - accuracy: 0.500
0
Epoch 89/400
40/40 [==============================] - 0s 1ms/step - loss: 0.7967 - accuracy: 0.500
0
Epoch 90/400
40/40 [==============================] - 0s 1ms/step - loss: 0.7934 - accuracy: 0.500
0
Epoch 91/400
40/40 [==============================] - 0s 1ms/step - loss: 0.7901 - accuracy: 0.500
0
Epoch 92/400
40/40 [==============================] - 0s 1ms/step - loss: 0.7869 - accuracy: 0.500
0
Epoch 93/400
40/40 [==============================] - 0s 1ms/step - loss: 0.7837 - accuracy: 0.500
0
Epoch 94/400
40/40 [==============================] - 0s 1ms/step - loss: 0.7806 - accuracy: 0.500
0
Epoch 95/400
40/40 [==============================] - 0s 1ms/step - loss: 0.7774 - accuracy: 0.500
0
Epoch 96/400
40/40 [==============================] - 0s 1ms/step - loss: 0.7745 - accuracy: 0.500
0
Epoch 97/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7717 - accuracy: 0.500
0
Epoch 98/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7686 - accuracy: 0.500
```

```
0
Epoch 99/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7657 - accuracy: 0.500
0
Epoch 100/400
40/40 [==============================] - 0s 1ms/step - loss: 0.7631 - accuracy: 0.500
0
Epoch 101/400
40/40 [==============================] - 0s 1ms/step - loss: 0.7602 - accuracy: 0.500
0
Epoch 102/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7576 - accuracy: 0.500
0
Epoch 103/400
40/40 [==============================] - 0s 1ms/step - loss: 0.7552 - accuracy: 0.500
0
Epoch 104/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7525 - accuracy: 0.500
0
Epoch 105/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7501 - accuracy: 0.500
0
Epoch 106/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7477 - accuracy: 0.500
0
Epoch 107/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7456 - accuracy: 0.500
0
Epoch 108/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7432 - accuracy: 0.500
0
Epoch 109/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7412 - accuracy: 0.500
0
Epoch 110/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7389 - accuracy: 0.500
0
Epoch 111/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7370 - accuracy: 0.500
0
Epoch 112/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7350 - accuracy: 0.500
0
Epoch 113/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7333 - accuracy: 0.500
0
Epoch 114/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7313 - accuracy: 0.500
0
Epoch 115/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7299 - accuracy: 0.500
0
Epoch 116/400
40/40 [==============================] - 0s 1ms/step - loss: 0.7280 - accuracy: 0.500
0
Epoch 117/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7266 - accuracy: 0.500
0
Epoch 118/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7248 - accuracy: 0.500
```

```
0
Epoch 119/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7235 - accuracy: 0.500
0
Epoch 120/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7221 - accuracy: 0.500
0
Epoch 121/400
40/40 [==============================] - 0s 1ms/step - loss: 0.7208 - accuracy: 0.500
0
Epoch 122/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7195 - accuracy: 0.500
0
Epoch 123/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7184 - accuracy: 0.500
0
Epoch 124/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7172 - accuracy: 0.500
0
Epoch 125/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7161 - accuracy: 0.500
0
Epoch 126/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7151 - accuracy: 0.500
0
Epoch 127/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7141 - accuracy: 0.500
0
Epoch 128/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7133 - accuracy: 0.500
0
Epoch 129/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7123 - accuracy: 0.500
0
Epoch 130/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7115 - accuracy: 0.500
0
Epoch 131/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7107 - accuracy: 0.500
0
Epoch 132/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7100 - accuracy: 0.500
0
Epoch 133/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7093 - accuracy: 0.468
8
Epoch 134/400
40/40 [==============================] - 0s 1ms/step - loss: 0.7086 - accuracy: 0.387
5
Epoch 135/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7080 - accuracy: 0.387
5
Epoch 136/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7074 - accuracy: 0.331
3
Epoch 137/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7068 - accuracy: 0.331
3
Epoch 138/400
40/40 [==============================] - 0s 1ms/step - loss: 0.7063 - accuracy: 0.337
```

```
5
Epoch 139/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7058 - accuracy: 0.331
3
Epoch 140/400
40/40 [==============================] - 0s 1ms/step - loss: 0.7053 - accuracy: 0.331
3
Epoch 141/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7048 - accuracy: 0.312
5
Epoch 142/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7045 - accuracy: 0.318
7
Epoch 143/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7041 - accuracy: 0.318
7
Epoch 144/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7037 - accuracy: 0.318
7
Epoch 145/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7034 - accuracy: 0.325
0
Epoch 146/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7030 - accuracy: 0.331
3
Epoch 147/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7027 - accuracy: 0.325
0
Epoch 148/400
40/40 [==============================] - 0s 1ms/step - loss: 0.7023 - accuracy: 0.331
3
Epoch 149/400
40/40 [==============================] - 0s 1ms/step - loss: 0.7020 - accuracy: 0.331
3
Epoch 150/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7018 - accuracy: 0.343
8
Epoch 151/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7016 - accuracy: 0.343
8
Epoch 152/400
40/40 [==============================] - 0s 1ms/step - loss: 0.7013 - accuracy: 0.356
2
Epoch 153/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7010 - accuracy: 0.362
5
Epoch 154/400
40/40 [==============================] - 0s 1ms/step - loss: 0.7008 - accuracy: 0.356
2
Epoch 155/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7007 - accuracy: 0.375
0
Epoch 156/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7005 - accuracy: 0.381
2
Epoch 157/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7004 - accuracy: 0.368
8
Epoch 158/400
40/40 [==============================] - 0s 2ms/step - loss: 0.7000 - accuracy: 0.375
```

```
0
Epoch 159/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6999 - accuracy: 0.381
2
Epoch 160/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6997 - accuracy: 0.381
2
Epoch 161/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6996 - accuracy: 0.381
2
Epoch 162/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6994 - accuracy: 0.381
2
Epoch 163/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6992 - accuracy: 0.387
5
Epoch 164/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6991 - accuracy: 0.387
5
Epoch 165/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6990 - accuracy: 0.387
5
Epoch 166/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6989 - accuracy: 0.393
8
Epoch 167/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6987 - accuracy: 0.393
8
Epoch 168/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6986 - accuracy: 0.400
0
Epoch 169/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6985 - accuracy: 0.412
5
Epoch 170/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6984 - accuracy: 0.412
5
Epoch 171/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6984 - accuracy: 0.400
0
Epoch 172/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6981 - accuracy: 0.431
3
Epoch 173/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6980 - accuracy: 0.443
7
Epoch 174/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6979 - accuracy: 0.443
7
Epoch 175/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6979 - accuracy: 0.443
7
Epoch 176/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6977 - accuracy: 0.443
7
Epoch 177/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6976 - accuracy: 0.456
3
Epoch 178/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6976 - accuracy: 0.456
```

3
Epoch 179/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6975 - accuracy: 0.462
5
Epoch 180/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6973 - accuracy: 0.481
2
Epoch 181/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6972 - accuracy: 0.487
5
Epoch 182/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6971 - accuracy: 0.487
5
Epoch 183/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6971 - accuracy: 0.500
0
Epoch 184/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6971 - accuracy: 0.487
5
Epoch 185/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6969 - accuracy: 0.500
0
Epoch 186/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6968 - accuracy: 0.506
3
Epoch 187/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6967 - accuracy: 0.500
0
Epoch 188/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6966 - accuracy: 0.500
0
Epoch 189/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6965 - accuracy: 0.500
0
Epoch 190/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6964 - accuracy: 0.500
0
Epoch 191/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6963 - accuracy: 0.512
5
Epoch 192/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6962 - accuracy: 0.512
5
Epoch 193/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6962 - accuracy: 0.518
8
Epoch 194/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6961 - accuracy: 0.512
5
Epoch 195/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6961 - accuracy: 0.525
0
Epoch 196/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6960 - accuracy: 0.512
5
Epoch 197/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6959 - accuracy: 0.512
5
Epoch 198/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6957 - accuracy: 0.512

```
5
Epoch 199/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6957 - accuracy: 0.512
5
Epoch 200/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6956 - accuracy: 0.518
8
Epoch 201/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6955 - accuracy: 0.525
0
Epoch 202/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6954 - accuracy: 0.537
5
Epoch 203/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6954 - accuracy: 0.550
0
Epoch 204/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6952 - accuracy: 0.550
0
Epoch 205/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6952 - accuracy: 0.543
7
Epoch 206/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6950 - accuracy: 0.550
0
Epoch 207/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6950 - accuracy: 0.537
5
Epoch 208/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6948 - accuracy: 0.550
0
Epoch 209/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6947 - accuracy: 0.556
2
Epoch 210/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6946 - accuracy: 0.543
7
Epoch 211/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6946 - accuracy: 0.550
0
Epoch 212/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6945 - accuracy: 0.550
0
Epoch 213/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6944 - accuracy: 0.556
2
Epoch 214/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6943 - accuracy: 0.556
2
Epoch 215/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6942 - accuracy: 0.556
2
Epoch 216/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6941 - accuracy: 0.556
2
Epoch 217/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6941 - accuracy: 0.543
7
Epoch 218/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6939 - accuracy: 0.525
```

```
0
Epoch 219/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6938 - accuracy: 0.543
7
Epoch 220/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6937 - accuracy: 0.556
2
Epoch 221/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6936 - accuracy: 0.550
0
Epoch 222/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6935 - accuracy: 0.556
2
Epoch 223/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6935 - accuracy: 0.531
2
Epoch 224/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.537
5
Epoch 225/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.550
0
Epoch 226/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.556
2
Epoch 227/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6930 - accuracy: 0.556
2
Epoch 228/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6930 - accuracy: 0.531
2
Epoch 229/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6929 - accuracy: 0.543
7
Epoch 230/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6927 - accuracy: 0.556
2
Epoch 231/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6926 - accuracy: 0.556
2
Epoch 232/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6925 - accuracy: 0.556
2
Epoch 233/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6923 - accuracy: 0.556
2
Epoch 234/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6922 - accuracy: 0.556
2
Epoch 235/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6923 - accuracy: 0.556
2
Epoch 236/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6920 - accuracy: 0.556
2
Epoch 237/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6918 - accuracy: 0.556
2
Epoch 238/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6917 - accuracy: 0.556
```

```
2
Epoch 239/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6917 - accuracy: 0.543
7
Epoch 240/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6916 - accuracy: 0.556
2
Epoch 241/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6914 - accuracy: 0.556
2
Epoch 242/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6913 - accuracy: 0.550
0
Epoch 243/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6912 - accuracy: 0.556
2
Epoch 244/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6911 - accuracy: 0.556
2
Epoch 245/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6909 - accuracy: 0.556
2
Epoch 246/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6908 - accuracy: 0.543
7
Epoch 247/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6906 - accuracy: 0.537
5
Epoch 248/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6905 - accuracy: 0.556
2
Epoch 249/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6903 - accuracy: 0.550
0
Epoch 250/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6902 - accuracy: 0.543
7
Epoch 251/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6900 - accuracy: 0.550
0
Epoch 252/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6899 - accuracy: 0.537
5
Epoch 253/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6898 - accuracy: 0.543
7
Epoch 254/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6896 - accuracy: 0.543
7
Epoch 255/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6895 - accuracy: 0.556
2
Epoch 256/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6893 - accuracy: 0.550
0
Epoch 257/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6892 - accuracy: 0.550
0
Epoch 258/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6890 - accuracy: 0.556
```

```
2
Epoch 259/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6891 - accuracy: 0.556
2
Epoch 260/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6887 - accuracy: 0.556
2
Epoch 261/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6885 - accuracy: 0.543
7
Epoch 262/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6884 - accuracy: 0.531
2
Epoch 263/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6882 - accuracy: 0.537
5
Epoch 264/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6880 - accuracy: 0.550
0
Epoch 265/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6879 - accuracy: 0.525
0
Epoch 266/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6877 - accuracy: 0.543
7
Epoch 267/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6875 - accuracy: 0.550
0
Epoch 268/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6873 - accuracy: 0.543
7
Epoch 269/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6871 - accuracy: 0.518
8
Epoch 270/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6869 - accuracy: 0.518
8
Epoch 271/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6868 - accuracy: 0.518
8
Epoch 272/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6865 - accuracy: 0.518
8
Epoch 273/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6864 - accuracy: 0.518
8
Epoch 274/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6861 - accuracy: 0.525
0
Epoch 275/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6861 - accuracy: 0.512
5
Epoch 276/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6857 - accuracy: 0.518
8
Epoch 277/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6855 - accuracy: 0.525
0
Epoch 278/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6852 - accuracy: 0.525
```

```
0
Epoch 279/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6852 - accuracy: 0.518
8
Epoch 280/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6848 - accuracy: 0.525
0
Epoch 281/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6845 - accuracy: 0.518
8
Epoch 282/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6843 - accuracy: 0.525
0
Epoch 283/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6841 - accuracy: 0.525
0
Epoch 284/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6838 - accuracy: 0.518
8
Epoch 285/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6836 - accuracy: 0.525
0
Epoch 286/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6833 - accuracy: 0.525
0
Epoch 287/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6831 - accuracy: 0.525
0
Epoch 288/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6827 - accuracy: 0.525
0
Epoch 289/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6825 - accuracy: 0.518
8
Epoch 290/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6822 - accuracy: 0.525
0
Epoch 291/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6819 - accuracy: 0.525
0
Epoch 292/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6815 - accuracy: 0.525
0
Epoch 293/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6813 - accuracy: 0.518
8
Epoch 294/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6809 - accuracy: 0.525
0
Epoch 295/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6805 - accuracy: 0.525
0
Epoch 296/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6802 - accuracy: 0.525
0
Epoch 297/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6798 - accuracy: 0.525
0
Epoch 298/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6795 - accuracy: 0.525
```

```
0
Epoch 299/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6791 - accuracy: 0.525
0
Epoch 300/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6786 - accuracy: 0.531
2
Epoch 301/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6782 - accuracy: 0.531
2
Epoch 302/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6779 - accuracy: 0.525
0
Epoch 303/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6774 - accuracy: 0.537
5
Epoch 304/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6769 - accuracy: 0.537
5
Epoch 305/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6764 - accuracy: 0.537
5
Epoch 306/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6760 - accuracy: 0.550
0
Epoch 307/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6755 - accuracy: 0.537
5
Epoch 308/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6749 - accuracy: 0.550
0
Epoch 309/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6745 - accuracy: 0.562
5
Epoch 310/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6738 - accuracy: 0.562
5
Epoch 311/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6733 - accuracy: 0.562
5
Epoch 312/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6727 - accuracy: 0.562
5
Epoch 313/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6720 - accuracy: 0.562
5
Epoch 314/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6714 - accuracy: 0.575
0
Epoch 315/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6707 - accuracy: 0.575
0
Epoch 316/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6700 - accuracy: 0.581
3
Epoch 317/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6693 - accuracy: 0.581
3
Epoch 318/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6685 - accuracy: 0.587
```

```
5
Epoch 319/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6677 - accuracy: 0.587
5
Epoch 320/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6670 - accuracy: 0.587
5
Epoch 321/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6661 - accuracy: 0.593
8
Epoch 322/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6653 - accuracy: 0.600
0
Epoch 323/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6644 - accuracy: 0.606
2
Epoch 324/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6635 - accuracy: 0.612
5
Epoch 325/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6625 - accuracy: 0.631
3
Epoch 326/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6616 - accuracy: 0.631
3
Epoch 327/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6606 - accuracy: 0.631
3
Epoch 328/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6595 - accuracy: 0.631
3
Epoch 329/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6584 - accuracy: 0.631
3
Epoch 330/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6574 - accuracy: 0.625
0
Epoch 331/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6562 - accuracy: 0.631
3
Epoch 332/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6551 - accuracy: 0.631
3
Epoch 333/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6540 - accuracy: 0.631
3
Epoch 334/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6527 - accuracy: 0.631
3
Epoch 335/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6515 - accuracy: 0.650
0
Epoch 336/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6504 - accuracy: 0.650
0
Epoch 337/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6491 - accuracy: 0.656
2
Epoch 338/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6478 - accuracy: 0.668
```

```
7
Epoch 339/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6465 - accuracy: 0.668
7
Epoch 340/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6453 - accuracy: 0.668
7
Epoch 341/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6440 - accuracy: 0.675
0
Epoch 342/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6427 - accuracy: 0.675
0
Epoch 343/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6415 - accuracy: 0.681
2
Epoch 344/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6401 - accuracy: 0.681
2
Epoch 345/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6389 - accuracy: 0.681
2
Epoch 346/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6375 - accuracy: 0.681
2
Epoch 347/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6363 - accuracy: 0.681
2
Epoch 348/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6350 - accuracy: 0.681
2
Epoch 349/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6339 - accuracy: 0.681
2
Epoch 350/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6326 - accuracy: 0.687
5
Epoch 351/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6313 - accuracy: 0.687
5
Epoch 352/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6302 - accuracy: 0.687
5
Epoch 353/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6289 - accuracy: 0.687
5
Epoch 354/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6278 - accuracy: 0.687
5
Epoch 355/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6266 - accuracy: 0.687
5
Epoch 356/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6255 - accuracy: 0.687
5
Epoch 357/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6244 - accuracy: 0.687
5
Epoch 358/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6234 - accuracy: 0.687
```

```
5
Epoch 359/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6222 - accuracy: 0.687
5
Epoch 360/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6212 - accuracy: 0.687
5
Epoch 361/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6202 - accuracy: 0.693
8
Epoch 362/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6192 - accuracy: 0.693
8
Epoch 363/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6184 - accuracy: 0.693
8
Epoch 364/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6174 - accuracy: 0.693
8
Epoch 365/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6165 - accuracy: 0.693
8
Epoch 366/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6157 - accuracy: 0.693
8
Epoch 367/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6148 - accuracy: 0.693
8
Epoch 368/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6141 - accuracy: 0.693
8
Epoch 369/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6132 - accuracy: 0.687
5
Epoch 370/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6125 - accuracy: 0.687
5
Epoch 371/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6117 - accuracy: 0.687
5
Epoch 372/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6110 - accuracy: 0.687
5
Epoch 373/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6103 - accuracy: 0.687
5
Epoch 374/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6096 - accuracy: 0.687
5
Epoch 375/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6090 - accuracy: 0.687
5
Epoch 376/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6083 - accuracy: 0.687
5
Epoch 377/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6077 - accuracy: 0.687
5
Epoch 378/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6073 - accuracy: 0.687
```

```
5
Epoch 379/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6065 - accuracy: 0.687
5
Epoch 380/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6060 - accuracy: 0.687
5
Epoch 381/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6054 - accuracy: 0.687
5
Epoch 382/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6048 - accuracy: 0.687
5
Epoch 383/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6044 - accuracy: 0.687
5
Epoch 384/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6039 - accuracy: 0.687
5
Epoch 385/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6034 - accuracy: 0.687
5
Epoch 386/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6028 - accuracy: 0.687
5
Epoch 387/400
40/40 [==============================] - 0s 1ms/step - loss: 0.6025 - accuracy: 0.687
5
Epoch 388/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6021 - accuracy: 0.687
5
Epoch 389/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6016 - accuracy: 0.687
5
Epoch 390/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6011 - accuracy: 0.687
5
Epoch 391/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6008 - accuracy: 0.687
5
Epoch 392/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6004 - accuracy: 0.687
5
Epoch 393/400
40/40 [==============================] - 0s 2ms/step - loss: 0.6000 - accuracy: 0.687
5
Epoch 394/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5996 - accuracy: 0.687
5
Epoch 395/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5992 - accuracy: 0.687
5
Epoch 396/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5988 - accuracy: 0.687
5
Epoch 397/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5984 - accuracy: 0.687
5
Epoch 398/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5981 - accuracy: 0.687
```

```
5
Epoch 399/400
40/40 [==============================] - 0s 2ms/step - loss: 0.5979 - accuracy: 0.687
5
Epoch 400/400
40/40 [==============================] - 0s 1ms/step - loss: 0.5975 - accuracy: 0.687
5
5/5 [==============================] - 0s 2ms/step - loss: 0.5972 - accuracy: 0.6875
5/5 [==============================] - 0s 2ms/step
```

Out[66]:   `<matplotlib.collections.PathCollection at 0x17139495930>`
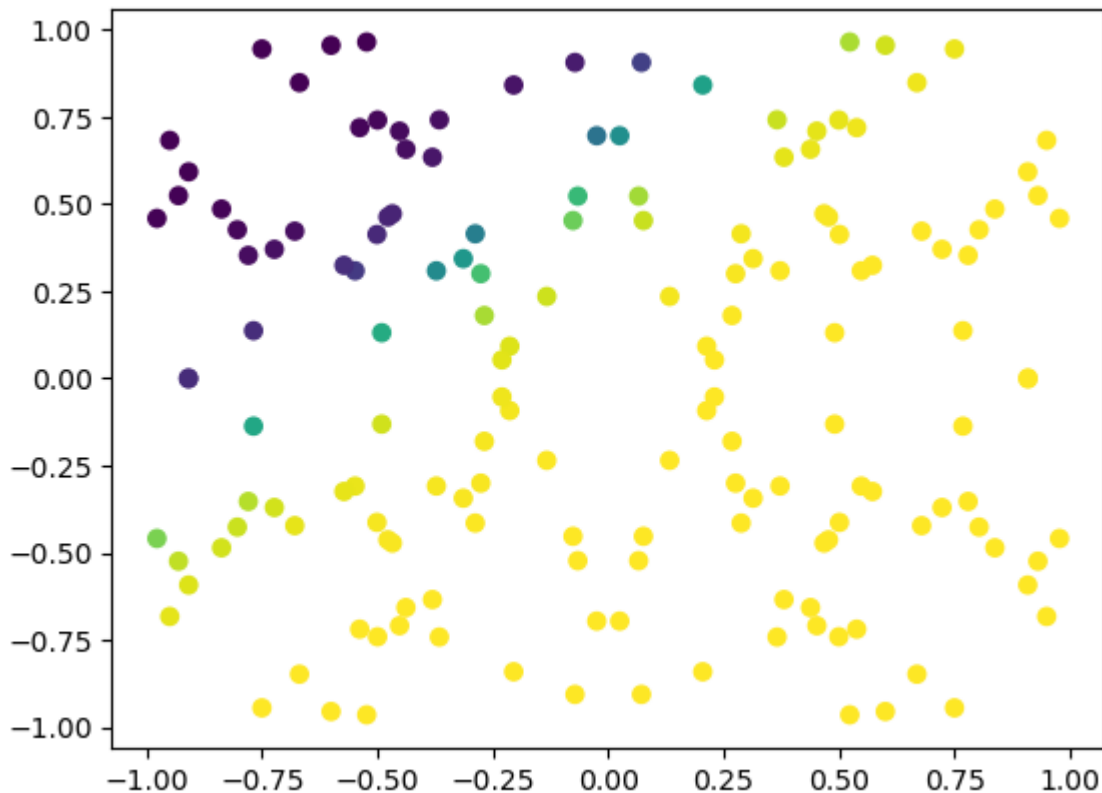
In [67]:
```
scores3
#similar to other 2 as far as accuracy but overall has a lower loss so the 4 neuron wo
#with the 2 hidden layers being the most accurate and with the lowest amount of error
```

Out[67]:
```
[[0.606827974319458, 0.6812499761581421],
 [0.6927635073661804, 0.6187499761581421],
 [0.5837792158126831, 0.6875],
 [0.5972124338150024, 0.6875]]
```

In [37]:
```python
# PART 1 - 4
#Optimal Model TAHN
opmodel = Sequential()
opmodel.add(Dense(1, input_dim = 2, activation = 'tahn'))
opmodel.add(Dense(1, activation = 'tahn'))
opmodel.add(Dense(1, activation = 'tanh'))

opmodel.compile(loss = 'binary_crossentropy', optimizer = 'adam', metrics = ['accuracy

opmodel.fit(X, Y, epochs = 1000, batch_size = 4)

opscores = opmodel.evaluate(X, Y)
plt.scatter(*zip(*X), c = opmodel.predict(X))
print(opscores)
```

```
Epoch 1/1000
40/40 [==============================] - 1s 2ms/step - loss: 4.4091 - accuracy: 0.500
0
Epoch 2/1000
40/40 [==============================] - 0s 1ms/step - loss: 4.0516 - accuracy: 0.500
0
Epoch 3/1000
40/40 [==============================] - 0s 1ms/step - loss: 3.3395 - accuracy: 0.500
0
Epoch 4/1000
40/40 [==============================] - 0s 1ms/step - loss: 1.5205 - accuracy: 0.500
0
Epoch 5/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.9952 - accuracy: 0.500
0
Epoch 6/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.9416 - accuracy: 0.500
0
Epoch 7/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.9069 - accuracy: 0.500
0
Epoch 8/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.8801 - accuracy: 0.500
0
Epoch 9/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.8567 - accuracy: 0.500
0
Epoch 10/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.8374 - accuracy: 0.500
0
Epoch 11/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.8210 - accuracy: 0.500
0
Epoch 12/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.8058 - accuracy: 0.500
0
Epoch 13/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.7935 - accuracy: 0.500
0
Epoch 14/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.7826 - accuracy: 0.500
0
Epoch 15/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.7721 - accuracy: 0.500
0
Epoch 16/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.7637 - accuracy: 0.500
0
Epoch 17/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.7560 - accuracy: 0.500
0
Epoch 18/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.7493 - accuracy: 0.500
0
Epoch 19/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.7431 - accuracy: 0.500
0
Epoch 20/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.7384 - accuracy: 0.500
0
```

```
Epoch 21/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.7333 - accuracy: 0.500
0
Epoch 22/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.7296 - accuracy: 0.500
0
Epoch 23/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.7255 - accuracy: 0.512
5
Epoch 24/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.7224 - accuracy: 0.531
2
Epoch 25/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.7196 - accuracy: 0.543
7
Epoch 26/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.7172 - accuracy: 0.562
5
Epoch 27/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.7150 - accuracy: 0.581
3
Epoch 28/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.7131 - accuracy: 0.606
2
Epoch 29/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.7114 - accuracy: 0.606
2
Epoch 30/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.7098 - accuracy: 0.606
2
Epoch 31/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.7087 - accuracy: 0.600
0
Epoch 32/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.7072 - accuracy: 0.612
5
Epoch 33/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.7064 - accuracy: 0.612
5
Epoch 34/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.7054 - accuracy: 0.612
5
Epoch 35/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.7045 - accuracy: 0.612
5
Epoch 36/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.7038 - accuracy: 0.612
5
Epoch 37/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.7032 - accuracy: 0.600
0
Epoch 38/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.7025 - accuracy: 0.593
8
Epoch 39/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.7020 - accuracy: 0.575
0
Epoch 40/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.7014 - accuracy: 0.587
5
```

```
Epoch 41/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.7010 - accuracy: 0.562
5
Epoch 42/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.7006 - accuracy: 0.556
2
Epoch 43/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.7005 - accuracy: 0.531
2
Epoch 44/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6999 - accuracy: 0.525
0
Epoch 45/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6995 - accuracy: 0.525
0
Epoch 46/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6993 - accuracy: 0.525
0
Epoch 47/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6996 - accuracy: 0.506
3
Epoch 48/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6987 - accuracy: 0.518
8
Epoch 49/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6989 - accuracy: 0.506
3
Epoch 50/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6983 - accuracy: 0.518
8
Epoch 51/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6979 - accuracy: 0.512
5
Epoch 52/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6976 - accuracy: 0.512
5
Epoch 53/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6974 - accuracy: 0.518
8
Epoch 54/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6974 - accuracy: 0.506
3
Epoch 55/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6970 - accuracy: 0.512
5
Epoch 56/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6971 - accuracy: 0.493
8
Epoch 57/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6966 - accuracy: 0.500
0
Epoch 58/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6966 - accuracy: 0.506
3
Epoch 59/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6963 - accuracy: 0.500
0
Epoch 60/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6962 - accuracy: 0.500
0
```

```
Epoch 61/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6963 - accuracy: 0.506
3
Epoch 62/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6958 - accuracy: 0.493
8
Epoch 63/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6958 - accuracy: 0.487
5
Epoch 64/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6955 - accuracy: 0.487
5
Epoch 65/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6956 - accuracy: 0.493
8
Epoch 66/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6953 - accuracy: 0.506
3
Epoch 67/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6952 - accuracy: 0.500
0
Epoch 68/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6959 - accuracy: 0.500
0
Epoch 69/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6952 - accuracy: 0.506
3
Epoch 70/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6951 - accuracy: 0.493
8
Epoch 71/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6946 - accuracy: 0.500
0
Epoch 72/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6949 - accuracy: 0.506
3
Epoch 73/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6949 - accuracy: 0.487
5
Epoch 74/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6947 - accuracy: 0.512
5
Epoch 75/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6943 - accuracy: 0.525
0
Epoch 76/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6941 - accuracy: 0.518
8
Epoch 77/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6940 - accuracy: 0.518
8
Epoch 78/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6941 - accuracy: 0.493
8
Epoch 79/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6945 - accuracy: 0.518
8
Epoch 80/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6939 - accuracy: 0.512
5
```

```
Epoch 81/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6940 - accuracy: 0.525
0
Epoch 82/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6938 - accuracy: 0.500
0
Epoch 83/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6937 - accuracy: 0.506
3
Epoch 84/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6935 - accuracy: 0.500
0
Epoch 85/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.506
3
Epoch 86/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 87/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6935 - accuracy: 0.506
3
Epoch 88/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6930 - accuracy: 0.500
0
Epoch 89/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.512
5
Epoch 90/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 91/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6928 - accuracy: 0.500
0
Epoch 92/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.525
0
Epoch 93/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6936 - accuracy: 0.506
3
Epoch 94/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6926 - accuracy: 0.506
3
Epoch 95/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6927 - accuracy: 0.500
0
Epoch 96/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6930 - accuracy: 0.531
2
Epoch 97/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6927 - accuracy: 0.493
8
Epoch 98/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6926 - accuracy: 0.512
5
Epoch 99/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6924 - accuracy: 0.537
5
Epoch 100/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6923 - accuracy: 0.518
8
```

```
Epoch 101/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6922 - accuracy: 0.500
0
Epoch 102/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6925 - accuracy: 0.481
2
Epoch 103/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6922 - accuracy: 0.550
0
Epoch 104/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6921 - accuracy: 0.543
7
Epoch 105/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6926 - accuracy: 0.506
3
Epoch 106/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6930 - accuracy: 0.462
5
Epoch 107/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6924 - accuracy: 0.543
7
Epoch 108/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6917 - accuracy: 0.562
5
Epoch 109/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6918 - accuracy: 0.575
0
Epoch 110/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6918 - accuracy: 0.562
5
Epoch 111/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6915 - accuracy: 0.556
2
Epoch 112/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6915 - accuracy: 0.550
0
Epoch 113/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6917 - accuracy: 0.593
8
Epoch 114/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6922 - accuracy: 0.543
7
Epoch 115/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6916 - accuracy: 0.587
5
Epoch 116/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6918 - accuracy: 0.612
5
Epoch 117/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6913 - accuracy: 0.556
2
Epoch 118/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6912 - accuracy: 0.581
3
Epoch 119/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6915 - accuracy: 0.550
0
Epoch 120/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6911 - accuracy: 0.581
3
```

```
Epoch 121/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6912 - accuracy: 0.593
8
Epoch 122/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6908 - accuracy: 0.556
2
Epoch 123/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6907 - accuracy: 0.550
0
Epoch 124/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6912 - accuracy: 0.493
8
Epoch 125/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6908 - accuracy: 0.525
0
Epoch 126/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6906 - accuracy: 0.587
5
Epoch 127/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6902 - accuracy: 0.518
8
Epoch 128/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6900 - accuracy: 0.543
7
Epoch 129/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6905 - accuracy: 0.575
0
Epoch 130/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6897 - accuracy: 0.543
7
Epoch 131/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6900 - accuracy: 0.562
5
Epoch 132/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6895 - accuracy: 0.531
2
Epoch 133/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6894 - accuracy: 0.562
5
Epoch 134/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6895 - accuracy: 0.575
0
Epoch 135/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6892 - accuracy: 0.537
5
Epoch 136/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6887 - accuracy: 0.562
5
Epoch 137/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6887 - accuracy: 0.543
7
Epoch 138/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6885 - accuracy: 0.537
5
Epoch 139/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6884 - accuracy: 0.537
5
Epoch 140/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6879 - accuracy: 0.537
5
```

```
Epoch 141/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6875 - accuracy: 0.562
5
Epoch 142/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6873 - accuracy: 0.562
5
Epoch 143/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6872 - accuracy: 0.581
3
Epoch 144/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6874 - accuracy: 0.568
8
Epoch 145/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6872 - accuracy: 0.587
5
Epoch 146/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6864 - accuracy: 0.550
0
Epoch 147/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6861 - accuracy: 0.562
5
Epoch 148/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6863 - accuracy: 0.531
2
Epoch 149/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6860 - accuracy: 0.568
8
Epoch 150/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6865 - accuracy: 0.556
2
Epoch 151/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6851 - accuracy: 0.556
2
Epoch 152/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6844 - accuracy: 0.556
2
Epoch 153/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6849 - accuracy: 0.593
8
Epoch 154/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6833 - accuracy: 0.562
5
Epoch 155/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6827 - accuracy: 0.575
0
Epoch 156/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6822 - accuracy: 0.575
0
Epoch 157/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6821 - accuracy: 0.562
5
Epoch 158/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6808 - accuracy: 0.562
5
Epoch 159/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6809 - accuracy: 0.556
2
Epoch 160/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6797 - accuracy: 0.581
3
```

```
Epoch 161/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6793 - accuracy: 0.568
8
Epoch 162/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6784 - accuracy: 0.562
5
Epoch 163/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6782 - accuracy: 0.593
8
Epoch 164/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6769 - accuracy: 0.575
0
Epoch 165/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6760 - accuracy: 0.562
5
Epoch 166/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6757 - accuracy: 0.606
2
Epoch 167/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6743 - accuracy: 0.575
0
Epoch 168/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6739 - accuracy: 0.562
5
Epoch 169/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6726 - accuracy: 0.575
0
Epoch 170/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6720 - accuracy: 0.600
0
Epoch 171/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6705 - accuracy: 0.587
5
Epoch 172/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6695 - accuracy: 0.581
3
Epoch 173/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6684 - accuracy: 0.587
5
Epoch 174/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6672 - accuracy: 0.581
3
Epoch 175/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6664 - accuracy: 0.593
8
Epoch 176/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6648 - accuracy: 0.593
8
Epoch 177/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6641 - accuracy: 0.587
5
Epoch 178/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6621 - accuracy: 0.600
0
Epoch 179/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6611 - accuracy: 0.593
8
Epoch 180/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6594 - accuracy: 0.618
7
```

```
Epoch 181/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6586 - accuracy: 0.618
7
Epoch 182/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6568 - accuracy: 0.593
8
Epoch 183/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6553 - accuracy: 0.618
7
Epoch 184/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6537 - accuracy: 0.637
5
Epoch 185/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6525 - accuracy: 0.606
2
Epoch 186/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6506 - accuracy: 0.612
5
Epoch 187/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6493 - accuracy: 0.631
3
Epoch 188/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6475 - accuracy: 0.631
3
Epoch 189/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6461 - accuracy: 0.631
3
Epoch 190/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6443 - accuracy: 0.637
5
Epoch 191/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6430 - accuracy: 0.631
3
Epoch 192/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6409 - accuracy: 0.631
3
Epoch 193/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6397 - accuracy: 0.631
3
Epoch 194/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6383 - accuracy: 0.631
3
Epoch 195/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6364 - accuracy: 0.625
0
Epoch 196/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6356 - accuracy: 0.631
3
Epoch 197/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6340 - accuracy: 0.631
3
Epoch 198/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6325 - accuracy: 0.631
3
Epoch 199/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6320 - accuracy: 0.631
3
Epoch 200/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6306 - accuracy: 0.631
3
```

```
Epoch 201/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6295 - accuracy: 0.637
5
Epoch 202/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6291 - accuracy: 0.656
2
Epoch 203/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6271 - accuracy: 0.650
0
Epoch 204/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6266 - accuracy: 0.656
2
Epoch 205/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6259 - accuracy: 0.656
2
Epoch 206/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6249 - accuracy: 0.662
5
Epoch 207/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6234 - accuracy: 0.650
0
Epoch 208/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6234 - accuracy: 0.662
5
Epoch 209/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6220 - accuracy: 0.656
2
Epoch 210/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6210 - accuracy: 0.650
0
Epoch 211/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6202 - accuracy: 0.668
7
Epoch 212/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6191 - accuracy: 0.656
2
Epoch 213/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6188 - accuracy: 0.656
2
Epoch 214/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6177 - accuracy: 0.656
2
Epoch 215/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6167 - accuracy: 0.668
7
Epoch 216/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6161 - accuracy: 0.662
5
Epoch 217/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6153 - accuracy: 0.675
0
Epoch 218/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6145 - accuracy: 0.675
0
Epoch 219/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6145 - accuracy: 0.662
5
Epoch 220/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6126 - accuracy: 0.662
5
```

```
Epoch 221/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6118 - accuracy: 0.675
0
Epoch 222/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6113 - accuracy: 0.675
0
Epoch 223/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6107 - accuracy: 0.681
2
Epoch 224/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6099 - accuracy: 0.675
0
Epoch 225/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6092 - accuracy: 0.681
2
Epoch 226/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6091 - accuracy: 0.675
0
Epoch 227/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6080 - accuracy: 0.675
0
Epoch 228/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6075 - accuracy: 0.675
0
Epoch 229/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6065 - accuracy: 0.681
2
Epoch 230/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6067 - accuracy: 0.681
2
Epoch 231/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6061 - accuracy: 0.681
2
Epoch 232/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6051 - accuracy: 0.681
2
Epoch 233/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6046 - accuracy: 0.681
2
Epoch 234/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6040 - accuracy: 0.681
2
Epoch 235/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6031 - accuracy: 0.681
2
Epoch 236/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6023 - accuracy: 0.681
2
Epoch 237/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6028 - accuracy: 0.675
0
Epoch 238/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6013 - accuracy: 0.681
2
Epoch 239/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6008 - accuracy: 0.675
0
Epoch 240/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6003 - accuracy: 0.681
2
```

```
Epoch 241/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5999 - accuracy: 0.681
2
Epoch 242/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5991 - accuracy: 0.681
2
Epoch 243/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5986 - accuracy: 0.675
0
Epoch 244/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5987 - accuracy: 0.681
2
Epoch 245/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5977 - accuracy: 0.675
0
Epoch 246/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5971 - accuracy: 0.681
2
Epoch 247/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5969 - accuracy: 0.681
2
Epoch 248/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5961 - accuracy: 0.675
0
Epoch 249/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5960 - accuracy: 0.681
2
Epoch 250/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5954 - accuracy: 0.681
2
Epoch 251/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5949 - accuracy: 0.687
5
Epoch 252/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5949 - accuracy: 0.675
0
Epoch 253/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5942 - accuracy: 0.687
5
Epoch 254/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5936 - accuracy: 0.687
5
Epoch 255/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5933 - accuracy: 0.681
2
Epoch 256/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5928 - accuracy: 0.687
5
Epoch 257/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5927 - accuracy: 0.687
5
Epoch 258/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5927 - accuracy: 0.687
5
Epoch 259/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5921 - accuracy: 0.687
5
Epoch 260/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5913 - accuracy: 0.687
5
```

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Epoch 261/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5910 - accuracy: 0.687
5
Epoch 262/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5907 - accuracy: 0.687
5
Epoch 263/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5903 - accuracy: 0.693
8
Epoch 264/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5909 - accuracy: 0.687
5
Epoch 265/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5898 - accuracy: 0.693
8
Epoch 266/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5896 - accuracy: 0.693
8
Epoch 267/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5890 - accuracy: 0.693
8
Epoch 268/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5892 - accuracy: 0.693
8
Epoch 269/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5886 - accuracy: 0.693
8
Epoch 270/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5880 - accuracy: 0.693
8
Epoch 271/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5883 - accuracy: 0.693
8
Epoch 272/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5879 - accuracy: 0.693
8
Epoch 273/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5872 - accuracy: 0.693
8
Epoch 274/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5877 - accuracy: 0.693
8
Epoch 275/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5870 - accuracy: 0.693
8
Epoch 276/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5866 - accuracy: 0.693
8
Epoch 277/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5866 - accuracy: 0.693
8
Epoch 278/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5864 - accuracy: 0.693
8
Epoch 279/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5859 - accuracy: 0.693
8
Epoch 280/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5858 - accuracy: 0.693
8
```

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Epoch 281/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5858 - accuracy: 0.693
8
Epoch 282/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5853 - accuracy: 0.693
8
Epoch 283/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5850 - accuracy: 0.693
8
Epoch 284/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5846 - accuracy: 0.693
8
Epoch 285/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5846 - accuracy: 0.693
8
Epoch 286/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5845 - accuracy: 0.693
8
Epoch 287/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5841 - accuracy: 0.687
5
Epoch 288/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5837 - accuracy: 0.687
5
Epoch 289/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5843 - accuracy: 0.687
5
Epoch 290/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5835 - accuracy: 0.693
8
Epoch 291/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5835 - accuracy: 0.693
8
Epoch 292/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5832 - accuracy: 0.693
8
Epoch 293/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5827 - accuracy: 0.687
5
Epoch 294/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5827 - accuracy: 0.687
5
Epoch 295/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5824 - accuracy: 0.687
5
Epoch 296/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5823 - accuracy: 0.687
5
Epoch 297/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5823 - accuracy: 0.687
5
Epoch 298/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5816 - accuracy: 0.687
5
Epoch 299/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5821 - accuracy: 0.687
5
Epoch 300/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5818 - accuracy: 0.687
5
```

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Epoch 301/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5822 - accuracy: 0.687
5
Epoch 302/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5810 - accuracy: 0.687
5
Epoch 303/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5809 - accuracy: 0.687
5
Epoch 304/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5808 - accuracy: 0.687
5
Epoch 305/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5806 - accuracy: 0.687
5
Epoch 306/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5807 - accuracy: 0.687
5
Epoch 307/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5806 - accuracy: 0.687
5
Epoch 308/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5826 - accuracy: 0.681
2
Epoch 309/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5798 - accuracy: 0.687
5
Epoch 310/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5802 - accuracy: 0.687
5
Epoch 311/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5797 - accuracy: 0.687
5
Epoch 312/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5794 - accuracy: 0.687
5
Epoch 313/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5795 - accuracy: 0.687
5
Epoch 314/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5800 - accuracy: 0.681
2
Epoch 315/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5788 - accuracy: 0.687
5
Epoch 316/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5790 - accuracy: 0.687
5
Epoch 317/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5796 - accuracy: 0.687
5
Epoch 318/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5786 - accuracy: 0.687
5
Epoch 319/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5786 - accuracy: 0.687
5
Epoch 320/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5786 - accuracy: 0.687
5
```

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Epoch 321/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5782 - accuracy: 0.687
5
Epoch 322/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5782 - accuracy: 0.687
5
Epoch 323/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5779 - accuracy: 0.687
5
Epoch 324/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5778 - accuracy: 0.681
2
Epoch 325/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5777 - accuracy: 0.687
5
Epoch 326/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5775 - accuracy: 0.687
5
Epoch 327/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5777 - accuracy: 0.681
2
Epoch 328/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5772 - accuracy: 0.681
2
Epoch 329/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5773 - accuracy: 0.687
5
Epoch 330/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5771 - accuracy: 0.681
2
Epoch 331/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5770 - accuracy: 0.681
2
Epoch 332/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5769 - accuracy: 0.681
2
Epoch 333/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5767 - accuracy: 0.681
2
Epoch 334/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5767 - accuracy: 0.681
2
Epoch 335/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5764 - accuracy: 0.681
2
Epoch 336/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5766 - accuracy: 0.675
0
Epoch 337/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5769 - accuracy: 0.681
2
Epoch 338/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5760 - accuracy: 0.681
2
Epoch 339/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5765 - accuracy: 0.681
2
Epoch 340/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5762 - accuracy: 0.681
2
```

```
Epoch 341/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5761 - accuracy: 0.675
0
Epoch 342/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5756 - accuracy: 0.681
2
Epoch 343/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5756 - accuracy: 0.681
2
Epoch 344/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5769 - accuracy: 0.681
2
Epoch 345/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5756 - accuracy: 0.681
2
Epoch 346/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5760 - accuracy: 0.675
0
Epoch 347/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5760 - accuracy: 0.675
0
Epoch 348/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5752 - accuracy: 0.675
0
Epoch 349/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5751 - accuracy: 0.681
2
Epoch 350/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5748 - accuracy: 0.675
0
Epoch 351/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5747 - accuracy: 0.675
0
Epoch 352/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5749 - accuracy: 0.675
0
Epoch 353/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5749 - accuracy: 0.675
0
Epoch 354/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5759 - accuracy: 0.675
0
Epoch 355/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5748 - accuracy: 0.675
0
Epoch 356/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5745 - accuracy: 0.675
0
Epoch 357/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5746 - accuracy: 0.675
0
Epoch 358/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5755 - accuracy: 0.681
2
Epoch 359/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5743 - accuracy: 0.675
0
Epoch 360/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5746 - accuracy: 0.675
0
```

```
Epoch 361/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5746 - accuracy: 0.668
7
Epoch 362/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5743 - accuracy: 0.681
2
Epoch 363/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5737 - accuracy: 0.675
0
Epoch 364/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5739 - accuracy: 0.675
0
Epoch 365/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5735 - accuracy: 0.675
0
Epoch 366/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5737 - accuracy: 0.675
0
Epoch 367/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5738 - accuracy: 0.675
0
Epoch 368/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5734 - accuracy: 0.675
0
Epoch 369/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5734 - accuracy: 0.668
7
Epoch 370/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5739 - accuracy: 0.675
0
Epoch 371/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5736 - accuracy: 0.675
0
Epoch 372/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5738 - accuracy: 0.675
0
Epoch 373/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5743 - accuracy: 0.668
7
Epoch 374/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5736 - accuracy: 0.675
0
Epoch 375/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5732 - accuracy: 0.668
7
Epoch 376/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5732 - accuracy: 0.668
7
Epoch 377/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5731 - accuracy: 0.675
0
Epoch 378/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5737 - accuracy: 0.675
0
Epoch 379/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5730 - accuracy: 0.675
0
Epoch 380/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5729 - accuracy: 0.675
0
```

```
Epoch 381/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5732 - accuracy: 0.668
7
Epoch 382/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5726 - accuracy: 0.675
0
Epoch 383/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5730 - accuracy: 0.675
0
Epoch 384/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5724 - accuracy: 0.675
0
Epoch 385/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5727 - accuracy: 0.675
0
Epoch 386/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5725 - accuracy: 0.675
0
Epoch 387/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5724 - accuracy: 0.675
0
Epoch 388/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5731 - accuracy: 0.675
0
Epoch 389/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5726 - accuracy: 0.675
0
Epoch 390/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5729 - accuracy: 0.675
0
Epoch 391/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5720 - accuracy: 0.675
0
Epoch 392/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5724 - accuracy: 0.675
0
Epoch 393/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5721 - accuracy: 0.675
0
Epoch 394/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5719 - accuracy: 0.675
0
Epoch 395/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5722 - accuracy: 0.675
0
Epoch 396/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5725 - accuracy: 0.675
0
Epoch 397/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5722 - accuracy: 0.675
0
Epoch 398/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5724 - accuracy: 0.675
0
Epoch 399/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5725 - accuracy: 0.675
0
Epoch 400/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5731 - accuracy: 0.675
0
```

```
Epoch 401/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5719 - accuracy: 0.675
0
Epoch 402/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5720 - accuracy: 0.675
0
Epoch 403/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5717 - accuracy: 0.675
0
Epoch 404/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5718 - accuracy: 0.675
0
Epoch 405/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5724 - accuracy: 0.675
0
Epoch 406/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5719 - accuracy: 0.675
0
Epoch 407/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5719 - accuracy: 0.675
0
Epoch 408/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5730 - accuracy: 0.681
2
Epoch 409/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5715 - accuracy: 0.675
0
Epoch 410/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5715 - accuracy: 0.675
0
Epoch 411/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5719 - accuracy: 0.675
0
Epoch 412/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5717 - accuracy: 0.675
0
Epoch 413/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5714 - accuracy: 0.675
0
Epoch 414/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5721 - accuracy: 0.675
0
Epoch 415/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5712 - accuracy: 0.675
0
Epoch 416/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5717 - accuracy: 0.675
0
Epoch 417/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5714 - accuracy: 0.675
0
Epoch 418/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5720 - accuracy: 0.675
0
Epoch 419/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5718 - accuracy: 0.675
0
Epoch 420/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5712 - accuracy: 0.675
0
```

```
Epoch 421/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5712 - accuracy: 0.675
0
Epoch 422/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5713 - accuracy: 0.675
0
Epoch 423/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5711 - accuracy: 0.675
0
Epoch 424/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5713 - accuracy: 0.675
0
Epoch 425/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5715 - accuracy: 0.675
0
Epoch 426/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5716 - accuracy: 0.675
0
Epoch 427/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5717 - accuracy: 0.675
0
Epoch 428/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5712 - accuracy: 0.675
0
Epoch 429/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5715 - accuracy: 0.675
0
Epoch 430/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5709 - accuracy: 0.675
0
Epoch 431/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5717 - accuracy: 0.675
0
Epoch 432/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5710 - accuracy: 0.681
2
Epoch 433/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5710 - accuracy: 0.681
2
Epoch 434/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5716 - accuracy: 0.668
7
Epoch 435/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5711 - accuracy: 0.681
2
Epoch 436/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5711 - accuracy: 0.675
0
Epoch 437/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5709 - accuracy: 0.681
2
Epoch 438/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5708 - accuracy: 0.681
2
Epoch 439/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5716 - accuracy: 0.675
0
Epoch 440/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5712 - accuracy: 0.675
0
```

```
Epoch 441/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5713 - accuracy: 0.675
0
Epoch 442/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5706 - accuracy: 0.681
2
Epoch 443/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5705 - accuracy: 0.675
0
Epoch 444/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5710 - accuracy: 0.675
0
Epoch 445/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5709 - accuracy: 0.668
7
Epoch 446/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5707 - accuracy: 0.675
0
Epoch 447/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5707 - accuracy: 0.675
0
Epoch 448/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5715 - accuracy: 0.675
0
Epoch 449/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5707 - accuracy: 0.675
0
Epoch 450/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5709 - accuracy: 0.675
0
Epoch 451/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5707 - accuracy: 0.675
0
Epoch 452/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5712 - accuracy: 0.675
0
Epoch 453/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5705 - accuracy: 0.681
2
Epoch 454/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5710 - accuracy: 0.675
0
Epoch 455/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5705 - accuracy: 0.675
0
Epoch 456/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5706 - accuracy: 0.675
0
Epoch 457/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5706 - accuracy: 0.675
0
Epoch 458/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5710 - accuracy: 0.675
0
Epoch 459/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5706 - accuracy: 0.681
2
Epoch 460/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5706 - accuracy: 0.675
0
```

```
Epoch 461/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5705 - accuracy: 0.681
2
Epoch 462/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5711 - accuracy: 0.681
2
Epoch 463/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5703 - accuracy: 0.675
0
Epoch 464/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5706 - accuracy: 0.681
2
Epoch 465/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5705 - accuracy: 0.675
0
Epoch 466/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5703 - accuracy: 0.675
0
Epoch 467/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5701 - accuracy: 0.675
0
Epoch 468/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5706 - accuracy: 0.675
0
Epoch 469/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5708 - accuracy: 0.675
0
Epoch 470/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5703 - accuracy: 0.675
0
Epoch 471/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5707 - accuracy: 0.675
0
Epoch 472/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5703 - accuracy: 0.675
0
Epoch 473/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5707 - accuracy: 0.675
0
Epoch 474/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5703 - accuracy: 0.675
0
Epoch 475/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5702 - accuracy: 0.675
0
Epoch 476/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5704 - accuracy: 0.675
0
Epoch 477/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5709 - accuracy: 0.675
0
Epoch 478/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5703 - accuracy: 0.675
0
Epoch 479/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5704 - accuracy: 0.675
0
Epoch 480/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5711 - accuracy: 0.675
0
```

```
Epoch 481/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5700 - accuracy: 0.675
0
Epoch 482/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5701 - accuracy: 0.675
0
Epoch 483/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5703 - accuracy: 0.675
0
Epoch 484/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5705 - accuracy: 0.675
0
Epoch 485/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5710 - accuracy: 0.675
0
Epoch 486/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5703 - accuracy: 0.675
0
Epoch 487/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5705 - accuracy: 0.675
0
Epoch 488/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5700 - accuracy: 0.675
0
Epoch 489/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5702 - accuracy: 0.675
0
Epoch 490/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5700 - accuracy: 0.675
0
Epoch 491/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5700 - accuracy: 0.675
0
Epoch 492/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5704 - accuracy: 0.675
0
Epoch 493/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5701 - accuracy: 0.675
0
Epoch 494/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5704 - accuracy: 0.675
0
Epoch 495/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5703 - accuracy: 0.675
0
Epoch 496/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5700 - accuracy: 0.675
0
Epoch 497/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5704 - accuracy: 0.675
0
Epoch 498/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5699 - accuracy: 0.675
0
Epoch 499/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5699 - accuracy: 0.675
0
Epoch 500/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5698 - accuracy: 0.675
0
```

```
Epoch 501/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5709 - accuracy: 0.675
0
Epoch 502/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5699 - accuracy: 0.675
0
Epoch 503/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5698 - accuracy: 0.675
0
Epoch 504/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5701 - accuracy: 0.675
0
Epoch 505/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5699 - accuracy: 0.675
0
Epoch 506/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5700 - accuracy: 0.675
0
Epoch 507/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5701 - accuracy: 0.675
0
Epoch 508/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5700 - accuracy: 0.675
0
Epoch 509/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5706 - accuracy: 0.668
7
Epoch 510/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5698 - accuracy: 0.675
0
Epoch 511/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5699 - accuracy: 0.675
0
Epoch 512/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5701 - accuracy: 0.668
7
Epoch 513/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5705 - accuracy: 0.675
0
Epoch 514/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5702 - accuracy: 0.668
7
Epoch 515/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5701 - accuracy: 0.675
0
Epoch 516/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5701 - accuracy: 0.675
0
Epoch 517/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5701 - accuracy: 0.675
0
Epoch 518/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5697 - accuracy: 0.675
0
Epoch 519/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5700 - accuracy: 0.668
7
Epoch 520/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5698 - accuracy: 0.675
0
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Epoch 521/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5700 - accuracy: 0.675
0
Epoch 522/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5703 - accuracy: 0.675
0
Epoch 523/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5697 - accuracy: 0.675
0
Epoch 524/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5699 - accuracy: 0.668
7
Epoch 525/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5701 - accuracy: 0.675
0
Epoch 526/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5700 - accuracy: 0.675
0
Epoch 527/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5698 - accuracy: 0.668
7
Epoch 528/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5696 - accuracy: 0.675
0
Epoch 529/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5698 - accuracy: 0.675
0
Epoch 530/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5704 - accuracy: 0.675
0
Epoch 531/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5696 - accuracy: 0.675
0
Epoch 532/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5698 - accuracy: 0.668
7
Epoch 533/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5699 - accuracy: 0.675
0
Epoch 534/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5703 - accuracy: 0.675
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Epoch 535/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5698 - accuracy: 0.675
0
Epoch 536/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5696 - accuracy: 0.675
0
Epoch 537/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5697 - accuracy: 0.675
0
Epoch 538/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5698 - accuracy: 0.675
0
Epoch 539/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5696 - accuracy: 0.668
7
Epoch 540/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5703 - accuracy: 0.675
0
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Epoch 541/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5698 - accuracy: 0.668
7
Epoch 542/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5698 - accuracy: 0.675
0
Epoch 543/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5698 - accuracy: 0.675
0
Epoch 544/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5703 - accuracy: 0.675
0
Epoch 545/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5701 - accuracy: 0.668
7
Epoch 546/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5699 - accuracy: 0.668
7
Epoch 547/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5703 - accuracy: 0.675
0
Epoch 548/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5700 - accuracy: 0.668
7
Epoch 549/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5698 - accuracy: 0.675
0
Epoch 550/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.668
7
Epoch 551/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5698 - accuracy: 0.668
7
Epoch 552/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5701 - accuracy: 0.675
0
Epoch 553/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5704 - accuracy: 0.675
0
Epoch 554/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5700 - accuracy: 0.675
0
Epoch 555/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5699 - accuracy: 0.675
0
Epoch 556/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5697 - accuracy: 0.675
0
Epoch 557/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5696 - accuracy: 0.675
0
Epoch 558/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5696 - accuracy: 0.675
0
Epoch 559/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5696 - accuracy: 0.668
7
Epoch 560/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.668
7
```

```
Epoch 561/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5700 - accuracy: 0.675
0
Epoch 562/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5698 - accuracy: 0.675
0
Epoch 563/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.675
0
Epoch 564/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5697 - accuracy: 0.675
0
Epoch 565/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.675
0
Epoch 566/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5696 - accuracy: 0.668
7
Epoch 567/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.675
0
Epoch 568/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5699 - accuracy: 0.675
0
Epoch 569/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5699 - accuracy: 0.675
0
Epoch 570/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5703 - accuracy: 0.675
0
Epoch 571/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5699 - accuracy: 0.668
7
Epoch 572/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5698 - accuracy: 0.668
7
Epoch 573/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5697 - accuracy: 0.668
7
Epoch 574/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.675
0
Epoch 575/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5696 - accuracy: 0.668
7
Epoch 576/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5698 - accuracy: 0.668
7
Epoch 577/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5701 - accuracy: 0.675
0
Epoch 578/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.675
0
Epoch 579/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5705 - accuracy: 0.668
7
Epoch 580/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5700 - accuracy: 0.675
0
```

```
Epoch 581/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5696 - accuracy: 0.675
0
Epoch 582/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.675
0
Epoch 583/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5702 - accuracy: 0.668
7
Epoch 584/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5701 - accuracy: 0.675
0
Epoch 585/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.675
0
Epoch 586/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5697 - accuracy: 0.675
0
Epoch 587/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5708 - accuracy: 0.675
0
Epoch 588/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.675
0
Epoch 589/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5701 - accuracy: 0.675
0
Epoch 590/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5697 - accuracy: 0.675
0
Epoch 591/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5704 - accuracy: 0.675
0
Epoch 592/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5697 - accuracy: 0.675
0
Epoch 593/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.668
7
Epoch 594/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5696 - accuracy: 0.675
0
Epoch 595/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5697 - accuracy: 0.675
0
Epoch 596/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.675
0
Epoch 597/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5700 - accuracy: 0.668
7
Epoch 598/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5703 - accuracy: 0.681
2
Epoch 599/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5702 - accuracy: 0.675
0
Epoch 600/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5696 - accuracy: 0.675
0
```

```
Epoch 601/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5697 - accuracy: 0.675
0
Epoch 602/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.675
0
Epoch 603/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5697 - accuracy: 0.675
0
Epoch 604/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5696 - accuracy: 0.675
0
Epoch 605/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5703 - accuracy: 0.675
0
Epoch 606/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5702 - accuracy: 0.668
7
Epoch 607/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5699 - accuracy: 0.675
0
Epoch 608/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.675
0
Epoch 609/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5696 - accuracy: 0.675
0
Epoch 610/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.675
0
Epoch 611/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5703 - accuracy: 0.675
0
Epoch 612/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.675
0
Epoch 613/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5706 - accuracy: 0.675
0
Epoch 614/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5692 - accuracy: 0.675
0
Epoch 615/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5706 - accuracy: 0.675
0
Epoch 616/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5698 - accuracy: 0.675
0
Epoch 617/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5693 - accuracy: 0.675
0
Epoch 618/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5698 - accuracy: 0.675
0
Epoch 619/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5696 - accuracy: 0.668
7
Epoch 620/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.675
0
```

```
Epoch 621/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.675
0
Epoch 622/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5700 - accuracy: 0.675
0
Epoch 623/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5696 - accuracy: 0.675
0
Epoch 624/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5692 - accuracy: 0.675
0
Epoch 625/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5697 - accuracy: 0.675
0
Epoch 626/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5693 - accuracy: 0.675
0
Epoch 627/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5696 - accuracy: 0.675
0
Epoch 628/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.675
0
Epoch 629/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5699 - accuracy: 0.675
0
Epoch 630/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5698 - accuracy: 0.675
0
Epoch 631/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5702 - accuracy: 0.675
0
Epoch 632/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5698 - accuracy: 0.675
0
Epoch 633/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5702 - accuracy: 0.675
0
Epoch 634/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5698 - accuracy: 0.675
0
Epoch 635/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.675
0
Epoch 636/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5698 - accuracy: 0.675
0
Epoch 637/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5699 - accuracy: 0.675
0
Epoch 638/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5699 - accuracy: 0.675
0
Epoch 639/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.675
0
Epoch 640/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5698 - accuracy: 0.675
0
```

```
Epoch 641/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5708 - accuracy: 0.668
7
Epoch 642/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5700 - accuracy: 0.675
0
Epoch 643/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5698 - accuracy: 0.675
0
Epoch 644/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5704 - accuracy: 0.675
0
Epoch 645/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5691 - accuracy: 0.675
0
Epoch 646/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5707 - accuracy: 0.675
0
Epoch 647/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5701 - accuracy: 0.668
7
Epoch 648/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5700 - accuracy: 0.675
0
Epoch 649/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5692 - accuracy: 0.675
0
Epoch 650/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5693 - accuracy: 0.675
0
Epoch 651/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5693 - accuracy: 0.675
0
Epoch 652/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5697 - accuracy: 0.675
0
Epoch 653/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.675
0
Epoch 654/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.675
0
Epoch 655/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5693 - accuracy: 0.675
0
Epoch 656/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5696 - accuracy: 0.675
0
Epoch 657/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.675
0
Epoch 658/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.675
0
Epoch 659/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5698 - accuracy: 0.675
0
Epoch 660/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5698 - accuracy: 0.675
0
```

```
Epoch 661/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5693 - accuracy: 0.675
0
Epoch 662/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5692 - accuracy: 0.675
0
Epoch 663/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.675
0
Epoch 664/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5697 - accuracy: 0.675
0
Epoch 665/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5698 - accuracy: 0.675
0
Epoch 666/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5696 - accuracy: 0.675
0
Epoch 667/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.675
0
Epoch 668/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5692 - accuracy: 0.675
0
Epoch 669/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5691 - accuracy: 0.675
0
Epoch 670/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5693 - accuracy: 0.675
0
Epoch 671/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5690 - accuracy: 0.675
0
Epoch 672/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5692 - accuracy: 0.675
0
Epoch 673/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.675
0
Epoch 674/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.675
0
Epoch 675/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5696 - accuracy: 0.675
0
Epoch 676/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5692 - accuracy: 0.675
0
Epoch 677/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5700 - accuracy: 0.675
0
Epoch 678/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5698 - accuracy: 0.675
0
Epoch 679/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.675
0
Epoch 680/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.675
0
```

```
Epoch 681/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.675
0
Epoch 682/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5696 - accuracy: 0.675
0
Epoch 683/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5699 - accuracy: 0.675
0
Epoch 684/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.675
0
Epoch 685/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5697 - accuracy: 0.668
7
Epoch 686/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5713 - accuracy: 0.668
7
Epoch 687/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5691 - accuracy: 0.675
0
Epoch 688/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5692 - accuracy: 0.675
0
Epoch 689/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5698 - accuracy: 0.675
0
Epoch 690/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5697 - accuracy: 0.675
0
Epoch 691/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.675
0
Epoch 692/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5693 - accuracy: 0.675
0
Epoch 693/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5691 - accuracy: 0.675
0
Epoch 694/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5699 - accuracy: 0.675
0
Epoch 695/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5701 - accuracy: 0.668
7
Epoch 696/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5691 - accuracy: 0.668
7
Epoch 697/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5696 - accuracy: 0.675
0
Epoch 698/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5697 - accuracy: 0.675
0
Epoch 699/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5700 - accuracy: 0.668
7
Epoch 700/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5697 - accuracy: 0.675
0
```

```
Epoch 701/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.675
0
Epoch 702/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5693 - accuracy: 0.675
0
Epoch 703/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.675
0
Epoch 704/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5694 - accuracy: 0.675
0
Epoch 705/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5694 - accuracy: 0.675
0
Epoch 706/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5696 - accuracy: 0.675
0
Epoch 707/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.675
0
Epoch 708/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5691 - accuracy: 0.675
0
Epoch 709/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5698 - accuracy: 0.675
0
Epoch 710/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.668
7
Epoch 711/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5692 - accuracy: 0.675
0
Epoch 712/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5698 - accuracy: 0.675
0
Epoch 713/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5693 - accuracy: 0.675
0
Epoch 714/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.675
0
Epoch 715/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5692 - accuracy: 0.675
0
Epoch 716/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5696 - accuracy: 0.675
0
Epoch 717/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.675
0
Epoch 718/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5693 - accuracy: 0.675
0
Epoch 719/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5692 - accuracy: 0.675
0
Epoch 720/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5698 - accuracy: 0.675
0
```

```
Epoch 721/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5694 - accuracy: 0.675
0
Epoch 722/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5696 - accuracy: 0.675
0
Epoch 723/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.675
0
Epoch 724/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5693 - accuracy: 0.675
0
Epoch 725/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.675
0
Epoch 726/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.668
7
Epoch 727/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5693 - accuracy: 0.675
0
Epoch 728/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.675
0
Epoch 729/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.675
0
Epoch 730/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5696 - accuracy: 0.675
0
Epoch 731/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.675
0
Epoch 732/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5699 - accuracy: 0.668
7
Epoch 733/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5702 - accuracy: 0.675
0
Epoch 734/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.675
0
Epoch 735/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5699 - accuracy: 0.675
0
Epoch 736/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5691 - accuracy: 0.675
0
Epoch 737/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5693 - accuracy: 0.675
0
Epoch 738/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.675
0
Epoch 739/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5693 - accuracy: 0.675
0
Epoch 740/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.668
7
```

```
Epoch 741/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5692 - accuracy: 0.675
0
Epoch 742/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5698 - accuracy: 0.675
0
Epoch 743/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5693 - accuracy: 0.675
0
Epoch 744/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.668
7
Epoch 745/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5688 - accuracy: 0.675
0
Epoch 746/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5691 - accuracy: 0.675
0
Epoch 747/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5694 - accuracy: 0.675
0
Epoch 748/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5700 - accuracy: 0.675
0
Epoch 749/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5699 - accuracy: 0.675
0
Epoch 750/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.668
7
Epoch 751/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5693 - accuracy: 0.675
0
Epoch 752/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.675
0
Epoch 753/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.675
0
Epoch 754/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.675
0
Epoch 755/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5700 - accuracy: 0.675
0
Epoch 756/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5691 - accuracy: 0.675
0
Epoch 757/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5693 - accuracy: 0.675
0
Epoch 758/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5691 - accuracy: 0.675
0
Epoch 759/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5692 - accuracy: 0.675
0
Epoch 760/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5693 - accuracy: 0.675
0
```

```
Epoch 761/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.675
0
Epoch 762/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5693 - accuracy: 0.675
0
Epoch 763/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5696 - accuracy: 0.675
0
Epoch 764/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5710 - accuracy: 0.668
7
Epoch 765/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5699 - accuracy: 0.675
0
Epoch 766/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5689 - accuracy: 0.675
0
Epoch 767/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.675
0
Epoch 768/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5698 - accuracy: 0.675
0
Epoch 769/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.675
0
Epoch 770/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5697 - accuracy: 0.675
0
Epoch 771/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5702 - accuracy: 0.668
7
Epoch 772/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.668
7
Epoch 773/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5696 - accuracy: 0.675
0
Epoch 774/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5699 - accuracy: 0.675
0
Epoch 775/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5691 - accuracy: 0.675
0
Epoch 776/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5696 - accuracy: 0.668
7
Epoch 777/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5694 - accuracy: 0.668
7
Epoch 778/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5691 - accuracy: 0.668
7
Epoch 779/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5691 - accuracy: 0.668
7
Epoch 780/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5692 - accuracy: 0.675
0
```

```
Epoch 781/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5691 - accuracy: 0.675
0
Epoch 782/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.675
0
Epoch 783/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.668
7
Epoch 784/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5692 - accuracy: 0.675
0
Epoch 785/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5693 - accuracy: 0.675
0
Epoch 786/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5693 - accuracy: 0.675
0
Epoch 787/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.668
7
Epoch 788/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5696 - accuracy: 0.675
0
Epoch 789/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.675
0
Epoch 790/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5692 - accuracy: 0.675
0
Epoch 791/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5693 - accuracy: 0.675
0
Epoch 792/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5705 - accuracy: 0.668
7
Epoch 793/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.668
7
Epoch 794/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.668
7
Epoch 795/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5692 - accuracy: 0.668
7
Epoch 796/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5696 - accuracy: 0.675
0
Epoch 797/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5692 - accuracy: 0.675
0
Epoch 798/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.675
0
Epoch 799/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5689 - accuracy: 0.675
0
Epoch 800/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5692 - accuracy: 0.668
7
```

```
Epoch 801/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5692 - accuracy: 0.668
7
Epoch 802/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5693 - accuracy: 0.675
0
Epoch 803/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5693 - accuracy: 0.675
0
Epoch 804/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.675
0
Epoch 805/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5703 - accuracy: 0.675
0
Epoch 806/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5696 - accuracy: 0.675
0
Epoch 807/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5690 - accuracy: 0.668
7
Epoch 808/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5691 - accuracy: 0.668
7
Epoch 809/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.675
0
Epoch 810/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.668
7
Epoch 811/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5703 - accuracy: 0.675
0
Epoch 812/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.668
7
Epoch 813/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5690 - accuracy: 0.668
7
Epoch 814/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.668
7
Epoch 815/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5693 - accuracy: 0.675
0
Epoch 816/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.675
0
Epoch 817/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5690 - accuracy: 0.675
0
Epoch 818/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5693 - accuracy: 0.668
7
Epoch 819/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5696 - accuracy: 0.675
0
Epoch 820/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5689 - accuracy: 0.675
0
```

```
Epoch 821/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5692 - accuracy: 0.668
7
Epoch 822/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.675
0
Epoch 823/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5693 - accuracy: 0.675
0
Epoch 824/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5690 - accuracy: 0.668
7
Epoch 825/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5692 - accuracy: 0.668
7
Epoch 826/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.675
0
Epoch 827/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5692 - accuracy: 0.675
0
Epoch 828/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5690 - accuracy: 0.668
7
Epoch 829/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5691 - accuracy: 0.668
7
Epoch 830/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5696 - accuracy: 0.668
7
Epoch 831/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5696 - accuracy: 0.668
7
Epoch 832/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5696 - accuracy: 0.668
7
Epoch 833/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5700 - accuracy: 0.675
0
Epoch 834/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5688 - accuracy: 0.668
7
Epoch 835/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5691 - accuracy: 0.668
7
Epoch 836/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5691 - accuracy: 0.668
7
Epoch 837/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5692 - accuracy: 0.668
7
Epoch 838/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5698 - accuracy: 0.675
0
Epoch 839/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5692 - accuracy: 0.668
7
Epoch 840/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5698 - accuracy: 0.668
7
```

```
Epoch 841/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5699 - accuracy: 0.675
0
Epoch 842/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5692 - accuracy: 0.675
0
Epoch 843/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5693 - accuracy: 0.668
7
Epoch 844/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5692 - accuracy: 0.668
7
Epoch 845/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5698 - accuracy: 0.668
7
Epoch 846/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.675
0
Epoch 847/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5691 - accuracy: 0.675
0
Epoch 848/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.668
7
Epoch 849/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5693 - accuracy: 0.675
0
Epoch 850/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.668
7
Epoch 851/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5691 - accuracy: 0.668
7
Epoch 852/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5692 - accuracy: 0.675
0
Epoch 853/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5700 - accuracy: 0.668
7
Epoch 854/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.668
7
Epoch 855/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5698 - accuracy: 0.668
7
Epoch 856/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5692 - accuracy: 0.668
7
Epoch 857/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.675
0
Epoch 858/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5696 - accuracy: 0.668
7
Epoch 859/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5693 - accuracy: 0.668
7
Epoch 860/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5691 - accuracy: 0.675
0
```

```
Epoch 861/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.668
7
Epoch 862/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.675
0
Epoch 863/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5698 - accuracy: 0.668
7
Epoch 864/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.668
7
Epoch 865/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5692 - accuracy: 0.668
7
Epoch 866/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.668
7
Epoch 867/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.675
0
Epoch 868/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5691 - accuracy: 0.668
7
Epoch 869/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.668
7
Epoch 870/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5698 - accuracy: 0.668
7
Epoch 871/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.668
7
Epoch 872/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5691 - accuracy: 0.668
7
Epoch 873/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.668
7
Epoch 874/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5692 - accuracy: 0.668
7
Epoch 875/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5692 - accuracy: 0.668
7
Epoch 876/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5692 - accuracy: 0.668
7
Epoch 877/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5692 - accuracy: 0.668
7
Epoch 878/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5696 - accuracy: 0.675
0
Epoch 879/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5692 - accuracy: 0.668
7
Epoch 880/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5703 - accuracy: 0.668
7
```

```
Epoch 881/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.675
0
Epoch 882/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5691 - accuracy: 0.668
7
Epoch 883/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.668
7
Epoch 884/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5689 - accuracy: 0.668
7
Epoch 885/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5692 - accuracy: 0.668
7
Epoch 886/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.668
7
Epoch 887/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5696 - accuracy: 0.675
0
Epoch 888/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.668
7
Epoch 889/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5702 - accuracy: 0.668
7
Epoch 890/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5702 - accuracy: 0.668
7
Epoch 891/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5698 - accuracy: 0.668
7
Epoch 892/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5693 - accuracy: 0.668
7
Epoch 893/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5692 - accuracy: 0.668
7
Epoch 894/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5693 - accuracy: 0.668
7
Epoch 895/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5693 - accuracy: 0.668
7
Epoch 896/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5691 - accuracy: 0.675
0
Epoch 897/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5693 - accuracy: 0.668
7
Epoch 898/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.675
0
Epoch 899/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.668
7
Epoch 900/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.668
7
```

```
Epoch 901/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5691 - accuracy: 0.668
7
Epoch 902/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5693 - accuracy: 0.668
7
Epoch 903/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5697 - accuracy: 0.668
7
Epoch 904/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.668
7
Epoch 905/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5693 - accuracy: 0.668
7
Epoch 906/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5695 - accuracy: 0.668
7
Epoch 907/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5695 - accuracy: 0.668
7
Epoch 908/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5691 - accuracy: 0.668
7
Epoch 909/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.668
7
Epoch 910/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5696 - accuracy: 0.675
0
Epoch 911/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5690 - accuracy: 0.668
7
Epoch 912/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5699 - accuracy: 0.668
7
Epoch 913/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.668
7
Epoch 914/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5690 - accuracy: 0.668
7
Epoch 915/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5697 - accuracy: 0.675
0
Epoch 916/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5691 - accuracy: 0.668
7
Epoch 917/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5699 - accuracy: 0.668
7
Epoch 918/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5693 - accuracy: 0.675
0
Epoch 919/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5692 - accuracy: 0.668
7
Epoch 920/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5689 - accuracy: 0.668
7
```

```
Epoch 921/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5690 - accuracy: 0.668
7
Epoch 922/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5690 - accuracy: 0.668
7
Epoch 923/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5697 - accuracy: 0.668
7
Epoch 924/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5691 - accuracy: 0.668
7
Epoch 925/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5692 - accuracy: 0.668
7
Epoch 926/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5696 - accuracy: 0.675
0
Epoch 927/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5693 - accuracy: 0.668
7
Epoch 928/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.668
7
Epoch 929/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5691 - accuracy: 0.668
7
Epoch 930/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5700 - accuracy: 0.668
7
Epoch 931/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.668
7
Epoch 932/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5693 - accuracy: 0.668
7
Epoch 933/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5692 - accuracy: 0.668
7
Epoch 934/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.668
7
Epoch 935/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5690 - accuracy: 0.668
7
Epoch 936/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5697 - accuracy: 0.675
0
Epoch 937/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.668
7
Epoch 938/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.668
7
Epoch 939/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5689 - accuracy: 0.668
7
Epoch 940/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5696 - accuracy: 0.668
7
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Epoch 941/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.668
7
Epoch 942/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5692 - accuracy: 0.668
7
Epoch 943/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5693 - accuracy: 0.668
7
Epoch 944/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5700 - accuracy: 0.668
7
Epoch 945/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5693 - accuracy: 0.668
7
Epoch 946/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5690 - accuracy: 0.668
7
Epoch 947/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.668
7
Epoch 948/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5696 - accuracy: 0.668
7
Epoch 949/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5690 - accuracy: 0.668
7
Epoch 950/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5696 - accuracy: 0.675
0
Epoch 951/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.668
7
Epoch 952/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5697 - accuracy: 0.668
7
Epoch 953/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5690 - accuracy: 0.668
7
Epoch 954/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5699 - accuracy: 0.668
7
Epoch 955/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5692 - accuracy: 0.668
7
Epoch 956/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.668
7
Epoch 957/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5692 - accuracy: 0.668
7
Epoch 958/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.668
7
Epoch 959/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5691 - accuracy: 0.668
7
Epoch 960/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5691 - accuracy: 0.668
7
```

```
Epoch 961/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.668
7
Epoch 962/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5696 - accuracy: 0.675
0
Epoch 963/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.668
7
Epoch 964/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5690 - accuracy: 0.668
7
Epoch 965/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.668
7
Epoch 966/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5691 - accuracy: 0.668
7
Epoch 967/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.668
7
Epoch 968/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5699 - accuracy: 0.675
0
Epoch 969/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5697 - accuracy: 0.668
7
Epoch 970/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5692 - accuracy: 0.668
7
Epoch 971/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.675
0
Epoch 972/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5691 - accuracy: 0.668
7
Epoch 973/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5697 - accuracy: 0.668
7
Epoch 974/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5693 - accuracy: 0.668
7
Epoch 975/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5692 - accuracy: 0.668
7
Epoch 976/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.668
7
Epoch 977/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5692 - accuracy: 0.668
7
Epoch 978/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5692 - accuracy: 0.668
7
Epoch 979/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5695 - accuracy: 0.668
7
Epoch 980/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5692 - accuracy: 0.668
7
```

```
Epoch 981/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5691 - accuracy: 0.668
7
Epoch 982/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5692 - accuracy: 0.668
7
Epoch 983/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5700 - accuracy: 0.668
7
Epoch 984/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5701 - accuracy: 0.668
7
Epoch 985/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5691 - accuracy: 0.668
7
Epoch 986/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5694 - accuracy: 0.668
7
Epoch 987/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5694 - accuracy: 0.668
7
Epoch 988/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5690 - accuracy: 0.668
7
Epoch 989/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5692 - accuracy: 0.668
7
Epoch 990/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5696 - accuracy: 0.668
7
Epoch 991/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5689 - accuracy: 0.668
7
Epoch 992/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5690 - accuracy: 0.668
7
Epoch 993/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5703 - accuracy: 0.668
7
Epoch 994/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5703 - accuracy: 0.668
7
Epoch 995/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5691 - accuracy: 0.668
7
Epoch 996/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5693 - accuracy: 0.668
7
Epoch 997/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5693 - accuracy: 0.668
7
Epoch 998/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5691 - accuracy: 0.668
7
Epoch 999/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5688 - accuracy: 0.668
7
Epoch 1000/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5691 - accuracy: 0.668
7
```

```
5/5 [==============================] - 0s 2ms/step - loss: 0.5685 - accuracy: 0.6687
5/5 [==============================] - 0s 2ms/step
[0.5684527158737183, 0.668749988079071]
```
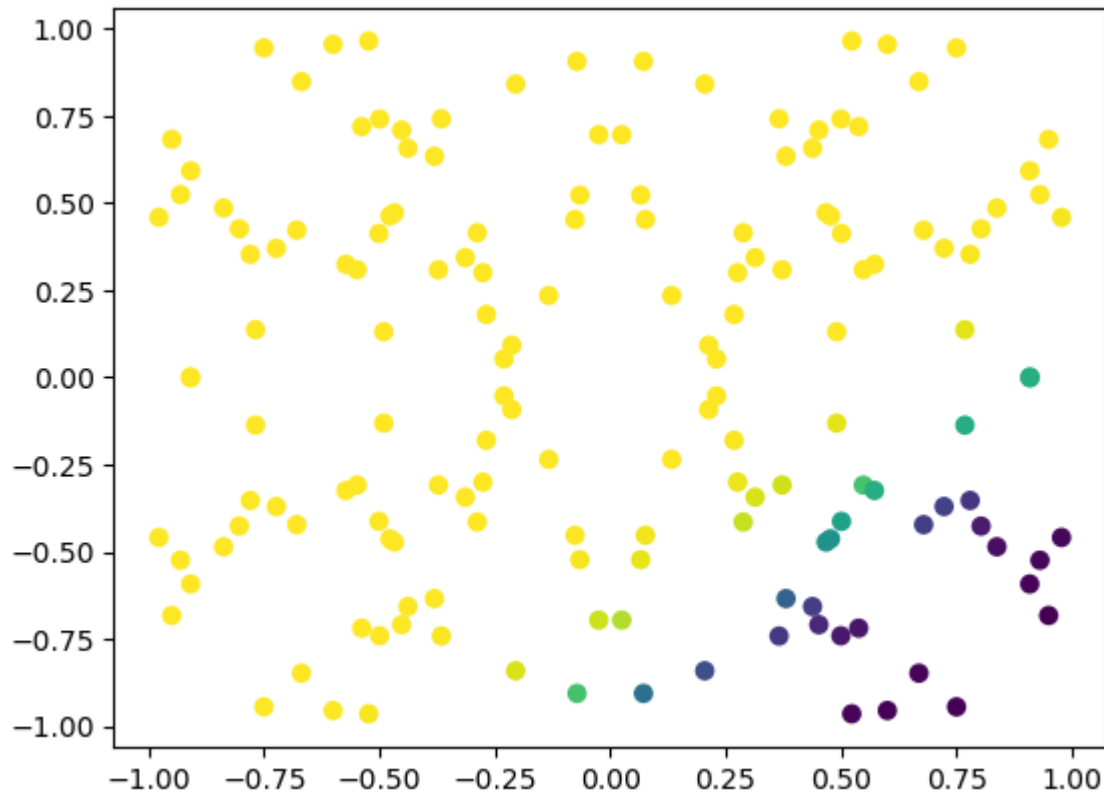


```
In [38]:  #Optimal Model SIGMOID
          opmodel2 = Sequential()
          opmodel2.add(Dense(1, input_dim = 2, activation = 'sigmoid'))
          opmodel2.add(Dense(1, activation = 'sigmoid'))
          opmodel2.add(Dense(1, activation = 'sigmoid'))

          opmodel2.compile(loss = 'binary_crossentropy', optimizer = 'adam', metrics = ['accurac

          opmodel2.fit(X, Y, epochs = 1000, batch_size = 4)

          opscores2 = opmodel2.evaluate(X, Y)
          plt.scatter(*zip(*X), c = opmodel2.predict(X))
          print(opscores2)
```

```
Epoch 1/1000
40/40 [==============================] - 1s 1ms/step - loss: 0.6943 - accuracy: 0.500
0
Epoch 2/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6941 - accuracy: 0.500
0
Epoch 3/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6940 - accuracy: 0.500
0
Epoch 4/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6939 - accuracy: 0.500
0
Epoch 5/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6939 - accuracy: 0.500
0
Epoch 6/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6937 - accuracy: 0.500
0
Epoch 7/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6937 - accuracy: 0.500
0
Epoch 8/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6937 - accuracy: 0.500
0
Epoch 9/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6936 - accuracy: 0.500
0
Epoch 10/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6935 - accuracy: 0.500
0
Epoch 11/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6935 - accuracy: 0.500
0
Epoch 12/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6935 - accuracy: 0.500
0
Epoch 13/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6935 - accuracy: 0.500
0
Epoch 14/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6934 - accuracy: 0.500
0
Epoch 15/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6935 - accuracy: 0.500
0
Epoch 16/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6934 - accuracy: 0.500
0
Epoch 17/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.500
0
Epoch 18/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6934 - accuracy: 0.500
0
Epoch 19/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.500
0
Epoch 20/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.500
0
```

```
Epoch 21/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.500
0
Epoch 22/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.500
0
Epoch 23/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6934 - accuracy: 0.500
0
Epoch 24/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.500
0
Epoch 25/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.500
0
Epoch 26/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.500
0
Epoch 27/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6933 - accuracy: 0.500
0
Epoch 28/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 29/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.500
0
Epoch 30/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 31/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6935 - accuracy: 0.500
0
Epoch 32/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6934 - accuracy: 0.500
0
Epoch 33/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6934 - accuracy: 0.500
0
Epoch 34/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 35/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 36/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.500
0
Epoch 37/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.500
0
Epoch 38/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 39/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6934 - accuracy: 0.500
0
Epoch 40/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.500
0
```

```
Epoch 41/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 42/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 43/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.500
0
Epoch 44/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.500
0
Epoch 45/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.500
0
Epoch 46/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 47/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 48/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.518
8
Epoch 49/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 50/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.531
2
Epoch 51/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.543
7
Epoch 52/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.525
0
Epoch 53/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.493
8
Epoch 54/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.487
5
Epoch 55/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.512
5
Epoch 56/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6934 - accuracy: 0.500
0
Epoch 57/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 58/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.500
0
Epoch 59/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.518
8
Epoch 60/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.500
0
```

```
Epoch 61/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.575
0
Epoch 62/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.531
2
Epoch 63/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.506
3
Epoch 64/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.525
0
Epoch 65/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6936 - accuracy: 0.437
5
Epoch 66/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.506
3
Epoch 67/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.531
2
Epoch 68/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.531
2
Epoch 69/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.543
7
Epoch 70/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.581
3
Epoch 71/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.418
7
Epoch 72/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.537
5
Epoch 73/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.450
0
Epoch 74/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.506
3
Epoch 75/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.487
5
Epoch 76/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.475
0
Epoch 77/1000
40/40 [==============================] - 0s 1000us/step - loss: 0.6934 - accuracy: 0.
4812
Epoch 78/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.437
5
Epoch 79/1000
40/40 [==============================] - 0s 998us/step - loss: 0.6934 - accuracy: 0.4
125
Epoch 80/1000
40/40 [==============================] - 0s 988us/step - loss: 0.6932 - accuracy: 0.4
125
```

```
Epoch 81/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.531
2
Epoch 82/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.543
7
Epoch 83/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.443
7
Epoch 84/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.362
5
Epoch 85/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.362
5
Epoch 86/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.531
2
Epoch 87/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.437
5
Epoch 88/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.487
5
Epoch 89/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.431
3
Epoch 90/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.493
8
Epoch 91/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.531
2
Epoch 92/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.568
8
Epoch 93/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.606
2
Epoch 94/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.418
7
Epoch 95/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.375
0
Epoch 96/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.543
7
Epoch 97/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.618
7
Epoch 98/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.562
5
Epoch 99/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.500
0
Epoch 100/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.481
2
```

```
Epoch 101/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6934 - accuracy: 0.462
5
Epoch 102/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6934 - accuracy: 0.450
0
Epoch 103/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.425
0
Epoch 104/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.443
7
Epoch 105/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.550
0
Epoch 106/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.556
2
Epoch 107/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.556
2
Epoch 108/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.531
2
Epoch 109/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.456
3
Epoch 110/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.393
8
Epoch 111/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.362
5
Epoch 112/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.381
2
Epoch 113/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.525
0
Epoch 114/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.462
5
Epoch 115/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.512
5
Epoch 116/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.525
0
Epoch 117/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.518
8
Epoch 118/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.431
3
Epoch 119/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.537
5
Epoch 120/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.450
0
```

```
Epoch 121/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.368
8
Epoch 122/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.450
0
Epoch 123/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.525
0
Epoch 124/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.581
3
Epoch 125/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.587
5
Epoch 126/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.481
2
Epoch 127/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.487
5
Epoch 128/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.537
5
Epoch 129/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.431
3
Epoch 130/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6931 - accuracy: 0.612
5
Epoch 131/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.481
2
Epoch 132/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.337
5
Epoch 133/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.568
8
Epoch 134/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.443
7
Epoch 135/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.381
2
Epoch 136/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.543
7
Epoch 137/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6932 - accuracy: 0.531
2
Epoch 138/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.400
0
Epoch 139/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.443
7
Epoch 140/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.500
0
```

```
Epoch 141/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.637
5
Epoch 142/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.525
0
Epoch 143/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.562
5
Epoch 144/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.475
0
Epoch 145/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6934 - accuracy: 0.493
8
Epoch 146/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.431
3
Epoch 147/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.625
0
Epoch 148/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.625
0
Epoch 149/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.425
0
Epoch 150/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.531
2
Epoch 151/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.400
0
Epoch 152/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.368
8
Epoch 153/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.537
5
Epoch 154/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.525
0
Epoch 155/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.556
2
Epoch 156/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.625
0
Epoch 157/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.487
5
Epoch 158/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.656
2
Epoch 159/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6930 - accuracy: 0.668
7
Epoch 160/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.581
3
```

```
Epoch 161/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.431
3
Epoch 162/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.575
0
Epoch 163/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.575
0
Epoch 164/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.468
8
Epoch 165/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.443
7
Epoch 166/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6930 - accuracy: 0.537
5
Epoch 167/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.612
5
Epoch 168/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.418
7
Epoch 169/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.512
5
Epoch 170/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.562
5
Epoch 171/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6930 - accuracy: 0.662
5
Epoch 172/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6930 - accuracy: 0.587
5
Epoch 173/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.537
5
Epoch 174/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6930 - accuracy: 0.618
7
Epoch 175/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6931 - accuracy: 0.418
7
Epoch 176/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6930 - accuracy: 0.612
5
Epoch 177/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.575
0
Epoch 178/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6932 - accuracy: 0.437
5
Epoch 179/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6930 - accuracy: 0.587
5
Epoch 180/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6930 - accuracy: 0.631
3
```

```
Epoch 181/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6930 - accuracy: 0.668
7
Epoch 182/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6930 - accuracy: 0.518
8
Epoch 183/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6929 - accuracy: 0.675
0
Epoch 184/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6930 - accuracy: 0.612
5
Epoch 185/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6930 - accuracy: 0.643
8
Epoch 186/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6930 - accuracy: 0.618
7
Epoch 187/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6929 - accuracy: 0.618
7
Epoch 188/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6930 - accuracy: 0.587
5
Epoch 189/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6929 - accuracy: 0.662
5
Epoch 190/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6929 - accuracy: 0.668
7
Epoch 191/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6929 - accuracy: 0.656
2
Epoch 192/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6930 - accuracy: 0.568
8
Epoch 193/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6928 - accuracy: 0.625
0
Epoch 194/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6929 - accuracy: 0.562
5
Epoch 195/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6929 - accuracy: 0.600
0
Epoch 196/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6928 - accuracy: 0.587
5
Epoch 197/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6928 - accuracy: 0.656
2
Epoch 198/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6928 - accuracy: 0.662
5
Epoch 199/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6927 - accuracy: 0.650
0
Epoch 200/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6928 - accuracy: 0.662
5
```

```
Epoch 201/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6929 - accuracy: 0.575
0
Epoch 202/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6929 - accuracy: 0.618
7
Epoch 203/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6927 - accuracy: 0.687
5
Epoch 204/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6926 - accuracy: 0.662
5
Epoch 205/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6927 - accuracy: 0.687
5
Epoch 206/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6928 - accuracy: 0.600
0
Epoch 207/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6926 - accuracy: 0.656
2
Epoch 208/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6926 - accuracy: 0.637
5
Epoch 209/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6926 - accuracy: 0.662
5
Epoch 210/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6925 - accuracy: 0.675
0
Epoch 211/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6926 - accuracy: 0.662
5
Epoch 212/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6925 - accuracy: 0.643
8
Epoch 213/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6926 - accuracy: 0.668
7
Epoch 214/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6925 - accuracy: 0.668
7
Epoch 215/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6925 - accuracy: 0.656
2
Epoch 216/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6925 - accuracy: 0.687
5
Epoch 217/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6924 - accuracy: 0.668
7
Epoch 218/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6924 - accuracy: 0.662
5
Epoch 219/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6924 - accuracy: 0.675
0
Epoch 220/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6923 - accuracy: 0.662
5
```

```
Epoch 221/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6922 - accuracy: 0.656
2
Epoch 222/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6922 - accuracy: 0.656
2
Epoch 223/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6922 - accuracy: 0.662
5
Epoch 224/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6921 - accuracy: 0.662
5
Epoch 225/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6921 - accuracy: 0.675
0
Epoch 226/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6921 - accuracy: 0.675
0
Epoch 227/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6922 - accuracy: 0.643
8
Epoch 228/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6921 - accuracy: 0.631
3
Epoch 229/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6920 - accuracy: 0.662
5
Epoch 230/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6919 - accuracy: 0.662
5
Epoch 231/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6918 - accuracy: 0.662
5
Epoch 232/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6918 - accuracy: 0.668
7
Epoch 233/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6917 - accuracy: 0.662
5
Epoch 234/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6918 - accuracy: 0.650
0
Epoch 235/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6917 - accuracy: 0.656
2
Epoch 236/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6916 - accuracy: 0.662
5
Epoch 237/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6916 - accuracy: 0.675
0
Epoch 238/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6916 - accuracy: 0.668
7
Epoch 239/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6915 - accuracy: 0.675
0
Epoch 240/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6916 - accuracy: 0.675
0
```

```
Epoch 241/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6915 - accuracy: 0.643
8
Epoch 242/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6914 - accuracy: 0.662
5
Epoch 243/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6912 - accuracy: 0.668
7
Epoch 244/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6913 - accuracy: 0.668
7
Epoch 245/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6913 - accuracy: 0.681
2
Epoch 246/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6912 - accuracy: 0.668
7
Epoch 247/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6910 - accuracy: 0.662
5
Epoch 248/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6910 - accuracy: 0.662
5
Epoch 249/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6908 - accuracy: 0.675
0
Epoch 250/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6907 - accuracy: 0.668
7
Epoch 251/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6908 - accuracy: 0.662
5
Epoch 252/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6906 - accuracy: 0.662
5
Epoch 253/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6907 - accuracy: 0.668
7
Epoch 254/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6904 - accuracy: 0.675
0
Epoch 255/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6903 - accuracy: 0.668
7
Epoch 256/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6905 - accuracy: 0.656
2
Epoch 257/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6902 - accuracy: 0.662
5
Epoch 258/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6901 - accuracy: 0.675
0
Epoch 259/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6900 - accuracy: 0.662
5
Epoch 260/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6899 - accuracy: 0.668
7
```

```
Epoch 261/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6899 - accuracy: 0.668
7
Epoch 262/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6897 - accuracy: 0.681
2
Epoch 263/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6896 - accuracy: 0.668
7
Epoch 264/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6895 - accuracy: 0.681
2
Epoch 265/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6894 - accuracy: 0.668
7
Epoch 266/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6893 - accuracy: 0.675
0
Epoch 267/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6892 - accuracy: 0.668
7
Epoch 268/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6891 - accuracy: 0.668
7
Epoch 269/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6890 - accuracy: 0.681
2
Epoch 270/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6892 - accuracy: 0.668
7
Epoch 271/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6888 - accuracy: 0.681
2
Epoch 272/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6887 - accuracy: 0.662
5
Epoch 273/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6888 - accuracy: 0.675
0
Epoch 274/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6885 - accuracy: 0.662
5
Epoch 275/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6883 - accuracy: 0.675
0
Epoch 276/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6882 - accuracy: 0.675
0
Epoch 277/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6880 - accuracy: 0.681
2
Epoch 278/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6879 - accuracy: 0.675
0
Epoch 279/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6878 - accuracy: 0.675
0
Epoch 280/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6876 - accuracy: 0.662
5
```

```
Epoch 281/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6875 - accuracy: 0.668
7
Epoch 282/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6874 - accuracy: 0.668
7
Epoch 283/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6872 - accuracy: 0.675
0
Epoch 284/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6872 - accuracy: 0.675
0
Epoch 285/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6868 - accuracy: 0.681
2
Epoch 286/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6867 - accuracy: 0.681
2
Epoch 287/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6868 - accuracy: 0.668
7
Epoch 288/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6865 - accuracy: 0.675
0
Epoch 289/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6862 - accuracy: 0.675
0
Epoch 290/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6862 - accuracy: 0.668
7
Epoch 291/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6859 - accuracy: 0.675
0
Epoch 292/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6857 - accuracy: 0.675
0
Epoch 293/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6856 - accuracy: 0.668
7
Epoch 294/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6855 - accuracy: 0.675
0
Epoch 295/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6852 - accuracy: 0.675
0
Epoch 296/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6850 - accuracy: 0.675
0
Epoch 297/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6850 - accuracy: 0.675
0
Epoch 298/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6846 - accuracy: 0.675
0
Epoch 299/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6845 - accuracy: 0.675
0
Epoch 300/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6843 - accuracy: 0.675
0
```

```
Epoch 301/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6842 - accuracy: 0.681
2
Epoch 302/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6839 - accuracy: 0.668
7
Epoch 303/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6837 - accuracy: 0.668
7
Epoch 304/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6837 - accuracy: 0.675
0
Epoch 305/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6833 - accuracy: 0.675
0
Epoch 306/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6831 - accuracy: 0.675
0
Epoch 307/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6829 - accuracy: 0.675
0
Epoch 308/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6827 - accuracy: 0.675
0
Epoch 309/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6827 - accuracy: 0.675
0
Epoch 310/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6823 - accuracy: 0.668
7
Epoch 311/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6820 - accuracy: 0.675
0
Epoch 312/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6818 - accuracy: 0.675
0
Epoch 313/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6816 - accuracy: 0.675
0
Epoch 314/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6814 - accuracy: 0.675
0
Epoch 315/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6812 - accuracy: 0.675
0
Epoch 316/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6809 - accuracy: 0.675
0
Epoch 317/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6810 - accuracy: 0.687
5
Epoch 318/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6805 - accuracy: 0.675
0
Epoch 319/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6802 - accuracy: 0.675
0
Epoch 320/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6800 - accuracy: 0.675
0
```

```
Epoch 321/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6798 - accuracy: 0.681
2
Epoch 322/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6796 - accuracy: 0.675
0
Epoch 323/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6795 - accuracy: 0.681
2
Epoch 324/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6790 - accuracy: 0.681
2
Epoch 325/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6789 - accuracy: 0.675
0
Epoch 326/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6786 - accuracy: 0.675
0
Epoch 327/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6783 - accuracy: 0.675
0
Epoch 328/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6782 - accuracy: 0.675
0
Epoch 329/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6778 - accuracy: 0.681
2
Epoch 330/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6775 - accuracy: 0.675
0
Epoch 331/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6773 - accuracy: 0.681
2
Epoch 332/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6771 - accuracy: 0.675
0
Epoch 333/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6768 - accuracy: 0.675
0
Epoch 334/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6765 - accuracy: 0.681
2
Epoch 335/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6762 - accuracy: 0.681
2
Epoch 336/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6761 - accuracy: 0.681
2
Epoch 337/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6758 - accuracy: 0.675
0
Epoch 338/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6755 - accuracy: 0.675
0
Epoch 339/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6752 - accuracy: 0.681
2
Epoch 340/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6750 - accuracy: 0.681
2
```

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Epoch 341/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6747 - accuracy: 0.681
2
Epoch 342/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6744 - accuracy: 0.681
2
Epoch 343/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6741 - accuracy: 0.681
2
Epoch 344/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6741 - accuracy: 0.687
5
Epoch 345/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6736 - accuracy: 0.681
2
Epoch 346/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6733 - accuracy: 0.681
2
Epoch 347/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6732 - accuracy: 0.681
2
Epoch 348/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6728 - accuracy: 0.687
5
Epoch 349/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6727 - accuracy: 0.681
2
Epoch 350/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6721 - accuracy: 0.687
5
Epoch 351/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6719 - accuracy: 0.687
5
Epoch 352/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6717 - accuracy: 0.687
5
Epoch 353/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6715 - accuracy: 0.687
5
Epoch 354/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6711 - accuracy: 0.687
5
Epoch 355/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6708 - accuracy: 0.687
5
Epoch 356/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6705 - accuracy: 0.687
5
Epoch 357/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6703 - accuracy: 0.687
5
Epoch 358/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6701 - accuracy: 0.687
5
Epoch 359/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6697 - accuracy: 0.687
5
Epoch 360/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6694 - accuracy: 0.687
5
```

```
Epoch 361/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6691 - accuracy: 0.687
5
Epoch 362/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6688 - accuracy: 0.687
5
Epoch 363/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6685 - accuracy: 0.687
5
Epoch 364/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6685 - accuracy: 0.681
2
Epoch 365/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6680 - accuracy: 0.687
5
Epoch 366/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6677 - accuracy: 0.687
5
Epoch 367/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6673 - accuracy: 0.687
5
Epoch 368/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6671 - accuracy: 0.687
5
Epoch 369/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6669 - accuracy: 0.687
5
Epoch 370/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6665 - accuracy: 0.687
5
Epoch 371/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6661 - accuracy: 0.687
5
Epoch 372/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6658 - accuracy: 0.687
5
Epoch 373/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6656 - accuracy: 0.687
5
Epoch 374/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6652 - accuracy: 0.687
5
Epoch 375/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6649 - accuracy: 0.687
5
Epoch 376/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6647 - accuracy: 0.687
5
Epoch 377/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6644 - accuracy: 0.687
5
Epoch 378/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6640 - accuracy: 0.687
5
Epoch 379/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6637 - accuracy: 0.687
5
Epoch 380/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6635 - accuracy: 0.687
5
```

```
Epoch 381/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6632 - accuracy: 0.687
5
Epoch 382/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6629 - accuracy: 0.687
5
Epoch 383/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6625 - accuracy: 0.687
5
Epoch 384/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6623 - accuracy: 0.687
5
Epoch 385/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6620 - accuracy: 0.687
5
Epoch 386/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6616 - accuracy: 0.687
5
Epoch 387/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6614 - accuracy: 0.687
5
Epoch 388/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6611 - accuracy: 0.687
5
Epoch 389/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6609 - accuracy: 0.687
5
Epoch 390/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6605 - accuracy: 0.687
5
Epoch 391/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6601 - accuracy: 0.687
5
Epoch 392/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6602 - accuracy: 0.687
5
Epoch 393/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6596 - accuracy: 0.687
5
Epoch 394/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6593 - accuracy: 0.693
8
Epoch 395/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6591 - accuracy: 0.687
5
Epoch 396/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6587 - accuracy: 0.687
5
Epoch 397/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6584 - accuracy: 0.687
5
Epoch 398/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6581 - accuracy: 0.687
5
Epoch 399/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6578 - accuracy: 0.687
5
Epoch 400/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6575 - accuracy: 0.687
5
```

```
Epoch 401/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6575 - accuracy: 0.687
5
Epoch 402/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6570 - accuracy: 0.687
5
Epoch 403/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6567 - accuracy: 0.687
5
Epoch 404/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6563 - accuracy: 0.687
5
Epoch 405/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6560 - accuracy: 0.687
5
Epoch 406/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6558 - accuracy: 0.687
5
Epoch 407/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6555 - accuracy: 0.687
5
Epoch 408/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6551 - accuracy: 0.693
8
Epoch 409/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6549 - accuracy: 0.693
8
Epoch 410/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6546 - accuracy: 0.693
8
Epoch 411/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6542 - accuracy: 0.687
5
Epoch 412/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6540 - accuracy: 0.693
8
Epoch 413/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6538 - accuracy: 0.693
8
Epoch 414/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6535 - accuracy: 0.687
5
Epoch 415/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6531 - accuracy: 0.693
8
Epoch 416/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6528 - accuracy: 0.693
8
Epoch 417/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6525 - accuracy: 0.693
8
Epoch 418/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6523 - accuracy: 0.693
8
Epoch 419/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6519 - accuracy: 0.693
8
Epoch 420/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6517 - accuracy: 0.693
8
```

```
Epoch 421/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6514 - accuracy: 0.693
8
Epoch 422/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6511 - accuracy: 0.693
8
Epoch 423/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6508 - accuracy: 0.693
8
Epoch 424/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6506 - accuracy: 0.693
8
Epoch 425/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6506 - accuracy: 0.693
8
Epoch 426/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6500 - accuracy: 0.693
8
Epoch 427/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6496 - accuracy: 0.693
8
Epoch 428/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6495 - accuracy: 0.693
8
Epoch 429/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6493 - accuracy: 0.693
8
Epoch 430/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6489 - accuracy: 0.693
8
Epoch 431/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6486 - accuracy: 0.693
8
Epoch 432/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6486 - accuracy: 0.693
8
Epoch 433/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6480 - accuracy: 0.693
8
Epoch 434/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6479 - accuracy: 0.693
8
Epoch 435/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6474 - accuracy: 0.687
5
Epoch 436/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6472 - accuracy: 0.693
8
Epoch 437/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6470 - accuracy: 0.687
5
Epoch 438/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6466 - accuracy: 0.693
8
Epoch 439/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6464 - accuracy: 0.693
8
Epoch 440/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6461 - accuracy: 0.693
8
```

```
Epoch 441/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6458 - accuracy: 0.693
8
Epoch 442/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6455 - accuracy: 0.693
8
Epoch 443/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6451 - accuracy: 0.693
8
Epoch 444/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6450 - accuracy: 0.693
8
Epoch 445/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6448 - accuracy: 0.693
8
Epoch 446/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6445 - accuracy: 0.693
8
Epoch 447/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6441 - accuracy: 0.693
8
Epoch 448/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6439 - accuracy: 0.693
8
Epoch 449/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6438 - accuracy: 0.693
8
Epoch 450/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6435 - accuracy: 0.693
8
Epoch 451/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6430 - accuracy: 0.693
8
Epoch 452/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6429 - accuracy: 0.693
8
Epoch 453/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6426 - accuracy: 0.693
8
Epoch 454/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6425 - accuracy: 0.693
8
Epoch 455/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6423 - accuracy: 0.693
8
Epoch 456/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6417 - accuracy: 0.693
8
Epoch 457/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6415 - accuracy: 0.693
8
Epoch 458/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6412 - accuracy: 0.693
8
Epoch 459/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6410 - accuracy: 0.693
8
Epoch 460/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6408 - accuracy: 0.693
8
```

```
Epoch 461/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6406 - accuracy: 0.693
8
Epoch 462/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6403 - accuracy: 0.693
8
Epoch 463/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6401 - accuracy: 0.693
8
Epoch 464/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6397 - accuracy: 0.693
8
Epoch 465/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6394 - accuracy: 0.693
8
Epoch 466/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6392 - accuracy: 0.693
8
Epoch 467/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6396 - accuracy: 0.693
8
Epoch 468/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6388 - accuracy: 0.693
8
Epoch 469/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6384 - accuracy: 0.693
8
Epoch 470/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6382 - accuracy: 0.693
8
Epoch 471/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6379 - accuracy: 0.693
8
Epoch 472/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6378 - accuracy: 0.693
8
Epoch 473/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6375 - accuracy: 0.693
8
Epoch 474/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6372 - accuracy: 0.693
8
Epoch 475/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6371 - accuracy: 0.693
8
Epoch 476/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6370 - accuracy: 0.693
8
Epoch 477/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6369 - accuracy: 0.693
8
Epoch 478/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6363 - accuracy: 0.693
8
Epoch 479/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6360 - accuracy: 0.693
8
Epoch 480/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6360 - accuracy: 0.693
8
```

```
Epoch 481/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6357 - accuracy: 0.693
8
Epoch 482/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6353 - accuracy: 0.693
8
Epoch 483/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6352 - accuracy: 0.693
8
Epoch 484/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6349 - accuracy: 0.693
8
Epoch 485/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6347 - accuracy: 0.693
8
Epoch 486/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6343 - accuracy: 0.693
8
Epoch 487/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6341 - accuracy: 0.693
8
Epoch 488/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6339 - accuracy: 0.693
8
Epoch 489/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6338 - accuracy: 0.693
8
Epoch 490/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6335 - accuracy: 0.693
8
Epoch 491/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6333 - accuracy: 0.693
8
Epoch 492/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6330 - accuracy: 0.693
8
Epoch 493/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6330 - accuracy: 0.693
8
Epoch 494/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6325 - accuracy: 0.693
8
Epoch 495/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6327 - accuracy: 0.693
8
Epoch 496/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6321 - accuracy: 0.693
8
Epoch 497/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6319 - accuracy: 0.693
8
Epoch 498/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6317 - accuracy: 0.693
8
Epoch 499/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6314 - accuracy: 0.693
8
Epoch 500/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6312 - accuracy: 0.693
8
```

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Epoch 501/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6310 - accuracy: 0.693
8
Epoch 502/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6308 - accuracy: 0.693
8
Epoch 503/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6305 - accuracy: 0.693
8
Epoch 504/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6305 - accuracy: 0.693
8
Epoch 505/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6302 - accuracy: 0.693
8
Epoch 506/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6299 - accuracy: 0.693
8
Epoch 507/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6297 - accuracy: 0.693
8
Epoch 508/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6297 - accuracy: 0.693
8
Epoch 509/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6293 - accuracy: 0.693
8
Epoch 510/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6292 - accuracy: 0.693
8
Epoch 511/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6288 - accuracy: 0.693
8
Epoch 512/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6288 - accuracy: 0.693
8
Epoch 513/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6286 - accuracy: 0.693
8
Epoch 514/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6282 - accuracy: 0.693
8
Epoch 515/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6282 - accuracy: 0.693
8
Epoch 516/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6279 - accuracy: 0.693
8
Epoch 517/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6278 - accuracy: 0.693
8
Epoch 518/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6275 - accuracy: 0.693
8
Epoch 519/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6273 - accuracy: 0.693
8
Epoch 520/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6271 - accuracy: 0.693
8
```

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Epoch 521/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6269 - accuracy: 0.693
8
Epoch 522/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6268 - accuracy: 0.693
8
Epoch 523/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6264 - accuracy: 0.693
8
Epoch 524/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6264 - accuracy: 0.693
8
Epoch 525/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6261 - accuracy: 0.693
8
Epoch 526/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6258 - accuracy: 0.693
8
Epoch 527/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6256 - accuracy: 0.693
8
Epoch 528/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6255 - accuracy: 0.693
8
Epoch 529/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6253 - accuracy: 0.693
8
Epoch 530/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6251 - accuracy: 0.693
8
Epoch 531/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6248 - accuracy: 0.693
8
Epoch 532/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6246 - accuracy: 0.693
8
Epoch 533/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6244 - accuracy: 0.693
8
Epoch 534/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6243 - accuracy: 0.693
8
Epoch 535/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6240 - accuracy: 0.693
8
Epoch 536/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6239 - accuracy: 0.693
8
Epoch 537/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6240 - accuracy: 0.693
8
Epoch 538/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6236 - accuracy: 0.693
8
Epoch 539/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6234 - accuracy: 0.693
8
Epoch 540/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6231 - accuracy: 0.693
8
```

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Epoch 541/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6230 - accuracy: 0.693
8
Epoch 542/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6229 - accuracy: 0.693
8
Epoch 543/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6227 - accuracy: 0.693
8
Epoch 544/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6224 - accuracy: 0.693
8
Epoch 545/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6223 - accuracy: 0.693
8
Epoch 546/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6222 - accuracy: 0.693
8
Epoch 547/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6220 - accuracy: 0.693
8
Epoch 548/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6218 - accuracy: 0.693
8
Epoch 549/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6216 - accuracy: 0.693
8
Epoch 550/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6213 - accuracy: 0.693
8
Epoch 551/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6212 - accuracy: 0.693
8
Epoch 552/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6210 - accuracy: 0.693
8
Epoch 553/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6208 - accuracy: 0.693
8
Epoch 554/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6206 - accuracy: 0.693
8
Epoch 555/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6205 - accuracy: 0.693
8
Epoch 556/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6203 - accuracy: 0.693
8
Epoch 557/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6201 - accuracy: 0.693
8
Epoch 558/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6200 - accuracy: 0.693
8
Epoch 559/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6199 - accuracy: 0.693
8
Epoch 560/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6198 - accuracy: 0.693
8
```

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Epoch 561/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6196 - accuracy: 0.693
8
Epoch 562/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6194 - accuracy: 0.693
8
Epoch 563/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6191 - accuracy: 0.693
8
Epoch 564/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6190 - accuracy: 0.693
8
Epoch 565/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6188 - accuracy: 0.693
8
Epoch 566/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6188 - accuracy: 0.693
8
Epoch 567/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6186 - accuracy: 0.693
8
Epoch 568/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6183 - accuracy: 0.693
8
Epoch 569/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6182 - accuracy: 0.693
8
Epoch 570/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6181 - accuracy: 0.693
8
Epoch 571/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6180 - accuracy: 0.693
8
Epoch 572/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6179 - accuracy: 0.687
5
Epoch 573/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6175 - accuracy: 0.693
8
Epoch 574/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6173 - accuracy: 0.693
8
Epoch 575/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6174 - accuracy: 0.693
8
Epoch 576/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6172 - accuracy: 0.687
5
Epoch 577/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6169 - accuracy: 0.693
8
Epoch 578/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6169 - accuracy: 0.687
5
Epoch 579/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6166 - accuracy: 0.693
8
Epoch 580/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6164 - accuracy: 0.693
8
```

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Epoch 581/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6163 - accuracy: 0.693
8
Epoch 582/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6162 - accuracy: 0.687
5
Epoch 583/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6162 - accuracy: 0.693
8
Epoch 584/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6159 - accuracy: 0.693
8
Epoch 585/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6156 - accuracy: 0.693
8
Epoch 586/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6157 - accuracy: 0.693
8
Epoch 587/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6154 - accuracy: 0.693
8
Epoch 588/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6154 - accuracy: 0.687
5
Epoch 589/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6151 - accuracy: 0.687
5
Epoch 590/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6150 - accuracy: 0.693
8
Epoch 591/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6148 - accuracy: 0.687
5
Epoch 592/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6150 - accuracy: 0.693
8
Epoch 593/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6146 - accuracy: 0.693
8
Epoch 594/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6144 - accuracy: 0.693
8
Epoch 595/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6142 - accuracy: 0.687
5
Epoch 596/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6142 - accuracy: 0.693
8
Epoch 597/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6141 - accuracy: 0.693
8
Epoch 598/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6138 - accuracy: 0.693
8
Epoch 599/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6137 - accuracy: 0.693
8
Epoch 600/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6137 - accuracy: 0.687
5
```

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Epoch 601/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6135 - accuracy: 0.693
8
Epoch 602/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6133 - accuracy: 0.687
5
Epoch 603/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6132 - accuracy: 0.693
8
Epoch 604/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6130 - accuracy: 0.693
8
Epoch 605/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6128 - accuracy: 0.693
8
Epoch 606/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6128 - accuracy: 0.687
5
Epoch 607/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6127 - accuracy: 0.687
5
Epoch 608/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6124 - accuracy: 0.687
5
Epoch 609/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6125 - accuracy: 0.693
8
Epoch 610/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6122 - accuracy: 0.693
8
Epoch 611/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6121 - accuracy: 0.693
8
Epoch 612/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6123 - accuracy: 0.687
5
Epoch 613/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6120 - accuracy: 0.687
5
Epoch 614/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6117 - accuracy: 0.687
5
Epoch 615/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6115 - accuracy: 0.687
5
Epoch 616/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6114 - accuracy: 0.687
5
Epoch 617/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6113 - accuracy: 0.693
8
Epoch 618/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6112 - accuracy: 0.687
5
Epoch 619/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6110 - accuracy: 0.687
5
Epoch 620/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6111 - accuracy: 0.687
5
```

```
Epoch 621/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6108 - accuracy: 0.687
5
Epoch 622/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6107 - accuracy: 0.687
5
Epoch 623/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6106 - accuracy: 0.687
5
Epoch 624/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6104 - accuracy: 0.687
5
Epoch 625/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6104 - accuracy: 0.687
5
Epoch 626/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6104 - accuracy: 0.687
5
Epoch 627/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6102 - accuracy: 0.687
5
Epoch 628/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6100 - accuracy: 0.687
5
Epoch 629/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6099 - accuracy: 0.687
5
Epoch 630/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6097 - accuracy: 0.687
5
Epoch 631/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6096 - accuracy: 0.687
5
Epoch 632/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6094 - accuracy: 0.687
5
Epoch 633/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6093 - accuracy: 0.687
5
Epoch 634/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6092 - accuracy: 0.687
5
Epoch 635/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6092 - accuracy: 0.687
5
Epoch 636/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6091 - accuracy: 0.687
5
Epoch 637/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6089 - accuracy: 0.687
5
Epoch 638/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6088 - accuracy: 0.687
5
Epoch 639/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6088 - accuracy: 0.687
5
Epoch 640/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6085 - accuracy: 0.687
5
```

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Epoch 641/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6085 - accuracy: 0.687
5
Epoch 642/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6087 - accuracy: 0.687
5
Epoch 643/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6081 - accuracy: 0.687
5
Epoch 644/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6080 - accuracy: 0.687
5
Epoch 645/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6079 - accuracy: 0.687
5
Epoch 646/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6080 - accuracy: 0.687
5
Epoch 647/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6077 - accuracy: 0.687
5
Epoch 648/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6078 - accuracy: 0.687
5
Epoch 649/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6076 - accuracy: 0.687
5
Epoch 650/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6073 - accuracy: 0.687
5
Epoch 651/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6073 - accuracy: 0.687
5
Epoch 652/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6072 - accuracy: 0.687
5
Epoch 653/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6072 - accuracy: 0.687
5
Epoch 654/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6071 - accuracy: 0.687
5
Epoch 655/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6069 - accuracy: 0.687
5
Epoch 656/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6067 - accuracy: 0.687
5
Epoch 657/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6067 - accuracy: 0.687
5
Epoch 658/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6065 - accuracy: 0.687
5
Epoch 659/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6065 - accuracy: 0.687
5
Epoch 660/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6064 - accuracy: 0.687
5
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```
Epoch 661/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6064 - accuracy: 0.687
5
Epoch 662/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6062 - accuracy: 0.687
5
Epoch 663/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6061 - accuracy: 0.687
5
Epoch 664/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6060 - accuracy: 0.687
5
Epoch 665/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6060 - accuracy: 0.687
5
Epoch 666/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6057 - accuracy: 0.687
5
Epoch 667/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6056 - accuracy: 0.687
5
Epoch 668/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6054 - accuracy: 0.687
5
Epoch 669/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6055 - accuracy: 0.687
5
Epoch 670/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6053 - accuracy: 0.687
5
Epoch 671/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6052 - accuracy: 0.687
5
Epoch 672/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6052 - accuracy: 0.687
5
Epoch 673/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6052 - accuracy: 0.687
5
Epoch 674/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6049 - accuracy: 0.687
5
Epoch 675/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6047 - accuracy: 0.687
5
Epoch 676/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6047 - accuracy: 0.687
5
Epoch 677/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6047 - accuracy: 0.687
5
Epoch 678/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6045 - accuracy: 0.687
5
Epoch 679/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6044 - accuracy: 0.687
5
Epoch 680/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6042 - accuracy: 0.687
5
```

```
Epoch 681/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6042 - accuracy: 0.687
5
Epoch 682/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6042 - accuracy: 0.687
5
Epoch 683/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6040 - accuracy: 0.687
5
Epoch 684/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6041 - accuracy: 0.687
5
Epoch 685/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6038 - accuracy: 0.687
5
Epoch 686/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6038 - accuracy: 0.687
5
Epoch 687/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6036 - accuracy: 0.687
5
Epoch 688/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6036 - accuracy: 0.687
5
Epoch 689/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6034 - accuracy: 0.687
5
Epoch 690/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6034 - accuracy: 0.687
5
Epoch 691/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6033 - accuracy: 0.687
5
Epoch 692/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6036 - accuracy: 0.687
5
Epoch 693/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6030 - accuracy: 0.687
5
Epoch 694/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6031 - accuracy: 0.687
5
Epoch 695/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6031 - accuracy: 0.687
5
Epoch 696/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6029 - accuracy: 0.687
5
Epoch 697/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6027 - accuracy: 0.687
5
Epoch 698/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6026 - accuracy: 0.687
5
Epoch 699/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6025 - accuracy: 0.687
5
Epoch 700/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6025 - accuracy: 0.687
5
```

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Epoch 701/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6025 - accuracy: 0.687
5
Epoch 702/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6023 - accuracy: 0.687
5
Epoch 703/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6022 - accuracy: 0.687
5
Epoch 704/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6022 - accuracy: 0.687
5
Epoch 705/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6021 - accuracy: 0.687
5
Epoch 706/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6020 - accuracy: 0.687
5
Epoch 707/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6018 - accuracy: 0.687
5
Epoch 708/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6018 - accuracy: 0.687
5
Epoch 709/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6017 - accuracy: 0.687
5
Epoch 710/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6015 - accuracy: 0.687
5
Epoch 711/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6015 - accuracy: 0.687
5
Epoch 712/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6014 - accuracy: 0.687
5
Epoch 713/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6014 - accuracy: 0.687
5
Epoch 714/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6013 - accuracy: 0.687
5
Epoch 715/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6012 - accuracy: 0.687
5
Epoch 716/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6011 - accuracy: 0.687
5
Epoch 717/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6011 - accuracy: 0.687
5
Epoch 718/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6009 - accuracy: 0.687
5
Epoch 719/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6009 - accuracy: 0.687
5
Epoch 720/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6008 - accuracy: 0.687
5
```

```
Epoch 721/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6007 - accuracy: 0.687
5
Epoch 722/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6006 - accuracy: 0.687
5
Epoch 723/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6007 - accuracy: 0.687
5
Epoch 724/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6005 - accuracy: 0.687
5
Epoch 725/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6004 - accuracy: 0.687
5
Epoch 726/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6004 - accuracy: 0.687
5
Epoch 727/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6003 - accuracy: 0.687
5
Epoch 728/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6002 - accuracy: 0.687
5
Epoch 729/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6000 - accuracy: 0.687
5
Epoch 730/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6000 - accuracy: 0.687
5
Epoch 731/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5999 - accuracy: 0.687
5
Epoch 732/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6000 - accuracy: 0.687
5
Epoch 733/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5998 - accuracy: 0.687
5
Epoch 734/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5997 - accuracy: 0.687
5
Epoch 735/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6001 - accuracy: 0.687
5
Epoch 736/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5994 - accuracy: 0.687
5
Epoch 737/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5995 - accuracy: 0.687
5
Epoch 738/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5995 - accuracy: 0.687
5
Epoch 739/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5993 - accuracy: 0.687
5
Epoch 740/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5995 - accuracy: 0.687
5
```

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Epoch 741/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5993 - accuracy: 0.687
5
Epoch 742/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5991 - accuracy: 0.687
5
Epoch 743/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5991 - accuracy: 0.687
5
Epoch 744/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5989 - accuracy: 0.687
5
Epoch 745/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5989 - accuracy: 0.687
5
Epoch 746/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5989 - accuracy: 0.687
5
Epoch 747/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5987 - accuracy: 0.687
5
Epoch 748/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5986 - accuracy: 0.687
5
Epoch 749/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5986 - accuracy: 0.687
5
Epoch 750/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5986 - accuracy: 0.687
5
Epoch 751/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5984 - accuracy: 0.687
5
Epoch 752/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5985 - accuracy: 0.687
5
Epoch 753/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5984 - accuracy: 0.687
5
Epoch 754/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5982 - accuracy: 0.687
5
Epoch 755/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5981 - accuracy: 0.687
5
Epoch 756/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5981 - accuracy: 0.687
5
Epoch 757/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5981 - accuracy: 0.687
5
Epoch 758/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5980 - accuracy: 0.687
5
Epoch 759/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5980 - accuracy: 0.687
5
Epoch 760/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5979 - accuracy: 0.687
5
```

```
Epoch 761/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5977 - accuracy: 0.687
5
Epoch 762/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5977 - accuracy: 0.687
5
Epoch 763/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5977 - accuracy: 0.687
5
Epoch 764/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5977 - accuracy: 0.687
5
Epoch 765/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5975 - accuracy: 0.687
5
Epoch 766/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5975 - accuracy: 0.687
5
Epoch 767/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5975 - accuracy: 0.687
5
Epoch 768/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5972 - accuracy: 0.687
5
Epoch 769/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5973 - accuracy: 0.687
5
Epoch 770/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5971 - accuracy: 0.687
5
Epoch 771/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5973 - accuracy: 0.687
5
Epoch 772/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5973 - accuracy: 0.687
5
Epoch 773/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5970 - accuracy: 0.687
5
Epoch 774/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5969 - accuracy: 0.687
5
Epoch 775/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5969 - accuracy: 0.687
5
Epoch 776/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5968 - accuracy: 0.687
5
Epoch 777/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5968 - accuracy: 0.687
5
Epoch 778/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5967 - accuracy: 0.687
5
Epoch 779/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5967 - accuracy: 0.687
5
Epoch 780/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5965 - accuracy: 0.687
5
```

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Epoch 781/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5966 - accuracy: 0.687
5
Epoch 782/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5964 - accuracy: 0.687
5
Epoch 783/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5965 - accuracy: 0.687
5
Epoch 784/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5963 - accuracy: 0.687
5
Epoch 785/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5962 - accuracy: 0.687
5
Epoch 786/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5962 - accuracy: 0.687
5
Epoch 787/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5962 - accuracy: 0.687
5
Epoch 788/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5961 - accuracy: 0.687
5
Epoch 789/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5964 - accuracy: 0.687
5
Epoch 790/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5960 - accuracy: 0.687
5
Epoch 791/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5959 - accuracy: 0.687
5
Epoch 792/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5958 - accuracy: 0.687
5
Epoch 793/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5961 - accuracy: 0.687
5
Epoch 794/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5957 - accuracy: 0.687
5
Epoch 795/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5957 - accuracy: 0.687
5
Epoch 796/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5956 - accuracy: 0.687
5
Epoch 797/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5956 - accuracy: 0.687
5
Epoch 798/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5956 - accuracy: 0.687
5
Epoch 799/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5956 - accuracy: 0.687
5
Epoch 800/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5957 - accuracy: 0.687
5
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Epoch 801/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5955 - accuracy: 0.687
5
Epoch 802/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5955 - accuracy: 0.687
5
Epoch 803/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5952 - accuracy: 0.687
5
Epoch 804/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5953 - accuracy: 0.687
5
Epoch 805/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5951 - accuracy: 0.687
5
Epoch 806/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5951 - accuracy: 0.687
5
Epoch 807/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5951 - accuracy: 0.687
5
Epoch 808/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5950 - accuracy: 0.687
5
Epoch 809/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5949 - accuracy: 0.687
5
Epoch 810/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5949 - accuracy: 0.687
5
Epoch 811/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5948 - accuracy: 0.687
5
Epoch 812/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5947 - accuracy: 0.687
5
Epoch 813/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5948 - accuracy: 0.687
5
Epoch 814/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5946 - accuracy: 0.687
5
Epoch 815/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5947 - accuracy: 0.687
5
Epoch 816/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5945 - accuracy: 0.687
5
Epoch 817/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5944 - accuracy: 0.687
5
Epoch 818/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5946 - accuracy: 0.687
5
Epoch 819/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5943 - accuracy: 0.687
5
Epoch 820/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5944 - accuracy: 0.687
5
```

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Epoch 821/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5943 - accuracy: 0.687
5
Epoch 822/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5945 - accuracy: 0.687
5
Epoch 823/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5944 - accuracy: 0.687
5
Epoch 824/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5942 - accuracy: 0.687
5
Epoch 825/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5942 - accuracy: 0.687
5
Epoch 826/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5940 - accuracy: 0.687
5
Epoch 827/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5940 - accuracy: 0.687
5
Epoch 828/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5940 - accuracy: 0.687
5
Epoch 829/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5940 - accuracy: 0.687
5
Epoch 830/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5938 - accuracy: 0.687
5
Epoch 831/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5937 - accuracy: 0.687
5
Epoch 832/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5938 - accuracy: 0.687
5
Epoch 833/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5937 - accuracy: 0.687
5
Epoch 834/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5937 - accuracy: 0.687
5
Epoch 835/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5936 - accuracy: 0.687
5
Epoch 836/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5935 - accuracy: 0.687
5
Epoch 837/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5934 - accuracy: 0.687
5
Epoch 838/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5933 - accuracy: 0.687
5
Epoch 839/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5934 - accuracy: 0.687
5
Epoch 840/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5933 - accuracy: 0.687
5
```

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Epoch 841/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5934 - accuracy: 0.687
5
Epoch 842/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5933 - accuracy: 0.687
5
Epoch 843/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5932 - accuracy: 0.687
5
Epoch 844/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5933 - accuracy: 0.687
5
Epoch 845/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5936 - accuracy: 0.687
5
Epoch 846/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5931 - accuracy: 0.687
5
Epoch 847/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5931 - accuracy: 0.687
5
Epoch 848/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5929 - accuracy: 0.687
5
Epoch 849/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5930 - accuracy: 0.687
5
Epoch 850/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5928 - accuracy: 0.687
5
Epoch 851/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5928 - accuracy: 0.687
5
Epoch 852/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5930 - accuracy: 0.687
5
Epoch 853/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5928 - accuracy: 0.687
5
Epoch 854/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5927 - accuracy: 0.687
5
Epoch 855/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5926 - accuracy: 0.687
5
Epoch 856/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5925 - accuracy: 0.687
5
Epoch 857/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5926 - accuracy: 0.687
5
Epoch 858/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5924 - accuracy: 0.687
5
Epoch 859/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5925 - accuracy: 0.687
5
Epoch 860/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5924 - accuracy: 0.687
5
```

```
Epoch 861/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5925 - accuracy: 0.687
5
Epoch 862/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5925 - accuracy: 0.687
5
Epoch 863/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5923 - accuracy: 0.687
5
Epoch 864/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5922 - accuracy: 0.687
5
Epoch 865/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5922 - accuracy: 0.687
5
Epoch 866/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5922 - accuracy: 0.687
5
Epoch 867/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5922 - accuracy: 0.687
5
Epoch 868/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5922 - accuracy: 0.687
5
Epoch 869/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5919 - accuracy: 0.687
5
Epoch 870/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5919 - accuracy: 0.687
5
Epoch 871/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5919 - accuracy: 0.687
5
Epoch 872/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5918 - accuracy: 0.687
5
Epoch 873/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5919 - accuracy: 0.687
5
Epoch 874/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5918 - accuracy: 0.687
5
Epoch 875/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5917 - accuracy: 0.687
5
Epoch 876/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5919 - accuracy: 0.687
5
Epoch 877/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5916 - accuracy: 0.687
5
Epoch 878/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5917 - accuracy: 0.687
5
Epoch 879/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5917 - accuracy: 0.687
5
Epoch 880/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5916 - accuracy: 0.687
5
```

```
Epoch 881/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5915 - accuracy: 0.687
5
Epoch 882/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5915 - accuracy: 0.687
5
Epoch 883/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5913 - accuracy: 0.687
5
Epoch 884/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5914 - accuracy: 0.687
5
Epoch 885/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5913 - accuracy: 0.687
5
Epoch 886/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5913 - accuracy: 0.687
5
Epoch 887/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5915 - accuracy: 0.687
5
Epoch 888/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5913 - accuracy: 0.687
5
Epoch 889/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5913 - accuracy: 0.687
5
Epoch 890/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5912 - accuracy: 0.687
5
Epoch 891/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5912 - accuracy: 0.687
5
Epoch 892/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5910 - accuracy: 0.687
5
Epoch 893/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5917 - accuracy: 0.687
5
Epoch 894/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5912 - accuracy: 0.687
5
Epoch 895/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5910 - accuracy: 0.687
5
Epoch 896/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5909 - accuracy: 0.687
5
Epoch 897/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5908 - accuracy: 0.687
5
Epoch 898/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5909 - accuracy: 0.687
5
Epoch 899/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5907 - accuracy: 0.687
5
Epoch 900/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5907 - accuracy: 0.687
5
```

```
Epoch 901/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5908 - accuracy: 0.687
5
Epoch 902/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5907 - accuracy: 0.687
5
Epoch 903/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5907 - accuracy: 0.687
5
Epoch 904/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5905 - accuracy: 0.687
5
Epoch 905/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5906 - accuracy: 0.687
5
Epoch 906/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5910 - accuracy: 0.687
5
Epoch 907/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5905 - accuracy: 0.687
5
Epoch 908/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5904 - accuracy: 0.687
5
Epoch 909/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5904 - accuracy: 0.687
5
Epoch 910/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5905 - accuracy: 0.687
5
Epoch 911/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5903 - accuracy: 0.687
5
Epoch 912/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5903 - accuracy: 0.687
5
Epoch 913/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5903 - accuracy: 0.687
5
Epoch 914/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5902 - accuracy: 0.687
5
Epoch 915/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5901 - accuracy: 0.687
5
Epoch 916/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5902 - accuracy: 0.687
5
Epoch 917/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5901 - accuracy: 0.687
5
Epoch 918/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5901 - accuracy: 0.687
5
Epoch 919/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5900 - accuracy: 0.687
5
Epoch 920/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5901 - accuracy: 0.687
5
```

```
Epoch 921/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5899 - accuracy: 0.687
5
Epoch 922/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5899 - accuracy: 0.687
5
Epoch 923/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5901 - accuracy: 0.687
5
Epoch 924/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5898 - accuracy: 0.687
5
Epoch 925/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5899 - accuracy: 0.687
5
Epoch 926/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5897 - accuracy: 0.687
5
Epoch 927/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5898 - accuracy: 0.687
5
Epoch 928/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5898 - accuracy: 0.687
5
Epoch 929/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5897 - accuracy: 0.687
5
Epoch 930/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5896 - accuracy: 0.687
5
Epoch 931/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5898 - accuracy: 0.687
5
Epoch 932/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5896 - accuracy: 0.687
5
Epoch 933/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5896 - accuracy: 0.687
5
Epoch 934/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5895 - accuracy: 0.687
5
Epoch 935/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5897 - accuracy: 0.687
5
Epoch 936/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5896 - accuracy: 0.687
5
Epoch 937/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5894 - accuracy: 0.687
5
Epoch 938/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5895 - accuracy: 0.687
5
Epoch 939/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5894 - accuracy: 0.687
5
Epoch 940/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5893 - accuracy: 0.687
5
```

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Epoch 941/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5894 - accuracy: 0.687
5
Epoch 942/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5893 - accuracy: 0.687
5
Epoch 943/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5894 - accuracy: 0.687
5
Epoch 944/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5891 - accuracy: 0.687
5
Epoch 945/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5895 - accuracy: 0.681
2
Epoch 946/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5895 - accuracy: 0.687
5
Epoch 947/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5891 - accuracy: 0.687
5
Epoch 948/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5892 - accuracy: 0.687
5
Epoch 949/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5890 - accuracy: 0.687
5
Epoch 950/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5890 - accuracy: 0.687
5
Epoch 951/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5890 - accuracy: 0.687
5
Epoch 952/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5889 - accuracy: 0.687
5
Epoch 953/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5889 - accuracy: 0.687
5
Epoch 954/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5889 - accuracy: 0.687
5
Epoch 955/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5889 - accuracy: 0.687
5
Epoch 956/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5891 - accuracy: 0.681
2
Epoch 957/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5887 - accuracy: 0.687
5
Epoch 958/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5889 - accuracy: 0.687
5
Epoch 959/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5887 - accuracy: 0.687
5
Epoch 960/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5889 - accuracy: 0.687
5
```

```
Epoch 961/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5889 - accuracy: 0.681
2
Epoch 962/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5886 - accuracy: 0.687
5
Epoch 963/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5886 - accuracy: 0.687
5
Epoch 964/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5886 - accuracy: 0.687
5
Epoch 965/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5885 - accuracy: 0.687
5
Epoch 966/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5885 - accuracy: 0.687
5
Epoch 967/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5885 - accuracy: 0.687
5
Epoch 968/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5884 - accuracy: 0.687
5
Epoch 969/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5886 - accuracy: 0.687
5
Epoch 970/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5884 - accuracy: 0.687
5
Epoch 971/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5885 - accuracy: 0.687
5
Epoch 972/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5883 - accuracy: 0.687
5
Epoch 973/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5883 - accuracy: 0.687
5
Epoch 974/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5884 - accuracy: 0.681
2
Epoch 975/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5882 - accuracy: 0.687
5
Epoch 976/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5886 - accuracy: 0.687
5
Epoch 977/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5882 - accuracy: 0.687
5
Epoch 978/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5883 - accuracy: 0.687
5
Epoch 979/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5881 - accuracy: 0.687
5
Epoch 980/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5881 - accuracy: 0.687
5
```

```
Epoch 981/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5882 - accuracy: 0.681
2
Epoch 982/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5881 - accuracy: 0.687
5
Epoch 983/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5880 - accuracy: 0.687
5
Epoch 984/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5880 - accuracy: 0.687
5
Epoch 985/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5880 - accuracy: 0.687
5
Epoch 986/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5881 - accuracy: 0.681
2
Epoch 987/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5879 - accuracy: 0.681
2
Epoch 988/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5880 - accuracy: 0.681
2
Epoch 989/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5878 - accuracy: 0.687
5
Epoch 990/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5878 - accuracy: 0.687
5
Epoch 991/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5879 - accuracy: 0.681
2
Epoch 992/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5877 - accuracy: 0.687
5
Epoch 993/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5878 - accuracy: 0.687
5
Epoch 994/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5877 - accuracy: 0.687
5
Epoch 995/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5877 - accuracy: 0.687
5
Epoch 996/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5879 - accuracy: 0.681
2
Epoch 997/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5876 - accuracy: 0.687
5
Epoch 998/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5878 - accuracy: 0.681
2
Epoch 999/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5877 - accuracy: 0.681
2
Epoch 1000/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5876 - accuracy: 0.687
5
```

```
5/5 [==============================] - 0s 2ms/step - loss: 0.5874 - accuracy: 0.6875
5/5 [==============================] - 0s 1ms/step
[0.5873729586601257, 0.6875]
```
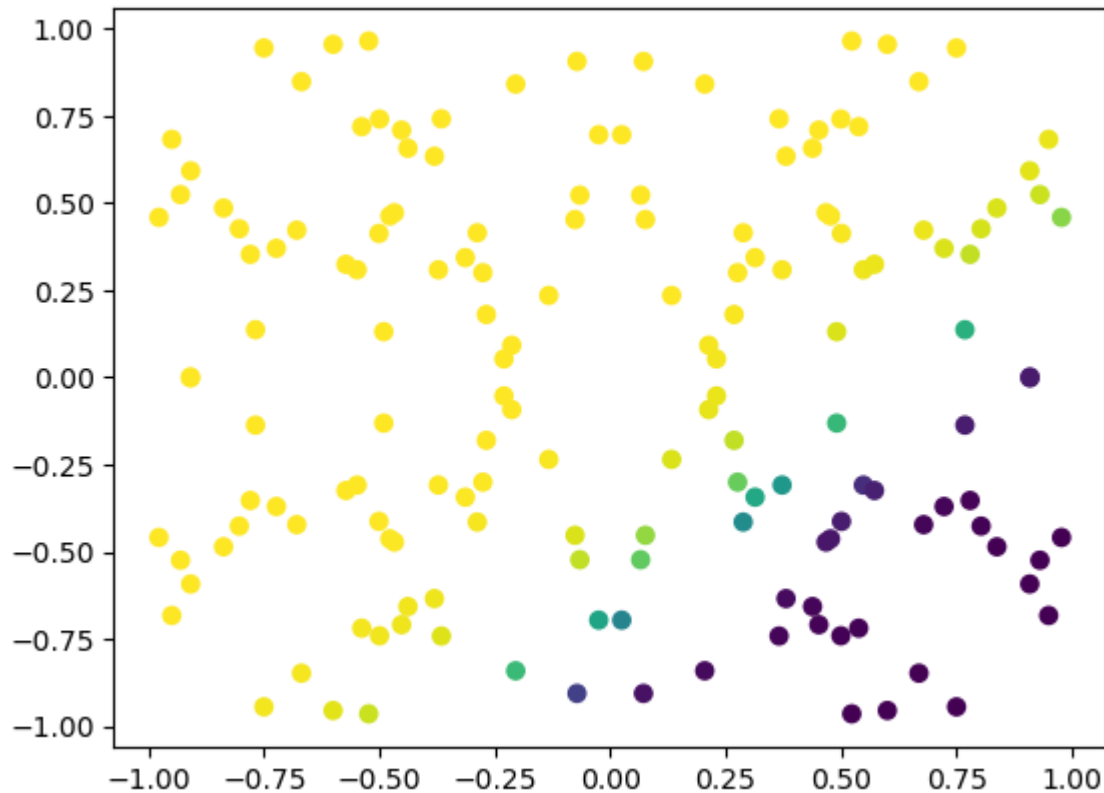


```
In [39]:  #Optimal Model SOFTPLUS
          opmodel3 = Sequential()
          opmodel3.add(Dense(1, input_dim = 2, activation = 'softplus'))
          opmodel3.add(Dense(1, activation = 'softplus'))
          opmodel3.add(Dense(1, activation = 'softplus'))

          opmodel3.compile(loss = 'binary_crossentropy', optimizer = 'adam', metrics = ['accura

          opmodel3.fit(X, Y, epochs = 1000, batch_size = 4)

          opscores3 = opmodel3.evaluate(X, Y)
          plt.scatter(*zip(*X), c = opmodel3.predict(X))
          print(opscores3)
```

```
Epoch 1/1000
40/40 [==============================] - 1s 1ms/step - loss: 0.8345 - accuracy: 0.500
0
Epoch 2/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.8099 - accuracy: 0.500
0
Epoch 3/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.7885 - accuracy: 0.500
0
Epoch 4/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.7701 - accuracy: 0.500
0
Epoch 5/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.7545 - accuracy: 0.500
0
Epoch 6/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.7424 - accuracy: 0.500
0
Epoch 7/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.7315 - accuracy: 0.500
0
Epoch 8/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.7234 - accuracy: 0.500
0
Epoch 9/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.7170 - accuracy: 0.500
0
Epoch 10/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.7111 - accuracy: 0.500
0
Epoch 11/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.7069 - accuracy: 0.500
0
Epoch 12/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.7030 - accuracy: 0.500
0
Epoch 13/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.7003 - accuracy: 0.500
0
Epoch 14/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6981 - accuracy: 0.500
0
Epoch 15/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6965 - accuracy: 0.500
0
Epoch 16/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6951 - accuracy: 0.500
0
Epoch 17/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6940 - accuracy: 0.500
0
Epoch 18/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6933 - accuracy: 0.500
0
Epoch 19/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6924 - accuracy: 0.500
0
Epoch 20/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6921 - accuracy: 0.500
0
```

```
Epoch 21/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6916 - accuracy: 0.500
0
Epoch 22/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6916 - accuracy: 0.500
0
Epoch 23/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6912 - accuracy: 0.500
0
Epoch 24/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6907 - accuracy: 0.481
2
Epoch 25/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6907 - accuracy: 0.456
3
Epoch 26/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6903 - accuracy: 0.368
8
Epoch 27/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6903 - accuracy: 0.306
3
Epoch 28/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6904 - accuracy: 0.312
5
Epoch 29/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6898 - accuracy: 0.318
7
Epoch 30/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6895 - accuracy: 0.362
5
Epoch 31/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6895 - accuracy: 0.325
0
Epoch 32/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6891 - accuracy: 0.356
2
Epoch 33/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6892 - accuracy: 0.312
5
Epoch 34/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6893 - accuracy: 0.318
7
Epoch 35/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6885 - accuracy: 0.381
2
Epoch 36/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6884 - accuracy: 0.431
3
Epoch 37/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6885 - accuracy: 0.468
8
Epoch 38/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6877 - accuracy: 0.450
0
Epoch 39/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6875 - accuracy: 0.468
8
Epoch 40/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6879 - accuracy: 0.381
2
```

```
Epoch 41/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6871 - accuracy: 0.443
7
Epoch 42/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6865 - accuracy: 0.456
3
Epoch 43/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6861 - accuracy: 0.437
5
Epoch 44/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6857 - accuracy: 0.456
3
Epoch 45/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6856 - accuracy: 0.456
3
Epoch 46/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6850 - accuracy: 0.481
2
Epoch 47/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6849 - accuracy: 0.462
5
Epoch 48/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6844 - accuracy: 0.462
5
Epoch 49/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6842 - accuracy: 0.500
0
Epoch 50/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6834 - accuracy: 0.518
8
Epoch 51/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6832 - accuracy: 0.537
5
Epoch 52/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6825 - accuracy: 0.512
5
Epoch 53/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6825 - accuracy: 0.462
5
Epoch 54/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6832 - accuracy: 0.537
5
Epoch 55/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6818 - accuracy: 0.493
8
Epoch 56/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6809 - accuracy: 0.531
2
Epoch 57/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6800 - accuracy: 0.487
5
Epoch 58/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6795 - accuracy: 0.512
5
Epoch 59/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6787 - accuracy: 0.512
5
Epoch 60/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6783 - accuracy: 0.525
0
```

```
Epoch 61/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6778 - accuracy: 0.525
0
Epoch 62/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6773 - accuracy: 0.562
5
Epoch 63/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6766 - accuracy: 0.525
0
Epoch 64/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6757 - accuracy: 0.531
2
Epoch 65/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6752 - accuracy: 0.537
5
Epoch 66/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6745 - accuracy: 0.543
7
Epoch 67/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6743 - accuracy: 0.531
2
Epoch 68/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6731 - accuracy: 0.543
7
Epoch 69/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6724 - accuracy: 0.543
7
Epoch 70/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6719 - accuracy: 0.556
2
Epoch 71/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6711 - accuracy: 0.550
0
Epoch 72/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6704 - accuracy: 0.562
5
Epoch 73/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6699 - accuracy: 0.556
2
Epoch 74/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6691 - accuracy: 0.562
5
Epoch 75/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6684 - accuracy: 0.556
2
Epoch 76/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6680 - accuracy: 0.562
5
Epoch 77/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6675 - accuracy: 0.562
5
Epoch 78/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6668 - accuracy: 0.562
5
Epoch 79/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6659 - accuracy: 0.556
2
Epoch 80/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6650 - accuracy: 0.556
2
```

```
Epoch 81/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6646 - accuracy: 0.556
2
Epoch 82/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6640 - accuracy: 0.562
5
Epoch 83/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6631 - accuracy: 0.568
8
Epoch 84/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6630 - accuracy: 0.587
5
Epoch 85/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6617 - accuracy: 0.568
8
Epoch 86/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6614 - accuracy: 0.581
3
Epoch 87/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6607 - accuracy: 0.568
8
Epoch 88/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6596 - accuracy: 0.568
8
Epoch 89/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6593 - accuracy: 0.575
0
Epoch 90/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6585 - accuracy: 0.581
3
Epoch 91/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6580 - accuracy: 0.575
0
Epoch 92/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6575 - accuracy: 0.587
5
Epoch 93/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6567 - accuracy: 0.587
5
Epoch 94/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6561 - accuracy: 0.587
5
Epoch 95/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6557 - accuracy: 0.587
5
Epoch 96/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6549 - accuracy: 0.587
5
Epoch 97/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6545 - accuracy: 0.575
0
Epoch 98/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6539 - accuracy: 0.593
8
Epoch 99/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6536 - accuracy: 0.587
5
Epoch 100/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6527 - accuracy: 0.587
5
```

```
Epoch 101/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6520 - accuracy: 0.600
0
Epoch 102/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6515 - accuracy: 0.606
2
Epoch 103/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6511 - accuracy: 0.600
0
Epoch 104/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6504 - accuracy: 0.606
2
Epoch 105/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6499 - accuracy: 0.606
2
Epoch 106/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6497 - accuracy: 0.631
3
Epoch 107/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6487 - accuracy: 0.618
7
Epoch 108/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6485 - accuracy: 0.625
0
Epoch 109/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6480 - accuracy: 0.600
0
Epoch 110/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6472 - accuracy: 0.606
2
Epoch 111/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6470 - accuracy: 0.612
5
Epoch 112/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6463 - accuracy: 0.606
2
Epoch 113/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6459 - accuracy: 0.600
0
Epoch 114/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6460 - accuracy: 0.625
0
Epoch 115/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6451 - accuracy: 0.618
7
Epoch 116/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6444 - accuracy: 0.625
0
Epoch 117/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6440 - accuracy: 0.631
3
Epoch 118/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6437 - accuracy: 0.625
0
Epoch 119/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6432 - accuracy: 0.637
5
Epoch 120/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6431 - accuracy: 0.625
0
```

```
Epoch 121/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6426 - accuracy: 0.637
5
Epoch 122/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6416 - accuracy: 0.631
3
Epoch 123/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6416 - accuracy: 0.631
3
Epoch 124/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6407 - accuracy: 0.637
5
Epoch 125/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6413 - accuracy: 0.631
3
Epoch 126/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6398 - accuracy: 0.631
3
Epoch 127/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6395 - accuracy: 0.637
5
Epoch 128/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6392 - accuracy: 0.637
5
Epoch 129/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6387 - accuracy: 0.631
3
Epoch 130/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6383 - accuracy: 0.631
3
Epoch 131/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6377 - accuracy: 0.631
3
Epoch 132/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6379 - accuracy: 0.631
3
Epoch 133/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6370 - accuracy: 0.631
3
Epoch 134/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6365 - accuracy: 0.631
3
Epoch 135/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6369 - accuracy: 0.631
3
Epoch 136/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6362 - accuracy: 0.631
3
Epoch 137/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6354 - accuracy: 0.631
3
Epoch 138/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6350 - accuracy: 0.631
3
Epoch 139/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6350 - accuracy: 0.631
3
Epoch 140/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6343 - accuracy: 0.631
3
```

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Epoch 141/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6339 - accuracy: 0.631
3
Epoch 142/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6337 - accuracy: 0.631
3
Epoch 143/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6331 - accuracy: 0.625
0
Epoch 144/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6331 - accuracy: 0.631
3
Epoch 145/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6327 - accuracy: 0.625
0
Epoch 146/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6322 - accuracy: 0.631
3
Epoch 147/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6320 - accuracy: 0.631
3
Epoch 148/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6313 - accuracy: 0.631
3
Epoch 149/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6311 - accuracy: 0.631
3
Epoch 150/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6308 - accuracy: 0.625
0
Epoch 151/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6308 - accuracy: 0.631
3
Epoch 152/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6301 - accuracy: 0.631
3
Epoch 153/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6297 - accuracy: 0.631
3
Epoch 154/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6291 - accuracy: 0.631
3
Epoch 155/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6294 - accuracy: 0.637
5
Epoch 156/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6286 - accuracy: 0.631
3
Epoch 157/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6282 - accuracy: 0.631
3
Epoch 158/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6281 - accuracy: 0.631
3
Epoch 159/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6277 - accuracy: 0.631
3
Epoch 160/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6275 - accuracy: 0.631
3
```

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Epoch 161/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6272 - accuracy: 0.631
3
Epoch 162/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6267 - accuracy: 0.631
3
Epoch 163/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6262 - accuracy: 0.631
3
Epoch 164/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6261 - accuracy: 0.631
3
Epoch 165/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6256 - accuracy: 0.631
3
Epoch 166/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6252 - accuracy: 0.631
3
Epoch 167/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6249 - accuracy: 0.631
3
Epoch 168/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6249 - accuracy: 0.637
5
Epoch 169/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6244 - accuracy: 0.631
3
Epoch 170/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6241 - accuracy: 0.631
3
Epoch 171/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6238 - accuracy: 0.631
3
Epoch 172/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6235 - accuracy: 0.631
3
Epoch 173/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6231 - accuracy: 0.631
3
Epoch 174/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6231 - accuracy: 0.637
5
Epoch 175/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6229 - accuracy: 0.650
0
Epoch 176/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6222 - accuracy: 0.643
8
Epoch 177/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6222 - accuracy: 0.631
3
Epoch 178/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6217 - accuracy: 0.631
3
Epoch 179/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6214 - accuracy: 0.643
8
Epoch 180/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6210 - accuracy: 0.643
8
```

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Epoch 181/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6209 - accuracy: 0.643
8
Epoch 182/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6205 - accuracy: 0.637
5
Epoch 183/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6203 - accuracy: 0.643
8
Epoch 184/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6201 - accuracy: 0.650
0
Epoch 185/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6198 - accuracy: 0.643
8
Epoch 186/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6196 - accuracy: 0.650
0
Epoch 187/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6193 - accuracy: 0.643
8
Epoch 188/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6192 - accuracy: 0.650
0
Epoch 189/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6188 - accuracy: 0.650
0
Epoch 190/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6186 - accuracy: 0.650
0
Epoch 191/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6181 - accuracy: 0.650
0
Epoch 192/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6183 - accuracy: 0.637
5
Epoch 193/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6187 - accuracy: 0.650
0
Epoch 194/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6174 - accuracy: 0.650
0
Epoch 195/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6173 - accuracy: 0.643
8
Epoch 196/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6171 - accuracy: 0.650
0
Epoch 197/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6167 - accuracy: 0.662
5
Epoch 198/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6166 - accuracy: 0.656
2
Epoch 199/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6162 - accuracy: 0.656
2
Epoch 200/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6161 - accuracy: 0.650
0
```

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Epoch 201/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6158 - accuracy: 0.656
2
Epoch 202/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6159 - accuracy: 0.656
2
Epoch 203/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6153 - accuracy: 0.656
2
Epoch 204/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6152 - accuracy: 0.656
2
Epoch 205/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6147 - accuracy: 0.656
2
Epoch 206/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6143 - accuracy: 0.650
0
Epoch 207/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6142 - accuracy: 0.656
2
Epoch 208/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6141 - accuracy: 0.662
5
Epoch 209/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6138 - accuracy: 0.656
2
Epoch 210/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6138 - accuracy: 0.650
0
Epoch 211/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6139 - accuracy: 0.668
7
Epoch 212/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6134 - accuracy: 0.656
2
Epoch 213/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6131 - accuracy: 0.662
5
Epoch 214/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6126 - accuracy: 0.656
2
Epoch 215/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6124 - accuracy: 0.656
2
Epoch 216/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6124 - accuracy: 0.662
5
Epoch 217/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6121 - accuracy: 0.662
5
Epoch 218/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6118 - accuracy: 0.656
2
Epoch 219/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6116 - accuracy: 0.668
7
Epoch 220/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6115 - accuracy: 0.662
5
```

```
Epoch 221/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6113 - accuracy: 0.662
5
Epoch 222/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6112 - accuracy: 0.668
7
Epoch 223/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6106 - accuracy: 0.656
2
Epoch 224/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6105 - accuracy: 0.662
5
Epoch 225/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6102 - accuracy: 0.662
5
Epoch 226/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6107 - accuracy: 0.675
0
Epoch 227/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6097 - accuracy: 0.668
7
Epoch 228/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6096 - accuracy: 0.668
7
Epoch 229/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6095 - accuracy: 0.662
5
Epoch 230/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6093 - accuracy: 0.668
7
Epoch 231/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6094 - accuracy: 0.668
7
Epoch 232/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6089 - accuracy: 0.668
7
Epoch 233/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6088 - accuracy: 0.662
5
Epoch 234/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6084 - accuracy: 0.668
7
Epoch 235/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6083 - accuracy: 0.668
7
Epoch 236/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6080 - accuracy: 0.675
0
Epoch 237/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6079 - accuracy: 0.668
7
Epoch 238/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6077 - accuracy: 0.675
0
Epoch 239/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6076 - accuracy: 0.668
7
Epoch 240/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6074 - accuracy: 0.675
0
```

```
Epoch 241/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6070 - accuracy: 0.675
0
Epoch 242/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6071 - accuracy: 0.675
0
Epoch 243/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6072 - accuracy: 0.675
0
Epoch 244/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6070 - accuracy: 0.668
7
Epoch 245/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6063 - accuracy: 0.675
0
Epoch 246/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6064 - accuracy: 0.675
0
Epoch 247/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6064 - accuracy: 0.675
0
Epoch 248/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6059 - accuracy: 0.675
0
Epoch 249/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6057 - accuracy: 0.675
0
Epoch 250/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6057 - accuracy: 0.675
0
Epoch 251/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6053 - accuracy: 0.675
0
Epoch 252/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6054 - accuracy: 0.675
0
Epoch 253/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6052 - accuracy: 0.681
2
Epoch 254/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6050 - accuracy: 0.675
0
Epoch 255/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6046 - accuracy: 0.675
0
Epoch 256/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6049 - accuracy: 0.675
0
Epoch 257/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6046 - accuracy: 0.675
0
Epoch 258/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6041 - accuracy: 0.675
0
Epoch 259/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6039 - accuracy: 0.675
0
Epoch 260/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6038 - accuracy: 0.675
0
```

```
Epoch 261/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6051 - accuracy: 0.668
7
Epoch 262/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6035 - accuracy: 0.675
0
Epoch 263/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6033 - accuracy: 0.675
0
Epoch 264/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6032 - accuracy: 0.675
0
Epoch 265/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6031 - accuracy: 0.675
0
Epoch 266/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6029 - accuracy: 0.675
0
Epoch 267/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6029 - accuracy: 0.681
2
Epoch 268/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6026 - accuracy: 0.681
2
Epoch 269/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6026 - accuracy: 0.681
2
Epoch 270/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6023 - accuracy: 0.675
0
Epoch 271/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6024 - accuracy: 0.675
0
Epoch 272/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6020 - accuracy: 0.675
0
Epoch 273/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6019 - accuracy: 0.675
0
Epoch 274/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6016 - accuracy: 0.675
0
Epoch 275/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6016 - accuracy: 0.675
0
Epoch 276/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6014 - accuracy: 0.681
2
Epoch 277/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6014 - accuracy: 0.681
2
Epoch 278/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6012 - accuracy: 0.681
2
Epoch 279/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6013 - accuracy: 0.681
2
Epoch 280/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6014 - accuracy: 0.681
2
```

```
Epoch 281/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.6010 - accuracy: 0.681
2
Epoch 282/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6006 - accuracy: 0.681
2
Epoch 283/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6006 - accuracy: 0.681
2
Epoch 284/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6002 - accuracy: 0.681
2
Epoch 285/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6003 - accuracy: 0.681
2
Epoch 286/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6001 - accuracy: 0.681
2
Epoch 287/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5998 - accuracy: 0.681
2
Epoch 288/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6000 - accuracy: 0.681
2
Epoch 289/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5995 - accuracy: 0.681
2
Epoch 290/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5998 - accuracy: 0.681
2
Epoch 291/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.6000 - accuracy: 0.681
2
Epoch 292/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5992 - accuracy: 0.681
2
Epoch 293/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5990 - accuracy: 0.681
2
Epoch 294/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5990 - accuracy: 0.681
2
Epoch 295/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5994 - accuracy: 0.681
2
Epoch 296/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5991 - accuracy: 0.681
2
Epoch 297/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5985 - accuracy: 0.681
2
Epoch 298/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5987 - accuracy: 0.681
2
Epoch 299/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5984 - accuracy: 0.681
2
Epoch 300/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5983 - accuracy: 0.681
2
```

```
Epoch 301/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5981 - accuracy: 0.681
2
Epoch 302/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5982 - accuracy: 0.681
2
Epoch 303/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5978 - accuracy: 0.681
2
Epoch 304/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5981 - accuracy: 0.681
2
Epoch 305/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5975 - accuracy: 0.681
2
Epoch 306/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5976 - accuracy: 0.681
2
Epoch 307/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5975 - accuracy: 0.681
2
Epoch 308/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5974 - accuracy: 0.681
2
Epoch 309/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5974 - accuracy: 0.681
2
Epoch 310/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5970 - accuracy: 0.681
2
Epoch 311/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5972 - accuracy: 0.681
2
Epoch 312/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5967 - accuracy: 0.681
2
Epoch 313/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5966 - accuracy: 0.681
2
Epoch 314/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5969 - accuracy: 0.681
2
Epoch 315/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5972 - accuracy: 0.681
2
Epoch 316/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5963 - accuracy: 0.681
2
Epoch 317/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5963 - accuracy: 0.681
2
Epoch 318/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5961 - accuracy: 0.681
2
Epoch 319/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5962 - accuracy: 0.681
2
Epoch 320/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5962 - accuracy: 0.675
0
```

```
Epoch 321/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5964 - accuracy: 0.681
2
Epoch 322/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5959 - accuracy: 0.681
2
Epoch 323/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5961 - accuracy: 0.681
2
Epoch 324/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5954 - accuracy: 0.675
0
Epoch 325/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5955 - accuracy: 0.681
2
Epoch 326/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5952 - accuracy: 0.681
2
Epoch 327/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5953 - accuracy: 0.675
0
Epoch 328/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5954 - accuracy: 0.681
2
Epoch 329/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5950 - accuracy: 0.681
2
Epoch 330/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5948 - accuracy: 0.681
2
Epoch 331/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5947 - accuracy: 0.681
2
Epoch 332/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5945 - accuracy: 0.681
2
Epoch 333/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5946 - accuracy: 0.681
2
Epoch 334/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5944 - accuracy: 0.675
0
Epoch 335/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5944 - accuracy: 0.675
0
Epoch 336/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5943 - accuracy: 0.675
0
Epoch 337/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5941 - accuracy: 0.675
0
Epoch 338/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5940 - accuracy: 0.675
0
Epoch 339/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5941 - accuracy: 0.675
0
Epoch 340/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5939 - accuracy: 0.681
2
```

```
Epoch 341/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5937 - accuracy: 0.675
0
Epoch 342/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5936 - accuracy: 0.675
0
Epoch 343/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5935 - accuracy: 0.675
0
Epoch 344/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5937 - accuracy: 0.675
0
Epoch 345/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5935 - accuracy: 0.675
0
Epoch 346/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5935 - accuracy: 0.681
2
Epoch 347/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5931 - accuracy: 0.675
0
Epoch 348/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5932 - accuracy: 0.681
2
Epoch 349/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5934 - accuracy: 0.675
0
Epoch 350/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5929 - accuracy: 0.675
0
Epoch 351/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5928 - accuracy: 0.675
0
Epoch 352/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5931 - accuracy: 0.681
2
Epoch 353/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5927 - accuracy: 0.681
2
Epoch 354/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5926 - accuracy: 0.681
2
Epoch 355/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5926 - accuracy: 0.675
0
Epoch 356/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5925 - accuracy: 0.681
2
Epoch 357/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5923 - accuracy: 0.681
2
Epoch 358/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5924 - accuracy: 0.681
2
Epoch 359/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5921 - accuracy: 0.675
0
Epoch 360/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5923 - accuracy: 0.687
5
```

```
Epoch 361/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5925 - accuracy: 0.675
0
Epoch 362/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5918 - accuracy: 0.687
5
Epoch 363/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5919 - accuracy: 0.681
2
Epoch 364/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5918 - accuracy: 0.681
2
Epoch 365/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5920 - accuracy: 0.681
2
Epoch 366/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5917 - accuracy: 0.675
0
Epoch 367/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5915 - accuracy: 0.681
2
Epoch 368/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5915 - accuracy: 0.681
2
Epoch 369/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5916 - accuracy: 0.687
5
Epoch 370/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5914 - accuracy: 0.681
2
Epoch 371/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5912 - accuracy: 0.675
0
Epoch 372/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5916 - accuracy: 0.681
2
Epoch 373/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5914 - accuracy: 0.687
5
Epoch 374/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5909 - accuracy: 0.681
2
Epoch 375/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5911 - accuracy: 0.687
5
Epoch 376/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5907 - accuracy: 0.681
2
Epoch 377/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5906 - accuracy: 0.687
5
Epoch 378/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5905 - accuracy: 0.687
5
Epoch 379/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5905 - accuracy: 0.687
5
Epoch 380/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5907 - accuracy: 0.687
5
```

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Epoch 381/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5906 - accuracy: 0.687
5
Epoch 382/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5903 - accuracy: 0.687
5
Epoch 383/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5904 - accuracy: 0.687
5
Epoch 384/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5902 - accuracy: 0.681
2
Epoch 385/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5903 - accuracy: 0.687
5
Epoch 386/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5900 - accuracy: 0.687
5
Epoch 387/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5900 - accuracy: 0.687
5
Epoch 388/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5898 - accuracy: 0.687
5
Epoch 389/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5897 - accuracy: 0.687
5
Epoch 390/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5898 - accuracy: 0.687
5
Epoch 391/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5898 - accuracy: 0.687
5
Epoch 392/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5898 - accuracy: 0.687
5
Epoch 393/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5897 - accuracy: 0.687
5
Epoch 394/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5896 - accuracy: 0.681
2
Epoch 395/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5894 - accuracy: 0.687
5
Epoch 396/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5895 - accuracy: 0.687
5
Epoch 397/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5897 - accuracy: 0.687
5
Epoch 398/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5894 - accuracy: 0.687
5
Epoch 399/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5891 - accuracy: 0.687
5
Epoch 400/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5890 - accuracy: 0.687
5
```

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Epoch 401/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5888 - accuracy: 0.687
5
Epoch 402/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5890 - accuracy: 0.687
5
Epoch 403/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5890 - accuracy: 0.687
5
Epoch 404/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5890 - accuracy: 0.687
5
Epoch 405/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5885 - accuracy: 0.687
5
Epoch 406/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5886 - accuracy: 0.687
5
Epoch 407/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5886 - accuracy: 0.687
5
Epoch 408/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5884 - accuracy: 0.687
5
Epoch 409/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5884 - accuracy: 0.687
5
Epoch 410/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5883 - accuracy: 0.687
5
Epoch 411/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5882 - accuracy: 0.687
5
Epoch 412/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5884 - accuracy: 0.687
5
Epoch 413/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5881 - accuracy: 0.687
5
Epoch 414/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5881 - accuracy: 0.687
5
Epoch 415/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5880 - accuracy: 0.687
5
Epoch 416/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5881 - accuracy: 0.687
5
Epoch 417/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5880 - accuracy: 0.687
5
Epoch 418/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5877 - accuracy: 0.687
5
Epoch 419/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5879 - accuracy: 0.687
5
Epoch 420/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5877 - accuracy: 0.687
5
```

```
Epoch 421/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5878 - accuracy: 0.687
5
Epoch 422/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5878 - accuracy: 0.687
5
Epoch 423/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5876 - accuracy: 0.687
5
Epoch 424/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5874 - accuracy: 0.687
5
Epoch 425/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5875 - accuracy: 0.687
5
Epoch 426/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5874 - accuracy: 0.687
5
Epoch 427/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5874 - accuracy: 0.687
5
Epoch 428/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5873 - accuracy: 0.687
5
Epoch 429/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5873 - accuracy: 0.687
5
Epoch 430/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5869 - accuracy: 0.687
5
Epoch 431/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5872 - accuracy: 0.687
5
Epoch 432/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5870 - accuracy: 0.687
5
Epoch 433/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5870 - accuracy: 0.687
5
Epoch 434/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5869 - accuracy: 0.687
5
Epoch 435/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5868 - accuracy: 0.687
5
Epoch 436/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5868 - accuracy: 0.687
5
Epoch 437/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5866 - accuracy: 0.687
5
Epoch 438/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5866 - accuracy: 0.687
5
Epoch 439/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5866 - accuracy: 0.687
5
Epoch 440/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5865 - accuracy: 0.687
5
```

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Epoch 441/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5864 - accuracy: 0.687
5
Epoch 442/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5865 - accuracy: 0.687
5
Epoch 443/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5865 - accuracy: 0.687
5
Epoch 444/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5862 - accuracy: 0.687
5
Epoch 445/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5864 - accuracy: 0.687
5
Epoch 446/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5864 - accuracy: 0.687
5
Epoch 447/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5861 - accuracy: 0.687
5
Epoch 448/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5861 - accuracy: 0.687
5
Epoch 449/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5859 - accuracy: 0.687
5
Epoch 450/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5863 - accuracy: 0.687
5
Epoch 451/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5859 - accuracy: 0.687
5
Epoch 452/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5859 - accuracy: 0.687
5
Epoch 453/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5859 - accuracy: 0.687
5
Epoch 454/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5857 - accuracy: 0.687
5
Epoch 455/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5859 - accuracy: 0.687
5
Epoch 456/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5856 - accuracy: 0.687
5
Epoch 457/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5857 - accuracy: 0.687
5
Epoch 458/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5858 - accuracy: 0.687
5
Epoch 459/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5857 - accuracy: 0.687
5
Epoch 460/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5854 - accuracy: 0.687
5
```

```
Epoch 461/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5855 - accuracy: 0.687
5
Epoch 462/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5853 - accuracy: 0.687
5
Epoch 463/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5852 - accuracy: 0.687
5
Epoch 464/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5851 - accuracy: 0.687
5
Epoch 465/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5851 - accuracy: 0.687
5
Epoch 466/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5853 - accuracy: 0.687
5
Epoch 467/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5852 - accuracy: 0.687
5
Epoch 468/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5851 - accuracy: 0.687
5
Epoch 469/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5853 - accuracy: 0.687
5
Epoch 470/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5849 - accuracy: 0.687
5
Epoch 471/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5851 - accuracy: 0.687
5
Epoch 472/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5849 - accuracy: 0.687
5
Epoch 473/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5853 - accuracy: 0.687
5
Epoch 474/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5848 - accuracy: 0.687
5
Epoch 475/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5848 - accuracy: 0.687
5
Epoch 476/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5846 - accuracy: 0.687
5
Epoch 477/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5846 - accuracy: 0.687
5
Epoch 478/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5848 - accuracy: 0.687
5
Epoch 479/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5846 - accuracy: 0.687
5
Epoch 480/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5844 - accuracy: 0.687
5
```

```
Epoch 481/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5845 - accuracy: 0.687
5
Epoch 482/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5845 - accuracy: 0.687
5
Epoch 483/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5843 - accuracy: 0.687
5
Epoch 484/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5843 - accuracy: 0.687
5
Epoch 485/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5844 - accuracy: 0.687
5
Epoch 486/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5843 - accuracy: 0.687
5
Epoch 487/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5841 - accuracy: 0.687
5
Epoch 488/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5842 - accuracy: 0.687
5
Epoch 489/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5841 - accuracy: 0.687
5
Epoch 490/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5841 - accuracy: 0.687
5
Epoch 491/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5840 - accuracy: 0.687
5
Epoch 492/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5840 - accuracy: 0.687
5
Epoch 493/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5839 - accuracy: 0.687
5
Epoch 494/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5840 - accuracy: 0.687
5
Epoch 495/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5837 - accuracy: 0.687
5
Epoch 496/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5839 - accuracy: 0.687
5
Epoch 497/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5838 - accuracy: 0.687
5
Epoch 498/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5837 - accuracy: 0.687
5
Epoch 499/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5838 - accuracy: 0.687
5
Epoch 500/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5837 - accuracy: 0.687
5
```

```
Epoch 501/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5840 - accuracy: 0.693
8
Epoch 502/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5835 - accuracy: 0.687
5
Epoch 503/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5836 - accuracy: 0.687
5
Epoch 504/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5840 - accuracy: 0.693
8
Epoch 505/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5835 - accuracy: 0.687
5
Epoch 506/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5835 - accuracy: 0.687
5
Epoch 507/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5833 - accuracy: 0.687
5
Epoch 508/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5833 - accuracy: 0.687
5
Epoch 509/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5832 - accuracy: 0.687
5
Epoch 510/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5832 - accuracy: 0.687
5
Epoch 511/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5833 - accuracy: 0.687
5
Epoch 512/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5833 - accuracy: 0.687
5
Epoch 513/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5832 - accuracy: 0.687
5
Epoch 514/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5831 - accuracy: 0.687
5
Epoch 515/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5837 - accuracy: 0.687
5
Epoch 516/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5830 - accuracy: 0.693
8
Epoch 517/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5829 - accuracy: 0.687
5
Epoch 518/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5830 - accuracy: 0.693
8
Epoch 519/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5831 - accuracy: 0.687
5
Epoch 520/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5834 - accuracy: 0.693
8
```

```
Epoch 521/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5829 - accuracy: 0.687
5
Epoch 522/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5828 - accuracy: 0.687
5
Epoch 523/1000
40/40 [==============================] - 0s 4ms/step - loss: 0.5826 - accuracy: 0.693
8
Epoch 524/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5829 - accuracy: 0.693
8
Epoch 525/1000
40/40 [==============================] - 0s 5ms/step - loss: 0.5832 - accuracy: 0.687
5
Epoch 526/1000
40/40 [==============================] - 0s 3ms/step - loss: 0.5826 - accuracy: 0.687
5
Epoch 527/1000
40/40 [==============================] - 0s 3ms/step - loss: 0.5827 - accuracy: 0.687
5
Epoch 528/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5826 - accuracy: 0.687
5
Epoch 529/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5826 - accuracy: 0.687
5
Epoch 530/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5827 - accuracy: 0.693
8
Epoch 531/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5824 - accuracy: 0.693
8
Epoch 532/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5824 - accuracy: 0.687
5
Epoch 533/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5826 - accuracy: 0.693
8
Epoch 534/1000
40/40 [==============================] - 0s 3ms/step - loss: 0.5823 - accuracy: 0.693
8
Epoch 535/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5823 - accuracy: 0.693
8
Epoch 536/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5822 - accuracy: 0.687
5
Epoch 537/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5825 - accuracy: 0.687
5
Epoch 538/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5823 - accuracy: 0.693
8
Epoch 539/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5820 - accuracy: 0.693
8
Epoch 540/1000
40/40 [==============================] - 0s 3ms/step - loss: 0.5822 - accuracy: 0.693
8
```

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Epoch 541/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5822 - accuracy: 0.693
8
Epoch 542/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5819 - accuracy: 0.693
8
Epoch 543/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5829 - accuracy: 0.687
5
Epoch 544/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5821 - accuracy: 0.693
8
Epoch 545/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5819 - accuracy: 0.693
8
Epoch 546/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5820 - accuracy: 0.693
8
Epoch 547/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5819 - accuracy: 0.693
8
Epoch 548/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5825 - accuracy: 0.687
5
Epoch 549/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5819 - accuracy: 0.693
8
Epoch 550/1000
40/40 [==============================] - 0s 3ms/step - loss: 0.5817 - accuracy: 0.693
8
Epoch 551/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5817 - accuracy: 0.693
8
Epoch 552/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5817 - accuracy: 0.693
8
Epoch 553/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5817 - accuracy: 0.693
8
Epoch 554/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5817 - accuracy: 0.693
8
Epoch 555/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5816 - accuracy: 0.693
8
Epoch 556/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5817 - accuracy: 0.693
8
Epoch 557/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5816 - accuracy: 0.693
8
Epoch 558/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5815 - accuracy: 0.693
8
Epoch 559/1000
40/40 [==============================] - 0s 3ms/step - loss: 0.5814 - accuracy: 0.693
8
Epoch 560/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5815 - accuracy: 0.693
8
```

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Epoch 561/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5813 - accuracy: 0.693
8
Epoch 562/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5814 - accuracy: 0.693
8
Epoch 563/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5813 - accuracy: 0.693
8
Epoch 564/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5815 - accuracy: 0.693
8
Epoch 565/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5813 - accuracy: 0.693
8
Epoch 566/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5815 - accuracy: 0.693
8
Epoch 567/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5816 - accuracy: 0.693
8
Epoch 568/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5813 - accuracy: 0.693
8
Epoch 569/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5811 - accuracy: 0.693
8
Epoch 570/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5813 - accuracy: 0.693
8
Epoch 571/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5811 - accuracy: 0.693
8
Epoch 572/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5810 - accuracy: 0.693
8
Epoch 573/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5812 - accuracy: 0.693
8
Epoch 574/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5813 - accuracy: 0.693
8
Epoch 575/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5809 - accuracy: 0.693
8
Epoch 576/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5810 - accuracy: 0.693
8
Epoch 577/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5810 - accuracy: 0.693
8
Epoch 578/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5808 - accuracy: 0.693
8
Epoch 579/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5809 - accuracy: 0.693
8
Epoch 580/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5809 - accuracy: 0.693
8
```

```
Epoch 581/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5809 - accuracy: 0.693
8
Epoch 582/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5808 - accuracy: 0.693
8
Epoch 583/1000
40/40 [==============================] - 0s 3ms/step - loss: 0.5813 - accuracy: 0.693
8
Epoch 584/1000
40/40 [==============================] - 0s 3ms/step - loss: 0.5806 - accuracy: 0.693
8
Epoch 585/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5806 - accuracy: 0.693
8
Epoch 586/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5809 - accuracy: 0.693
8
Epoch 587/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5805 - accuracy: 0.693
8
Epoch 588/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5805 - accuracy: 0.693
8
Epoch 589/1000
40/40 [==============================] - 0s 3ms/step - loss: 0.5806 - accuracy: 0.693
8
Epoch 590/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5806 - accuracy: 0.693
8
Epoch 591/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5805 - accuracy: 0.693
8
Epoch 592/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5806 - accuracy: 0.693
8
Epoch 593/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5805 - accuracy: 0.693
8
Epoch 594/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5804 - accuracy: 0.693
8
Epoch 595/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5804 - accuracy: 0.693
8
Epoch 596/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5804 - accuracy: 0.693
8
Epoch 597/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5803 - accuracy: 0.693
8
Epoch 598/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5810 - accuracy: 0.693
8
Epoch 599/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5802 - accuracy: 0.693
8
Epoch 600/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5806 - accuracy: 0.693
8
```

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Epoch 601/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5805 - accuracy: 0.693
8
Epoch 602/1000
40/40 [==============================] - 0s 3ms/step - loss: 0.5804 - accuracy: 0.693
8
Epoch 603/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5803 - accuracy: 0.693
8
Epoch 604/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5801 - accuracy: 0.693
8
Epoch 605/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5801 - accuracy: 0.693
8
Epoch 606/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5802 - accuracy: 0.693
8
Epoch 607/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5803 - accuracy: 0.693
8
Epoch 608/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5801 - accuracy: 0.693
8
Epoch 609/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5800 - accuracy: 0.693
8
Epoch 610/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5802 - accuracy: 0.693
8
Epoch 611/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5800 - accuracy: 0.693
8
Epoch 612/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5807 - accuracy: 0.693
8
Epoch 613/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5809 - accuracy: 0.693
8
Epoch 614/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5798 - accuracy: 0.693
8
Epoch 615/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5800 - accuracy: 0.693
8
Epoch 616/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5798 - accuracy: 0.693
8
Epoch 617/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5799 - accuracy: 0.693
8
Epoch 618/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5800 - accuracy: 0.693
8
Epoch 619/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5797 - accuracy: 0.693
8
Epoch 620/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5798 - accuracy: 0.693
8
```

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Epoch 621/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5798 - accuracy: 0.693
8
Epoch 622/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5797 - accuracy: 0.693
8
Epoch 623/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5797 - accuracy: 0.693
8
Epoch 624/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5797 - accuracy: 0.693
8
Epoch 625/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5796 - accuracy: 0.693
8
Epoch 626/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5795 - accuracy: 0.693
8
Epoch 627/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5795 - accuracy: 0.693
8
Epoch 628/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5796 - accuracy: 0.693
8
Epoch 629/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5797 - accuracy: 0.693
8
Epoch 630/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5796 - accuracy: 0.693
8
Epoch 631/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5795 - accuracy: 0.693
8
Epoch 632/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5794 - accuracy: 0.693
8
Epoch 633/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5796 - accuracy: 0.693
8
Epoch 634/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5794 - accuracy: 0.693
8
Epoch 635/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5798 - accuracy: 0.693
8
Epoch 636/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5797 - accuracy: 0.693
8
Epoch 637/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5793 - accuracy: 0.693
8
Epoch 638/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5794 - accuracy: 0.693
8
Epoch 639/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5795 - accuracy: 0.687
5
Epoch 640/1000
40/40 [==============================] - 0s 3ms/step - loss: 0.5794 - accuracy: 0.693
8
```

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Epoch 641/1000
40/40 [==============================] - 0s 3ms/step - loss: 0.5794 - accuracy: 0.693
8
Epoch 642/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5793 - accuracy: 0.693
8
Epoch 643/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5798 - accuracy: 0.693
8
Epoch 644/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5791 - accuracy: 0.693
8
Epoch 645/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5790 - accuracy: 0.693
8
Epoch 646/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5791 - accuracy: 0.693
8
Epoch 647/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5796 - accuracy: 0.693
8
Epoch 648/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5791 - accuracy: 0.693
8
Epoch 649/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5791 - accuracy: 0.693
8
Epoch 650/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5790 - accuracy: 0.693
8
Epoch 651/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5797 - accuracy: 0.687
5
Epoch 652/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5790 - accuracy: 0.693
8
Epoch 653/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5793 - accuracy: 0.693
8
Epoch 654/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5791 - accuracy: 0.693
8
Epoch 655/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5791 - accuracy: 0.687
5
Epoch 656/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5791 - accuracy: 0.693
8
Epoch 657/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5791 - accuracy: 0.687
5
Epoch 658/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5788 - accuracy: 0.687
5
Epoch 659/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5788 - accuracy: 0.693
8
Epoch 660/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5790 - accuracy: 0.693
8
```

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Epoch 661/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5787 - accuracy: 0.693
8
Epoch 662/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5787 - accuracy: 0.693
8
Epoch 663/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5789 - accuracy: 0.687
5
Epoch 664/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5787 - accuracy: 0.687
5
Epoch 665/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5786 - accuracy: 0.693
8
Epoch 666/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5790 - accuracy: 0.693
8
Epoch 667/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5789 - accuracy: 0.693
8
Epoch 668/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5786 - accuracy: 0.693
8
Epoch 669/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5788 - accuracy: 0.693
8
Epoch 670/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5785 - accuracy: 0.693
8
Epoch 671/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5786 - accuracy: 0.693
8
Epoch 672/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5788 - accuracy: 0.693
8
Epoch 673/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5787 - accuracy: 0.687
5
Epoch 674/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5787 - accuracy: 0.693
8
Epoch 675/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5784 - accuracy: 0.693
8
Epoch 676/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5785 - accuracy: 0.693
8
Epoch 677/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5785 - accuracy: 0.687
5
Epoch 678/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5784 - accuracy: 0.687
5
Epoch 679/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5783 - accuracy: 0.687
5
Epoch 680/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5784 - accuracy: 0.687
5
```

```
Epoch 681/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5785 - accuracy: 0.687
5
Epoch 682/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5782 - accuracy: 0.687
5
Epoch 683/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5783 - accuracy: 0.687
5
Epoch 684/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5785 - accuracy: 0.687
5
Epoch 685/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5784 - accuracy: 0.693
8
Epoch 686/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5783 - accuracy: 0.693
8
Epoch 687/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5783 - accuracy: 0.687
5
Epoch 688/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5782 - accuracy: 0.687
5
Epoch 689/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5782 - accuracy: 0.687
5
Epoch 690/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5782 - accuracy: 0.687
5
Epoch 691/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5782 - accuracy: 0.687
5
Epoch 692/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5784 - accuracy: 0.687
5
Epoch 693/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5781 - accuracy: 0.687
5
Epoch 694/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5780 - accuracy: 0.687
5
Epoch 695/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5784 - accuracy: 0.687
5
Epoch 696/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5781 - accuracy: 0.687
5
Epoch 697/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5782 - accuracy: 0.687
5
Epoch 698/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5780 - accuracy: 0.687
5
Epoch 699/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5782 - accuracy: 0.687
5
Epoch 700/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5781 - accuracy: 0.687
5
```

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Epoch 701/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5782 - accuracy: 0.687
5
Epoch 702/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5779 - accuracy: 0.687
5
Epoch 703/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5781 - accuracy: 0.693
8
Epoch 704/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5779 - accuracy: 0.687
5
Epoch 705/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5779 - accuracy: 0.687
5
Epoch 706/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5780 - accuracy: 0.687
5
Epoch 707/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5783 - accuracy: 0.687
5
Epoch 708/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5780 - accuracy: 0.687
5
Epoch 709/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5778 - accuracy: 0.687
5
Epoch 710/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5778 - accuracy: 0.687
5
Epoch 711/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5778 - accuracy: 0.687
5
Epoch 712/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5780 - accuracy: 0.687
5
Epoch 713/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5778 - accuracy: 0.687
5
Epoch 714/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5778 - accuracy: 0.687
5
Epoch 715/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5777 - accuracy: 0.687
5
Epoch 716/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5776 - accuracy: 0.687
5
Epoch 717/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5777 - accuracy: 0.687
5
Epoch 718/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5779 - accuracy: 0.687
5
Epoch 719/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5777 - accuracy: 0.687
5
Epoch 720/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5778 - accuracy: 0.687
5
```

```
Epoch 721/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5776 - accuracy: 0.687
5
Epoch 722/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5775 - accuracy: 0.687
5
Epoch 723/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5777 - accuracy: 0.687
5
Epoch 724/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5774 - accuracy: 0.687
5
Epoch 725/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5775 - accuracy: 0.687
5
Epoch 726/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5779 - accuracy: 0.687
5
Epoch 727/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5774 - accuracy: 0.687
5
Epoch 728/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5774 - accuracy: 0.687
5
Epoch 729/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5775 - accuracy: 0.687
5
Epoch 730/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5775 - accuracy: 0.687
5
Epoch 731/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5776 - accuracy: 0.687
5
Epoch 732/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5775 - accuracy: 0.687
5
Epoch 733/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5774 - accuracy: 0.687
5
Epoch 734/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5776 - accuracy: 0.687
5
Epoch 735/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5776 - accuracy: 0.687
5
Epoch 736/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5774 - accuracy: 0.687
5
Epoch 737/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5773 - accuracy: 0.687
5
Epoch 738/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5773 - accuracy: 0.687
5
Epoch 739/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5778 - accuracy: 0.687
5
Epoch 740/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5776 - accuracy: 0.687
5
```

```
Epoch 741/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5778 - accuracy: 0.693
8
Epoch 742/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5775 - accuracy: 0.687
5
Epoch 743/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5772 - accuracy: 0.687
5
Epoch 744/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5773 - accuracy: 0.687
5
Epoch 745/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5772 - accuracy: 0.687
5
Epoch 746/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5773 - accuracy: 0.687
5
Epoch 747/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5773 - accuracy: 0.687
5
Epoch 748/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5771 - accuracy: 0.687
5
Epoch 749/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5772 - accuracy: 0.687
5
Epoch 750/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5772 - accuracy: 0.687
5
Epoch 751/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5774 - accuracy: 0.687
5
Epoch 752/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5771 - accuracy: 0.687
5
Epoch 753/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5770 - accuracy: 0.687
5
Epoch 754/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5774 - accuracy: 0.687
5
Epoch 755/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5770 - accuracy: 0.687
5
Epoch 756/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5772 - accuracy: 0.687
5
Epoch 757/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5770 - accuracy: 0.687
5
Epoch 758/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5769 - accuracy: 0.687
5
Epoch 759/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5770 - accuracy: 0.687
5
Epoch 760/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5772 - accuracy: 0.687
5
```

```
Epoch 761/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5769 - accuracy: 0.687
5
Epoch 762/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5771 - accuracy: 0.687
5
Epoch 763/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5769 - accuracy: 0.687
5
Epoch 764/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5769 - accuracy: 0.687
5
Epoch 765/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5768 - accuracy: 0.687
5
Epoch 766/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5769 - accuracy: 0.687
5
Epoch 767/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5769 - accuracy: 0.687
5
Epoch 768/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5772 - accuracy: 0.687
5
Epoch 769/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5769 - accuracy: 0.687
5
Epoch 770/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5769 - accuracy: 0.687
5
Epoch 771/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5768 - accuracy: 0.687
5
Epoch 772/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5768 - accuracy: 0.687
5
Epoch 773/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5771 - accuracy: 0.687
5
Epoch 774/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5766 - accuracy: 0.687
5
Epoch 775/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5767 - accuracy: 0.687
5
Epoch 776/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5767 - accuracy: 0.687
5
Epoch 777/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5766 - accuracy: 0.687
5
Epoch 778/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5767 - accuracy: 0.687
5
Epoch 779/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5768 - accuracy: 0.687
5
Epoch 780/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5767 - accuracy: 0.687
5
```

```
Epoch 781/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5769 - accuracy: 0.687
5
Epoch 782/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5768 - accuracy: 0.687
5
Epoch 783/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5767 - accuracy: 0.687
5
Epoch 784/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5767 - accuracy: 0.687
5
Epoch 785/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5765 - accuracy: 0.687
5
Epoch 786/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5766 - accuracy: 0.687
5
Epoch 787/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5766 - accuracy: 0.687
5
Epoch 788/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5767 - accuracy: 0.687
5
Epoch 789/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5764 - accuracy: 0.687
5
Epoch 790/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5766 - accuracy: 0.687
5
Epoch 791/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5765 - accuracy: 0.687
5
Epoch 792/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5765 - accuracy: 0.687
5
Epoch 793/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5764 - accuracy: 0.687
5
Epoch 794/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5765 - accuracy: 0.687
5
Epoch 795/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5765 - accuracy: 0.687
5
Epoch 796/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5765 - accuracy: 0.687
5
Epoch 797/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5764 - accuracy: 0.687
5
Epoch 798/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5763 - accuracy: 0.687
5
Epoch 799/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5765 - accuracy: 0.687
5
Epoch 800/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5766 - accuracy: 0.687
5
```

```
Epoch 801/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5762 - accuracy: 0.687
5
Epoch 802/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5765 - accuracy: 0.687
5
Epoch 803/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5765 - accuracy: 0.687
5
Epoch 804/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5763 - accuracy: 0.687
5
Epoch 805/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5764 - accuracy: 0.687
5
Epoch 806/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5762 - accuracy: 0.687
5
Epoch 807/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5763 - accuracy: 0.687
5
Epoch 808/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5763 - accuracy: 0.687
5
Epoch 809/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5766 - accuracy: 0.687
5
Epoch 810/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5761 - accuracy: 0.687
5
Epoch 811/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5762 - accuracy: 0.687
5
Epoch 812/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5762 - accuracy: 0.687
5
Epoch 813/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5762 - accuracy: 0.687
5
Epoch 814/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5762 - accuracy: 0.687
5
Epoch 815/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5761 - accuracy: 0.687
5
Epoch 816/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5764 - accuracy: 0.687
5
Epoch 817/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5761 - accuracy: 0.687
5
Epoch 818/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5761 - accuracy: 0.687
5
Epoch 819/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5761 - accuracy: 0.687
5
Epoch 820/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5761 - accuracy: 0.687
5
```

```
Epoch 821/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5764 - accuracy: 0.687
5
Epoch 822/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5761 - accuracy: 0.687
5
Epoch 823/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5761 - accuracy: 0.687
5
Epoch 824/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5763 - accuracy: 0.687
5
Epoch 825/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5763 - accuracy: 0.687
5
Epoch 826/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5761 - accuracy: 0.687
5
Epoch 827/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5760 - accuracy: 0.687
5
Epoch 828/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5761 - accuracy: 0.687
5
Epoch 829/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5760 - accuracy: 0.687
5
Epoch 830/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5760 - accuracy: 0.687
5
Epoch 831/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5760 - accuracy: 0.687
5
Epoch 832/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5761 - accuracy: 0.687
5
Epoch 833/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5761 - accuracy: 0.687
5
Epoch 834/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5761 - accuracy: 0.687
5
Epoch 835/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5759 - accuracy: 0.687
5
Epoch 836/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5760 - accuracy: 0.687
5
Epoch 837/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5759 - accuracy: 0.687
5
Epoch 838/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5761 - accuracy: 0.687
5
Epoch 839/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5759 - accuracy: 0.687
5
Epoch 840/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5758 - accuracy: 0.687
5
```

```
Epoch 841/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5757 - accuracy: 0.687
5
Epoch 842/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5759 - accuracy: 0.687
5
Epoch 843/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5760 - accuracy: 0.687
5
Epoch 844/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5763 - accuracy: 0.687
5
Epoch 845/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5757 - accuracy: 0.687
5
Epoch 846/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5763 - accuracy: 0.687
5
Epoch 847/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5758 - accuracy: 0.687
5
Epoch 848/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5757 - accuracy: 0.687
5
Epoch 849/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5759 - accuracy: 0.687
5
Epoch 850/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5757 - accuracy: 0.687
5
Epoch 851/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5758 - accuracy: 0.687
5
Epoch 852/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5758 - accuracy: 0.687
5
Epoch 853/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5756 - accuracy: 0.687
5
Epoch 854/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5760 - accuracy: 0.687
5
Epoch 855/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5757 - accuracy: 0.687
5
Epoch 856/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5759 - accuracy: 0.687
5
Epoch 857/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5755 - accuracy: 0.687
5
Epoch 858/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5757 - accuracy: 0.687
5
Epoch 859/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5755 - accuracy: 0.687
5
Epoch 860/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5759 - accuracy: 0.687
5
```

```
Epoch 861/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5759 - accuracy: 0.687
5
Epoch 862/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5757 - accuracy: 0.687
5
Epoch 863/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5758 - accuracy: 0.687
5
Epoch 864/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5757 - accuracy: 0.687
5
Epoch 865/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5756 - accuracy: 0.687
5
Epoch 866/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5757 - accuracy: 0.687
5
Epoch 867/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5755 - accuracy: 0.687
5
Epoch 868/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5757 - accuracy: 0.687
5
Epoch 869/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5758 - accuracy: 0.687
5
Epoch 870/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5755 - accuracy: 0.687
5
Epoch 871/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5756 - accuracy: 0.687
5
Epoch 872/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5755 - accuracy: 0.687
5
Epoch 873/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5755 - accuracy: 0.687
5
Epoch 874/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5754 - accuracy: 0.687
5
Epoch 875/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5754 - accuracy: 0.687
5
Epoch 876/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5755 - accuracy: 0.687
5
Epoch 877/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5754 - accuracy: 0.687
5
Epoch 878/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5755 - accuracy: 0.687
5
Epoch 879/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5754 - accuracy: 0.687
5
Epoch 880/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5756 - accuracy: 0.687
5
```

```
Epoch 881/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5753 - accuracy: 0.687
5
Epoch 882/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5756 - accuracy: 0.687
5
Epoch 883/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5754 - accuracy: 0.687
5
Epoch 884/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5755 - accuracy: 0.687
5
Epoch 885/1000
40/40 [==============================] - 0s 2ms/step - loss: 0.5755 - accuracy: 0.687
5
Epoch 886/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5752 - accuracy: 0.687
5
Epoch 887/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5753 - accuracy: 0.687
5
Epoch 888/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5753 - accuracy: 0.687
5
Epoch 889/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5752 - accuracy: 0.687
5
Epoch 890/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5755 - accuracy: 0.687
5
Epoch 891/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5753 - accuracy: 0.687
5
Epoch 892/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5754 - accuracy: 0.687
5
Epoch 893/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5752 - accuracy: 0.687
5
Epoch 894/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5753 - accuracy: 0.687
5
Epoch 895/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5753 - accuracy: 0.687
5
Epoch 896/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5753 - accuracy: 0.687
5
Epoch 897/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5752 - accuracy: 0.687
5
Epoch 898/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5755 - accuracy: 0.687
5
Epoch 899/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5754 - accuracy: 0.687
5
Epoch 900/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5761 - accuracy: 0.687
5
```

```
Epoch 901/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5753 - accuracy: 0.687
5
Epoch 902/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5752 - accuracy: 0.687
5
Epoch 903/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5751 - accuracy: 0.687
5
Epoch 904/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5757 - accuracy: 0.687
5
Epoch 905/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5751 - accuracy: 0.687
5
Epoch 906/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5754 - accuracy: 0.687
5
Epoch 907/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5750 - accuracy: 0.687
5
Epoch 908/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5751 - accuracy: 0.687
5
Epoch 909/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5752 - accuracy: 0.687
5
Epoch 910/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5752 - accuracy: 0.687
5
Epoch 911/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5751 - accuracy: 0.687
5
Epoch 912/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5751 - accuracy: 0.687
5
Epoch 913/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5752 - accuracy: 0.687
5
Epoch 914/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5750 - accuracy: 0.687
5
Epoch 915/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5752 - accuracy: 0.687
5
Epoch 916/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5750 - accuracy: 0.687
5
Epoch 917/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5754 - accuracy: 0.687
5
Epoch 918/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5749 - accuracy: 0.687
5
Epoch 919/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5750 - accuracy: 0.687
5
Epoch 920/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5753 - accuracy: 0.687
5
```

```
Epoch 921/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5750 - accuracy: 0.687
5
Epoch 922/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5750 - accuracy: 0.687
5
Epoch 923/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5751 - accuracy: 0.687
5
Epoch 924/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5750 - accuracy: 0.687
5
Epoch 925/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5750 - accuracy: 0.687
5
Epoch 926/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5749 - accuracy: 0.687
5
Epoch 927/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5751 - accuracy: 0.687
5
Epoch 928/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5748 - accuracy: 0.687
5
Epoch 929/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5752 - accuracy: 0.687
5
Epoch 930/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5749 - accuracy: 0.687
5
Epoch 931/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5749 - accuracy: 0.687
5
Epoch 932/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5749 - accuracy: 0.687
5
Epoch 933/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5748 - accuracy: 0.687
5
Epoch 934/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5747 - accuracy: 0.687
5
Epoch 935/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5753 - accuracy: 0.687
5
Epoch 936/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5748 - accuracy: 0.687
5
Epoch 937/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5750 - accuracy: 0.687
5
Epoch 938/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5747 - accuracy: 0.687
5
Epoch 939/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5748 - accuracy: 0.687
5
Epoch 940/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5748 - accuracy: 0.687
5
```

```
Epoch 941/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5750 - accuracy: 0.687
5
Epoch 942/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5749 - accuracy: 0.687
5
Epoch 943/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5748 - accuracy: 0.687
5
Epoch 944/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5749 - accuracy: 0.687
5
Epoch 945/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5748 - accuracy: 0.687
5
Epoch 946/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5748 - accuracy: 0.687
5
Epoch 947/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5748 - accuracy: 0.687
5
Epoch 948/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5748 - accuracy: 0.687
5
Epoch 949/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5748 - accuracy: 0.687
5
Epoch 950/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5749 - accuracy: 0.687
5
Epoch 951/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5747 - accuracy: 0.687
5
Epoch 952/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5747 - accuracy: 0.687
5
Epoch 953/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5746 - accuracy: 0.687
5
Epoch 954/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5747 - accuracy: 0.687
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Epoch 955/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5747 - accuracy: 0.687
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Epoch 956/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5747 - accuracy: 0.687
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Epoch 957/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5747 - accuracy: 0.687
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Epoch 958/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5747 - accuracy: 0.687
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Epoch 959/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5747 - accuracy: 0.687
5
Epoch 960/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5746 - accuracy: 0.687
5
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Epoch 961/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5749 - accuracy: 0.687
5
Epoch 962/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5747 - accuracy: 0.687
5
Epoch 963/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5746 - accuracy: 0.687
5
Epoch 964/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5747 - accuracy: 0.687
5
Epoch 965/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5746 - accuracy: 0.687
5
Epoch 966/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5746 - accuracy: 0.687
5
Epoch 967/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5746 - accuracy: 0.687
5
Epoch 968/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5745 - accuracy: 0.687
5
Epoch 969/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5748 - accuracy: 0.687
5
Epoch 970/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5744 - accuracy: 0.687
5
Epoch 971/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5744 - accuracy: 0.687
5
Epoch 972/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5745 - accuracy: 0.687
5
Epoch 973/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5744 - accuracy: 0.687
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Epoch 974/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5744 - accuracy: 0.687
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Epoch 975/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5746 - accuracy: 0.687
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Epoch 976/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5746 - accuracy: 0.687
5
Epoch 977/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5748 - accuracy: 0.687
5
Epoch 978/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5745 - accuracy: 0.687
5
Epoch 979/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5747 - accuracy: 0.687
5
Epoch 980/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5744 - accuracy: 0.687
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Epoch 981/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5744 - accuracy: 0.687
5
Epoch 982/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5744 - accuracy: 0.687
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Epoch 983/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5743 - accuracy: 0.687
5
Epoch 984/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5745 - accuracy: 0.687
5
Epoch 985/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5745 - accuracy: 0.687
5
Epoch 986/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5747 - accuracy: 0.687
5
Epoch 987/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5745 - accuracy: 0.687
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Epoch 988/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5745 - accuracy: 0.687
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Epoch 989/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5745 - accuracy: 0.687
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Epoch 990/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5743 - accuracy: 0.687
5
Epoch 991/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5744 - accuracy: 0.687
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Epoch 992/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5743 - accuracy: 0.687
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Epoch 993/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5743 - accuracy: 0.687
5
Epoch 994/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5743 - accuracy: 0.687
5
Epoch 995/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5750 - accuracy: 0.687
5
Epoch 996/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5745 - accuracy: 0.687
5
Epoch 997/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5744 - accuracy: 0.687
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Epoch 998/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5744 - accuracy: 0.687
5
Epoch 999/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5743 - accuracy: 0.687
5
Epoch 1000/1000
40/40 [==============================] - 0s 1ms/step - loss: 0.5746 - accuracy: 0.687
5
```

```
5/5 [==============================] - 0s 2ms/step - loss: 0.5741 - accuracy: 0.6875
5/5 [==============================] - 0s 1ms/step
[0.5740521550178528, 0.6875]
```
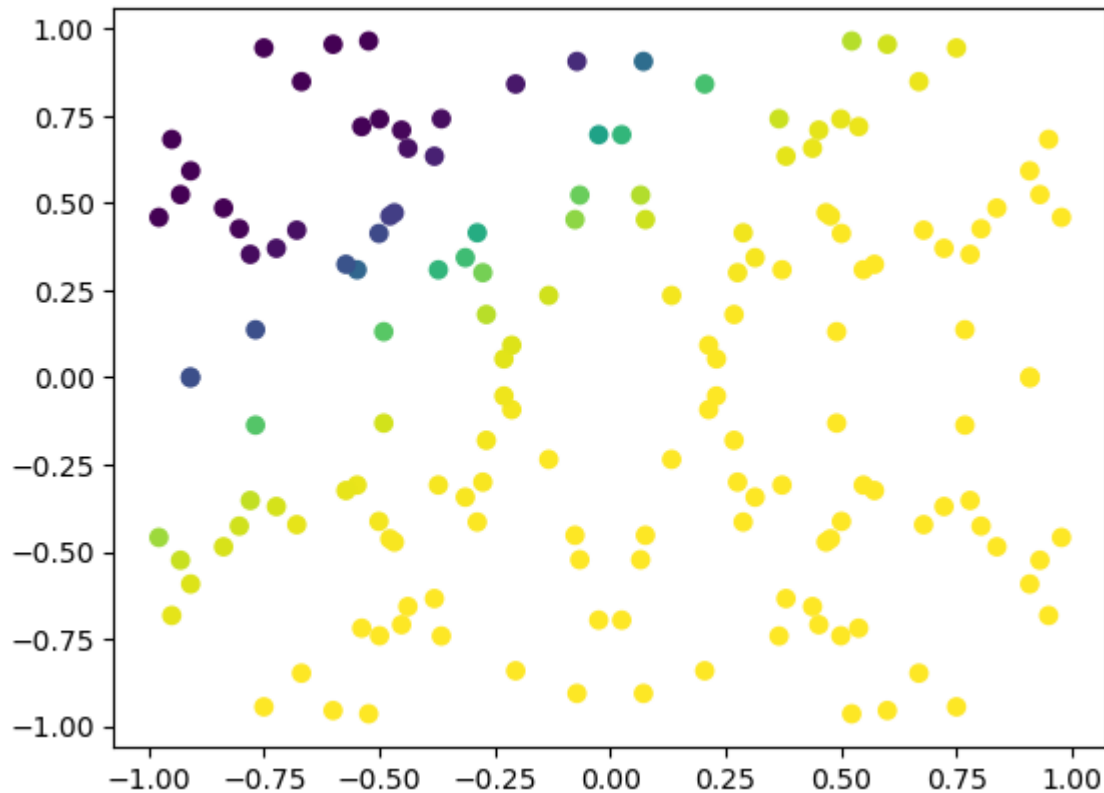


```
In [41]:   #Optimal Model RELU
           opmodel4 = Sequential()
           opmodel4.add(Dense(1, input_dim = 2, activation = 'relu'))
           opmodel4.add(Dense(1, activation = 'relu'))
           opmodel4.add(Dense(1, activation = 'relu'))

           opmodel4.compile(loss = 'binary_crossentropy', optimizer = 'adam', metrics = ['accura

           opmodel4.fit(X, Y, epochs = 1000, batch_size = 4)

           opscores4 = opmodel4.evaluate(X, Y)
           plt.scatter(*zip(*X), c = opmodel4.predict(X))
           print(opscores4)
```

```
Epoch 1/1000
40/40 [==============================] - 1s 1ms/step - loss: 7.7125 - accuracy: 0.500
0
Epoch 2/1000
40/40 [==============================] - 0s 1ms/step - loss: 7.7125 - accuracy: 0.500
0
Epoch 3/1000
40/40 [==============================] - 0s 1ms/step - loss: 7.7125 - accuracy: 0.500
0
Epoch 4/1000
40/40 [==============================] - 0s 1ms/step - loss: 7.7125 - accuracy: 0.500
0
Epoch 5/1000
40/40 [==============================] - 0s 1ms/step - loss: 7.7125 - accuracy: 0.500
0
Epoch 6/1000
40/40 [==============================] - 0s 2ms/step - loss: 7.7125 - accuracy: 0.500
0
Epoch 7/1000
40/40 [==============================] - 0s 2ms/step - loss: 7.7125 - accuracy: 0.500
0
Epoch 8/1000
40/40 [==============================] - 0s 1ms/step - loss: 7.7125 - accuracy: 0.500
0
Epoch 9/1000
40/40 [==============================] - 0s 1ms/step - loss: 7.7125 - accuracy: 0.500
0
Epoch 10/1000
40/40 [==============================] - 0s 1ms/step - loss: 7.7125 - accuracy: 0.500
0
Epoch 11/1000
40/40 [==============================] - 0s 1ms/step - loss: 7.7125 - accuracy: 0.500
0
Epoch 12/1000
40/40 [==============================] - 0s 1ms/step - loss: 7.7125 - accuracy: 0.500
0
Epoch 13/1000
40/40 [==============================] - 0s 1ms/step - loss: 7.7125 - accuracy: 0.500
0
Epoch 14/1000
40/40 [==============================] - 0s 1ms/step - loss: 7.7125 - accuracy: 0.500
0
Epoch 15/1000
40/40 [==============================] - 0s 1ms/step - loss: 7.7125 - accuracy: 0.500
0
Epoch 16/1000
40/40 [==============================] - 0s 1ms/step - loss: 7.7125 - accuracy: 0.500
0
Epoch 17/1000
40/40 [==============================] - 0s 1ms/step - loss: 7.7125 - accuracy: 0.500
0
Epoch 18/1000
40/40 [==============================] - 0s 1ms/step - loss: 7.7125 - accuracy: 0.500
0
Epoch 19/1000
40/40 [==============================] - 0s 2ms/step - loss: 7.7125 - accuracy: 0.500
0
Epoch 20/1000
40/40 [==============================] - 0s 1ms/step - loss: 7.7125 - accuracy: 0.500
0
```

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Epoch 21/1000
40/40 [==============================] - 0s 1ms/step - loss: 7.7125 - accuracy: 0.500
0
Epoch 22/1000
40/40 [==============================] - 0s 1ms/step - loss: 7.7125 - accuracy: 0.500
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Epoch 23/1000
40/40 [==============================] - 0s 2ms/step - loss: 7.7125 - accuracy: 0.500
0
Epoch 24/1000
40/40 [==============================] - 0s 2ms/step - loss: 7.7125 - accuracy: 0.500
0
Epoch 25/1000
40/40 [==============================] - 0s 2ms/step - loss: 7.7125 - accuracy: 0.500
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Epoch 26/1000
40/40 [==============================] - 0s 2ms/step - loss: 7.7125 - accuracy: 0.500
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Epoch 27/1000
40/40 [==============================] - 0s 2ms/step - loss: 7.7125 - accuracy: 0.500
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Epoch 28/1000
40/40 [==============================] - 0s 1ms/step - loss: 7.7125 - accuracy: 0.500
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Epoch 29/1000
40/40 [==============================] - 0s 1ms/step - loss: 7.7125 - accuracy: 0.500
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Epoch 30/1000
40/40 [==============================] - 0s 1ms/step - loss: 7.7125 - accuracy: 0.500
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Epoch 31/1000
40/40 [==============================] - 0s 1ms/step - loss: 7.7125 - accuracy: 0.500
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Epoch 32/1000
40/40 [==============================] - 0s 2ms/step - loss: 7.7125 - accuracy: 0.500
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Epoch 33/1000
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Epoch 34/1000
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Epoch 35/1000
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Epoch 36/1000
40/40 [==============================] - 0s 1ms/step - loss: 7.7125 - accuracy: 0.500
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Epoch 37/1000
40/40 [==============================] - 0s 1ms/step - loss: 7.7125 - accuracy: 0.500
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Epoch 38/1000
40/40 [==============================] - 0s 1ms/step - loss: 7.7125 - accuracy: 0.500
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Epoch 39/1000
40/40 [==============================] - 0s 1ms/step - loss: 7.7125 - accuracy: 0.500
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Epoch 40/1000
40/40 [==============================] - 0s 1ms/step - loss: 7.7125 - accuracy: 0.500
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```

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Epoch 41/1000
40/40 [==============================] - 0s 2ms/step - loss: 7.7125 - accuracy: 0.500
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Epoch 42/1000
40/40 [==============================] - 0s 2ms/step - loss: 7.7125 - accuracy: 0.500
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Epoch 43/1000
40/40 [==============================] - 0s 1ms/step - loss: 7.7125 - accuracy: 0.500
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Epoch 44/1000
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Epoch 45/1000
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Epoch 46/1000
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Epoch 47/1000
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Epoch 48/1000
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Epoch 59/1000
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Epoch 60/1000
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Epoch 61/1000
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Epoch 81/1000
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Epoch 101/1000
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Epoch 120/1000
40/40 [==============================] - 0s 2ms/step - loss: 7.7125 - accuracy: 0.500
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Epoch 121/1000
40/40 [==============================] - 0s 2ms/step - loss: 7.7125 - accuracy: 0.500
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Epoch 134/1000
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Epoch 135/1000
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Epoch 136/1000
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Epoch 137/1000
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Epoch 138/1000
40/40 [==============================] - 0s 2ms/step - loss: 7.7125 - accuracy: 0.500
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Epoch 139/1000
40/40 [==============================] - 0s 1ms/step - loss: 7.7125 - accuracy: 0.500
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Epoch 140/1000
40/40 [==============================] - 0s 2ms/step - loss: 7.7125 - accuracy: 0.500
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Epoch 141/1000
40/40 [==============================] - 0s 2ms/step - loss: 7.7125 - accuracy: 0.500
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Epoch 142/1000
40/40 [==============================] - 0s 2ms/step - loss: 7.7125 - accuracy: 0.500
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Epoch 143/1000
40/40 [==============================] - 0s 2ms/step - loss: 7.7125 - accuracy: 0.500
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Epoch 144/1000
40/40 [==============================] - 0s 2ms/step - loss: 7.7125 - accuracy: 0.500
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Epoch 145/1000
40/40 [==============================] - 0s 2ms/step - loss: 7.7125 - accuracy: 0.500
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Epoch 146/1000
40/40 [==============================] - 0s 2ms/step - loss: 7.7125 - accuracy: 0.500
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Epoch 147/1000
40/40 [==============================] - 0s 2ms/step - loss: 7.7125 - accuracy: 0.500
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Epoch 148/1000
40/40 [==============================] - 0s 1ms/step - loss: 7.7125 - accuracy: 0.500
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Epoch 149/1000
40/40 [==============================] - 0s 1ms/step - loss: 7.7125 - accuracy: 0.500
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Epoch 150/1000
40/40 [==============================] - 0s 1ms/step - loss: 7.7125 - accuracy: 0.500
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Epoch 151/1000
40/40 [==============================] - 0s 1ms/step - loss: 7.7125 - accuracy: 0.500
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Epoch 152/1000
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40/40 [==============================] - 0s 1ms/step - loss: 7.7125 - accuracy: 0.500
0
Epoch 579/1000
40/40 [==============================] - 0s 1ms/step - loss: 7.7125 - accuracy: 0.500
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Epoch 580/1000
40/40 [==============================] - 0s 1ms/step - loss: 7.7125 - accuracy: 0.500
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Epoch 581/1000
40/40 [==============================] - 0s 1ms/step - loss: 7.7125 - accuracy: 0.500
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Epoch 582/1000
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Epoch 584/1000
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Epoch 601/1000
40/40 [==============================] - 0s 1ms/step - loss: 7.7125 - accuracy: 0.500
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Epoch 602/1000
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Epoch 603/1000
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Epoch 604/1000
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Epoch 618/1000
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Epoch 619/1000
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Epoch 620/1000
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Epoch 621/1000
40/40 [==============================] - 0s 2ms/step - loss: 7.7125 - accuracy: 0.500
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Epoch 622/1000
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Epoch 641/1000
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Epoch 681/1000
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Epoch 701/1000
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Epoch 702/1000
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Epoch 708/1000
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Epoch 710/1000
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Epoch 711/1000
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Epoch 721/1000
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Epoch 741/1000
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Epoch 761/1000
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Epoch 780/1000
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Epoch 781/1000
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Epoch 787/1000
40/40 [==============================] - 0s 1ms/step - loss: 7.7125 - accuracy: 0.500
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Epoch 788/1000
40/40 [==============================] - 0s 1ms/step - loss: 7.7125 - accuracy: 0.500
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Epoch 789/1000
40/40 [==============================] - 0s 1ms/step - loss: 7.7125 - accuracy: 0.500
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Epoch 790/1000
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Epoch 797/1000
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Epoch 798/1000
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Epoch 799/1000
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Epoch 800/1000
40/40 [==============================] - 0s 1ms/step - loss: 7.7125 - accuracy: 0.500
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Epoch 801/1000
40/40 [==============================] - 0s 1ms/step - loss: 7.7125 - accuracy: 0.500
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Epoch 802/1000
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Epoch 803/1000
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Epoch 804/1000
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Epoch 810/1000
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Epoch 811/1000
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Epoch 819/1000
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Epoch 820/1000
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Epoch 821/1000
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Epoch 822/1000
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Epoch 840/1000
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Epoch 841/1000
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Epoch 881/1000
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Epoch 901/1000
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Epoch 902/1000
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Epoch 920/1000
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Epoch 921/1000
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Epoch 922/1000
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Epoch 941/1000
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Epoch 961/1000
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0
Epoch 995/1000
40/40 [==============================] - 0s 1ms/step - loss: 7.7125 - accuracy: 0.500
0
Epoch 996/1000
40/40 [==============================] - 0s 1ms/step - loss: 7.7125 - accuracy: 0.500
0
Epoch 997/1000
40/40 [==============================] - 0s 1ms/step - loss: 7.7125 - accuracy: 0.500
0
Epoch 998/1000
40/40 [==============================] - 0s 1ms/step - loss: 7.7125 - accuracy: 0.500
0
Epoch 999/1000
40/40 [==============================] - 0s 1ms/step - loss: 7.7125 - accuracy: 0.500
0
Epoch 1000/1000
40/40 [==============================] - 0s 1ms/step - loss: 7.7125 - accuracy: 0.500
0
```

```
5/5 [==============================] - 0s 2ms/step - loss: 7.7125 - accuracy: 0.5000
5/5 [==============================] - 0s 1ms/step
[7.7124738693237305, 0.5]
```
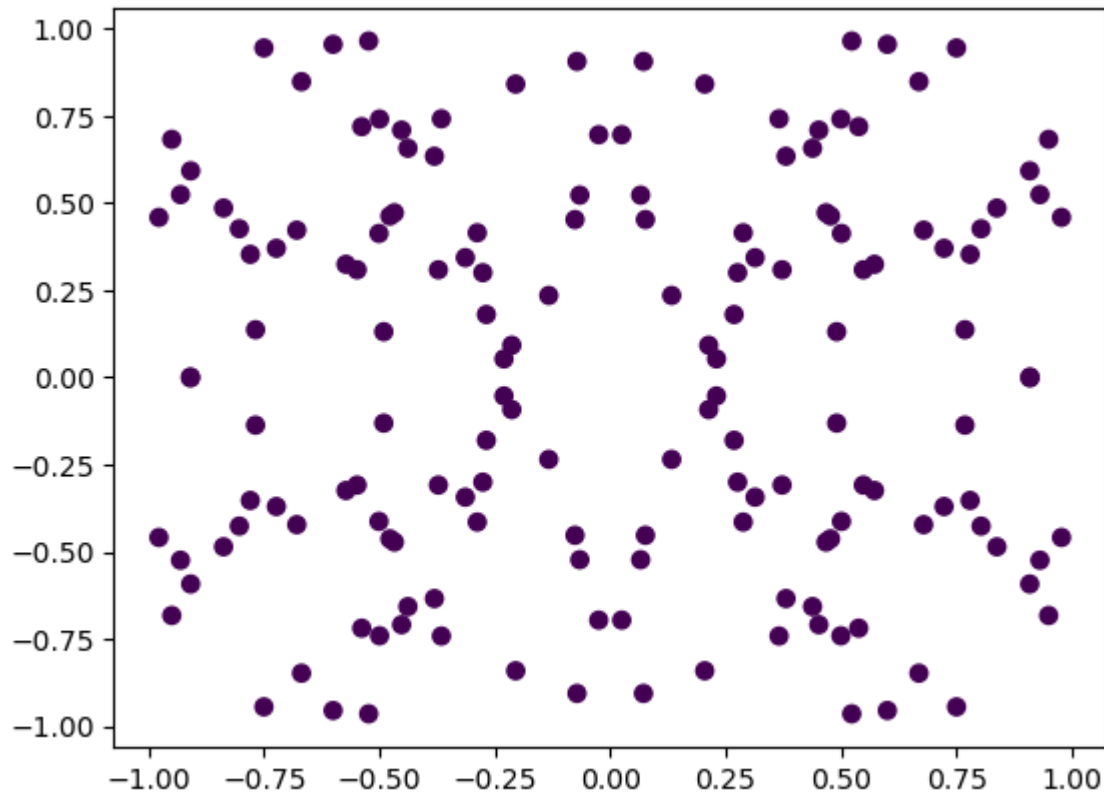

In [47]:
```python
# PART 2 -- Atherosclerotic heart disease (AHD) yes = 1, no = 0
data = pd.read_csv('Heart_Total_NN.csv')
data.head()
```

Out[47]:

	Age	Sex	ChestPain	RestBP	Chol	Fbs	RestECG	MaxHR	ExAng	Oldpeak	Slope	AHD
0	63	1	3	145	233	1	2	150	0	2.3	3	0
1	67	1	0	160	286	0	2	108	1	1.5	2	1
2	67	1	0	120	229	0	2	129	1	2.6	2	1
3	37	1	1	130	250	0	0	187	0	3.5	3	0
4	41	0	2	130	204	0	2	172	0	1.4	1	0

In [61]:
```python
x = data.iloc[:,0:11]
y = data.iloc[:,11:13]
```

In [85]:
```python
# create model
mymodel = Sequential()
mymodel.add(Dense(16, input_dim = 11, activation = 'sigmoid'))
mymodel.add(Dense(16, activation = 'tanh'))
mymodel.add(Dense(1, activation = 'sigmoid'))

mymodel.compile(loss = 'binary_crossentropy', optimizer = 'adam', metrics = ['accuracy

mymodel.fit(x, y, epochs = 1000, batch_size = 10)

myscores = mymodel.evaluate(x, y)
```

```
Epoch 1/1000
31/31 [==============================] - 1s 2ms/step - loss: 0.6872 - accuracy: 0.544
6
Epoch 2/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.6580 - accuracy: 0.633
7
Epoch 3/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.6476 - accuracy: 0.670
0
Epoch 4/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.6415 - accuracy: 0.650
2
Epoch 5/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.6321 - accuracy: 0.656
8
Epoch 6/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.6291 - accuracy: 0.627
1
Epoch 7/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.6275 - accuracy: 0.630
4
Epoch 8/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.6176 - accuracy: 0.683
2
Epoch 9/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.6117 - accuracy: 0.673
3
Epoch 10/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.6082 - accuracy: 0.703
0
Epoch 11/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.6048 - accuracy: 0.686
5
Epoch 12/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.6096 - accuracy: 0.683
2
Epoch 13/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5990 - accuracy: 0.709
6
Epoch 14/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5934 - accuracy: 0.722
8
Epoch 15/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5945 - accuracy: 0.719
5
Epoch 16/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5915 - accuracy: 0.696
4
Epoch 17/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5935 - accuracy: 0.709
6
Epoch 18/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5931 - accuracy: 0.712
9
Epoch 19/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5912 - accuracy: 0.709
6
Epoch 20/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5853 - accuracy: 0.703
0
```

```
Epoch 21/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5854 - accuracy: 0.719
5
Epoch 22/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5870 - accuracy: 0.709
6
Epoch 23/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5822 - accuracy: 0.712
9
Epoch 24/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5847 - accuracy: 0.712
9
Epoch 25/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5825 - accuracy: 0.719
5
Epoch 26/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5780 - accuracy: 0.712
9
Epoch 27/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5816 - accuracy: 0.719
5
Epoch 28/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5901 - accuracy: 0.712
9
Epoch 29/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5918 - accuracy: 0.689
8
Epoch 30/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5859 - accuracy: 0.696
4
Epoch 31/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5791 - accuracy: 0.722
8
Epoch 32/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5766 - accuracy: 0.722
8
Epoch 33/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5712 - accuracy: 0.719
5
Epoch 34/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5737 - accuracy: 0.712
9
Epoch 35/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5786 - accuracy: 0.719
5
Epoch 36/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5698 - accuracy: 0.712
9
Epoch 37/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5671 - accuracy: 0.712
9
Epoch 38/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5754 - accuracy: 0.709
6
Epoch 39/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5724 - accuracy: 0.712
9
Epoch 40/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5736 - accuracy: 0.706
3
```

```
Epoch 41/1000
31/31 [==============================] - 0s 3ms/step - loss: 0.5662 - accuracy: 0.712
9
Epoch 42/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5722 - accuracy: 0.706
3
Epoch 43/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5680 - accuracy: 0.726
1
Epoch 44/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5749 - accuracy: 0.703
0
Epoch 45/1000
31/31 [==============================] - 0s 3ms/step - loss: 0.5629 - accuracy: 0.722
8
Epoch 46/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5657 - accuracy: 0.712
9
Epoch 47/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5784 - accuracy: 0.716
2
Epoch 48/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5683 - accuracy: 0.722
8
Epoch 49/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5636 - accuracy: 0.726
1
Epoch 50/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5625 - accuracy: 0.722
8
Epoch 51/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5741 - accuracy: 0.693
1
Epoch 52/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5624 - accuracy: 0.719
5
Epoch 53/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5563 - accuracy: 0.716
2
Epoch 54/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5589 - accuracy: 0.716
2
Epoch 55/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5551 - accuracy: 0.716
2
Epoch 56/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5551 - accuracy: 0.719
5
Epoch 57/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5628 - accuracy: 0.719
5
Epoch 58/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5605 - accuracy: 0.726
1
Epoch 59/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5686 - accuracy: 0.719
5
Epoch 60/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5514 - accuracy: 0.729
4
```

```
Epoch 61/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5496 - accuracy: 0.729
4
Epoch 62/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5511 - accuracy: 0.736
0
Epoch 63/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5525 - accuracy: 0.726
1
Epoch 64/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5470 - accuracy: 0.732
7
Epoch 65/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5562 - accuracy: 0.719
5
Epoch 66/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5567 - accuracy: 0.712
9
Epoch 67/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5500 - accuracy: 0.736
0
Epoch 68/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5447 - accuracy: 0.736
0
Epoch 69/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5500 - accuracy: 0.716
2
Epoch 70/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5492 - accuracy: 0.719
5
Epoch 71/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5482 - accuracy: 0.719
5
Epoch 72/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5505 - accuracy: 0.716
2
Epoch 73/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5463 - accuracy: 0.736
0
Epoch 74/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5450 - accuracy: 0.729
4
Epoch 75/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5442 - accuracy: 0.726
1
Epoch 76/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5507 - accuracy: 0.736
0
Epoch 77/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5516 - accuracy: 0.726
1
Epoch 78/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5478 - accuracy: 0.732
7
Epoch 79/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5408 - accuracy: 0.712
9
Epoch 80/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5386 - accuracy: 0.732
7
```

```
Epoch 81/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5380 - accuracy: 0.729
4
Epoch 82/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5430 - accuracy: 0.722
8
Epoch 83/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5438 - accuracy: 0.716
2
Epoch 84/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5447 - accuracy: 0.719
5
Epoch 85/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5478 - accuracy: 0.709
6
Epoch 86/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5373 - accuracy: 0.719
5
Epoch 87/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5372 - accuracy: 0.722
8
Epoch 88/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5385 - accuracy: 0.732
7
Epoch 89/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5308 - accuracy: 0.722
8
Epoch 90/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5392 - accuracy: 0.726
1
Epoch 91/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5325 - accuracy: 0.732
7
Epoch 92/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5330 - accuracy: 0.729
4
Epoch 93/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5314 - accuracy: 0.742
6
Epoch 94/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5357 - accuracy: 0.745
9
Epoch 95/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5328 - accuracy: 0.736
0
Epoch 96/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5432 - accuracy: 0.736
0
Epoch 97/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5317 - accuracy: 0.736
0
Epoch 98/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5299 - accuracy: 0.739
3
Epoch 99/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5303 - accuracy: 0.732
7
Epoch 100/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5378 - accuracy: 0.729
4
```

```
Epoch 101/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5289 - accuracy: 0.736
0
Epoch 102/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5341 - accuracy: 0.739
3
Epoch 103/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5317 - accuracy: 0.736
0
Epoch 104/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5306 - accuracy: 0.722
8
Epoch 105/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5337 - accuracy: 0.732
7
Epoch 106/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5292 - accuracy: 0.729
4
Epoch 107/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5254 - accuracy: 0.726
1
Epoch 108/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5302 - accuracy: 0.736
0
Epoch 109/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5201 - accuracy: 0.739
3
Epoch 110/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5161 - accuracy: 0.732
7
Epoch 111/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5278 - accuracy: 0.732
7
Epoch 112/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5386 - accuracy: 0.706
3
Epoch 113/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.5310 - accuracy: 0.719
5
Epoch 114/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.5166 - accuracy: 0.739
3
Epoch 115/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.5365 - accuracy: 0.729
4
Epoch 116/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.5318 - accuracy: 0.732
7
Epoch 117/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.5189 - accuracy: 0.736
0
Epoch 118/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.5137 - accuracy: 0.739
3
Epoch 119/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5160 - accuracy: 0.739
3
Epoch 120/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.5158 - accuracy: 0.729
4
```

```
Epoch 121/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5130 - accuracy: 0.742
6
Epoch 122/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.5337 - accuracy: 0.719
5
Epoch 123/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.5136 - accuracy: 0.739
3
Epoch 124/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5135 - accuracy: 0.732
7
Epoch 125/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5046 - accuracy: 0.739
3
Epoch 126/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.5171 - accuracy: 0.732
7
Epoch 127/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5077 - accuracy: 0.722
8
Epoch 128/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.5055 - accuracy: 0.739
3
Epoch 129/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5013 - accuracy: 0.749
2
Epoch 130/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5097 - accuracy: 0.755
8
Epoch 131/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4986 - accuracy: 0.745
9
Epoch 132/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.5043 - accuracy: 0.749
2
Epoch 133/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4998 - accuracy: 0.736
0
Epoch 134/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4942 - accuracy: 0.752
5
Epoch 135/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4926 - accuracy: 0.742
6
Epoch 136/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4941 - accuracy: 0.745
9
Epoch 137/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4908 - accuracy: 0.755
8
Epoch 138/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4927 - accuracy: 0.745
9
Epoch 139/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.5136 - accuracy: 0.749
2
Epoch 140/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4922 - accuracy: 0.742
6
```

```
Epoch 141/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4925 - accuracy: 0.749
2
Epoch 142/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4932 - accuracy: 0.749
2
Epoch 143/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4898 - accuracy: 0.752
5
Epoch 144/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.5012 - accuracy: 0.755
8
Epoch 145/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4856 - accuracy: 0.755
8
Epoch 146/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4922 - accuracy: 0.749
2
Epoch 147/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4788 - accuracy: 0.749
2
Epoch 148/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4849 - accuracy: 0.742
6
Epoch 149/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4900 - accuracy: 0.749
2
Epoch 150/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4896 - accuracy: 0.755
8
Epoch 151/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4857 - accuracy: 0.759
1
Epoch 152/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4802 - accuracy: 0.732
7
Epoch 153/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4776 - accuracy: 0.742
6
Epoch 154/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4832 - accuracy: 0.739
3
Epoch 155/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4839 - accuracy: 0.742
6
Epoch 156/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4814 - accuracy: 0.732
7
Epoch 157/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4735 - accuracy: 0.759
1
Epoch 158/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4769 - accuracy: 0.759
1
Epoch 159/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4756 - accuracy: 0.765
7
Epoch 160/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4718 - accuracy: 0.772
3
```

```
Epoch 161/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4723 - accuracy: 0.762
4
Epoch 162/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4644 - accuracy: 0.769
0
Epoch 163/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4724 - accuracy: 0.765
7
Epoch 164/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4692 - accuracy: 0.759
1
Epoch 165/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4707 - accuracy: 0.755
8
Epoch 166/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4650 - accuracy: 0.752
5
Epoch 167/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4658 - accuracy: 0.772
3
Epoch 168/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4628 - accuracy: 0.752
5
Epoch 169/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4576 - accuracy: 0.765
7
Epoch 170/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4616 - accuracy: 0.765
7
Epoch 171/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4608 - accuracy: 0.755
8
Epoch 172/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4737 - accuracy: 0.772
3
Epoch 173/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4563 - accuracy: 0.745
9
Epoch 174/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4606 - accuracy: 0.762
4
Epoch 175/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4522 - accuracy: 0.782
2
Epoch 176/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4534 - accuracy: 0.769
0
Epoch 177/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4532 - accuracy: 0.772
3
Epoch 178/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4448 - accuracy: 0.775
6
Epoch 179/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4625 - accuracy: 0.759
1
Epoch 180/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4525 - accuracy: 0.775
6
```

```
Epoch 181/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4491 - accuracy: 0.769
0
Epoch 182/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4535 - accuracy: 0.742
6
Epoch 183/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4518 - accuracy: 0.775
6
Epoch 184/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4574 - accuracy: 0.769
0
Epoch 185/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4389 - accuracy: 0.788
8
Epoch 186/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4544 - accuracy: 0.772
3
Epoch 187/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4712 - accuracy: 0.765
7
Epoch 188/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4482 - accuracy: 0.772
3
Epoch 189/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4519 - accuracy: 0.782
2
Epoch 190/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4432 - accuracy: 0.788
8
Epoch 191/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4452 - accuracy: 0.778
9
Epoch 192/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4400 - accuracy: 0.765
7
Epoch 193/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4377 - accuracy: 0.782
2
Epoch 194/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4390 - accuracy: 0.778
9
Epoch 195/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4529 - accuracy: 0.762
4
Epoch 196/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4408 - accuracy: 0.782
2
Epoch 197/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4397 - accuracy: 0.778
9
Epoch 198/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4438 - accuracy: 0.778
9
Epoch 199/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4359 - accuracy: 0.788
8
Epoch 200/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4348 - accuracy: 0.782
2
```

```
Epoch 201/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4488 - accuracy: 0.772
3
Epoch 202/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4444 - accuracy: 0.775
6
Epoch 203/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4394 - accuracy: 0.782
2
Epoch 204/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4387 - accuracy: 0.769
0
Epoch 205/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4583 - accuracy: 0.772
3
Epoch 206/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4352 - accuracy: 0.785
5
Epoch 207/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4360 - accuracy: 0.782
2
Epoch 208/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4322 - accuracy: 0.792
1
Epoch 209/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4427 - accuracy: 0.785
5
Epoch 210/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4364 - accuracy: 0.785
5
Epoch 211/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4366 - accuracy: 0.769
0
Epoch 212/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4343 - accuracy: 0.795
4
Epoch 213/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4324 - accuracy: 0.775
6
Epoch 214/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4328 - accuracy: 0.782
2
Epoch 215/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4297 - accuracy: 0.795
4
Epoch 216/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4358 - accuracy: 0.788
8
Epoch 217/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4626 - accuracy: 0.778
9
Epoch 218/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4340 - accuracy: 0.769
0
Epoch 219/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4431 - accuracy: 0.775
6
Epoch 220/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4359 - accuracy: 0.772
3
```

```
Epoch 221/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4355 - accuracy: 0.785
5
Epoch 222/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4317 - accuracy: 0.785
5
Epoch 223/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4347 - accuracy: 0.782
2
Epoch 224/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4344 - accuracy: 0.782
2
Epoch 225/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4269 - accuracy: 0.778
9
Epoch 226/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4234 - accuracy: 0.785
5
Epoch 227/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4236 - accuracy: 0.798
7
Epoch 228/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4255 - accuracy: 0.775
6
Epoch 229/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4305 - accuracy: 0.785
5
Epoch 230/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4303 - accuracy: 0.782
2
Epoch 231/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4238 - accuracy: 0.785
5
Epoch 232/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4245 - accuracy: 0.785
5
Epoch 233/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4312 - accuracy: 0.785
5
Epoch 234/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4553 - accuracy: 0.775
6
Epoch 235/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4223 - accuracy: 0.785
5
Epoch 236/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4231 - accuracy: 0.778
9
Epoch 237/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4244 - accuracy: 0.775
6
Epoch 238/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4289 - accuracy: 0.785
5
Epoch 239/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4280 - accuracy: 0.778
9
Epoch 240/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4300 - accuracy: 0.798
7
```

```
Epoch 241/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4223 - accuracy: 0.788
8
Epoch 242/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4250 - accuracy: 0.778
9
Epoch 243/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4243 - accuracy: 0.795
4
Epoch 244/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4189 - accuracy: 0.795
4
Epoch 245/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4269 - accuracy: 0.788
8
Epoch 246/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4409 - accuracy: 0.788
8
Epoch 247/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4219 - accuracy: 0.798
7
Epoch 248/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4197 - accuracy: 0.792
1
Epoch 249/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4199 - accuracy: 0.808
6
Epoch 250/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4156 - accuracy: 0.788
8
Epoch 251/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4224 - accuracy: 0.798
7
Epoch 252/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4234 - accuracy: 0.778
9
Epoch 253/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4205 - accuracy: 0.798
7
Epoch 254/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4183 - accuracy: 0.792
1
Epoch 255/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4294 - accuracy: 0.788
8
Epoch 256/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4466 - accuracy: 0.772
3
Epoch 257/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4230 - accuracy: 0.778
9
Epoch 258/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4344 - accuracy: 0.778
9
Epoch 259/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4203 - accuracy: 0.808
6
Epoch 260/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4316 - accuracy: 0.775
6
```

```
Epoch 261/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4187 - accuracy: 0.778
9
Epoch 262/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4307 - accuracy: 0.802
0
Epoch 263/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4384 - accuracy: 0.772
3
Epoch 264/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4260 - accuracy: 0.782
2
Epoch 265/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4219 - accuracy: 0.792
1
Epoch 266/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4191 - accuracy: 0.808
6
Epoch 267/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4207 - accuracy: 0.788
8
Epoch 268/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4145 - accuracy: 0.785
5
Epoch 269/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4143 - accuracy: 0.798
7
Epoch 270/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4213 - accuracy: 0.795
4
Epoch 271/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4166 - accuracy: 0.802
0
Epoch 272/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4188 - accuracy: 0.805
3
Epoch 273/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4194 - accuracy: 0.792
1
Epoch 274/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4145 - accuracy: 0.798
7
Epoch 275/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4087 - accuracy: 0.798
7
Epoch 276/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4184 - accuracy: 0.769
0
Epoch 277/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4154 - accuracy: 0.798
7
Epoch 278/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4154 - accuracy: 0.808
6
Epoch 279/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4320 - accuracy: 0.785
5
Epoch 280/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4180 - accuracy: 0.795
4
```

```
Epoch 281/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4147 - accuracy: 0.798
7
Epoch 282/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4100 - accuracy: 0.798
7
Epoch 283/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4221 - accuracy: 0.788
8
Epoch 284/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4180 - accuracy: 0.778
9
Epoch 285/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4055 - accuracy: 0.795
4
Epoch 286/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4119 - accuracy: 0.798
7
Epoch 287/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4119 - accuracy: 0.785
5
Epoch 288/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4095 - accuracy: 0.798
7
Epoch 289/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4209 - accuracy: 0.802
0
Epoch 290/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4103 - accuracy: 0.798
7
Epoch 291/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4164 - accuracy: 0.802
0
Epoch 292/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4312 - accuracy: 0.775
6
Epoch 293/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4163 - accuracy: 0.792
1
Epoch 294/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4103 - accuracy: 0.802
0
Epoch 295/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4093 - accuracy: 0.769
0
Epoch 296/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4275 - accuracy: 0.769
0
Epoch 297/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4086 - accuracy: 0.795
4
Epoch 298/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4175 - accuracy: 0.788
8
Epoch 299/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4063 - accuracy: 0.792
1
Epoch 300/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4097 - accuracy: 0.785
5
```

```
Epoch 301/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4177 - accuracy: 0.808
6
Epoch 302/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4227 - accuracy: 0.792
1
Epoch 303/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4368 - accuracy: 0.785
5
Epoch 304/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4200 - accuracy: 0.802
0
Epoch 305/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4120 - accuracy: 0.811
9
Epoch 306/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4069 - accuracy: 0.798
7
Epoch 307/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4069 - accuracy: 0.802
0
Epoch 308/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4064 - accuracy: 0.811
9
Epoch 309/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4015 - accuracy: 0.808
6
Epoch 310/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4153 - accuracy: 0.798
7
Epoch 311/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4064 - accuracy: 0.802
0
Epoch 312/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4014 - accuracy: 0.802
0
Epoch 313/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4057 - accuracy: 0.805
3
Epoch 314/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4157 - accuracy: 0.802
0
Epoch 315/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4076 - accuracy: 0.805
3
Epoch 316/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4076 - accuracy: 0.782
2
Epoch 317/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4163 - accuracy: 0.795
4
Epoch 318/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4129 - accuracy: 0.778
9
Epoch 319/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4002 - accuracy: 0.792
1
Epoch 320/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4084 - accuracy: 0.821
8
```

```
Epoch 321/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4280 - accuracy: 0.782
2
Epoch 322/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4180 - accuracy: 0.788
8
Epoch 323/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4191 - accuracy: 0.805
3
Epoch 324/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4005 - accuracy: 0.811
9
Epoch 325/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4002 - accuracy: 0.805
3
Epoch 326/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4123 - accuracy: 0.802
0
Epoch 327/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4064 - accuracy: 0.795
4
Epoch 328/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3998 - accuracy: 0.792
1
Epoch 329/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4032 - accuracy: 0.805
3
Epoch 330/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3950 - accuracy: 0.815
2
Epoch 331/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4135 - accuracy: 0.815
2
Epoch 332/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3999 - accuracy: 0.818
5
Epoch 333/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4049 - accuracy: 0.805
3
Epoch 334/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3978 - accuracy: 0.805
3
Epoch 335/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4063 - accuracy: 0.811
9
Epoch 336/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4046 - accuracy: 0.808
6
Epoch 337/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4014 - accuracy: 0.808
6
Epoch 338/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3978 - accuracy: 0.821
8
Epoch 339/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4028 - accuracy: 0.805
3
Epoch 340/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4118 - accuracy: 0.788
8
```

```
Epoch 341/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4016 - accuracy: 0.811
9
Epoch 342/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3998 - accuracy: 0.805
3
Epoch 343/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4318 - accuracy: 0.782
2
Epoch 344/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4036 - accuracy: 0.811
9
Epoch 345/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4077 - accuracy: 0.798
7
Epoch 346/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4200 - accuracy: 0.798
7
Epoch 347/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4137 - accuracy: 0.795
4
Epoch 348/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4088 - accuracy: 0.788
8
Epoch 349/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4120 - accuracy: 0.795
4
Epoch 350/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3989 - accuracy: 0.805
3
Epoch 351/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4012 - accuracy: 0.802
0
Epoch 352/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3971 - accuracy: 0.805
3
Epoch 353/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3994 - accuracy: 0.811
9
Epoch 354/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4030 - accuracy: 0.798
7
Epoch 355/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4157 - accuracy: 0.792
1
Epoch 356/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3957 - accuracy: 0.818
5
Epoch 357/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4003 - accuracy: 0.798
7
Epoch 358/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3983 - accuracy: 0.818
5
Epoch 359/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4037 - accuracy: 0.808
6
Epoch 360/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3919 - accuracy: 0.788
8
```

```
Epoch 361/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3994 - accuracy: 0.798
7
Epoch 362/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3985 - accuracy: 0.805
3
Epoch 363/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4001 - accuracy: 0.808
6
Epoch 364/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3963 - accuracy: 0.808
6
Epoch 365/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4300 - accuracy: 0.778
9
Epoch 366/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4046 - accuracy: 0.811
9
Epoch 367/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4011 - accuracy: 0.792
1
Epoch 368/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3955 - accuracy: 0.808
6
Epoch 369/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3963 - accuracy: 0.795
4
Epoch 370/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4002 - accuracy: 0.792
1
Epoch 371/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4062 - accuracy: 0.788
8
Epoch 372/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3975 - accuracy: 0.795
4
Epoch 373/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3919 - accuracy: 0.802
0
Epoch 374/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3981 - accuracy: 0.798
7
Epoch 375/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3975 - accuracy: 0.808
6
Epoch 376/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3987 - accuracy: 0.798
7
Epoch 377/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4175 - accuracy: 0.785
5
Epoch 378/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4039 - accuracy: 0.802
0
Epoch 379/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4017 - accuracy: 0.808
6
Epoch 380/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3983 - accuracy: 0.802
0
```

```
Epoch 381/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4024 - accuracy: 0.802
0
Epoch 382/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4014 - accuracy: 0.802
0
Epoch 383/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3976 - accuracy: 0.805
3
Epoch 384/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3980 - accuracy: 0.811
9
Epoch 385/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4015 - accuracy: 0.778
9
Epoch 386/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4015 - accuracy: 0.795
4
Epoch 387/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3916 - accuracy: 0.821
8
Epoch 388/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4017 - accuracy: 0.798
7
Epoch 389/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4010 - accuracy: 0.792
1
Epoch 390/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3956 - accuracy: 0.808
6
Epoch 391/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4007 - accuracy: 0.792
1
Epoch 392/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4027 - accuracy: 0.805
3
Epoch 393/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3992 - accuracy: 0.821
8
Epoch 394/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4090 - accuracy: 0.808
6
Epoch 395/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3987 - accuracy: 0.795
4
Epoch 396/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4080 - accuracy: 0.795
4
Epoch 397/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4036 - accuracy: 0.802
0
Epoch 398/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3992 - accuracy: 0.788
8
Epoch 399/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4080 - accuracy: 0.795
4
Epoch 400/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4081 - accuracy: 0.805
3
```

```
Epoch 401/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3995 - accuracy: 0.811
9
Epoch 402/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4099 - accuracy: 0.792
1
Epoch 403/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3925 - accuracy: 0.795
4
Epoch 404/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3970 - accuracy: 0.798
7
Epoch 405/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4077 - accuracy: 0.802
0
Epoch 406/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3974 - accuracy: 0.805
3
Epoch 407/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3934 - accuracy: 0.818
5
Epoch 408/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3990 - accuracy: 0.788
8
Epoch 409/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3958 - accuracy: 0.798
7
Epoch 410/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3907 - accuracy: 0.802
0
Epoch 411/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3952 - accuracy: 0.805
3
Epoch 412/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3972 - accuracy: 0.795
4
Epoch 413/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3956 - accuracy: 0.805
3
Epoch 414/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3984 - accuracy: 0.811
9
Epoch 415/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3933 - accuracy: 0.802
0
Epoch 416/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3956 - accuracy: 0.821
8
Epoch 417/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3974 - accuracy: 0.811
9
Epoch 418/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3943 - accuracy: 0.808
6
Epoch 419/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3976 - accuracy: 0.808
6
Epoch 420/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3973 - accuracy: 0.798
7
```

```
Epoch 421/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3913 - accuracy: 0.805
3
Epoch 422/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4077 - accuracy: 0.802
0
Epoch 423/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4164 - accuracy: 0.792
1
Epoch 424/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4134 - accuracy: 0.792
1
Epoch 425/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4046 - accuracy: 0.818
5
Epoch 426/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4032 - accuracy: 0.795
4
Epoch 427/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4064 - accuracy: 0.798
7
Epoch 428/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4020 - accuracy: 0.778
9
Epoch 429/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3946 - accuracy: 0.805
3
Epoch 430/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3992 - accuracy: 0.818
5
Epoch 431/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4069 - accuracy: 0.802
0
Epoch 432/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3950 - accuracy: 0.798
7
Epoch 433/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3909 - accuracy: 0.811
9
Epoch 434/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3940 - accuracy: 0.811
9
Epoch 435/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3940 - accuracy: 0.798
7
Epoch 436/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3848 - accuracy: 0.821
8
Epoch 437/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4067 - accuracy: 0.798
7
Epoch 438/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3967 - accuracy: 0.795
4
Epoch 439/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3972 - accuracy: 0.798
7
Epoch 440/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4020 - accuracy: 0.805
3
```

```
Epoch 441/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3926 - accuracy: 0.808
6
Epoch 442/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3909 - accuracy: 0.815
2
Epoch 443/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4238 - accuracy: 0.795
4
Epoch 444/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4054 - accuracy: 0.795
4
Epoch 445/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3884 - accuracy: 0.798
7
Epoch 446/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3956 - accuracy: 0.815
2
Epoch 447/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3991 - accuracy: 0.802
0
Epoch 448/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4008 - accuracy: 0.798
7
Epoch 449/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3921 - accuracy: 0.818
5
Epoch 450/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3951 - accuracy: 0.798
7
Epoch 451/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4098 - accuracy: 0.795
4
Epoch 452/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3923 - accuracy: 0.808
6
Epoch 453/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3957 - accuracy: 0.805
3
Epoch 454/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3938 - accuracy: 0.815
2
Epoch 455/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3911 - accuracy: 0.795
4
Epoch 456/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4019 - accuracy: 0.802
0
Epoch 457/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3981 - accuracy: 0.795
4
Epoch 458/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3966 - accuracy: 0.808
6
Epoch 459/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3963 - accuracy: 0.792
1
Epoch 460/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3973 - accuracy: 0.802
0
```

```
Epoch 461/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3884 - accuracy: 0.811
9
Epoch 462/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3957 - accuracy: 0.808
6
Epoch 463/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3889 - accuracy: 0.828
4
Epoch 464/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3885 - accuracy: 0.811
9
Epoch 465/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3893 - accuracy: 0.808
6
Epoch 466/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3943 - accuracy: 0.795
4
Epoch 467/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3910 - accuracy: 0.798
7
Epoch 468/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3935 - accuracy: 0.805
3
Epoch 469/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3979 - accuracy: 0.792
1
Epoch 470/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3888 - accuracy: 0.808
6
Epoch 471/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4163 - accuracy: 0.805
3
Epoch 472/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3933 - accuracy: 0.805
3
Epoch 473/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3894 - accuracy: 0.805
3
Epoch 474/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4007 - accuracy: 0.802
0
Epoch 475/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4077 - accuracy: 0.798
7
Epoch 476/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4261 - accuracy: 0.782
2
Epoch 477/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3943 - accuracy: 0.802
0
Epoch 478/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3900 - accuracy: 0.808
6
Epoch 479/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3911 - accuracy: 0.805
3
Epoch 480/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3904 - accuracy: 0.805
3
```

```
Epoch 481/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3968 - accuracy: 0.805
3
Epoch 482/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3890 - accuracy: 0.815
2
Epoch 483/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3895 - accuracy: 0.805
3
Epoch 484/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3824 - accuracy: 0.821
8
Epoch 485/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3915 - accuracy: 0.802
0
Epoch 486/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3885 - accuracy: 0.808
6
Epoch 487/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3978 - accuracy: 0.808
6
Epoch 488/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3900 - accuracy: 0.811
9
Epoch 489/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3886 - accuracy: 0.815
2
Epoch 490/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3839 - accuracy: 0.825
1
Epoch 491/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4000 - accuracy: 0.792
1
Epoch 492/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3925 - accuracy: 0.798
7
Epoch 493/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3967 - accuracy: 0.815
2
Epoch 494/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3895 - accuracy: 0.811
9
Epoch 495/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4104 - accuracy: 0.792
1
Epoch 496/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3997 - accuracy: 0.818
5
Epoch 497/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3926 - accuracy: 0.808
6
Epoch 498/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3845 - accuracy: 0.815
2
Epoch 499/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4017 - accuracy: 0.792
1
Epoch 500/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3880 - accuracy: 0.808
6
```

```
Epoch 501/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3938 - accuracy: 0.821
8
Epoch 502/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3937 - accuracy: 0.811
9
Epoch 503/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3932 - accuracy: 0.818
5
Epoch 504/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3884 - accuracy: 0.815
2
Epoch 505/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3896 - accuracy: 0.802
0
Epoch 506/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4322 - accuracy: 0.785
5
Epoch 507/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3954 - accuracy: 0.825
1
Epoch 508/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3843 - accuracy: 0.808
6
Epoch 509/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3856 - accuracy: 0.811
9
Epoch 510/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3853 - accuracy: 0.802
0
Epoch 511/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3993 - accuracy: 0.788
8
Epoch 512/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3909 - accuracy: 0.805
3
Epoch 513/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3885 - accuracy: 0.808
6
Epoch 514/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3925 - accuracy: 0.811
9
Epoch 515/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3922 - accuracy: 0.788
8
Epoch 516/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3913 - accuracy: 0.802
0
Epoch 517/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4168 - accuracy: 0.772
3
Epoch 518/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3954 - accuracy: 0.788
8
Epoch 519/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3891 - accuracy: 0.815
2
Epoch 520/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3887 - accuracy: 0.798
7
```

```
Epoch 521/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3880 - accuracy: 0.808
6
Epoch 522/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3930 - accuracy: 0.798
7
Epoch 523/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3969 - accuracy: 0.818
5
Epoch 524/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3911 - accuracy: 0.818
5
Epoch 525/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3844 - accuracy: 0.811
9
Epoch 526/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3813 - accuracy: 0.821
8
Epoch 527/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4067 - accuracy: 0.788
8
Epoch 528/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4003 - accuracy: 0.815
2
Epoch 529/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3891 - accuracy: 0.802
0
Epoch 530/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3908 - accuracy: 0.815
2
Epoch 531/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3871 - accuracy: 0.805
3
Epoch 532/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3838 - accuracy: 0.808
6
Epoch 533/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3835 - accuracy: 0.795
4
Epoch 534/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3870 - accuracy: 0.805
3
Epoch 535/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3892 - accuracy: 0.802
0
Epoch 536/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3885 - accuracy: 0.802
0
Epoch 537/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3879 - accuracy: 0.798
7
Epoch 538/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3829 - accuracy: 0.815
2
Epoch 539/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3867 - accuracy: 0.815
2
Epoch 540/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3960 - accuracy: 0.815
2
```

```
Epoch 541/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3894 - accuracy: 0.808
6
Epoch 542/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3869 - accuracy: 0.802
0
Epoch 543/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3842 - accuracy: 0.808
6
Epoch 544/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3844 - accuracy: 0.811
9
Epoch 545/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3876 - accuracy: 0.805
3
Epoch 546/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3870 - accuracy: 0.811
9
Epoch 547/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3906 - accuracy: 0.815
2
Epoch 548/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3883 - accuracy: 0.808
6
Epoch 549/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3880 - accuracy: 0.815
2
Epoch 550/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3795 - accuracy: 0.835
0
Epoch 551/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4044 - accuracy: 0.795
4
Epoch 552/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3900 - accuracy: 0.802
0
Epoch 553/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3969 - accuracy: 0.785
5
Epoch 554/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3852 - accuracy: 0.815
2
Epoch 555/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3895 - accuracy: 0.815
2
Epoch 556/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3790 - accuracy: 0.808
6
Epoch 557/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3877 - accuracy: 0.795
4
Epoch 558/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3835 - accuracy: 0.815
2
Epoch 559/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3911 - accuracy: 0.802
0
Epoch 560/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3870 - accuracy: 0.818
5
```

```
Epoch 561/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3927 - accuracy: 0.808
6
Epoch 562/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3873 - accuracy: 0.818
5
Epoch 563/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3843 - accuracy: 0.802
0
Epoch 564/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3797 - accuracy: 0.821
8
Epoch 565/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3807 - accuracy: 0.815
2
Epoch 566/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3818 - accuracy: 0.811
9
Epoch 567/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3816 - accuracy: 0.831
7
Epoch 568/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3857 - accuracy: 0.798
7
Epoch 569/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3929 - accuracy: 0.805
3
Epoch 570/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3883 - accuracy: 0.811
9
Epoch 571/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3790 - accuracy: 0.821
8
Epoch 572/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3822 - accuracy: 0.811
9
Epoch 573/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3831 - accuracy: 0.818
5
Epoch 574/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3953 - accuracy: 0.798
7
Epoch 575/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3865 - accuracy: 0.805
3
Epoch 576/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4034 - accuracy: 0.798
7
Epoch 577/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3800 - accuracy: 0.815
2
Epoch 578/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3854 - accuracy: 0.811
9
Epoch 579/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3857 - accuracy: 0.798
7
Epoch 580/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3830 - accuracy: 0.811
9
```

```
Epoch 581/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3808 - accuracy: 0.828
4
Epoch 582/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3916 - accuracy: 0.805
3
Epoch 583/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3781 - accuracy: 0.811
9
Epoch 584/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3798 - accuracy: 0.811
9
Epoch 585/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3828 - accuracy: 0.815
2
Epoch 586/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3861 - accuracy: 0.818
5
Epoch 587/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3832 - accuracy: 0.821
8
Epoch 588/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3896 - accuracy: 0.825
1
Epoch 589/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3833 - accuracy: 0.802
0
Epoch 590/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3910 - accuracy: 0.811
9
Epoch 591/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3796 - accuracy: 0.821
8
Epoch 592/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3819 - accuracy: 0.815
2
Epoch 593/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3937 - accuracy: 0.818
5
Epoch 594/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3895 - accuracy: 0.811
9
Epoch 595/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3867 - accuracy: 0.815
2
Epoch 596/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3848 - accuracy: 0.798
7
Epoch 597/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3807 - accuracy: 0.825
1
Epoch 598/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3819 - accuracy: 0.808
6
Epoch 599/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3838 - accuracy: 0.818
5
Epoch 600/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3827 - accuracy: 0.805
3
```

```
Epoch 601/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3913 - accuracy: 0.821
8
Epoch 602/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3856 - accuracy: 0.802
0
Epoch 603/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3868 - accuracy: 0.802
0
Epoch 604/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3848 - accuracy: 0.811
9
Epoch 605/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3826 - accuracy: 0.798
7
Epoch 606/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3814 - accuracy: 0.811
9
Epoch 607/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3894 - accuracy: 0.802
0
Epoch 608/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3919 - accuracy: 0.805
3
Epoch 609/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4001 - accuracy: 0.811
9
Epoch 610/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3789 - accuracy: 0.795
4
Epoch 611/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3764 - accuracy: 0.825
1
Epoch 612/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3882 - accuracy: 0.811
9
Epoch 613/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3955 - accuracy: 0.792
1
Epoch 614/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3820 - accuracy: 0.818
5
Epoch 615/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3821 - accuracy: 0.808
6
Epoch 616/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3947 - accuracy: 0.788
8
Epoch 617/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3838 - accuracy: 0.818
5
Epoch 618/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3901 - accuracy: 0.811
9
Epoch 619/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3945 - accuracy: 0.808
6
Epoch 620/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3986 - accuracy: 0.815
2
```

```
Epoch 621/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3887 - accuracy: 0.808
6
Epoch 622/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3875 - accuracy: 0.802
0
Epoch 623/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3799 - accuracy: 0.811
9
Epoch 624/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3786 - accuracy: 0.811
9
Epoch 625/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3839 - accuracy: 0.811
9
Epoch 626/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4017 - accuracy: 0.815
2
Epoch 627/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3809 - accuracy: 0.831
7
Epoch 628/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3928 - accuracy: 0.802
0
Epoch 629/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3831 - accuracy: 0.818
5
Epoch 630/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3778 - accuracy: 0.818
5
Epoch 631/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3782 - accuracy: 0.825
1
Epoch 632/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3799 - accuracy: 0.821
8
Epoch 633/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3774 - accuracy: 0.835
0
Epoch 634/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3843 - accuracy: 0.811
9
Epoch 635/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3807 - accuracy: 0.825
1
Epoch 636/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3859 - accuracy: 0.811
9
Epoch 637/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3996 - accuracy: 0.798
7
Epoch 638/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3925 - accuracy: 0.798
7
Epoch 639/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4141 - accuracy: 0.788
8
Epoch 640/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3808 - accuracy: 0.828
4
```

```
Epoch 641/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3924 - accuracy: 0.808
6
Epoch 642/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3820 - accuracy: 0.808
6
Epoch 643/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3763 - accuracy: 0.815
2
Epoch 644/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3824 - accuracy: 0.818
5
Epoch 645/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3930 - accuracy: 0.811
9
Epoch 646/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3921 - accuracy: 0.815
2
Epoch 647/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3850 - accuracy: 0.811
9
Epoch 648/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3789 - accuracy: 0.811
9
Epoch 649/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3828 - accuracy: 0.811
9
Epoch 650/1000
31/31 [==============================] - 0s 3ms/step - loss: 0.3853 - accuracy: 0.811
9
Epoch 651/1000
31/31 [==============================] - 0s 3ms/step - loss: 0.3780 - accuracy: 0.808
6
Epoch 652/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3864 - accuracy: 0.811
9
Epoch 653/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3870 - accuracy: 0.811
9
Epoch 654/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3832 - accuracy: 0.828
4
Epoch 655/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3787 - accuracy: 0.808
6
Epoch 656/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3793 - accuracy: 0.821
8
Epoch 657/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3939 - accuracy: 0.825
1
Epoch 658/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3959 - accuracy: 0.802
0
Epoch 659/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4054 - accuracy: 0.785
5
Epoch 660/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3867 - accuracy: 0.815
2
```

```
Epoch 661/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3866 - accuracy: 0.808
6
Epoch 662/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3776 - accuracy: 0.808
6
Epoch 663/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3741 - accuracy: 0.821
8
Epoch 664/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3804 - accuracy: 0.828
4
Epoch 665/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3872 - accuracy: 0.802
0
Epoch 666/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3844 - accuracy: 0.818
5
Epoch 667/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3887 - accuracy: 0.818
5
Epoch 668/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3915 - accuracy: 0.785
5
Epoch 669/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3801 - accuracy: 0.825
1
Epoch 670/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3925 - accuracy: 0.795
4
Epoch 671/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3759 - accuracy: 0.831
7
Epoch 672/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4072 - accuracy: 0.795
4
Epoch 673/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3821 - accuracy: 0.808
6
Epoch 674/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3797 - accuracy: 0.821
8
Epoch 675/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3803 - accuracy: 0.811
9
Epoch 676/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3772 - accuracy: 0.808
6
Epoch 677/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3768 - accuracy: 0.828
4
Epoch 678/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3869 - accuracy: 0.802
0
Epoch 679/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3883 - accuracy: 0.811
9
Epoch 680/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3768 - accuracy: 0.815
2
```

```
Epoch 681/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3919 - accuracy: 0.785
5
Epoch 682/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3802 - accuracy: 0.815
2
Epoch 683/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3779 - accuracy: 0.811
9
Epoch 684/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3823 - accuracy: 0.815
2
Epoch 685/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3887 - accuracy: 0.795
4
Epoch 686/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3864 - accuracy: 0.815
2
Epoch 687/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3864 - accuracy: 0.821
8
Epoch 688/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3741 - accuracy: 0.821
8
Epoch 689/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3807 - accuracy: 0.835
0
Epoch 690/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3757 - accuracy: 0.825
1
Epoch 691/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3721 - accuracy: 0.825
1
Epoch 692/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3777 - accuracy: 0.811
9
Epoch 693/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3722 - accuracy: 0.815
2
Epoch 694/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3817 - accuracy: 0.821
8
Epoch 695/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3756 - accuracy: 0.808
6
Epoch 696/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3868 - accuracy: 0.805
3
Epoch 697/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3776 - accuracy: 0.821
8
Epoch 698/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3830 - accuracy: 0.805
3
Epoch 699/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3735 - accuracy: 0.818
5
Epoch 700/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3808 - accuracy: 0.828
4
```

```
Epoch 701/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3889 - accuracy: 0.788
8
Epoch 702/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3775 - accuracy: 0.815
2
Epoch 703/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3746 - accuracy: 0.811
9
Epoch 704/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3794 - accuracy: 0.831
7
Epoch 705/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3770 - accuracy: 0.821
8
Epoch 706/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3836 - accuracy: 0.828
4
Epoch 707/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3895 - accuracy: 0.825
1
Epoch 708/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3771 - accuracy: 0.811
9
Epoch 709/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3761 - accuracy: 0.825
1
Epoch 710/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3838 - accuracy: 0.815
2
Epoch 711/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3750 - accuracy: 0.821
8
Epoch 712/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3721 - accuracy: 0.818
5
Epoch 713/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3800 - accuracy: 0.805
3
Epoch 714/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3844 - accuracy: 0.795
4
Epoch 715/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3788 - accuracy: 0.818
5
Epoch 716/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3738 - accuracy: 0.818
5
Epoch 717/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3763 - accuracy: 0.818
5
Epoch 718/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3769 - accuracy: 0.821
8
Epoch 719/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3777 - accuracy: 0.828
4
Epoch 720/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3768 - accuracy: 0.802
0
```

```
Epoch 721/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3831 - accuracy: 0.818
5
Epoch 722/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3737 - accuracy: 0.815
2
Epoch 723/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3738 - accuracy: 0.821
8
Epoch 724/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3721 - accuracy: 0.818
5
Epoch 725/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3983 - accuracy: 0.818
5
Epoch 726/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3710 - accuracy: 0.828
4
Epoch 727/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3757 - accuracy: 0.835
0
Epoch 728/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3860 - accuracy: 0.818
5
Epoch 729/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3992 - accuracy: 0.808
6
Epoch 730/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3843 - accuracy: 0.821
8
Epoch 731/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3804 - accuracy: 0.802
0
Epoch 732/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3689 - accuracy: 0.828
4
Epoch 733/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3822 - accuracy: 0.815
2
Epoch 734/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3834 - accuracy: 0.811
9
Epoch 735/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3742 - accuracy: 0.828
4
Epoch 736/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3760 - accuracy: 0.841
6
Epoch 737/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3718 - accuracy: 0.811
9
Epoch 738/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3767 - accuracy: 0.815
2
Epoch 739/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3742 - accuracy: 0.811
9
Epoch 740/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3669 - accuracy: 0.815
2
```

```
Epoch 741/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3869 - accuracy: 0.815
2
Epoch 742/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3664 - accuracy: 0.821
8
Epoch 743/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3741 - accuracy: 0.821
8
Epoch 744/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3669 - accuracy: 0.825
1
Epoch 745/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3734 - accuracy: 0.825
1
Epoch 746/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3731 - accuracy: 0.821
8
Epoch 747/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3749 - accuracy: 0.808
6
Epoch 748/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3770 - accuracy: 0.815
2
Epoch 749/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3780 - accuracy: 0.815
2
Epoch 750/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3869 - accuracy: 0.811
9
Epoch 751/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3896 - accuracy: 0.821
8
Epoch 752/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3896 - accuracy: 0.802
0
Epoch 753/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3835 - accuracy: 0.818
5
Epoch 754/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4013 - accuracy: 0.798
7
Epoch 755/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3686 - accuracy: 0.825
1
Epoch 756/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3705 - accuracy: 0.825
1
Epoch 757/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3701 - accuracy: 0.825
1
Epoch 758/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3787 - accuracy: 0.818
5
Epoch 759/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3666 - accuracy: 0.828
4
Epoch 760/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3639 - accuracy: 0.825
1
```

```
Epoch 761/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3685 - accuracy: 0.831
7
Epoch 762/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3667 - accuracy: 0.828
4
Epoch 763/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3732 - accuracy: 0.835
0
Epoch 764/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3695 - accuracy: 0.828
4
Epoch 765/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3815 - accuracy: 0.808
6
Epoch 766/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.4027 - accuracy: 0.798
7
Epoch 767/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3805 - accuracy: 0.811
9
Epoch 768/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3795 - accuracy: 0.818
5
Epoch 769/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3767 - accuracy: 0.815
2
Epoch 770/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3768 - accuracy: 0.818
5
Epoch 771/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3766 - accuracy: 0.818
5
Epoch 772/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3714 - accuracy: 0.835
0
Epoch 773/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3658 - accuracy: 0.825
1
Epoch 774/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3755 - accuracy: 0.821
8
Epoch 775/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3693 - accuracy: 0.818
5
Epoch 776/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3669 - accuracy: 0.828
4
Epoch 777/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3871 - accuracy: 0.815
2
Epoch 778/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3760 - accuracy: 0.805
3
Epoch 779/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3711 - accuracy: 0.831
7
Epoch 780/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3692 - accuracy: 0.808
6
```

```
Epoch 781/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3754 - accuracy: 0.821
8
Epoch 782/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3773 - accuracy: 0.825
1
Epoch 783/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3754 - accuracy: 0.821
8
Epoch 784/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3762 - accuracy: 0.828
4
Epoch 785/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3845 - accuracy: 0.821
8
Epoch 786/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3804 - accuracy: 0.808
6
Epoch 787/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3855 - accuracy: 0.811
9
Epoch 788/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3770 - accuracy: 0.802
0
Epoch 789/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3657 - accuracy: 0.821
8
Epoch 790/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3688 - accuracy: 0.831
7
Epoch 791/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3779 - accuracy: 0.828
4
Epoch 792/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3734 - accuracy: 0.808
6
Epoch 793/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3691 - accuracy: 0.841
6
Epoch 794/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3863 - accuracy: 0.821
8
Epoch 795/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3715 - accuracy: 0.828
4
Epoch 796/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3698 - accuracy: 0.838
3
Epoch 797/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3860 - accuracy: 0.805
3
Epoch 798/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3835 - accuracy: 0.805
3
Epoch 799/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3782 - accuracy: 0.818
5
Epoch 800/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3692 - accuracy: 0.831
7
```

```
Epoch 801/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3819 - accuracy: 0.805
3
Epoch 802/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3880 - accuracy: 0.805
3
Epoch 803/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3786 - accuracy: 0.811
9
Epoch 804/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3834 - accuracy: 0.818
5
Epoch 805/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3668 - accuracy: 0.828
4
Epoch 806/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3692 - accuracy: 0.825
1
Epoch 807/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3671 - accuracy: 0.825
1
Epoch 808/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3700 - accuracy: 0.828
4
Epoch 809/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3630 - accuracy: 0.831
7
Epoch 810/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3665 - accuracy: 0.825
1
Epoch 811/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3740 - accuracy: 0.848
2
Epoch 812/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.4003 - accuracy: 0.805
3
Epoch 813/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3709 - accuracy: 0.815
2
Epoch 814/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3736 - accuracy: 0.808
6
Epoch 815/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3834 - accuracy: 0.805
3
Epoch 816/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3656 - accuracy: 0.835
0
Epoch 817/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3649 - accuracy: 0.828
4
Epoch 818/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3663 - accuracy: 0.815
2
Epoch 819/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3636 - accuracy: 0.818
5
Epoch 820/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3710 - accuracy: 0.831
7
```

```
Epoch 821/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3625 - accuracy: 0.848
2
Epoch 822/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3849 - accuracy: 0.825
1
Epoch 823/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3776 - accuracy: 0.805
3
Epoch 824/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3780 - accuracy: 0.825
1
Epoch 825/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3621 - accuracy: 0.825
1
Epoch 826/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3874 - accuracy: 0.788
8
Epoch 827/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3749 - accuracy: 0.811
9
Epoch 828/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3683 - accuracy: 0.831
7
Epoch 829/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3687 - accuracy: 0.828
4
Epoch 830/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3641 - accuracy: 0.825
1
Epoch 831/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3643 - accuracy: 0.815
2
Epoch 832/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3716 - accuracy: 0.831
7
Epoch 833/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3587 - accuracy: 0.844
9
Epoch 834/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3689 - accuracy: 0.821
8
Epoch 835/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3643 - accuracy: 0.838
3
Epoch 836/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3665 - accuracy: 0.835
0
Epoch 837/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3689 - accuracy: 0.815
2
Epoch 838/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3702 - accuracy: 0.825
1
Epoch 839/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3780 - accuracy: 0.808
6
Epoch 840/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3750 - accuracy: 0.811
9
```

```
Epoch 841/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3673 - accuracy: 0.825
1
Epoch 842/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3610 - accuracy: 0.838
3
Epoch 843/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3795 - accuracy: 0.815
2
Epoch 844/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3688 - accuracy: 0.821
8
Epoch 845/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3682 - accuracy: 0.821
8
Epoch 846/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3754 - accuracy: 0.825
1
Epoch 847/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3656 - accuracy: 0.835
0
Epoch 848/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3710 - accuracy: 0.828
4
Epoch 849/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3764 - accuracy: 0.805
3
Epoch 850/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3601 - accuracy: 0.831
7
Epoch 851/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3627 - accuracy: 0.831
7
Epoch 852/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3658 - accuracy: 0.811
9
Epoch 853/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3645 - accuracy: 0.848
2
Epoch 854/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3678 - accuracy: 0.818
5
Epoch 855/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3759 - accuracy: 0.825
1
Epoch 856/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3703 - accuracy: 0.828
4
Epoch 857/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3826 - accuracy: 0.815
2
Epoch 858/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3771 - accuracy: 0.798
7
Epoch 859/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3656 - accuracy: 0.838
3
Epoch 860/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3728 - accuracy: 0.811
9
```

```
Epoch 861/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3738 - accuracy: 0.815
2
Epoch 862/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3780 - accuracy: 0.808
6
Epoch 863/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3732 - accuracy: 0.815
2
Epoch 864/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3961 - accuracy: 0.811
9
Epoch 865/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3835 - accuracy: 0.811
9
Epoch 866/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3708 - accuracy: 0.835
0
Epoch 867/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3630 - accuracy: 0.811
9
Epoch 868/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3586 - accuracy: 0.828
4
Epoch 869/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3746 - accuracy: 0.808
6
Epoch 870/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3588 - accuracy: 0.818
5
Epoch 871/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3693 - accuracy: 0.828
4
Epoch 872/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3941 - accuracy: 0.815
2
Epoch 873/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3620 - accuracy: 0.825
1
Epoch 874/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3619 - accuracy: 0.841
6
Epoch 875/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3814 - accuracy: 0.835
0
Epoch 876/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3600 - accuracy: 0.838
3
Epoch 877/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3572 - accuracy: 0.831
7
Epoch 878/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3659 - accuracy: 0.825
1
Epoch 879/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3832 - accuracy: 0.811
9
Epoch 880/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3764 - accuracy: 0.818
5
```

```
Epoch 881/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3608 - accuracy: 0.835
0
Epoch 882/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3623 - accuracy: 0.835
0
Epoch 883/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3608 - accuracy: 0.835
0
Epoch 884/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3705 - accuracy: 0.818
5
Epoch 885/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3819 - accuracy: 0.808
6
Epoch 886/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3610 - accuracy: 0.828
4
Epoch 887/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3690 - accuracy: 0.821
8
Epoch 888/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3831 - accuracy: 0.808
6
Epoch 889/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3759 - accuracy: 0.818
5
Epoch 890/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3579 - accuracy: 0.835
0
Epoch 891/1000
31/31 [==============================] - 0s 3ms/step - loss: 0.3714 - accuracy: 0.825
1
Epoch 892/1000
31/31 [==============================] - 0s 3ms/step - loss: 0.3710 - accuracy: 0.818
5
Epoch 893/1000
31/31 [==============================] - 0s 3ms/step - loss: 0.3593 - accuracy: 0.831
7
Epoch 894/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3652 - accuracy: 0.821
8
Epoch 895/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3643 - accuracy: 0.841
6
Epoch 896/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3642 - accuracy: 0.831
7
Epoch 897/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3929 - accuracy: 0.808
6
Epoch 898/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3927 - accuracy: 0.802
0
Epoch 899/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3730 - accuracy: 0.818
5
Epoch 900/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3584 - accuracy: 0.825
1
```

```
Epoch 901/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3663 - accuracy: 0.828
4
Epoch 902/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3550 - accuracy: 0.831
7
Epoch 903/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3703 - accuracy: 0.831
7
Epoch 904/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3607 - accuracy: 0.828
4
Epoch 905/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3642 - accuracy: 0.821
8
Epoch 906/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3659 - accuracy: 0.818
5
Epoch 907/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3595 - accuracy: 0.825
1
Epoch 908/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3684 - accuracy: 0.808
6
Epoch 909/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3612 - accuracy: 0.821
8
Epoch 910/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3638 - accuracy: 0.825
1
Epoch 911/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3577 - accuracy: 0.818
5
Epoch 912/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3590 - accuracy: 0.825
1
Epoch 913/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3595 - accuracy: 0.821
8
Epoch 914/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3545 - accuracy: 0.835
0
Epoch 915/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3749 - accuracy: 0.821
8
Epoch 916/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3712 - accuracy: 0.825
1
Epoch 917/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3816 - accuracy: 0.808
6
Epoch 918/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3746 - accuracy: 0.815
2
Epoch 919/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3645 - accuracy: 0.821
8
Epoch 920/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3657 - accuracy: 0.825
1
```

```
Epoch 921/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3666 - accuracy: 0.802
0
Epoch 922/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3651 - accuracy: 0.828
4
Epoch 923/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3670 - accuracy: 0.802
0
Epoch 924/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3616 - accuracy: 0.811
9
Epoch 925/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3668 - accuracy: 0.828
4
Epoch 926/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3643 - accuracy: 0.835
0
Epoch 927/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3628 - accuracy: 0.818
5
Epoch 928/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3605 - accuracy: 0.821
8
Epoch 929/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3885 - accuracy: 0.808
6
Epoch 930/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3734 - accuracy: 0.815
2
Epoch 931/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3674 - accuracy: 0.825
1
Epoch 932/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3643 - accuracy: 0.841
6
Epoch 933/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3612 - accuracy: 0.831
7
Epoch 934/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3553 - accuracy: 0.831
7
Epoch 935/1000
31/31 [==============================] - 0s 3ms/step - loss: 0.3544 - accuracy: 0.831
7
Epoch 936/1000
31/31 [==============================] - 0s 3ms/step - loss: 0.3763 - accuracy: 0.811
9
Epoch 937/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3669 - accuracy: 0.831
7
Epoch 938/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3663 - accuracy: 0.815
2
Epoch 939/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3557 - accuracy: 0.831
7
Epoch 940/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3663 - accuracy: 0.828
4
```

```
Epoch 941/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3587 - accuracy: 0.811
9
Epoch 942/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3662 - accuracy: 0.825
1
Epoch 943/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3604 - accuracy: 0.831
7
Epoch 944/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3690 - accuracy: 0.835
0
Epoch 945/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3594 - accuracy: 0.815
2
Epoch 946/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3699 - accuracy: 0.818
5
Epoch 947/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3569 - accuracy: 0.821
8
Epoch 948/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3692 - accuracy: 0.811
9
Epoch 949/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3680 - accuracy: 0.835
0
Epoch 950/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3585 - accuracy: 0.835
0
Epoch 951/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3734 - accuracy: 0.821
8
Epoch 952/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3765 - accuracy: 0.825
1
Epoch 953/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3613 - accuracy: 0.828
4
Epoch 954/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3588 - accuracy: 0.844
9
Epoch 955/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3685 - accuracy: 0.825
1
Epoch 956/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3547 - accuracy: 0.828
4
Epoch 957/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3551 - accuracy: 0.828
4
Epoch 958/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3507 - accuracy: 0.828
4
Epoch 959/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3572 - accuracy: 0.848
2
Epoch 960/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3686 - accuracy: 0.815
2
```

```
Epoch 961/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3613 - accuracy: 0.831
7
Epoch 962/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3550 - accuracy: 0.828
4
Epoch 963/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3577 - accuracy: 0.835
0
Epoch 964/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3632 - accuracy: 0.835
0
Epoch 965/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3562 - accuracy: 0.828
4
Epoch 966/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3543 - accuracy: 0.841
6
Epoch 967/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3531 - accuracy: 0.841
6
Epoch 968/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3622 - accuracy: 0.825
1
Epoch 969/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3610 - accuracy: 0.828
4
Epoch 970/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3568 - accuracy: 0.825
1
Epoch 971/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3655 - accuracy: 0.805
3
Epoch 972/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3535 - accuracy: 0.821
8
Epoch 973/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3663 - accuracy: 0.835
0
Epoch 974/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3532 - accuracy: 0.835
0
Epoch 975/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3607 - accuracy: 0.815
2
Epoch 976/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3924 - accuracy: 0.811
9
Epoch 977/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3576 - accuracy: 0.828
4
Epoch 978/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3586 - accuracy: 0.835
0
Epoch 979/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3585 - accuracy: 0.811
9
Epoch 980/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3525 - accuracy: 0.825
1
```

```
Epoch 981/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3651 - accuracy: 0.831
7
Epoch 982/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3551 - accuracy: 0.831
7
Epoch 983/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3583 - accuracy: 0.821
8
Epoch 984/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3544 - accuracy: 0.844
9
Epoch 985/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3560 - accuracy: 0.821
8
Epoch 986/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3743 - accuracy: 0.838
3
Epoch 987/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3601 - accuracy: 0.828
4
Epoch 988/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3569 - accuracy: 0.825
1
Epoch 989/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3914 - accuracy: 0.821
8
Epoch 990/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3658 - accuracy: 0.828
4
Epoch 991/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3641 - accuracy: 0.831
7
Epoch 992/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3576 - accuracy: 0.835
0
Epoch 993/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3680 - accuracy: 0.821
8
Epoch 994/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3692 - accuracy: 0.805
3
Epoch 995/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3570 - accuracy: 0.831
7
Epoch 996/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3559 - accuracy: 0.838
3
Epoch 997/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3513 - accuracy: 0.841
6
Epoch 998/1000
31/31 [==============================] - 0s 1ms/step - loss: 0.3627 - accuracy: 0.825
1
Epoch 999/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3767 - accuracy: 0.811
9
Epoch 1000/1000
31/31 [==============================] - 0s 2ms/step - loss: 0.3576 - accuracy: 0.815
2
```

```
10/10 [==============================] - 0s 2ms/step - loss: 0.3432 - accuracy: 0.844
9
```

In [ ]: `##any lower neurons or units or hidden layers only decreased accuracy and increased lo`