Activity 1.2 : Training Neural Networks

Objective(s):

This activity aims to demonstrate how to train neural networks using keras

Intended Learning Outcomes (ILOs):

- Demonstrate how to build and train neural networks
- Demonstrate how to evaluate and plot the model using training and validation loss

Resources:

- Jupyter Notebook

CI Pima Diabetes Dataset

- pima-indians-diabetes.csv

Procedures

Load the necessary libraries

In [4]:
```
from google.colab import drive
drive.mount('/content/drive')
```

```
Mounted at /content/drive
```

In [ ]:
```
from __future__ import absolute_import, division, print_function

import warnings
warnings.filterwarnings("ignore")


import numpy as np
import pandas as pd
import matplotlib.pyplot as plt

from sklearn.model_selection import train_test_split
from sklearn.preprocessing import StandardScaler
from sklearn.metrics import confusion_matrix, precision_recall_curve, roc_auc_score, roc_curve, accuracy_score
from sklearn.ensemble import RandomForestClassifier

import seaborn as sns

%matplotlib inline
```

In [ ]:
```
## Import Keras objects for Deep Learning

from keras.models  import Sequential
from keras.layers import Input, Dense, Flatten, Dropout, BatchNormalization
from keras.optimizers import Adam, SGD, RMSprop
```

Load the dataset

In [ ]:
```
filepath = "/content/drive/MyDrive/Data folder/pima-indians-diabetes.csv"
names = ["times_pregnant", "glucose_tolerance_test", "blood_pressure", "skin_thickness", "insulin",
         "bmi", "pedigree_function", "age", "has_diabetes"]
diabetes_df = pd.read_csv(filepath, names=names)
```

Check the top 5 samples of the data

In [ ]:
```
print(diabetes_df.shape)
diabetes_df.sample(5)
```

```
(768, 9)
```

Out[ ]:

	times_pregnant	glucose_tolerance_test	blood_pressure	skin_thickness	insulin	bmi	pedigree_function	age	has_diabetes
275	2	100	70	52	57	40.5	0.677	25	0
367	0	101	64	17	0	21.0	0.252	21	0
550	1	116	70	28	0	27.4	0.204	21	0
711	5	126	78	27	22	29.6	0.439	40	0
407	0	101	62	0	0	21.9	0.336	25	0

In [ ]:
```
diabetes_df.dtypes
```

Out[ ]:
```
times_pregnant              int64
glucose_tolerance_test      int64
blood_pressure              int64
skin_thickness              int64
insulin                     int64
bmi                       float64
pedigree_function         float64
age                         int64
has_diabetes                int64
dtype: object
```

In [ ]:
```
X = diabetes_df.iloc[:, :-1].values
y = diabetes_df["has_diabetes"].values
```

Split the data to Train, and Test (75%, 25%)

In [ ]:
```
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.25, random_state=11111)
```

In [ ]:
```
np.mean(y), np.mean(1-y)
```

Out[ ]:
```
(0.3489583333333333, 0.6510416666666666)
```

Build a single hidden layer neural network using 12 nodes. Use the sequential model with single layer network and input shape to 8.

Normalize the data

In [ ]:
```
normalizer = StandardScaler()
X_train_norm = normalizer.fit_transform(X_train)
X_test_norm = normalizer.transform(X_test)
```

Define the model:

- Input size is 8-dimensional
- 1 hidden layer, 12 hidden nodes, sigmoid activation

- Final layer with one node and sigmoid activation (standard for binary classification)

In [ ]:
```
model = Sequential([
    Dense(12, input_shape=(8,), activation="relu"),
    Dense(1, activation="sigmoid")
])
```

View the model summary

In [ ]:
```
model.summary()
```

```
Model: "sequential"
_________________________________________________________________
 Layer (type)                Output Shape              Param #
=================================================================
 dense (Dense)               (None, 12)                108

 dense_1 (Dense)             (None, 1)                 13

=================================================================
Total params: 121 (484.00 Byte)
Trainable params: 121 (484.00 Byte)
Non-trainable params: 0 (0.00 Byte)
_________________________________________________________________
```

Train the model

- Compile the model with optimizer, loss function and metrics
- Use the fit function to return the run history.

In [ ]:
```
model.compile(SGD(lr = .003), "binary_crossentropy", metrics=["accuracy"])
run_hist_1 = model.fit(X_train_norm, y_train, validation_data=(X_test_norm, y_test), epochs=200)
```

```
WARNING:absl:`lr` is deprecated in Keras optimizer, please use `learning_rate` or use the legacy optimizer, e.g.,tf.keras.optimizers.legacy.SGD.
```

```
Epoch 1/200
18/18 [==============================] - 1s 14ms/step - loss: 0.8674 - accuracy: 0.4774 - val_loss: 0.8803 - val_accuracy: 0.4792
Epoch 2/200
18/18 [==============================] - 0s 4ms/step - loss: 0.8252 - accuracy: 0.4965 - val_loss: 0.8382 - val_accuracy: 0.4896
Epoch 3/200
18/18 [==============================] - 0s 4ms/step - loss: 0.7907 - accuracy: 0.5226 - val_loss: 0.8034 - val_accuracy: 0.5104
Epoch 4/200
18/18 [==============================] - 0s 4ms/step - loss: 0.7621 - accuracy: 0.5417 - val_loss: 0.7741 - val_accuracy: 0.5312
Epoch 5/200
18/18 [==============================] - 0s 4ms/step - loss: 0.7379 - accuracy: 0.5590 - val_loss: 0.7492 - val_accuracy: 0.5521
Epoch 6/200
18/18 [==============================] - 0s 5ms/step - loss: 0.7173 - accuracy: 0.5955 - val_loss: 0.7276 - val_accuracy: 0.5885
Epoch 7/200
18/18 [==============================] - 0s 4ms/step - loss: 0.6996 - accuracy: 0.6181 - val_loss: 0.7088 - val_accuracy: 0.5833
Epoch 8/200
18/18 [==============================] - 0s 3ms/step - loss: 0.6840 - accuracy: 0.6337 - val_loss: 0.6924 - val_accuracy: 0.6146
Epoch 9/200
18/18 [==============================] - 0s 4ms/step - loss: 0.6704 - accuracy: 0.6493 - val_loss: 0.6782 - val_accuracy: 0.6406
Epoch 10/200
18/18 [==============================] - 0s 5ms/step - loss: 0.6581 - accuracy: 0.6528 - val_loss: 0.6656 - val_accuracy: 0.6354
Epoch 11/200
18/18 [==============================] - 0s 4ms/step - loss: 0.6475 - accuracy: 0.6615 - val_loss: 0.6544 - val_accuracy: 0.6406
Epoch 12/200
18/18 [==============================] - 0s 4ms/step - loss: 0.6379 - accuracy: 0.6753 - val_loss: 0.6442 - val_accuracy: 0.6510
Epoch 13/200
18/18 [==============================] - 0s 5ms/step - loss: 0.6289 - accuracy: 0.6788 - val_loss: 0.6349 - val_accuracy: 0.6615
Epoch 14/200
18/18 [==============================] - 0s 3ms/step - loss: 0.6207 - accuracy: 0.6892 - val_loss: 0.6265 - val_accuracy: 0.6667
Epoch 15/200
18/18 [==============================] - 0s 4ms/step - loss: 0.6134 - accuracy: 0.6927 - val_loss: 0.6187 - val_accuracy: 0.6823
Epoch 16/200
18/18 [==============================] - 0s 4ms/step - loss: 0.6065 - accuracy: 0.7066 - val_loss: 0.6116 - val_accuracy: 0.6875
Epoch 17/200
18/18 [==============================] - 0s 4ms/step - loss: 0.6003 - accuracy: 0.7153 - val_loss: 0.6048 - val_accuracy: 0.6979
Epoch 18/200
18/18 [==============================] - 0s 4ms/step - loss: 0.5945 - accuracy: 0.7188 - val_loss: 0.5986 - val_accuracy: 0.6979
Epoch 19/200
18/18 [==============================] - 0s 4ms/step - loss: 0.5888 - accuracy: 0.7222 - val_loss: 0.5928 - val_accuracy: 0.7083
Epoch 20/200
18/18 [==============================] - 0s 4ms/step - loss: 0.5836 - accuracy: 0.7222 - val_loss: 0.5875 - val_accuracy: 0.7031
Epoch 21/200
18/18 [==============================] - 0s 4ms/step - loss: 0.5786 - accuracy: 0.7257 - val_loss: 0.5825 - val_accuracy: 0.7135
Epoch 22/200
18/18 [==============================] - 0s 4ms/step - loss: 0.5739 - accuracy: 0.7292 - val_loss: 0.5779 - val_accuracy: 0.7188
Epoch 23/200
18/18 [==============================] - 0s 4ms/step - loss: 0.5696 - accuracy: 0.7274 - val_loss: 0.5737 - val_accuracy: 0.7240
Epoch 24/200
18/18 [==============================] - 0s 3ms/step - loss: 0.5653 - accuracy: 0.7274 - val_loss: 0.5696 - val_accuracy: 0.7240
Epoch 25/200
18/18 [==============================] - 0s 3ms/step - loss: 0.5609 - accuracy: 0.7292 - val_loss: 0.5658 - val_accuracy: 0.7240
Epoch 26/200
18/18 [==============================] - 0s 3ms/step - loss: 0.5570 - accuracy: 0.7326 - val_loss: 0.5621 - val_accuracy: 0.7240
Epoch 27/200
18/18 [==============================] - 0s 4ms/step - loss: 0.5532 - accuracy: 0.7344 - val_loss: 0.5587 - val_accuracy: 0.7240
Epoch 28/200
18/18 [==============================] - 0s 4ms/step - loss: 0.5497 - accuracy: 0.7344 - val_loss: 0.5556 - val_accuracy: 0.7240
Epoch 29/200
18/18 [==============================] - 0s 4ms/step - loss: 0.5462 - accuracy: 0.7361 - val_loss: 0.5526 - val_accuracy: 0.7240
Epoch 30/200
18/18 [==============================] - 0s 4ms/step - loss: 0.5430 - accuracy: 0.7361 - val_loss: 0.5497 - val_accuracy: 0.7240
Epoch 31/200
18/18 [==============================] - 0s 4ms/step - loss: 0.5400 - accuracy: 0.7413 - val_loss: 0.5470 - val_accuracy: 0.7240
Epoch 32/200
18/18 [==============================] - 0s 4ms/step - loss: 0.5370 - accuracy: 0.7413 - val_loss: 0.5445 - val_accuracy: 0.7240
Epoch 33/200
18/18 [==============================] - 0s 4ms/step - loss: 0.5341 - accuracy: 0.7413 - val_loss: 0.5420 - val_accuracy: 0.7240
Epoch 34/200
18/18 [==============================] - 0s 4ms/step - loss: 0.5313 - accuracy: 0.7448 - val_loss: 0.5396 - val_accuracy: 0.7240
Epoch 35/200
18/18 [==============================] - 0s 3ms/step - loss: 0.5286 - accuracy: 0.7431 - val_loss: 0.5373 - val_accuracy: 0.7240
Epoch 36/200
18/18 [==============================] - 0s 4ms/step - loss: 0.5259 - accuracy: 0.7413 - val_loss: 0.5351 - val_accuracy: 0.7188
Epoch 37/200
18/18 [==============================] - 0s 6ms/step - loss: 0.5235 - accuracy: 0.7448 - val_loss: 0.5331 - val_accuracy: 0.7188
Epoch 38/200
18/18 [==============================] - 0s 6ms/step - loss: 0.5209 - accuracy: 0.7465 - val_loss: 0.5310 - val_accuracy: 0.7188
Epoch 39/200
18/18 [==============================] - 0s 6ms/step - loss: 0.5186 - accuracy: 0.7465 - val_loss: 0.5291 - val_accuracy: 0.7135
Epoch 40/200
18/18 [==============================] - 0s 6ms/step - loss: 0.5162 - accuracy: 0.7465 - val_loss: 0.5271 - val_accuracy: 0.7135
Epoch 41/200
18/18 [==============================] - 0s 6ms/step - loss: 0.5139 - accuracy: 0.7431 - val_loss: 0.5253 - val_accuracy: 0.7188
Epoch 42/200
18/18 [==============================] - 0s 5ms/step - loss: 0.5117 - accuracy: 0.7465 - val_loss: 0.5237 - val_accuracy: 0.7135
Epoch 43/200
18/18 [==============================] - 0s 5ms/step - loss: 0.5096 - accuracy: 0.7483 - val_loss: 0.5220 - val_accuracy: 0.7135
Epoch 44/200
18/18 [==============================] - 0s 5ms/step - loss: 0.5076 - accuracy: 0.7483 - val_loss: 0.5205 - val_accuracy: 0.7135
Epoch 45/200
18/18 [==============================] - 0s 4ms/step - loss: 0.5056 - accuracy: 0.7448 - val_loss: 0.5189 - val_accuracy: 0.7135
Epoch 46/200
18/18 [==============================] - 0s 5ms/step - loss: 0.5036 - accuracy: 0.7500 - val_loss: 0.5176 - val_accuracy: 0.7135
Epoch 47/200
18/18 [==============================] - 0s 5ms/step - loss: 0.5016 - accuracy: 0.7535 - val_loss: 0.5163 - val_accuracy: 0.7135
Epoch 48/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4998 - accuracy: 0.7569 - val_loss: 0.5151 - val_accuracy: 0.7135
Epoch 49/200
18/18 [==============================] - 0s 5ms/step - loss: 0.4981 - accuracy: 0.7587 - val_loss: 0.5139 - val_accuracy: 0.7188
Epoch 50/200
18/18 [==============================] - 0s 6ms/step - loss: 0.4962 - accuracy: 0.7604 - val_loss: 0.5128 - val_accuracy: 0.7292
Epoch 51/200
18/18 [==============================] - 0s 5ms/step - loss: 0.4946 - accuracy: 0.7622 - val_loss: 0.5117 - val_accuracy: 0.7292
Epoch 52/200
18/18 [==============================] - 0s 5ms/step - loss: 0.4927 - accuracy: 0.7622 - val_loss: 0.5106 - val_accuracy: 0.7292
Epoch 53/200
18/18 [==============================] - 0s 5ms/step - loss: 0.4910 - accuracy: 0.7587 - val_loss: 0.5096 - val_accuracy: 0.7344
Epoch 54/200
18/18 [==============================] - 0s 7ms/step - loss: 0.4895 - accuracy: 0.7587 - val_loss: 0.5086 - val_accuracy: 0.7396
Epoch 55/200
18/18 [==============================] - 0s 6ms/step - loss: 0.4877 - accuracy: 0.7604 - val_loss: 0.5077 - val_accuracy: 0.7448
Epoch 56/200
18/18 [==============================] - 0s 5ms/step - loss: 0.4861 - accuracy: 0.7587 - val_loss: 0.5068 - val_accuracy: 0.7448
Epoch 57/200
18/18 [==============================] - 0s 5ms/step - loss: 0.4845 - accuracy: 0.7622 - val_loss: 0.5060 - val_accuracy: 0.7448
Epoch 58/200
18/18 [==============================] - 0s 5ms/step - loss: 0.4831 - accuracy: 0.7691 - val_loss: 0.5052 - val_accuracy: 0.7500
Epoch 59/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4818 - accuracy: 0.7708 - val_loss: 0.5044 - val_accuracy: 0.7552
Epoch 60/200
18/18 [==============================] - 0s 5ms/step - loss: 0.4803 - accuracy: 0.7726 - val_loss: 0.5037 - val_accuracy: 0.7448
Epoch 61/200
18/18 [==============================] - 0s 6ms/step - loss: 0.4788 - accuracy: 0.7743 - val_loss: 0.5030 - val_accuracy: 0.7448
Epoch 62/200
18/18 [==============================] - 0s 6ms/step - loss: 0.4773 - accuracy: 0.7691 - val_loss: 0.5023 - val_accuracy: 0.7448
Epoch 63/200
18/18 [==============================] - 0s 6ms/step - loss: 0.4760 - accuracy: 0.7708 - val_loss: 0.5017 - val_accuracy: 0.7448
Epoch 64/200
18/18 [==============================] - 0s 6ms/step - loss: 0.4749 - accuracy: 0.7726 - val_loss: 0.5012 - val_accuracy: 0.7500
```

```
Epoch 65/200
18/18 [==============================] - 0s 7ms/step - loss: 0.4736 - accuracy: 0.7778 - val_loss: 0.5006 - val_accuracy: 0.7500
Epoch 66/200
18/18 [==============================] - 0s 5ms/step - loss: 0.4725 - accuracy: 0.7795 - val_loss: 0.5001 - val_accuracy: 0.7500
Epoch 67/200
18/18 [==============================] - 0s 5ms/step - loss: 0.4715 - accuracy: 0.7795 - val_loss: 0.4996 - val_accuracy: 0.7552
Epoch 68/200
18/18 [==============================] - 0s 6ms/step - loss: 0.4702 - accuracy: 0.7778 - val_loss: 0.4992 - val_accuracy: 0.7604
Epoch 69/200
18/18 [==============================] - 0s 6ms/step - loss: 0.4692 - accuracy: 0.7795 - val_loss: 0.4987 - val_accuracy: 0.7604
Epoch 70/200
18/18 [==============================] - 0s 6ms/step - loss: 0.4683 - accuracy: 0.7778 - val_loss: 0.4983 - val_accuracy: 0.7656
Epoch 71/200
18/18 [==============================] - 0s 5ms/step - loss: 0.4673 - accuracy: 0.7795 - val_loss: 0.4979 - val_accuracy: 0.7656
Epoch 72/200
18/18 [==============================] - 0s 6ms/step - loss: 0.4663 - accuracy: 0.7812 - val_loss: 0.4976 - val_accuracy: 0.7656
Epoch 73/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4654 - accuracy: 0.7778 - val_loss: 0.4972 - val_accuracy: 0.7656
Epoch 74/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4644 - accuracy: 0.7778 - val_loss: 0.4969 - val_accuracy: 0.7656
Epoch 75/200
18/18 [==============================] - 0s 3ms/step - loss: 0.4636 - accuracy: 0.7760 - val_loss: 0.4966 - val_accuracy: 0.7656
Epoch 76/200
18/18 [==============================] - 0s 5ms/step - loss: 0.4629 - accuracy: 0.7760 - val_loss: 0.4963 - val_accuracy: 0.7656
Epoch 77/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4621 - accuracy: 0.7726 - val_loss: 0.4961 - val_accuracy: 0.7656
Epoch 78/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4612 - accuracy: 0.7760 - val_loss: 0.4958 - val_accuracy: 0.7604
Epoch 79/200
18/18 [==============================] - 0s 3ms/step - loss: 0.4605 - accuracy: 0.7743 - val_loss: 0.4956 - val_accuracy: 0.7604
Epoch 80/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4598 - accuracy: 0.7726 - val_loss: 0.4954 - val_accuracy: 0.7656
Epoch 81/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4590 - accuracy: 0.7743 - val_loss: 0.4952 - val_accuracy: 0.7656
Epoch 82/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4584 - accuracy: 0.7760 - val_loss: 0.4950 - val_accuracy: 0.7604
Epoch 83/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4577 - accuracy: 0.7795 - val_loss: 0.4949 - val_accuracy: 0.7604
Epoch 84/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4571 - accuracy: 0.7795 - val_loss: 0.4947 - val_accuracy: 0.7604
Epoch 85/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4565 - accuracy: 0.7795 - val_loss: 0.4946 - val_accuracy: 0.7604
Epoch 86/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4559 - accuracy: 0.7795 - val_loss: 0.4945 - val_accuracy: 0.7604
Epoch 87/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4554 - accuracy: 0.7812 - val_loss: 0.4943 - val_accuracy: 0.7604
Epoch 88/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4547 - accuracy: 0.7812 - val_loss: 0.4942 - val_accuracy: 0.7604
Epoch 89/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4542 - accuracy: 0.7830 - val_loss: 0.4941 - val_accuracy: 0.7656
Epoch 90/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4537 - accuracy: 0.7830 - val_loss: 0.4940 - val_accuracy: 0.7656
Epoch 91/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4531 - accuracy: 0.7812 - val_loss: 0.4939 - val_accuracy: 0.7656
Epoch 92/200
18/18 [==============================] - 0s 5ms/step - loss: 0.4526 - accuracy: 0.7865 - val_loss: 0.4939 - val_accuracy: 0.7656
Epoch 93/200
18/18 [==============================] - 0s 11ms/step - loss: 0.4520 - accuracy: 0.7865 - val_loss: 0.4938 - val_accuracy: 0.7656
Epoch 94/200
18/18 [==============================] - 0s 7ms/step - loss: 0.4516 - accuracy: 0.7917 - val_loss: 0.4937 - val_accuracy: 0.7656
Epoch 95/200
18/18 [==============================] - 0s 10ms/step - loss: 0.4512 - accuracy: 0.7934 - val_loss: 0.4936 - val_accuracy: 0.7656
Epoch 96/200
18/18 [==============================] - 0s 9ms/step - loss: 0.4507 - accuracy: 0.7917 - val_loss: 0.4936 - val_accuracy: 0.7656
Epoch 97/200
18/18 [==============================] - 0s 10ms/step - loss: 0.4503 - accuracy: 0.7934 - val_loss: 0.4935 - val_accuracy: 0.7656
Epoch 98/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4497 - accuracy: 0.7951 - val_loss: 0.4935 - val_accuracy: 0.7656
Epoch 99/200
18/18 [==============================] - 0s 3ms/step - loss: 0.4494 - accuracy: 0.7934 - val_loss: 0.4935 - val_accuracy: 0.7656
Epoch 100/200
18/18 [==============================] - 0s 3ms/step - loss: 0.4491 - accuracy: 0.7934 - val_loss: 0.4935 - val_accuracy: 0.7656
Epoch 101/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4487 - accuracy: 0.7917 - val_loss: 0.4934 - val_accuracy: 0.7656
Epoch 102/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4485 - accuracy: 0.7917 - val_loss: 0.4935 - val_accuracy: 0.7656
Epoch 103/200
18/18 [==============================] - 0s 5ms/step - loss: 0.4479 - accuracy: 0.7917 - val_loss: 0.4935 - val_accuracy: 0.7656
Epoch 104/200
18/18 [==============================] - 0s 6ms/step - loss: 0.4476 - accuracy: 0.7917 - val_loss: 0.4935 - val_accuracy: 0.7604
Epoch 105/200
18/18 [==============================] - 0s 13ms/step - loss: 0.4473 - accuracy: 0.7917 - val_loss: 0.4935 - val_accuracy: 0.7656
Epoch 106/200
18/18 [==============================] - 0s 17ms/step - loss: 0.4470 - accuracy: 0.7917 - val_loss: 0.4936 - val_accuracy: 0.7708
Epoch 107/200
18/18 [==============================] - 0s 10ms/step - loss: 0.4467 - accuracy: 0.7899 - val_loss: 0.4936 - val_accuracy: 0.7708
Epoch 108/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4463 - accuracy: 0.7934 - val_loss: 0.4936 - val_accuracy: 0.7708
Epoch 109/200
18/18 [==============================] - 0s 3ms/step - loss: 0.4461 - accuracy: 0.7934 - val_loss: 0.4936 - val_accuracy: 0.7708
Epoch 110/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4458 - accuracy: 0.7917 - val_loss: 0.4936 - val_accuracy: 0.7708
Epoch 111/200
18/18 [==============================] - 0s 3ms/step - loss: 0.4455 - accuracy: 0.7882 - val_loss: 0.4937 - val_accuracy: 0.7708
Epoch 112/200
18/18 [==============================] - 0s 3ms/step - loss: 0.4452 - accuracy: 0.7917 - val_loss: 0.4937 - val_accuracy: 0.7708
Epoch 113/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4450 - accuracy: 0.7917 - val_loss: 0.4937 - val_accuracy: 0.7708
Epoch 114/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4448 - accuracy: 0.7934 - val_loss: 0.4937 - val_accuracy: 0.7708
Epoch 115/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4445 - accuracy: 0.7951 - val_loss: 0.4938 - val_accuracy: 0.7656
Epoch 116/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4443 - accuracy: 0.7934 - val_loss: 0.4938 - val_accuracy: 0.7656
Epoch 117/200
18/18 [==============================] - 0s 3ms/step - loss: 0.4440 - accuracy: 0.7899 - val_loss: 0.4939 - val_accuracy: 0.7656
Epoch 118/200
18/18 [==============================] - 0s 3ms/step - loss: 0.4437 - accuracy: 0.7882 - val_loss: 0.4940 - val_accuracy: 0.7656
Epoch 119/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4434 - accuracy: 0.7917 - val_loss: 0.4941 - val_accuracy: 0.7656
Epoch 120/200
18/18 [==============================] - 0s 3ms/step - loss: 0.4432 - accuracy: 0.7917 - val_loss: 0.4942 - val_accuracy: 0.7656
Epoch 121/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4430 - accuracy: 0.7917 - val_loss: 0.4942 - val_accuracy: 0.7656
Epoch 122/200
18/18 [==============================] - 0s 3ms/step - loss: 0.4428 - accuracy: 0.7899 - val_loss: 0.4943 - val_accuracy: 0.7656
Epoch 123/200
18/18 [==============================] - 0s 3ms/step - loss: 0.4425 - accuracy: 0.7917 - val_loss: 0.4944 - val_accuracy: 0.7656
Epoch 124/200
18/18 [==============================] - 0s 3ms/step - loss: 0.4424 - accuracy: 0.7934 - val_loss: 0.4944 - val_accuracy: 0.7656
Epoch 125/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4423 - accuracy: 0.7865 - val_loss: 0.4945 - val_accuracy: 0.7656
Epoch 126/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4419 - accuracy: 0.7917 - val_loss: 0.4946 - val_accuracy: 0.7656
Epoch 127/200
18/18 [==============================] - 0s 3ms/step - loss: 0.4417 - accuracy: 0.7934 - val_loss: 0.4947 - val_accuracy: 0.7656
Epoch 128/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4415 - accuracy: 0.7934 - val_loss: 0.4948 - val_accuracy: 0.7656
```

```
Epoch 129/200
18/18 [==============================] - 0s 3ms/step - loss: 0.4412 - accuracy: 0.7917 - val_loss: 0.4950 - val_accuracy: 0.7656
Epoch 130/200
18/18 [==============================] - 0s 5ms/step - loss: 0.4411 - accuracy: 0.7951 - val_loss: 0.4951 - val_accuracy: 0.7656
Epoch 131/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4409 - accuracy: 0.7951 - val_loss: 0.4952 - val_accuracy: 0.7656
Epoch 132/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4406 - accuracy: 0.7951 - val_loss: 0.4953 - val_accuracy: 0.7656
Epoch 133/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4405 - accuracy: 0.7951 - val_loss: 0.4954 - val_accuracy: 0.7708
Epoch 134/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4403 - accuracy: 0.7951 - val_loss: 0.4955 - val_accuracy: 0.7708
Epoch 135/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4401 - accuracy: 0.7951 - val_loss: 0.4956 - val_accuracy: 0.7708
Epoch 136/200
18/18 [==============================] - 0s 3ms/step - loss: 0.4399 - accuracy: 0.7951 - val_loss: 0.4957 - val_accuracy: 0.7708
Epoch 137/200
18/18 [==============================] - 0s 3ms/step - loss: 0.4399 - accuracy: 0.7934 - val_loss: 0.4959 - val_accuracy: 0.7708
Epoch 138/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4395 - accuracy: 0.7951 - val_loss: 0.4959 - val_accuracy: 0.7708
Epoch 139/200
18/18 [==============================] - 0s 3ms/step - loss: 0.4393 - accuracy: 0.7951 - val_loss: 0.4960 - val_accuracy: 0.7708
Epoch 140/200
18/18 [==============================] - 0s 3ms/step - loss: 0.4392 - accuracy: 0.7951 - val_loss: 0.4962 - val_accuracy: 0.7708
Epoch 141/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4390 - accuracy: 0.7934 - val_loss: 0.4963 - val_accuracy: 0.7708
Epoch 142/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4388 - accuracy: 0.7934 - val_loss: 0.4964 - val_accuracy: 0.7708
Epoch 143/200
18/18 [==============================] - 0s 3ms/step - loss: 0.4385 - accuracy: 0.7899 - val_loss: 0.4965 - val_accuracy: 0.7708
Epoch 144/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4384 - accuracy: 0.7951 - val_loss: 0.4966 - val_accuracy: 0.7708
Epoch 145/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4383 - accuracy: 0.7934 - val_loss: 0.4967 - val_accuracy: 0.7708
Epoch 146/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4380 - accuracy: 0.7882 - val_loss: 0.4968 - val_accuracy: 0.7708
Epoch 147/200
18/18 [==============================] - 0s 3ms/step - loss: 0.4378 - accuracy: 0.7934 - val_loss: 0.4969 - val_accuracy: 0.7708
Epoch 148/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4377 - accuracy: 0.7917 - val_loss: 0.4970 - val_accuracy: 0.7708
Epoch 149/200
18/18 [==============================] - 0s 3ms/step - loss: 0.4376 - accuracy: 0.7917 - val_loss: 0.4971 - val_accuracy: 0.7708
Epoch 150/200
18/18 [==============================] - 0s 3ms/step - loss: 0.4373 - accuracy: 0.7917 - val_loss: 0.4972 - val_accuracy: 0.7708
Epoch 151/200
18/18 [==============================] - 0s 3ms/step - loss: 0.4372 - accuracy: 0.7917 - val_loss: 0.4973 - val_accuracy: 0.7708
Epoch 152/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4371 - accuracy: 0.7899 - val_loss: 0.4974 - val_accuracy: 0.7708
Epoch 153/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4369 - accuracy: 0.7917 - val_loss: 0.4975 - val_accuracy: 0.7708
Epoch 154/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4368 - accuracy: 0.7934 - val_loss: 0.4976 - val_accuracy: 0.7708
Epoch 155/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4366 - accuracy: 0.7899 - val_loss: 0.4977 - val_accuracy: 0.7708
Epoch 156/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4365 - accuracy: 0.7882 - val_loss: 0.4979 - val_accuracy: 0.7708
Epoch 157/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4363 - accuracy: 0.7917 - val_loss: 0.4979 - val_accuracy: 0.7708
Epoch 158/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4361 - accuracy: 0.7917 - val_loss: 0.4980 - val_accuracy: 0.7708
Epoch 159/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4360 - accuracy: 0.7882 - val_loss: 0.4981 - val_accuracy: 0.7708
Epoch 160/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4360 - accuracy: 0.7882 - val_loss: 0.4982 - val_accuracy: 0.7708
Epoch 161/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4358 - accuracy: 0.7865 - val_loss: 0.4983 - val_accuracy: 0.7708
Epoch 162/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4357 - accuracy: 0.7865 - val_loss: 0.4984 - val_accuracy: 0.7708
Epoch 163/200
18/18 [==============================] - 0s 3ms/step - loss: 0.4355 - accuracy: 0.7882 - val_loss: 0.4985 - val_accuracy: 0.7708
Epoch 164/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4355 - accuracy: 0.7917 - val_loss: 0.4985 - val_accuracy: 0.7656
Epoch 165/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4353 - accuracy: 0.7899 - val_loss: 0.4986 - val_accuracy: 0.7656
Epoch 166/200
18/18 [==============================] - 0s 3ms/step - loss: 0.4352 - accuracy: 0.7882 - val_loss: 0.4987 - val_accuracy: 0.7656
Epoch 167/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4351 - accuracy: 0.7882 - val_loss: 0.4988 - val_accuracy: 0.7656
Epoch 168/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4349 - accuracy: 0.7934 - val_loss: 0.4988 - val_accuracy: 0.7656
Epoch 169/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4347 - accuracy: 0.7899 - val_loss: 0.4990 - val_accuracy: 0.7656
Epoch 170/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4345 - accuracy: 0.7899 - val_loss: 0.4990 - val_accuracy: 0.7656
Epoch 171/200
18/18 [==============================] - 0s 3ms/step - loss: 0.4345 - accuracy: 0.7917 - val_loss: 0.4991 - val_accuracy: 0.7656
Epoch 172/200
18/18 [==============================] - 0s 5ms/step - loss: 0.4343 - accuracy: 0.7917 - val_loss: 0.4991 - val_accuracy: 0.7708
Epoch 173/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4342 - accuracy: 0.7882 - val_loss: 0.4993 - val_accuracy: 0.7708
Epoch 174/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4341 - accuracy: 0.7899 - val_loss: 0.4993 - val_accuracy: 0.7708
Epoch 175/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4340 - accuracy: 0.7882 - val_loss: 0.4994 - val_accuracy: 0.7708
Epoch 176/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4339 - accuracy: 0.7899 - val_loss: 0.4995 - val_accuracy: 0.7656
Epoch 177/200
18/18 [==============================] - 0s 3ms/step - loss: 0.4337 - accuracy: 0.7899 - val_loss: 0.4996 - val_accuracy: 0.7656
Epoch 178/200
18/18 [==============================] - 0s 3ms/step - loss: 0.4336 - accuracy: 0.7917 - val_loss: 0.4998 - val_accuracy: 0.7656
Epoch 179/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4335 - accuracy: 0.7934 - val_loss: 0.4999 - val_accuracy: 0.7656
Epoch 180/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4333 - accuracy: 0.7917 - val_loss: 0.5000 - val_accuracy: 0.7656
Epoch 181/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4333 - accuracy: 0.7934 - val_loss: 0.5001 - val_accuracy: 0.7656
Epoch 182/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4331 - accuracy: 0.7917 - val_loss: 0.5002 - val_accuracy: 0.7656
Epoch 183/200
18/18 [==============================] - 0s 3ms/step - loss: 0.4330 - accuracy: 0.7951 - val_loss: 0.5003 - val_accuracy: 0.7656
Epoch 184/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4330 - accuracy: 0.7917 - val_loss: 0.5003 - val_accuracy: 0.7656
Epoch 185/200
18/18 [==============================] - 0s 5ms/step - loss: 0.4329 - accuracy: 0.7934 - val_loss: 0.5004 - val_accuracy: 0.7656
Epoch 186/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4327 - accuracy: 0.7917 - val_loss: 0.5004 - val_accuracy: 0.7656
Epoch 187/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4326 - accuracy: 0.7917 - val_loss: 0.5005 - val_accuracy: 0.7656
Epoch 188/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4325 - accuracy: 0.7934 - val_loss: 0.5006 - val_accuracy: 0.7656
Epoch 189/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4324 - accuracy: 0.7917 - val_loss: 0.5006 - val_accuracy: 0.7656
Epoch 190/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4322 - accuracy: 0.7917 - val_loss: 0.5007 - val_accuracy: 0.7656
Epoch 191/200
18/18 [==============================] - 0s 6ms/step - loss: 0.4321 - accuracy: 0.7934 - val_loss: 0.5007 - val_accuracy: 0.7656
Epoch 192/200
18/18 [==============================] - 0s 6ms/step - loss: 0.4321 - accuracy: 0.7917 - val_loss: 0.5008 - val_accuracy: 0.7656
```

```
Epoch 193/200
18/18 [==============================] - 0s 5ms/step - loss: 0.4319 - accuracy: 0.7934 - val_loss: 0.5008 - val_accuracy: 0.7656
Epoch 194/200
18/18 [==============================] - 0s 5ms/step - loss: 0.4318 - accuracy: 0.7917 - val_loss: 0.5009 - val_accuracy: 0.7656
Epoch 195/200
18/18 [==============================] - 0s 5ms/step - loss: 0.4317 - accuracy: 0.7934 - val_loss: 0.5010 - val_accuracy: 0.7656
Epoch 196/200
18/18 [==============================] - 0s 5ms/step - loss: 0.4316 - accuracy: 0.7917 - val_loss: 0.5010 - val_accuracy: 0.7656
Epoch 197/200
18/18 [==============================] - 0s 5ms/step - loss: 0.4315 - accuracy: 0.7934 - val_loss: 0.5011 - val_accuracy: 0.7656
Epoch 198/200
18/18 [==============================] - 0s 5ms/step - loss: 0.4315 - accuracy: 0.7917 - val_loss: 0.5010 - val_accuracy: 0.7708
Epoch 199/200
18/18 [==============================] - 0s 6ms/step - loss: 0.4313 - accuracy: 0.7951 - val_loss: 0.5011 - val_accuracy: 0.7656
Epoch 200/200
18/18 [==============================] - 0s 4ms/step - loss: 0.4312 - accuracy: 0.7951 - val_loss: 0.5012 - val_accuracy: 0.7656
```

In [ ]:
```
y_pred_prob_nn_1 = model.predict(X_test_norm)
y_pred_class_nn_1  = np.argmax(y_pred_prob_nn_1, axis=1)
```

```
6/6 [==============================] - 0s 2ms/step
```

In [ ]:
```
# Let's check out the outputs to get a feel for how keras apis work.
y_pred_class_nn_1[:10]
```

Out[ ]:
```
array([0, 0, 0, 0, 0, 0, 0, 0, 0, 0])
```

In [ ]:
```
y_pred_prob_nn_1[:10]
```

Out[ ]:
```
array([[0.46349293],
       [0.6444795 ],
       [0.3868862 ],
       [0.16646963],
       [0.14696644],
       [0.5131753 ],
       [0.03617987],
       [0.29909146],
       [0.9291484 ],
       [0.13563998]], dtype=float32)
```

Create the plot_roc function

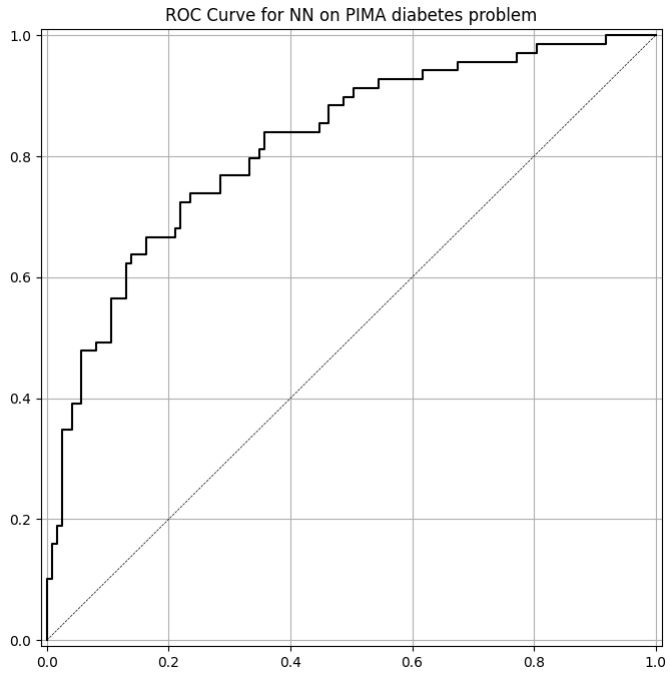
In [ ]:
```
def plot_roc(y_test, y_pred, model_name):
    fpr, tpr, thr = roc_curve(y_test, y_pred)
    fig, ax = plt.subplots(figsize=(8, 8))
    ax.plot(fpr, tpr, 'k-')
    ax.plot([0, 1], [0, 1], 'k--', linewidth=.5)  # roc curve for random model
    ax.grid(True)
    ax.set(title='ROC Curve for {} on PIMA diabetes problem'.format(model_name),
           xlim=[-0.01, 1.01], ylim=[-0.01, 1.01])
```

Evaluate the model performance and plot the ROC CURVE

In [ ]:
```
print('accuracy is {:.3f}'.format(accuracy_score(y_test,y_pred_class_nn_1)))
print('roc-auc is {:.3f}'.format(roc_auc_score(y_test,y_pred_prob_nn_1)))

plot_roc(y_test, y_pred_prob_nn_1, 'NN')
```

```
accuracy is 0.641
roc-auc is 0.819
```



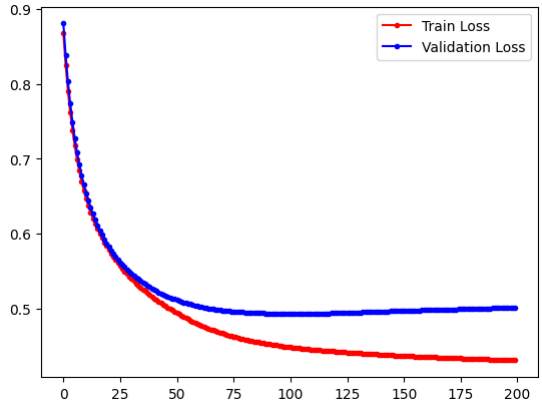
Plot the training loss and the validation loss over the different epochs and see how it looks

In [ ]:
```
run_hist_1.history.keys()
```

Out[ ]:
```
dict_keys(['loss', 'accuracy', 'val_loss', 'val_accuracy'])
```

In [ ]:
```
fig, ax = plt.subplots()
ax.plot(run_hist_1.history["loss"],'r', marker='.', label="Train Loss")
ax.plot(run_hist_1.history["val_loss"],'b', marker='.', label="Validation Loss")
ax.legend()
```

Out[ ]:
```
<matplotlib.legend.Legend at 0x7cf7195ed4e0>
```



What is your interpretation about the result of the train and validation loss?

type your answer here

Supplementary Activity

- Build a model with two hidden layers, each with 6 nodes
- Use the "relu" activation function for the hidden layers, and "sigmoid" for the final layer
- Use a learning rate of .003 and train for 1500 epochs
- Graph the trajectory of the loss functions, accuracy on both train and test set
- Plot the roc curve for the predictions
- Use different learning rates, numbers of epochs, and network structures.
- Plot the results of training and validation loss using different learning rates, number of epocgs and network structures
- Interpret your result

In [ ]:
```
new_model = Sequential([
    Dense(6, input_shape=(8,), activation="relu"),
    Dense(6, input_shape=(8,), activation="relu"),
    Dense(1, activation="sigmoid")
])
```

In [ ]:
```
new_model.compile(SGD(lr = .003), "binary_crossentropy", metrics=["accuracy"])
run_hist_2 = new_model.fit(X_train_norm, y_train, validation_data=(X_test_norm, y_test), epochs=1500)
```

```
WARNING:absl:`lr` is deprecated in Keras optimizer, please use `learning_rate` or use the legacy optimizer, e.g.,tf.keras.optimizers.legacy.SGD.
```

```
Epoch 1/1500
18/18 [==============================] - 1s 19ms/step - loss: 0.7377 - accuracy: 0.3837 - val_loss: 0.7151 - val_accuracy: 0.4531
Epoch 2/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.7180 - accuracy: 0.4462 - val_loss: 0.6995 - val_accuracy: 0.4844
Epoch 3/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.7024 - accuracy: 0.5208 - val_loss: 0.6871 - val_accuracy: 0.5208
Epoch 4/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.6895 - accuracy: 0.5764 - val_loss: 0.6768 - val_accuracy: 0.5729
Epoch 5/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.6788 - accuracy: 0.6215 - val_loss: 0.6682 - val_accuracy: 0.5885
Epoch 6/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.6698 - accuracy: 0.6354 - val_loss: 0.6611 - val_accuracy: 0.6510
Epoch 7/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.6620 - accuracy: 0.6580 - val_loss: 0.6549 - val_accuracy: 0.6771
Epoch 8/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.6553 - accuracy: 0.6771 - val_loss: 0.6496 - val_accuracy: 0.7031
Epoch 9/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.6492 - accuracy: 0.6753 - val_loss: 0.6448 - val_accuracy: 0.7188
Epoch 10/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.6438 - accuracy: 0.6806 - val_loss: 0.6405 - val_accuracy: 0.7083
Epoch 11/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.6389 - accuracy: 0.6858 - val_loss: 0.6366 - val_accuracy: 0.7083
Epoch 12/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.6343 - accuracy: 0.6840 - val_loss: 0.6330 - val_accuracy: 0.7083
Epoch 13/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.6301 - accuracy: 0.6875 - val_loss: 0.6296 - val_accuracy: 0.7188
Epoch 14/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.6262 - accuracy: 0.6875 - val_loss: 0.6265 - val_accuracy: 0.7135
Epoch 15/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.6225 - accuracy: 0.6875 - val_loss: 0.6235 - val_accuracy: 0.7083
Epoch 16/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.6190 - accuracy: 0.6858 - val_loss: 0.6206 - val_accuracy: 0.7031
Epoch 17/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.6155 - accuracy: 0.6858 - val_loss: 0.6179 - val_accuracy: 0.7083
Epoch 18/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.6123 - accuracy: 0.6858 - val_loss: 0.6152 - val_accuracy: 0.7031
Epoch 19/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.6091 - accuracy: 0.6823 - val_loss: 0.6127 - val_accuracy: 0.7031
Epoch 20/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.6060 - accuracy: 0.6806 - val_loss: 0.6101 - val_accuracy: 0.7083
Epoch 21/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.6029 - accuracy: 0.6788 - val_loss: 0.6076 - val_accuracy: 0.7083
Epoch 22/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.6000 - accuracy: 0.6753 - val_loss: 0.6051 - val_accuracy: 0.7031
Epoch 23/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.5971 - accuracy: 0.6771 - val_loss: 0.6027 - val_accuracy: 0.7083
Epoch 24/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.5942 - accuracy: 0.6753 - val_loss: 0.6003 - val_accuracy: 0.7083
Epoch 25/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.5914 - accuracy: 0.6719 - val_loss: 0.5979 - val_accuracy: 0.7083
Epoch 26/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.5886 - accuracy: 0.6753 - val_loss: 0.5955 - val_accuracy: 0.7083
Epoch 27/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.5859 - accuracy: 0.6736 - val_loss: 0.5931 - val_accuracy: 0.6979
Epoch 28/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.5831 - accuracy: 0.6771 - val_loss: 0.5907 - val_accuracy: 0.6979
Epoch 29/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.5804 - accuracy: 0.6771 - val_loss: 0.5884 - val_accuracy: 0.6979
Epoch 30/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.5777 - accuracy: 0.6788 - val_loss: 0.5861 - val_accuracy: 0.7031
Epoch 31/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.5749 - accuracy: 0.6806 - val_loss: 0.5837 - val_accuracy: 0.7031
Epoch 32/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.5722 - accuracy: 0.6858 - val_loss: 0.5814 - val_accuracy: 0.7031
Epoch 33/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.5694 - accuracy: 0.6875 - val_loss: 0.5790 - val_accuracy: 0.7031
Epoch 34/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.5667 - accuracy: 0.6927 - val_loss: 0.5767 - val_accuracy: 0.7031
Epoch 35/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.5639 - accuracy: 0.6962 - val_loss: 0.5743 - val_accuracy: 0.6979
Epoch 36/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.5611 - accuracy: 0.7014 - val_loss: 0.5719 - val_accuracy: 0.6979
Epoch 37/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.5584 - accuracy: 0.6979 - val_loss: 0.5696 - val_accuracy: 0.6979
Epoch 38/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.5556 - accuracy: 0.6997 - val_loss: 0.5673 - val_accuracy: 0.7031
Epoch 39/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.5528 - accuracy: 0.6997 - val_loss: 0.5650 - val_accuracy: 0.7083
Epoch 40/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.5500 - accuracy: 0.7014 - val_loss: 0.5628 - val_accuracy: 0.7083
Epoch 41/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.5473 - accuracy: 0.6997 - val_loss: 0.5606 - val_accuracy: 0.7135
Epoch 42/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.5445 - accuracy: 0.7049 - val_loss: 0.5585 - val_accuracy: 0.7083
Epoch 43/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.5418 - accuracy: 0.7049 - val_loss: 0.5564 - val_accuracy: 0.7240
Epoch 44/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.5391 - accuracy: 0.7083 - val_loss: 0.5543 - val_accuracy: 0.7240
Epoch 45/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.5365 - accuracy: 0.7083 - val_loss: 0.5523 - val_accuracy: 0.7135
Epoch 46/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.5339 - accuracy: 0.7101 - val_loss: 0.5503 - val_accuracy: 0.7135
Epoch 47/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.5314 - accuracy: 0.7118 - val_loss: 0.5484 - val_accuracy: 0.7135
Epoch 48/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.5290 - accuracy: 0.7135 - val_loss: 0.5466 - val_accuracy: 0.7135
Epoch 49/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.5265 - accuracy: 0.7153 - val_loss: 0.5448 - val_accuracy: 0.7083
Epoch 50/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.5241 - accuracy: 0.7205 - val_loss: 0.5431 - val_accuracy: 0.7135
Epoch 51/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.5218 - accuracy: 0.7222 - val_loss: 0.5414 - val_accuracy: 0.7135
Epoch 52/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.5193 - accuracy: 0.7240 - val_loss: 0.5398 - val_accuracy: 0.7135
Epoch 53/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.5171 - accuracy: 0.7222 - val_loss: 0.5383 - val_accuracy: 0.7135
Epoch 54/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.5148 - accuracy: 0.7257 - val_loss: 0.5368 - val_accuracy: 0.7083
Epoch 55/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.5127 - accuracy: 0.7240 - val_loss: 0.5354 - val_accuracy: 0.7083
Epoch 56/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.5106 - accuracy: 0.7240 - val_loss: 0.5340 - val_accuracy: 0.7083
Epoch 57/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.5084 - accuracy: 0.7292 - val_loss: 0.5327 - val_accuracy: 0.7031
Epoch 58/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.5063 - accuracy: 0.7326 - val_loss: 0.5315 - val_accuracy: 0.7083
Epoch 59/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.5043 - accuracy: 0.7326 - val_loss: 0.5303 - val_accuracy: 0.7083
Epoch 60/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.5021 - accuracy: 0.7344 - val_loss: 0.5291 - val_accuracy: 0.7135
Epoch 61/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.5001 - accuracy: 0.7344 - val_loss: 0.5280 - val_accuracy: 0.7188
Epoch 62/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4982 - accuracy: 0.7326 - val_loss: 0.5269 - val_accuracy: 0.7240
Epoch 63/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4963 - accuracy: 0.7326 - val_loss: 0.5258 - val_accuracy: 0.7240
Epoch 64/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4943 - accuracy: 0.7361 - val_loss: 0.5248 - val_accuracy: 0.7188
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Epoch 65/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4926 - accuracy: 0.7431 - val_loss: 0.5238 - val_accuracy: 0.7188
Epoch 66/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4908 - accuracy: 0.7431 - val_loss: 0.5228 - val_accuracy: 0.7188
Epoch 67/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4891 - accuracy: 0.7465 - val_loss: 0.5219 - val_accuracy: 0.7135
Epoch 68/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4873 - accuracy: 0.7500 - val_loss: 0.5211 - val_accuracy: 0.7188
Epoch 69/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4857 - accuracy: 0.7483 - val_loss: 0.5202 - val_accuracy: 0.7188
Epoch 70/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4842 - accuracy: 0.7535 - val_loss: 0.5195 - val_accuracy: 0.7240
Epoch 71/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4826 - accuracy: 0.7587 - val_loss: 0.5188 - val_accuracy: 0.7240
Epoch 72/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4811 - accuracy: 0.7622 - val_loss: 0.5181 - val_accuracy: 0.7240
Epoch 73/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4796 - accuracy: 0.7656 - val_loss: 0.5174 - val_accuracy: 0.7240
Epoch 74/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4784 - accuracy: 0.7639 - val_loss: 0.5168 - val_accuracy: 0.7240
Epoch 75/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4769 - accuracy: 0.7674 - val_loss: 0.5161 - val_accuracy: 0.7188
Epoch 76/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4755 - accuracy: 0.7691 - val_loss: 0.5155 - val_accuracy: 0.7188
Epoch 77/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4743 - accuracy: 0.7674 - val_loss: 0.5150 - val_accuracy: 0.7188
Epoch 78/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4731 - accuracy: 0.7691 - val_loss: 0.5144 - val_accuracy: 0.7240
Epoch 79/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4719 - accuracy: 0.7708 - val_loss: 0.5139 - val_accuracy: 0.7240
Epoch 80/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4708 - accuracy: 0.7726 - val_loss: 0.5134 - val_accuracy: 0.7240
Epoch 81/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4695 - accuracy: 0.7726 - val_loss: 0.5129 - val_accuracy: 0.7240
Epoch 82/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4686 - accuracy: 0.7726 - val_loss: 0.5125 - val_accuracy: 0.7240
Epoch 83/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4674 - accuracy: 0.7708 - val_loss: 0.5120 - val_accuracy: 0.7240
Epoch 84/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4665 - accuracy: 0.7726 - val_loss: 0.5116 - val_accuracy: 0.7240
Epoch 85/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4655 - accuracy: 0.7760 - val_loss: 0.5112 - val_accuracy: 0.7240
Epoch 86/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4646 - accuracy: 0.7726 - val_loss: 0.5109 - val_accuracy: 0.7240
Epoch 87/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4636 - accuracy: 0.7743 - val_loss: 0.5105 - val_accuracy: 0.7240
Epoch 88/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4626 - accuracy: 0.7743 - val_loss: 0.5102 - val_accuracy: 0.7240
Epoch 89/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4620 - accuracy: 0.7743 - val_loss: 0.5099 - val_accuracy: 0.7240
Epoch 90/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4609 - accuracy: 0.7743 - val_loss: 0.5097 - val_accuracy: 0.7240
Epoch 91/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4602 - accuracy: 0.7743 - val_loss: 0.5094 - val_accuracy: 0.7240
Epoch 92/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4594 - accuracy: 0.7778 - val_loss: 0.5092 - val_accuracy: 0.7240
Epoch 93/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4586 - accuracy: 0.7812 - val_loss: 0.5089 - val_accuracy: 0.7240
Epoch 94/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4578 - accuracy: 0.7795 - val_loss: 0.5087 - val_accuracy: 0.7240
Epoch 95/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4572 - accuracy: 0.7760 - val_loss: 0.5085 - val_accuracy: 0.7240
Epoch 96/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4564 - accuracy: 0.7726 - val_loss: 0.5083 - val_accuracy: 0.7240
Epoch 97/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4559 - accuracy: 0.7743 - val_loss: 0.5082 - val_accuracy: 0.7240
Epoch 98/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4552 - accuracy: 0.7743 - val_loss: 0.5080 - val_accuracy: 0.7240
Epoch 99/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4546 - accuracy: 0.7778 - val_loss: 0.5079 - val_accuracy: 0.7292
Epoch 100/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4540 - accuracy: 0.7812 - val_loss: 0.5078 - val_accuracy: 0.7292
Epoch 101/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4533 - accuracy: 0.7830 - val_loss: 0.5077 - val_accuracy: 0.7292
Epoch 102/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4527 - accuracy: 0.7830 - val_loss: 0.5076 - val_accuracy: 0.7240
Epoch 103/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4523 - accuracy: 0.7830 - val_loss: 0.5075 - val_accuracy: 0.7240
Epoch 104/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4516 - accuracy: 0.7812 - val_loss: 0.5074 - val_accuracy: 0.7240
Epoch 105/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4512 - accuracy: 0.7778 - val_loss: 0.5074 - val_accuracy: 0.7292
Epoch 106/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4507 - accuracy: 0.7812 - val_loss: 0.5073 - val_accuracy: 0.7292
Epoch 107/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4502 - accuracy: 0.7865 - val_loss: 0.5073 - val_accuracy: 0.7292
Epoch 108/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4497 - accuracy: 0.7830 - val_loss: 0.5072 - val_accuracy: 0.7292
Epoch 109/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4492 - accuracy: 0.7865 - val_loss: 0.5072 - val_accuracy: 0.7344
Epoch 110/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4489 - accuracy: 0.7847 - val_loss: 0.5072 - val_accuracy: 0.7344
Epoch 111/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4483 - accuracy: 0.7865 - val_loss: 0.5072 - val_accuracy: 0.7344
Epoch 112/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4480 - accuracy: 0.7847 - val_loss: 0.5072 - val_accuracy: 0.7344
Epoch 113/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4476 - accuracy: 0.7865 - val_loss: 0.5072 - val_accuracy: 0.7344
Epoch 114/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4473 - accuracy: 0.7830 - val_loss: 0.5072 - val_accuracy: 0.7344
Epoch 115/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4469 - accuracy: 0.7847 - val_loss: 0.5072 - val_accuracy: 0.7344
Epoch 116/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4465 - accuracy: 0.7830 - val_loss: 0.5072 - val_accuracy: 0.7344
Epoch 117/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4460 - accuracy: 0.7882 - val_loss: 0.5073 - val_accuracy: 0.7344
Epoch 118/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4457 - accuracy: 0.7830 - val_loss: 0.5073 - val_accuracy: 0.7344
Epoch 119/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4454 - accuracy: 0.7847 - val_loss: 0.5074 - val_accuracy: 0.7344
Epoch 120/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4451 - accuracy: 0.7865 - val_loss: 0.5074 - val_accuracy: 0.7344
Epoch 121/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4446 - accuracy: 0.7865 - val_loss: 0.5074 - val_accuracy: 0.7344
Epoch 122/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4444 - accuracy: 0.7865 - val_loss: 0.5075 - val_accuracy: 0.7344
Epoch 123/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4442 - accuracy: 0.7865 - val_loss: 0.5075 - val_accuracy: 0.7396
Epoch 124/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4439 - accuracy: 0.7865 - val_loss: 0.5076 - val_accuracy: 0.7396
Epoch 125/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4435 - accuracy: 0.7882 - val_loss: 0.5077 - val_accuracy: 0.7396
Epoch 126/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4431 - accuracy: 0.7865 - val_loss: 0.5077 - val_accuracy: 0.7396
Epoch 127/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4429 - accuracy: 0.7899 - val_loss: 0.5078 - val_accuracy: 0.7396
Epoch 128/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4426 - accuracy: 0.7899 - val_loss: 0.5078 - val_accuracy: 0.7448
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Epoch 129/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4423 - accuracy: 0.7882 - val_loss: 0.5079 - val_accuracy: 0.7448
Epoch 130/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4420 - accuracy: 0.7899 - val_loss: 0.5079 - val_accuracy: 0.7448
Epoch 131/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4417 - accuracy: 0.7899 - val_loss: 0.5080 - val_accuracy: 0.7448
Epoch 132/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4413 - accuracy: 0.7899 - val_loss: 0.5080 - val_accuracy: 0.7448
Epoch 133/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4412 - accuracy: 0.7899 - val_loss: 0.5080 - val_accuracy: 0.7448
Epoch 134/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4411 - accuracy: 0.7899 - val_loss: 0.5080 - val_accuracy: 0.7448
Epoch 135/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4404 - accuracy: 0.7934 - val_loss: 0.5081 - val_accuracy: 0.7500
Epoch 136/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4402 - accuracy: 0.7934 - val_loss: 0.5081 - val_accuracy: 0.7500
Epoch 137/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4400 - accuracy: 0.7951 - val_loss: 0.5081 - val_accuracy: 0.7500
Epoch 138/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4397 - accuracy: 0.7951 - val_loss: 0.5081 - val_accuracy: 0.7500
Epoch 139/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4395 - accuracy: 0.7934 - val_loss: 0.5082 - val_accuracy: 0.7500
Epoch 140/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4392 - accuracy: 0.7951 - val_loss: 0.5082 - val_accuracy: 0.7552
Epoch 141/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4389 - accuracy: 0.7969 - val_loss: 0.5082 - val_accuracy: 0.7552
Epoch 142/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4387 - accuracy: 0.7969 - val_loss: 0.5083 - val_accuracy: 0.7552
Epoch 143/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4386 - accuracy: 0.7969 - val_loss: 0.5082 - val_accuracy: 0.7552
Epoch 144/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4383 - accuracy: 0.7951 - val_loss: 0.5083 - val_accuracy: 0.7552
Epoch 145/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4380 - accuracy: 0.7969 - val_loss: 0.5084 - val_accuracy: 0.7552
Epoch 146/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4377 - accuracy: 0.7969 - val_loss: 0.5084 - val_accuracy: 0.7552
Epoch 147/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4374 - accuracy: 0.7969 - val_loss: 0.5085 - val_accuracy: 0.7552
Epoch 148/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4373 - accuracy: 0.7969 - val_loss: 0.5086 - val_accuracy: 0.7552
Epoch 149/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4370 - accuracy: 0.7951 - val_loss: 0.5086 - val_accuracy: 0.7552
Epoch 150/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4368 - accuracy: 0.7969 - val_loss: 0.5087 - val_accuracy: 0.7552
Epoch 151/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4366 - accuracy: 0.7951 - val_loss: 0.5088 - val_accuracy: 0.7552
Epoch 152/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4365 - accuracy: 0.7917 - val_loss: 0.5089 - val_accuracy: 0.7552
Epoch 153/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4363 - accuracy: 0.7951 - val_loss: 0.5090 - val_accuracy: 0.7552
Epoch 154/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4362 - accuracy: 0.7969 - val_loss: 0.5091 - val_accuracy: 0.7552
Epoch 155/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4357 - accuracy: 0.7969 - val_loss: 0.5092 - val_accuracy: 0.7552
Epoch 156/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4355 - accuracy: 0.7969 - val_loss: 0.5093 - val_accuracy: 0.7552
Epoch 157/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4354 - accuracy: 0.7951 - val_loss: 0.5093 - val_accuracy: 0.7500
Epoch 158/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4352 - accuracy: 0.7969 - val_loss: 0.5094 - val_accuracy: 0.7500
Epoch 159/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4350 - accuracy: 0.7917 - val_loss: 0.5095 - val_accuracy: 0.7500
Epoch 160/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4350 - accuracy: 0.7969 - val_loss: 0.5096 - val_accuracy: 0.7500
Epoch 161/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4346 - accuracy: 0.7951 - val_loss: 0.5097 - val_accuracy: 0.7500
Epoch 162/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4345 - accuracy: 0.7951 - val_loss: 0.5098 - val_accuracy: 0.7500
Epoch 163/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4343 - accuracy: 0.7917 - val_loss: 0.5099 - val_accuracy: 0.7500
Epoch 164/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4340 - accuracy: 0.7934 - val_loss: 0.5100 - val_accuracy: 0.7500
Epoch 165/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4338 - accuracy: 0.7969 - val_loss: 0.5101 - val_accuracy: 0.7500
Epoch 166/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4336 - accuracy: 0.7951 - val_loss: 0.5101 - val_accuracy: 0.7500
Epoch 167/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4336 - accuracy: 0.7951 - val_loss: 0.5102 - val_accuracy: 0.7500
Epoch 168/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4333 - accuracy: 0.7969 - val_loss: 0.5102 - val_accuracy: 0.7500
Epoch 169/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4331 - accuracy: 0.7951 - val_loss: 0.5103 - val_accuracy: 0.7500
Epoch 170/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4328 - accuracy: 0.7934 - val_loss: 0.5103 - val_accuracy: 0.7500
Epoch 171/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.4327 - accuracy: 0.7934 - val_loss: 0.5104 - val_accuracy: 0.7500
Epoch 172/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4324 - accuracy: 0.7951 - val_loss: 0.5104 - val_accuracy: 0.7500
Epoch 173/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4322 - accuracy: 0.7951 - val_loss: 0.5105 - val_accuracy: 0.7500
Epoch 174/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4321 - accuracy: 0.7934 - val_loss: 0.5106 - val_accuracy: 0.7500
Epoch 175/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4319 - accuracy: 0.7917 - val_loss: 0.5106 - val_accuracy: 0.7500
Epoch 176/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4317 - accuracy: 0.7917 - val_loss: 0.5107 - val_accuracy: 0.7500
Epoch 177/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4314 - accuracy: 0.7934 - val_loss: 0.5108 - val_accuracy: 0.7500
Epoch 178/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4312 - accuracy: 0.7917 - val_loss: 0.5109 - val_accuracy: 0.7500
Epoch 179/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4310 - accuracy: 0.7969 - val_loss: 0.5109 - val_accuracy: 0.7500
Epoch 180/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4308 - accuracy: 0.7951 - val_loss: 0.5110 - val_accuracy: 0.7500
Epoch 181/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4307 - accuracy: 0.7934 - val_loss: 0.5110 - val_accuracy: 0.7448
Epoch 182/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4304 - accuracy: 0.7934 - val_loss: 0.5111 - val_accuracy: 0.7448
Epoch 183/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4302 - accuracy: 0.7951 - val_loss: 0.5112 - val_accuracy: 0.7396
Epoch 184/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4301 - accuracy: 0.7986 - val_loss: 0.5112 - val_accuracy: 0.7448
Epoch 185/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4299 - accuracy: 0.8003 - val_loss: 0.5113 - val_accuracy: 0.7448
Epoch 186/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4298 - accuracy: 0.7969 - val_loss: 0.5114 - val_accuracy: 0.7448
Epoch 187/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4295 - accuracy: 0.7969 - val_loss: 0.5115 - val_accuracy: 0.7448
Epoch 188/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4295 - accuracy: 0.7986 - val_loss: 0.5115 - val_accuracy: 0.7448
Epoch 189/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4291 - accuracy: 0.7986 - val_loss: 0.5116 - val_accuracy: 0.7448
Epoch 190/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4291 - accuracy: 0.7969 - val_loss: 0.5118 - val_accuracy: 0.7448
Epoch 191/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4288 - accuracy: 0.7986 - val_loss: 0.5119 - val_accuracy: 0.7448
Epoch 192/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4286 - accuracy: 0.7986 - val_loss: 0.5120 - val_accuracy: 0.7448
```

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Epoch 193/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4284 - accuracy: 0.7969 - val_loss: 0.5121 - val_accuracy: 0.7448
Epoch 194/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4282 - accuracy: 0.8003 - val_loss: 0.5122 - val_accuracy: 0.7448
Epoch 195/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4280 - accuracy: 0.8021 - val_loss: 0.5123 - val_accuracy: 0.7448
Epoch 196/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4278 - accuracy: 0.7986 - val_loss: 0.5125 - val_accuracy: 0.7448
Epoch 197/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4277 - accuracy: 0.7986 - val_loss: 0.5126 - val_accuracy: 0.7448
Epoch 198/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4275 - accuracy: 0.7986 - val_loss: 0.5128 - val_accuracy: 0.7448
Epoch 199/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4273 - accuracy: 0.8021 - val_loss: 0.5130 - val_accuracy: 0.7448
Epoch 200/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4271 - accuracy: 0.7986 - val_loss: 0.5131 - val_accuracy: 0.7396
Epoch 201/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4271 - accuracy: 0.8038 - val_loss: 0.5131 - val_accuracy: 0.7396
Epoch 202/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4269 - accuracy: 0.8021 - val_loss: 0.5133 - val_accuracy: 0.7396
Epoch 203/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4267 - accuracy: 0.8021 - val_loss: 0.5134 - val_accuracy: 0.7396
Epoch 204/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4265 - accuracy: 0.8021 - val_loss: 0.5135 - val_accuracy: 0.7396
Epoch 205/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4264 - accuracy: 0.8038 - val_loss: 0.5136 - val_accuracy: 0.7396
Epoch 206/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4262 - accuracy: 0.8003 - val_loss: 0.5138 - val_accuracy: 0.7396
Epoch 207/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4261 - accuracy: 0.8021 - val_loss: 0.5139 - val_accuracy: 0.7396
Epoch 208/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4258 - accuracy: 0.8003 - val_loss: 0.5140 - val_accuracy: 0.7396
Epoch 209/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4257 - accuracy: 0.7986 - val_loss: 0.5142 - val_accuracy: 0.7396
Epoch 210/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4256 - accuracy: 0.8003 - val_loss: 0.5144 - val_accuracy: 0.7396
Epoch 211/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4254 - accuracy: 0.8003 - val_loss: 0.5145 - val_accuracy: 0.7396
Epoch 212/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4254 - accuracy: 0.8021 - val_loss: 0.5147 - val_accuracy: 0.7396
Epoch 213/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4252 - accuracy: 0.8038 - val_loss: 0.5147 - val_accuracy: 0.7396
Epoch 214/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4251 - accuracy: 0.7986 - val_loss: 0.5148 - val_accuracy: 0.7396
Epoch 215/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4252 - accuracy: 0.8021 - val_loss: 0.5148 - val_accuracy: 0.7396
Epoch 216/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4246 - accuracy: 0.7986 - val_loss: 0.5149 - val_accuracy: 0.7396
Epoch 217/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4245 - accuracy: 0.8056 - val_loss: 0.5149 - val_accuracy: 0.7344
Epoch 218/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4244 - accuracy: 0.7986 - val_loss: 0.5150 - val_accuracy: 0.7344
Epoch 219/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4241 - accuracy: 0.8003 - val_loss: 0.5151 - val_accuracy: 0.7344
Epoch 220/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4241 - accuracy: 0.7969 - val_loss: 0.5152 - val_accuracy: 0.7344
Epoch 221/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4238 - accuracy: 0.7969 - val_loss: 0.5153 - val_accuracy: 0.7344
Epoch 222/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4238 - accuracy: 0.7986 - val_loss: 0.5155 - val_accuracy: 0.7344
Epoch 223/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4235 - accuracy: 0.7986 - val_loss: 0.5157 - val_accuracy: 0.7344
Epoch 224/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4235 - accuracy: 0.8003 - val_loss: 0.5158 - val_accuracy: 0.7344
Epoch 225/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4234 - accuracy: 0.8003 - val_loss: 0.5159 - val_accuracy: 0.7344
Epoch 226/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4231 - accuracy: 0.8038 - val_loss: 0.5159 - val_accuracy: 0.7344
Epoch 227/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4229 - accuracy: 0.7986 - val_loss: 0.5161 - val_accuracy: 0.7344
Epoch 228/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4229 - accuracy: 0.8021 - val_loss: 0.5162 - val_accuracy: 0.7344
Epoch 229/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4227 - accuracy: 0.8003 - val_loss: 0.5164 - val_accuracy: 0.7344
Epoch 230/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4227 - accuracy: 0.8003 - val_loss: 0.5164 - val_accuracy: 0.7344
Epoch 231/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4223 - accuracy: 0.8073 - val_loss: 0.5164 - val_accuracy: 0.7344
Epoch 232/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4223 - accuracy: 0.8003 - val_loss: 0.5165 - val_accuracy: 0.7344
Epoch 233/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4221 - accuracy: 0.8038 - val_loss: 0.5166 - val_accuracy: 0.7344
Epoch 234/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4220 - accuracy: 0.7986 - val_loss: 0.5167 - val_accuracy: 0.7344
Epoch 235/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4218 - accuracy: 0.8021 - val_loss: 0.5168 - val_accuracy: 0.7344
Epoch 236/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4217 - accuracy: 0.8003 - val_loss: 0.5169 - val_accuracy: 0.7344
Epoch 237/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4217 - accuracy: 0.8038 - val_loss: 0.5171 - val_accuracy: 0.7344
Epoch 238/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4214 - accuracy: 0.8038 - val_loss: 0.5171 - val_accuracy: 0.7344
Epoch 239/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4211 - accuracy: 0.8021 - val_loss: 0.5172 - val_accuracy: 0.7344
Epoch 240/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4210 - accuracy: 0.8056 - val_loss: 0.5173 - val_accuracy: 0.7344
Epoch 241/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4213 - accuracy: 0.8056 - val_loss: 0.5174 - val_accuracy: 0.7344
Epoch 242/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4210 - accuracy: 0.8056 - val_loss: 0.5175 - val_accuracy: 0.7344
Epoch 243/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4211 - accuracy: 0.8056 - val_loss: 0.5175 - val_accuracy: 0.7344
Epoch 244/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4206 - accuracy: 0.8021 - val_loss: 0.5177 - val_accuracy: 0.7344
Epoch 245/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4205 - accuracy: 0.8038 - val_loss: 0.5178 - val_accuracy: 0.7344
Epoch 246/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4204 - accuracy: 0.8073 - val_loss: 0.5179 - val_accuracy: 0.7344
Epoch 247/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4204 - accuracy: 0.8021 - val_loss: 0.5181 - val_accuracy: 0.7344
Epoch 248/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4201 - accuracy: 0.8056 - val_loss: 0.5181 - val_accuracy: 0.7344
Epoch 249/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4200 - accuracy: 0.8038 - val_loss: 0.5184 - val_accuracy: 0.7344
Epoch 250/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4199 - accuracy: 0.8038 - val_loss: 0.5186 - val_accuracy: 0.7344
Epoch 251/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4198 - accuracy: 0.8038 - val_loss: 0.5187 - val_accuracy: 0.7344
Epoch 252/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4197 - accuracy: 0.8108 - val_loss: 0.5187 - val_accuracy: 0.7292
Epoch 253/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4195 - accuracy: 0.8056 - val_loss: 0.5187 - val_accuracy: 0.7292
Epoch 254/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4194 - accuracy: 0.8056 - val_loss: 0.5188 - val_accuracy: 0.7292
Epoch 255/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4194 - accuracy: 0.8073 - val_loss: 0.5189 - val_accuracy: 0.7292
Epoch 256/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4193 - accuracy: 0.8073 - val_loss: 0.5190 - val_accuracy: 0.7292
```

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Epoch 257/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4191 - accuracy: 0.8038 - val_loss: 0.5191 - val_accuracy: 0.7292
Epoch 258/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4190 - accuracy: 0.8056 - val_loss: 0.5192 - val_accuracy: 0.7292
Epoch 259/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4188 - accuracy: 0.8038 - val_loss: 0.5193 - val_accuracy: 0.7292
Epoch 260/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4187 - accuracy: 0.8038 - val_loss: 0.5194 - val_accuracy: 0.7292
Epoch 261/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4186 - accuracy: 0.8038 - val_loss: 0.5194 - val_accuracy: 0.7292
Epoch 262/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4185 - accuracy: 0.8056 - val_loss: 0.5196 - val_accuracy: 0.7292
Epoch 263/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4184 - accuracy: 0.8038 - val_loss: 0.5197 - val_accuracy: 0.7292
Epoch 264/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4184 - accuracy: 0.8056 - val_loss: 0.5198 - val_accuracy: 0.7240
Epoch 265/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4182 - accuracy: 0.8056 - val_loss: 0.5200 - val_accuracy: 0.7240
Epoch 266/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4184 - accuracy: 0.8056 - val_loss: 0.5201 - val_accuracy: 0.7240
Epoch 267/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4181 - accuracy: 0.8056 - val_loss: 0.5201 - val_accuracy: 0.7240
Epoch 268/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4178 - accuracy: 0.8056 - val_loss: 0.5202 - val_accuracy: 0.7240
Epoch 269/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4178 - accuracy: 0.8056 - val_loss: 0.5203 - val_accuracy: 0.7240
Epoch 270/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4177 - accuracy: 0.8073 - val_loss: 0.5203 - val_accuracy: 0.7240
Epoch 271/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4175 - accuracy: 0.8038 - val_loss: 0.5204 - val_accuracy: 0.7240
Epoch 272/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4175 - accuracy: 0.8056 - val_loss: 0.5204 - val_accuracy: 0.7240
Epoch 273/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4174 - accuracy: 0.8073 - val_loss: 0.5205 - val_accuracy: 0.7240
Epoch 274/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4173 - accuracy: 0.8073 - val_loss: 0.5205 - val_accuracy: 0.7240
Epoch 275/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4172 - accuracy: 0.8073 - val_loss: 0.5207 - val_accuracy: 0.7240
Epoch 276/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4171 - accuracy: 0.8056 - val_loss: 0.5208 - val_accuracy: 0.7240
Epoch 277/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4168 - accuracy: 0.8056 - val_loss: 0.5209 - val_accuracy: 0.7240
Epoch 278/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4170 - accuracy: 0.8073 - val_loss: 0.5209 - val_accuracy: 0.7240
Epoch 279/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4169 - accuracy: 0.8073 - val_loss: 0.5209 - val_accuracy: 0.7240
Epoch 280/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4167 - accuracy: 0.8056 - val_loss: 0.5210 - val_accuracy: 0.7292
Epoch 281/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4165 - accuracy: 0.8056 - val_loss: 0.5211 - val_accuracy: 0.7292
Epoch 282/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4165 - accuracy: 0.8073 - val_loss: 0.5212 - val_accuracy: 0.7292
Epoch 283/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4164 - accuracy: 0.8073 - val_loss: 0.5213 - val_accuracy: 0.7292
Epoch 284/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4163 - accuracy: 0.8073 - val_loss: 0.5213 - val_accuracy: 0.7292
Epoch 285/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4161 - accuracy: 0.8073 - val_loss: 0.5215 - val_accuracy: 0.7292
Epoch 286/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4161 - accuracy: 0.8056 - val_loss: 0.5216 - val_accuracy: 0.7292
Epoch 287/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4160 - accuracy: 0.8073 - val_loss: 0.5217 - val_accuracy: 0.7292
Epoch 288/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4160 - accuracy: 0.8073 - val_loss: 0.5218 - val_accuracy: 0.7292
Epoch 289/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4159 - accuracy: 0.8073 - val_loss: 0.5219 - val_accuracy: 0.7344
Epoch 290/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4159 - accuracy: 0.8073 - val_loss: 0.5220 - val_accuracy: 0.7292
Epoch 291/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4157 - accuracy: 0.8073 - val_loss: 0.5220 - val_accuracy: 0.7344
Epoch 292/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4155 - accuracy: 0.8056 - val_loss: 0.5221 - val_accuracy: 0.7344
Epoch 293/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4155 - accuracy: 0.8073 - val_loss: 0.5223 - val_accuracy: 0.7344
Epoch 294/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4154 - accuracy: 0.8056 - val_loss: 0.5223 - val_accuracy: 0.7344
Epoch 295/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4153 - accuracy: 0.8073 - val_loss: 0.5224 - val_accuracy: 0.7344
Epoch 296/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4151 - accuracy: 0.8090 - val_loss: 0.5225 - val_accuracy: 0.7344
Epoch 297/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4152 - accuracy: 0.8056 - val_loss: 0.5224 - val_accuracy: 0.7344
Epoch 298/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4150 - accuracy: 0.8090 - val_loss: 0.5225 - val_accuracy: 0.7344
Epoch 299/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4150 - accuracy: 0.8090 - val_loss: 0.5224 - val_accuracy: 0.7344
Epoch 300/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4148 - accuracy: 0.8108 - val_loss: 0.5223 - val_accuracy: 0.7344
Epoch 301/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4148 - accuracy: 0.8090 - val_loss: 0.5223 - val_accuracy: 0.7344
Epoch 302/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4147 - accuracy: 0.8090 - val_loss: 0.5224 - val_accuracy: 0.7344
Epoch 303/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4147 - accuracy: 0.8090 - val_loss: 0.5226 - val_accuracy: 0.7344
Epoch 304/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4147 - accuracy: 0.8108 - val_loss: 0.5227 - val_accuracy: 0.7344
Epoch 305/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4146 - accuracy: 0.8090 - val_loss: 0.5228 - val_accuracy: 0.7344
Epoch 306/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4144 - accuracy: 0.8090 - val_loss: 0.5228 - val_accuracy: 0.7344
Epoch 307/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4145 - accuracy: 0.8108 - val_loss: 0.5230 - val_accuracy: 0.7344
Epoch 308/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4144 - accuracy: 0.8090 - val_loss: 0.5230 - val_accuracy: 0.7292
Epoch 309/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4144 - accuracy: 0.8090 - val_loss: 0.5230 - val_accuracy: 0.7292
Epoch 310/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4142 - accuracy: 0.8108 - val_loss: 0.5230 - val_accuracy: 0.7344
Epoch 311/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4143 - accuracy: 0.8090 - val_loss: 0.5230 - val_accuracy: 0.7344
Epoch 312/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4141 - accuracy: 0.8108 - val_loss: 0.5231 - val_accuracy: 0.7344
Epoch 313/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4140 - accuracy: 0.8090 - val_loss: 0.5233 - val_accuracy: 0.7344
Epoch 314/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4139 - accuracy: 0.8108 - val_loss: 0.5232 - val_accuracy: 0.7344
Epoch 315/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4139 - accuracy: 0.8090 - val_loss: 0.5233 - val_accuracy: 0.7344
Epoch 316/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4137 - accuracy: 0.8108 - val_loss: 0.5233 - val_accuracy: 0.7344
Epoch 317/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4136 - accuracy: 0.8108 - val_loss: 0.5234 - val_accuracy: 0.7344
Epoch 318/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4136 - accuracy: 0.8108 - val_loss: 0.5235 - val_accuracy: 0.7396
Epoch 319/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4137 - accuracy: 0.8090 - val_loss: 0.5236 - val_accuracy: 0.7396
Epoch 320/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4133 - accuracy: 0.8108 - val_loss: 0.5237 - val_accuracy: 0.7396
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Epoch 321/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4134 - accuracy: 0.8108 - val_loss: 0.5238 - val_accuracy: 0.7396
Epoch 322/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4134 - accuracy: 0.8108 - val_loss: 0.5238 - val_accuracy: 0.7396
Epoch 323/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4132 - accuracy: 0.8108 - val_loss: 0.5239 - val_accuracy: 0.7396
Epoch 324/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4132 - accuracy: 0.8090 - val_loss: 0.5240 - val_accuracy: 0.7396
Epoch 325/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4131 - accuracy: 0.8125 - val_loss: 0.5241 - val_accuracy: 0.7396
Epoch 326/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4130 - accuracy: 0.8108 - val_loss: 0.5241 - val_accuracy: 0.7396
Epoch 327/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4129 - accuracy: 0.8125 - val_loss: 0.5242 - val_accuracy: 0.7396
Epoch 328/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4131 - accuracy: 0.8108 - val_loss: 0.5242 - val_accuracy: 0.7396
Epoch 329/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4128 - accuracy: 0.8108 - val_loss: 0.5242 - val_accuracy: 0.7396
Epoch 330/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4128 - accuracy: 0.8090 - val_loss: 0.5243 - val_accuracy: 0.7396
Epoch 331/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4128 - accuracy: 0.8108 - val_loss: 0.5244 - val_accuracy: 0.7396
Epoch 332/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4127 - accuracy: 0.8108 - val_loss: 0.5244 - val_accuracy: 0.7396
Epoch 333/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4127 - accuracy: 0.8090 - val_loss: 0.5243 - val_accuracy: 0.7396
Epoch 334/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4125 - accuracy: 0.8108 - val_loss: 0.5243 - val_accuracy: 0.7396
Epoch 335/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4125 - accuracy: 0.8090 - val_loss: 0.5244 - val_accuracy: 0.7396
Epoch 336/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4125 - accuracy: 0.8108 - val_loss: 0.5245 - val_accuracy: 0.7396
Epoch 337/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4124 - accuracy: 0.8142 - val_loss: 0.5244 - val_accuracy: 0.7396
Epoch 338/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4124 - accuracy: 0.8108 - val_loss: 0.5245 - val_accuracy: 0.7396
Epoch 339/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4123 - accuracy: 0.8108 - val_loss: 0.5247 - val_accuracy: 0.7344
Epoch 340/1500
18/18 [==============================] - 0s 9ms/step - loss: 0.4123 - accuracy: 0.8108 - val_loss: 0.5247 - val_accuracy: 0.7344
Epoch 341/1500
18/18 [==============================] - 0s 9ms/step - loss: 0.4122 - accuracy: 0.8108 - val_loss: 0.5248 - val_accuracy: 0.7344
Epoch 342/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.4121 - accuracy: 0.8125 - val_loss: 0.5248 - val_accuracy: 0.7344
Epoch 343/1500
18/18 [==============================] - 0s 9ms/step - loss: 0.4120 - accuracy: 0.8125 - val_loss: 0.5247 - val_accuracy: 0.7344
Epoch 344/1500
18/18 [==============================] - 0s 9ms/step - loss: 0.4120 - accuracy: 0.8108 - val_loss: 0.5249 - val_accuracy: 0.7344
Epoch 345/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.4119 - accuracy: 0.8108 - val_loss: 0.5249 - val_accuracy: 0.7344
Epoch 346/1500
18/18 [==============================] - 0s 10ms/step - loss: 0.4118 - accuracy: 0.8142 - val_loss: 0.5248 - val_accuracy: 0.7344
Epoch 347/1500
18/18 [==============================] - 0s 12ms/step - loss: 0.4116 - accuracy: 0.8142 - val_loss: 0.5248 - val_accuracy: 0.7344
Epoch 348/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.4115 - accuracy: 0.8125 - val_loss: 0.5249 - val_accuracy: 0.7344
Epoch 349/1500
18/18 [==============================] - 0s 9ms/step - loss: 0.4116 - accuracy: 0.8125 - val_loss: 0.5249 - val_accuracy: 0.7344
Epoch 350/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.4115 - accuracy: 0.8125 - val_loss: 0.5248 - val_accuracy: 0.7344
Epoch 351/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.4114 - accuracy: 0.8108 - val_loss: 0.5249 - val_accuracy: 0.7344
Epoch 352/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.4113 - accuracy: 0.8108 - val_loss: 0.5250 - val_accuracy: 0.7344
Epoch 353/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4113 - accuracy: 0.8125 - val_loss: 0.5250 - val_accuracy: 0.7344
Epoch 354/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.4114 - accuracy: 0.8108 - val_loss: 0.5250 - val_accuracy: 0.7344
Epoch 355/1500
18/18 [==============================] - 0s 10ms/step - loss: 0.4112 - accuracy: 0.8125 - val_loss: 0.5251 - val_accuracy: 0.7344
Epoch 356/1500
18/18 [==============================] - 0s 10ms/step - loss: 0.4110 - accuracy: 0.8108 - val_loss: 0.5251 - val_accuracy: 0.7344
Epoch 357/1500
18/18 [==============================] - 0s 9ms/step - loss: 0.4111 - accuracy: 0.8125 - val_loss: 0.5251 - val_accuracy: 0.7344
Epoch 358/1500
18/18 [==============================] - 0s 10ms/step - loss: 0.4108 - accuracy: 0.8108 - val_loss: 0.5251 - val_accuracy: 0.7344
Epoch 359/1500
18/18 [==============================] - 0s 14ms/step - loss: 0.4109 - accuracy: 0.8108 - val_loss: 0.5252 - val_accuracy: 0.7344
Epoch 360/1500
18/18 [==============================] - 0s 11ms/step - loss: 0.4109 - accuracy: 0.8125 - val_loss: 0.5251 - val_accuracy: 0.7344
Epoch 361/1500
18/18 [==============================] - 0s 11ms/step - loss: 0.4108 - accuracy: 0.8125 - val_loss: 0.5251 - val_accuracy: 0.7344
Epoch 362/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4106 - accuracy: 0.8125 - val_loss: 0.5251 - val_accuracy: 0.7344
Epoch 363/1500
18/18 [==============================] - 0s 9ms/step - loss: 0.4106 - accuracy: 0.8142 - val_loss: 0.5251 - val_accuracy: 0.7344
Epoch 364/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.4106 - accuracy: 0.8177 - val_loss: 0.5251 - val_accuracy: 0.7344
Epoch 365/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.4106 - accuracy: 0.8160 - val_loss: 0.5251 - val_accuracy: 0.7344
Epoch 366/1500
18/18 [==============================] - 0s 12ms/step - loss: 0.4104 - accuracy: 0.8160 - val_loss: 0.5252 - val_accuracy: 0.7344
Epoch 367/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.4103 - accuracy: 0.8142 - val_loss: 0.5252 - val_accuracy: 0.7344
Epoch 368/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4102 - accuracy: 0.8142 - val_loss: 0.5252 - val_accuracy: 0.7344
Epoch 369/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4102 - accuracy: 0.8160 - val_loss: 0.5252 - val_accuracy: 0.7344
Epoch 370/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.4103 - accuracy: 0.8142 - val_loss: 0.5252 - val_accuracy: 0.7344
Epoch 371/1500
18/18 [==============================] - 0s 10ms/step - loss: 0.4101 - accuracy: 0.8142 - val_loss: 0.5252 - val_accuracy: 0.7344
Epoch 372/1500
18/18 [==============================] - 0s 11ms/step - loss: 0.4102 - accuracy: 0.8142 - val_loss: 0.5252 - val_accuracy: 0.7344
Epoch 373/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4100 - accuracy: 0.8177 - val_loss: 0.5249 - val_accuracy: 0.7344
Epoch 374/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4101 - accuracy: 0.8160 - val_loss: 0.5250 - val_accuracy: 0.7344
Epoch 375/1500
18/18 [==============================] - 0s 11ms/step - loss: 0.4098 - accuracy: 0.8160 - val_loss: 0.5250 - val_accuracy: 0.7344
Epoch 376/1500
18/18 [==============================] - 0s 9ms/step - loss: 0.4098 - accuracy: 0.8194 - val_loss: 0.5250 - val_accuracy: 0.7344
Epoch 377/1500
18/18 [==============================] - 0s 10ms/step - loss: 0.4098 - accuracy: 0.8177 - val_loss: 0.5250 - val_accuracy: 0.7344
Epoch 378/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.4098 - accuracy: 0.8177 - val_loss: 0.5249 - val_accuracy: 0.7344
Epoch 379/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4097 - accuracy: 0.8194 - val_loss: 0.5249 - val_accuracy: 0.7344
Epoch 380/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4096 - accuracy: 0.8160 - val_loss: 0.5249 - val_accuracy: 0.7344
Epoch 381/1500
18/18 [==============================] - 0s 10ms/step - loss: 0.4095 - accuracy: 0.8177 - val_loss: 0.5250 - val_accuracy: 0.7344
Epoch 382/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.4094 - accuracy: 0.8160 - val_loss: 0.5249 - val_accuracy: 0.7344
Epoch 383/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4096 - accuracy: 0.8177 - val_loss: 0.5249 - val_accuracy: 0.7344
Epoch 384/1500
18/18 [==============================] - 0s 11ms/step - loss: 0.4093 - accuracy: 0.8177 - val_loss: 0.5250 - val_accuracy: 0.7344
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Epoch 385/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4092 - accuracy: 0.8142 - val_loss: 0.5251 - val_accuracy: 0.7344
Epoch 386/1500
18/18 [==============================] - 0s 11ms/step - loss: 0.4090 - accuracy: 0.8177 - val_loss: 0.5250 - val_accuracy: 0.7344
Epoch 387/1500
18/18 [==============================] - 0s 11ms/step - loss: 0.4091 - accuracy: 0.8177 - val_loss: 0.5250 - val_accuracy: 0.7344
Epoch 388/1500
18/18 [==============================] - 0s 9ms/step - loss: 0.4092 - accuracy: 0.8194 - val_loss: 0.5248 - val_accuracy: 0.7344
Epoch 389/1500
18/18 [==============================] - 0s 10ms/step - loss: 0.4090 - accuracy: 0.8160 - val_loss: 0.5249 - val_accuracy: 0.7344
Epoch 390/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.4092 - accuracy: 0.8177 - val_loss: 0.5250 - val_accuracy: 0.7344
Epoch 391/1500
18/18 [==============================] - 0s 13ms/step - loss: 0.4088 - accuracy: 0.8160 - val_loss: 0.5249 - val_accuracy: 0.7344
Epoch 392/1500
18/18 [==============================] - 0s 10ms/step - loss: 0.4088 - accuracy: 0.8229 - val_loss: 0.5249 - val_accuracy: 0.7344
Epoch 393/1500
18/18 [==============================] - 0s 9ms/step - loss: 0.4088 - accuracy: 0.8212 - val_loss: 0.5249 - val_accuracy: 0.7344
Epoch 394/1500
18/18 [==============================] - 0s 10ms/step - loss: 0.4088 - accuracy: 0.8194 - val_loss: 0.5247 - val_accuracy: 0.7344
Epoch 395/1500
18/18 [==============================] - 0s 9ms/step - loss: 0.4087 - accuracy: 0.8212 - val_loss: 0.5247 - val_accuracy: 0.7344
Epoch 396/1500
18/18 [==============================] - 0s 10ms/step - loss: 0.4086 - accuracy: 0.8194 - val_loss: 0.5247 - val_accuracy: 0.7344
Epoch 397/1500
18/18 [==============================] - 0s 27ms/step - loss: 0.4086 - accuracy: 0.8194 - val_loss: 0.5248 - val_accuracy: 0.7344
Epoch 398/1500
18/18 [==============================] - 0s 20ms/step - loss: 0.4087 - accuracy: 0.8177 - val_loss: 0.5246 - val_accuracy: 0.7344
Epoch 399/1500
18/18 [==============================] - 0s 16ms/step - loss: 0.4085 - accuracy: 0.8212 - val_loss: 0.5247 - val_accuracy: 0.7344
Epoch 400/1500
18/18 [==============================] - 0s 21ms/step - loss: 0.4085 - accuracy: 0.8194 - val_loss: 0.5247 - val_accuracy: 0.7344
Epoch 401/1500
18/18 [==============================] - 0s 17ms/step - loss: 0.4082 - accuracy: 0.8194 - val_loss: 0.5248 - val_accuracy: 0.7344
Epoch 402/1500
18/18 [==============================] - 0s 22ms/step - loss: 0.4084 - accuracy: 0.8194 - val_loss: 0.5248 - val_accuracy: 0.7344
Epoch 403/1500
18/18 [==============================] - 0s 18ms/step - loss: 0.4085 - accuracy: 0.8194 - val_loss: 0.5248 - val_accuracy: 0.7344
Epoch 404/1500
18/18 [==============================] - 0s 15ms/step - loss: 0.4083 - accuracy: 0.8177 - val_loss: 0.5248 - val_accuracy: 0.7344
Epoch 405/1500
18/18 [==============================] - 0s 18ms/step - loss: 0.4082 - accuracy: 0.8229 - val_loss: 0.5247 - val_accuracy: 0.7344
Epoch 406/1500
18/18 [==============================] - 0s 19ms/step - loss: 0.4081 - accuracy: 0.8177 - val_loss: 0.5247 - val_accuracy: 0.7344
Epoch 407/1500
18/18 [==============================] - 0s 18ms/step - loss: 0.4082 - accuracy: 0.8160 - val_loss: 0.5246 - val_accuracy: 0.7344
Epoch 408/1500
18/18 [==============================] - 0s 17ms/step - loss: 0.4082 - accuracy: 0.8212 - val_loss: 0.5246 - val_accuracy: 0.7344
Epoch 409/1500
18/18 [==============================] - 0s 17ms/step - loss: 0.4080 - accuracy: 0.8177 - val_loss: 0.5247 - val_accuracy: 0.7344
Epoch 410/1500
18/18 [==============================] - 0s 13ms/step - loss: 0.4079 - accuracy: 0.8177 - val_loss: 0.5248 - val_accuracy: 0.7344
Epoch 411/1500
18/18 [==============================] - 0s 16ms/step - loss: 0.4080 - accuracy: 0.8177 - val_loss: 0.5248 - val_accuracy: 0.7344
Epoch 412/1500
18/18 [==============================] - 0s 14ms/step - loss: 0.4079 - accuracy: 0.8177 - val_loss: 0.5248 - val_accuracy: 0.7344
Epoch 413/1500
18/18 [==============================] - 0s 14ms/step - loss: 0.4079 - accuracy: 0.8177 - val_loss: 0.5247 - val_accuracy: 0.7344
Epoch 414/1500
18/18 [==============================] - 0s 20ms/step - loss: 0.4078 - accuracy: 0.8177 - val_loss: 0.5247 - val_accuracy: 0.7344
Epoch 415/1500
18/18 [==============================] - 0s 10ms/step - loss: 0.4078 - accuracy: 0.8177 - val_loss: 0.5247 - val_accuracy: 0.7344
Epoch 416/1500
18/18 [==============================] - 0s 10ms/step - loss: 0.4078 - accuracy: 0.8177 - val_loss: 0.5248 - val_accuracy: 0.7344
Epoch 417/1500
18/18 [==============================] - 0s 13ms/step - loss: 0.4077 - accuracy: 0.8160 - val_loss: 0.5247 - val_accuracy: 0.7344
Epoch 418/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4076 - accuracy: 0.8212 - val_loss: 0.5246 - val_accuracy: 0.7344
Epoch 419/1500
18/18 [==============================] - 0s 9ms/step - loss: 0.4077 - accuracy: 0.8194 - val_loss: 0.5246 - val_accuracy: 0.7344
Epoch 420/1500
18/18 [==============================] - 0s 9ms/step - loss: 0.4076 - accuracy: 0.8160 - val_loss: 0.5246 - val_accuracy: 0.7344
Epoch 421/1500
18/18 [==============================] - 0s 22ms/step - loss: 0.4074 - accuracy: 0.8177 - val_loss: 0.5246 - val_accuracy: 0.7344
Epoch 422/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4076 - accuracy: 0.8177 - val_loss: 0.5246 - val_accuracy: 0.7344
Epoch 423/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4075 - accuracy: 0.8160 - val_loss: 0.5246 - val_accuracy: 0.7344
Epoch 424/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4073 - accuracy: 0.8177 - val_loss: 0.5247 - val_accuracy: 0.7344
Epoch 425/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.4073 - accuracy: 0.8177 - val_loss: 0.5246 - val_accuracy: 0.7344
Epoch 426/1500
18/18 [==============================] - 0s 12ms/step - loss: 0.4073 - accuracy: 0.8177 - val_loss: 0.5246 - val_accuracy: 0.7344
Epoch 427/1500
18/18 [==============================] - 0s 10ms/step - loss: 0.4073 - accuracy: 0.8160 - val_loss: 0.5246 - val_accuracy: 0.7396
Epoch 428/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4073 - accuracy: 0.8160 - val_loss: 0.5247 - val_accuracy: 0.7344
Epoch 429/1500
18/18 [==============================] - 0s 13ms/step - loss: 0.4073 - accuracy: 0.8194 - val_loss: 0.5245 - val_accuracy: 0.7344
Epoch 430/1500
18/18 [==============================] - 0s 14ms/step - loss: 0.4071 - accuracy: 0.8194 - val_loss: 0.5244 - val_accuracy: 0.7396
Epoch 431/1500
18/18 [==============================] - 0s 15ms/step - loss: 0.4071 - accuracy: 0.8177 - val_loss: 0.5245 - val_accuracy: 0.7396
Epoch 432/1500
18/18 [==============================] - 0s 13ms/step - loss: 0.4069 - accuracy: 0.8194 - val_loss: 0.5243 - val_accuracy: 0.7396
Epoch 433/1500
18/18 [==============================] - 0s 16ms/step - loss: 0.4069 - accuracy: 0.8177 - val_loss: 0.5242 - val_accuracy: 0.7396
Epoch 434/1500
18/18 [==============================] - 0s 9ms/step - loss: 0.4071 - accuracy: 0.8177 - val_loss: 0.5242 - val_accuracy: 0.7396
Epoch 435/1500
18/18 [==============================] - 0s 10ms/step - loss: 0.4070 - accuracy: 0.8160 - val_loss: 0.5243 - val_accuracy: 0.7396
Epoch 436/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4069 - accuracy: 0.8177 - val_loss: 0.5244 - val_accuracy: 0.7396
Epoch 437/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.4068 - accuracy: 0.8160 - val_loss: 0.5243 - val_accuracy: 0.7396
Epoch 438/1500
18/18 [==============================] - 0s 13ms/step - loss: 0.4069 - accuracy: 0.8177 - val_loss: 0.5242 - val_accuracy: 0.7396
Epoch 439/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4069 - accuracy: 0.8194 - val_loss: 0.5242 - val_accuracy: 0.7396
Epoch 440/1500
18/18 [==============================] - 0s 12ms/step - loss: 0.4068 - accuracy: 0.8177 - val_loss: 0.5242 - val_accuracy: 0.7396
Epoch 441/1500
18/18 [==============================] - 0s 10ms/step - loss: 0.4067 - accuracy: 0.8177 - val_loss: 0.5242 - val_accuracy: 0.7396
Epoch 442/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.4066 - accuracy: 0.8177 - val_loss: 0.5242 - val_accuracy: 0.7396
Epoch 443/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.4067 - accuracy: 0.8177 - val_loss: 0.5241 - val_accuracy: 0.7396
Epoch 444/1500
18/18 [==============================] - 0s 12ms/step - loss: 0.4066 - accuracy: 0.8160 - val_loss: 0.5241 - val_accuracy: 0.7396
Epoch 445/1500
18/18 [==============================] - 0s 16ms/step - loss: 0.4065 - accuracy: 0.8177 - val_loss: 0.5241 - val_accuracy: 0.7396
Epoch 446/1500
18/18 [==============================] - 0s 12ms/step - loss: 0.4067 - accuracy: 0.8177 - val_loss: 0.5240 - val_accuracy: 0.7396
Epoch 447/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.4065 - accuracy: 0.8177 - val_loss: 0.5241 - val_accuracy: 0.7396
Epoch 448/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4065 - accuracy: 0.8177 - val_loss: 0.5242 - val_accuracy: 0.7396
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Epoch 449/1500
18/18 [==============================] - 0s 10ms/step - loss: 0.4063 - accuracy: 0.8177 - val_loss: 0.5241 - val_accuracy: 0.7396
Epoch 450/1500
18/18 [==============================] - 0s 9ms/step - loss: 0.4064 - accuracy: 0.8160 - val_loss: 0.5242 - val_accuracy: 0.7396
Epoch 451/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.4064 - accuracy: 0.8160 - val_loss: 0.5242 - val_accuracy: 0.7396
Epoch 452/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4063 - accuracy: 0.8194 - val_loss: 0.5240 - val_accuracy: 0.7396
Epoch 453/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4063 - accuracy: 0.8177 - val_loss: 0.5240 - val_accuracy: 0.7396
Epoch 454/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4063 - accuracy: 0.8160 - val_loss: 0.5240 - val_accuracy: 0.7396
Epoch 455/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4061 - accuracy: 0.8160 - val_loss: 0.5241 - val_accuracy: 0.7396
Epoch 456/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4061 - accuracy: 0.8160 - val_loss: 0.5239 - val_accuracy: 0.7396
Epoch 457/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4060 - accuracy: 0.8194 - val_loss: 0.5238 - val_accuracy: 0.7396
Epoch 458/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4061 - accuracy: 0.8177 - val_loss: 0.5238 - val_accuracy: 0.7396
Epoch 459/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4061 - accuracy: 0.8177 - val_loss: 0.5237 - val_accuracy: 0.7396
Epoch 460/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4060 - accuracy: 0.8177 - val_loss: 0.5237 - val_accuracy: 0.7396
Epoch 461/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4060 - accuracy: 0.8177 - val_loss: 0.5237 - val_accuracy: 0.7396
Epoch 462/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4061 - accuracy: 0.8194 - val_loss: 0.5237 - val_accuracy: 0.7396
Epoch 463/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4058 - accuracy: 0.8160 - val_loss: 0.5237 - val_accuracy: 0.7396
Epoch 464/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4056 - accuracy: 0.8177 - val_loss: 0.5238 - val_accuracy: 0.7396
Epoch 465/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4057 - accuracy: 0.8160 - val_loss: 0.5238 - val_accuracy: 0.7396
Epoch 466/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4057 - accuracy: 0.8177 - val_loss: 0.5239 - val_accuracy: 0.7448
Epoch 467/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4058 - accuracy: 0.8194 - val_loss: 0.5238 - val_accuracy: 0.7396
Epoch 468/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4057 - accuracy: 0.8229 - val_loss: 0.5237 - val_accuracy: 0.7448
Epoch 469/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4058 - accuracy: 0.8212 - val_loss: 0.5238 - val_accuracy: 0.7396
Epoch 470/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4056 - accuracy: 0.8212 - val_loss: 0.5238 - val_accuracy: 0.7448
Epoch 471/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4056 - accuracy: 0.8194 - val_loss: 0.5238 - val_accuracy: 0.7448
Epoch 472/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4057 - accuracy: 0.8247 - val_loss: 0.5236 - val_accuracy: 0.7396
Epoch 473/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4055 - accuracy: 0.8229 - val_loss: 0.5235 - val_accuracy: 0.7396
Epoch 474/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4054 - accuracy: 0.8229 - val_loss: 0.5234 - val_accuracy: 0.7396
Epoch 475/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4057 - accuracy: 0.8212 - val_loss: 0.5234 - val_accuracy: 0.7396
Epoch 476/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4054 - accuracy: 0.8194 - val_loss: 0.5233 - val_accuracy: 0.7396
Epoch 477/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4054 - accuracy: 0.8194 - val_loss: 0.5233 - val_accuracy: 0.7344
Epoch 478/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4055 - accuracy: 0.8212 - val_loss: 0.5233 - val_accuracy: 0.7344
Epoch 479/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4054 - accuracy: 0.8212 - val_loss: 0.5233 - val_accuracy: 0.7448
Epoch 480/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4054 - accuracy: 0.8229 - val_loss: 0.5232 - val_accuracy: 0.7448
Epoch 481/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4052 - accuracy: 0.8194 - val_loss: 0.5232 - val_accuracy: 0.7344
Epoch 482/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4051 - accuracy: 0.8212 - val_loss: 0.5232 - val_accuracy: 0.7396
Epoch 483/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4051 - accuracy: 0.8212 - val_loss: 0.5233 - val_accuracy: 0.7500
Epoch 484/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4050 - accuracy: 0.8229 - val_loss: 0.5234 - val_accuracy: 0.7500
Epoch 485/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4049 - accuracy: 0.8212 - val_loss: 0.5232 - val_accuracy: 0.7500
Epoch 486/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4050 - accuracy: 0.8229 - val_loss: 0.5232 - val_accuracy: 0.7500
Epoch 487/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4051 - accuracy: 0.8212 - val_loss: 0.5232 - val_accuracy: 0.7500
Epoch 488/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4049 - accuracy: 0.8247 - val_loss: 0.5232 - val_accuracy: 0.7500
Epoch 489/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4050 - accuracy: 0.8194 - val_loss: 0.5233 - val_accuracy: 0.7448
Epoch 490/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4049 - accuracy: 0.8212 - val_loss: 0.5232 - val_accuracy: 0.7396
Epoch 491/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4047 - accuracy: 0.8229 - val_loss: 0.5231 - val_accuracy: 0.7448
Epoch 492/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4048 - accuracy: 0.8212 - val_loss: 0.5230 - val_accuracy: 0.7500
Epoch 493/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4048 - accuracy: 0.8229 - val_loss: 0.5231 - val_accuracy: 0.7500
Epoch 494/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4045 - accuracy: 0.8229 - val_loss: 0.5230 - val_accuracy: 0.7396
Epoch 495/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4046 - accuracy: 0.8229 - val_loss: 0.5232 - val_accuracy: 0.7500
Epoch 496/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4046 - accuracy: 0.8177 - val_loss: 0.5232 - val_accuracy: 0.7500
Epoch 497/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4047 - accuracy: 0.8194 - val_loss: 0.5232 - val_accuracy: 0.7500
Epoch 498/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4044 - accuracy: 0.8212 - val_loss: 0.5232 - val_accuracy: 0.7500
Epoch 499/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4046 - accuracy: 0.8212 - val_loss: 0.5230 - val_accuracy: 0.7500
Epoch 500/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4044 - accuracy: 0.8229 - val_loss: 0.5229 - val_accuracy: 0.7500
Epoch 501/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.4044 - accuracy: 0.8247 - val_loss: 0.5229 - val_accuracy: 0.7448
Epoch 502/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4046 - accuracy: 0.8229 - val_loss: 0.5229 - val_accuracy: 0.7448
Epoch 503/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4043 - accuracy: 0.8212 - val_loss: 0.5227 - val_accuracy: 0.7448
Epoch 504/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4043 - accuracy: 0.8212 - val_loss: 0.5228 - val_accuracy: 0.7448
Epoch 505/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4043 - accuracy: 0.8194 - val_loss: 0.5227 - val_accuracy: 0.7500
Epoch 506/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4044 - accuracy: 0.8229 - val_loss: 0.5228 - val_accuracy: 0.7448
Epoch 507/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4044 - accuracy: 0.8247 - val_loss: 0.5227 - val_accuracy: 0.7396
Epoch 508/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4042 - accuracy: 0.8194 - val_loss: 0.5227 - val_accuracy: 0.7448
Epoch 509/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4040 - accuracy: 0.8212 - val_loss: 0.5227 - val_accuracy: 0.7500
Epoch 510/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4041 - accuracy: 0.8229 - val_loss: 0.5227 - val_accuracy: 0.7500
Epoch 511/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4041 - accuracy: 0.8264 - val_loss: 0.5225 - val_accuracy: 0.7500
Epoch 512/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4039 - accuracy: 0.8212 - val_loss: 0.5227 - val_accuracy: 0.7500
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Epoch 513/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4039 - accuracy: 0.8247 - val_loss: 0.5225 - val_accuracy: 0.7500
Epoch 514/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4039 - accuracy: 0.8194 - val_loss: 0.5225 - val_accuracy: 0.7500
Epoch 515/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4039 - accuracy: 0.8264 - val_loss: 0.5225 - val_accuracy: 0.7500
Epoch 516/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.4039 - accuracy: 0.8229 - val_loss: 0.5225 - val_accuracy: 0.7500
Epoch 517/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4039 - accuracy: 0.8264 - val_loss: 0.5223 - val_accuracy: 0.7500
Epoch 518/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4040 - accuracy: 0.8229 - val_loss: 0.5223 - val_accuracy: 0.7500
Epoch 519/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4039 - accuracy: 0.8212 - val_loss: 0.5223 - val_accuracy: 0.7500
Epoch 520/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4038 - accuracy: 0.8212 - val_loss: 0.5224 - val_accuracy: 0.7500
Epoch 521/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4036 - accuracy: 0.8247 - val_loss: 0.5223 - val_accuracy: 0.7500
Epoch 522/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4036 - accuracy: 0.8229 - val_loss: 0.5223 - val_accuracy: 0.7448
Epoch 523/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4034 - accuracy: 0.8212 - val_loss: 0.5224 - val_accuracy: 0.7500
Epoch 524/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4035 - accuracy: 0.8212 - val_loss: 0.5224 - val_accuracy: 0.7500
Epoch 525/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4036 - accuracy: 0.8264 - val_loss: 0.5224 - val_accuracy: 0.7448
Epoch 526/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4035 - accuracy: 0.8212 - val_loss: 0.5224 - val_accuracy: 0.7448
Epoch 527/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4036 - accuracy: 0.8229 - val_loss: 0.5225 - val_accuracy: 0.7448
Epoch 528/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4033 - accuracy: 0.8212 - val_loss: 0.5226 - val_accuracy: 0.7500
Epoch 529/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4034 - accuracy: 0.8229 - val_loss: 0.5226 - val_accuracy: 0.7500
Epoch 530/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4034 - accuracy: 0.8247 - val_loss: 0.5223 - val_accuracy: 0.7500
Epoch 531/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4032 - accuracy: 0.8212 - val_loss: 0.5223 - val_accuracy: 0.7500
Epoch 532/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4034 - accuracy: 0.8194 - val_loss: 0.5224 - val_accuracy: 0.7500
Epoch 533/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4032 - accuracy: 0.8212 - val_loss: 0.5224 - val_accuracy: 0.7500
Epoch 534/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4033 - accuracy: 0.8212 - val_loss: 0.5224 - val_accuracy: 0.7500
Epoch 535/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4031 - accuracy: 0.8194 - val_loss: 0.5225 - val_accuracy: 0.7500
Epoch 536/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4031 - accuracy: 0.8212 - val_loss: 0.5225 - val_accuracy: 0.7448
Epoch 537/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4031 - accuracy: 0.8212 - val_loss: 0.5226 - val_accuracy: 0.7500
Epoch 538/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4031 - accuracy: 0.8247 - val_loss: 0.5227 - val_accuracy: 0.7500
Epoch 539/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4030 - accuracy: 0.8247 - val_loss: 0.5227 - val_accuracy: 0.7448
Epoch 540/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4032 - accuracy: 0.8212 - val_loss: 0.5227 - val_accuracy: 0.7448
Epoch 541/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4030 - accuracy: 0.8247 - val_loss: 0.5228 - val_accuracy: 0.7448
Epoch 542/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4031 - accuracy: 0.8229 - val_loss: 0.5229 - val_accuracy: 0.7448
Epoch 543/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4028 - accuracy: 0.8212 - val_loss: 0.5229 - val_accuracy: 0.7448
Epoch 544/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4029 - accuracy: 0.8229 - val_loss: 0.5229 - val_accuracy: 0.7448
Epoch 545/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4027 - accuracy: 0.8247 - val_loss: 0.5228 - val_accuracy: 0.7448
Epoch 546/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4027 - accuracy: 0.8229 - val_loss: 0.5229 - val_accuracy: 0.7448
Epoch 547/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4030 - accuracy: 0.8229 - val_loss: 0.5229 - val_accuracy: 0.7448
Epoch 548/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4026 - accuracy: 0.8247 - val_loss: 0.5229 - val_accuracy: 0.7448
Epoch 549/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4026 - accuracy: 0.8247 - val_loss: 0.5230 - val_accuracy: 0.7448
Epoch 550/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4026 - accuracy: 0.8229 - val_loss: 0.5230 - val_accuracy: 0.7448
Epoch 551/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4025 - accuracy: 0.8212 - val_loss: 0.5230 - val_accuracy: 0.7448
Epoch 552/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4025 - accuracy: 0.8229 - val_loss: 0.5231 - val_accuracy: 0.7448
Epoch 553/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4024 - accuracy: 0.8212 - val_loss: 0.5232 - val_accuracy: 0.7448
Epoch 554/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4024 - accuracy: 0.8281 - val_loss: 0.5231 - val_accuracy: 0.7448
Epoch 555/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4024 - accuracy: 0.8212 - val_loss: 0.5232 - val_accuracy: 0.7448
Epoch 556/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4023 - accuracy: 0.8229 - val_loss: 0.5232 - val_accuracy: 0.7448
Epoch 557/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4023 - accuracy: 0.8229 - val_loss: 0.5232 - val_accuracy: 0.7448
Epoch 558/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4023 - accuracy: 0.8229 - val_loss: 0.5232 - val_accuracy: 0.7448
Epoch 559/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4022 - accuracy: 0.8264 - val_loss: 0.5232 - val_accuracy: 0.7448
Epoch 560/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4023 - accuracy: 0.8229 - val_loss: 0.5233 - val_accuracy: 0.7448
Epoch 561/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4022 - accuracy: 0.8229 - val_loss: 0.5234 - val_accuracy: 0.7448
Epoch 562/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4021 - accuracy: 0.8229 - val_loss: 0.5234 - val_accuracy: 0.7448
Epoch 563/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4021 - accuracy: 0.8229 - val_loss: 0.5233 - val_accuracy: 0.7448
Epoch 564/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4021 - accuracy: 0.8229 - val_loss: 0.5234 - val_accuracy: 0.7448
Epoch 565/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4021 - accuracy: 0.8247 - val_loss: 0.5233 - val_accuracy: 0.7448
Epoch 566/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4020 - accuracy: 0.8229 - val_loss: 0.5234 - val_accuracy: 0.7448
Epoch 567/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4018 - accuracy: 0.8264 - val_loss: 0.5234 - val_accuracy: 0.7448
Epoch 568/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4020 - accuracy: 0.8264 - val_loss: 0.5235 - val_accuracy: 0.7448
Epoch 569/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4021 - accuracy: 0.8247 - val_loss: 0.5235 - val_accuracy: 0.7448
Epoch 570/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4019 - accuracy: 0.8212 - val_loss: 0.5235 - val_accuracy: 0.7448
Epoch 571/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4018 - accuracy: 0.8247 - val_loss: 0.5235 - val_accuracy: 0.7448
Epoch 572/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4019 - accuracy: 0.8281 - val_loss: 0.5236 - val_accuracy: 0.7448
Epoch 573/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4019 - accuracy: 0.8281 - val_loss: 0.5235 - val_accuracy: 0.7448
Epoch 574/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4017 - accuracy: 0.8247 - val_loss: 0.5236 - val_accuracy: 0.7448
Epoch 575/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4018 - accuracy: 0.8229 - val_loss: 0.5237 - val_accuracy: 0.7448
Epoch 576/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4017 - accuracy: 0.8229 - val_loss: 0.5239 - val_accuracy: 0.7396
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Epoch 577/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4016 - accuracy: 0.8247 - val_loss: 0.5238 - val_accuracy: 0.7396
Epoch 578/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4016 - accuracy: 0.8247 - val_loss: 0.5239 - val_accuracy: 0.7396
Epoch 579/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4016 - accuracy: 0.8229 - val_loss: 0.5240 - val_accuracy: 0.7396
Epoch 580/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4016 - accuracy: 0.8299 - val_loss: 0.5239 - val_accuracy: 0.7396
Epoch 581/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4015 - accuracy: 0.8264 - val_loss: 0.5240 - val_accuracy: 0.7396
Epoch 582/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4015 - accuracy: 0.8264 - val_loss: 0.5239 - val_accuracy: 0.7396
Epoch 583/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4014 - accuracy: 0.8264 - val_loss: 0.5240 - val_accuracy: 0.7396
Epoch 584/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4015 - accuracy: 0.8247 - val_loss: 0.5239 - val_accuracy: 0.7396
Epoch 585/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4013 - accuracy: 0.8264 - val_loss: 0.5240 - val_accuracy: 0.7396
Epoch 586/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4013 - accuracy: 0.8247 - val_loss: 0.5240 - val_accuracy: 0.7396
Epoch 587/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4013 - accuracy: 0.8264 - val_loss: 0.5241 - val_accuracy: 0.7344
Epoch 588/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4013 - accuracy: 0.8299 - val_loss: 0.5241 - val_accuracy: 0.7344
Epoch 589/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4013 - accuracy: 0.8281 - val_loss: 0.5243 - val_accuracy: 0.7344
Epoch 590/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4013 - accuracy: 0.8281 - val_loss: 0.5243 - val_accuracy: 0.7344
Epoch 591/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4012 - accuracy: 0.8264 - val_loss: 0.5244 - val_accuracy: 0.7344
Epoch 592/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4011 - accuracy: 0.8281 - val_loss: 0.5242 - val_accuracy: 0.7344
Epoch 593/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4011 - accuracy: 0.8264 - val_loss: 0.5243 - val_accuracy: 0.7344
Epoch 594/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4011 - accuracy: 0.8281 - val_loss: 0.5244 - val_accuracy: 0.7344
Epoch 595/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4009 - accuracy: 0.8281 - val_loss: 0.5242 - val_accuracy: 0.7344
Epoch 596/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4010 - accuracy: 0.8281 - val_loss: 0.5243 - val_accuracy: 0.7344
Epoch 597/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4010 - accuracy: 0.8281 - val_loss: 0.5245 - val_accuracy: 0.7344
Epoch 598/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4008 - accuracy: 0.8281 - val_loss: 0.5247 - val_accuracy: 0.7344
Epoch 599/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4006 - accuracy: 0.8299 - val_loss: 0.5247 - val_accuracy: 0.7344
Epoch 600/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4009 - accuracy: 0.8316 - val_loss: 0.5246 - val_accuracy: 0.7344
Epoch 601/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4009 - accuracy: 0.8316 - val_loss: 0.5247 - val_accuracy: 0.7344
Epoch 602/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4007 - accuracy: 0.8281 - val_loss: 0.5246 - val_accuracy: 0.7344
Epoch 603/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4007 - accuracy: 0.8299 - val_loss: 0.5247 - val_accuracy: 0.7344
Epoch 604/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4005 - accuracy: 0.8316 - val_loss: 0.5248 - val_accuracy: 0.7344
Epoch 605/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4006 - accuracy: 0.8281 - val_loss: 0.5248 - val_accuracy: 0.7344
Epoch 606/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4006 - accuracy: 0.8299 - val_loss: 0.5249 - val_accuracy: 0.7344
Epoch 607/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4005 - accuracy: 0.8299 - val_loss: 0.5247 - val_accuracy: 0.7344
Epoch 608/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4007 - accuracy: 0.8299 - val_loss: 0.5247 - val_accuracy: 0.7344
Epoch 609/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4006 - accuracy: 0.8299 - val_loss: 0.5249 - val_accuracy: 0.7344
Epoch 610/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4005 - accuracy: 0.8299 - val_loss: 0.5249 - val_accuracy: 0.7344
Epoch 611/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4005 - accuracy: 0.8316 - val_loss: 0.5247 - val_accuracy: 0.7344
Epoch 612/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4005 - accuracy: 0.8264 - val_loss: 0.5248 - val_accuracy: 0.7344
Epoch 613/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4004 - accuracy: 0.8299 - val_loss: 0.5246 - val_accuracy: 0.7344
Epoch 614/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4004 - accuracy: 0.8316 - val_loss: 0.5246 - val_accuracy: 0.7344
Epoch 615/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4003 - accuracy: 0.8316 - val_loss: 0.5247 - val_accuracy: 0.7344
Epoch 616/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4002 - accuracy: 0.8316 - val_loss: 0.5246 - val_accuracy: 0.7344
Epoch 617/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4004 - accuracy: 0.8299 - val_loss: 0.5247 - val_accuracy: 0.7344
Epoch 618/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4002 - accuracy: 0.8299 - val_loss: 0.5245 - val_accuracy: 0.7344
Epoch 619/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4002 - accuracy: 0.8316 - val_loss: 0.5244 - val_accuracy: 0.7344
Epoch 620/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4002 - accuracy: 0.8264 - val_loss: 0.5246 - val_accuracy: 0.7344
Epoch 621/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4001 - accuracy: 0.8316 - val_loss: 0.5247 - val_accuracy: 0.7344
Epoch 622/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4002 - accuracy: 0.8299 - val_loss: 0.5248 - val_accuracy: 0.7344
Epoch 623/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4000 - accuracy: 0.8316 - val_loss: 0.5248 - val_accuracy: 0.7344
Epoch 624/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4002 - accuracy: 0.8299 - val_loss: 0.5249 - val_accuracy: 0.7344
Epoch 625/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4001 - accuracy: 0.8299 - val_loss: 0.5247 - val_accuracy: 0.7344
Epoch 626/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3999 - accuracy: 0.8299 - val_loss: 0.5246 - val_accuracy: 0.7344
Epoch 627/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4000 - accuracy: 0.8299 - val_loss: 0.5246 - val_accuracy: 0.7344
Epoch 628/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4000 - accuracy: 0.8281 - val_loss: 0.5243 - val_accuracy: 0.7344
Epoch 629/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3999 - accuracy: 0.8247 - val_loss: 0.5246 - val_accuracy: 0.7344
Epoch 630/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3997 - accuracy: 0.8299 - val_loss: 0.5247 - val_accuracy: 0.7344
Epoch 631/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3998 - accuracy: 0.8316 - val_loss: 0.5244 - val_accuracy: 0.7344
Epoch 632/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3999 - accuracy: 0.8299 - val_loss: 0.5243 - val_accuracy: 0.7396
Epoch 633/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4000 - accuracy: 0.8264 - val_loss: 0.5244 - val_accuracy: 0.7396
Epoch 634/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3997 - accuracy: 0.8316 - val_loss: 0.5245 - val_accuracy: 0.7396
Epoch 635/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3996 - accuracy: 0.8281 - val_loss: 0.5242 - val_accuracy: 0.7344
Epoch 636/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3996 - accuracy: 0.8333 - val_loss: 0.5244 - val_accuracy: 0.7344
Epoch 637/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3996 - accuracy: 0.8333 - val_loss: 0.5246 - val_accuracy: 0.7344
Epoch 638/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3996 - accuracy: 0.8299 - val_loss: 0.5247 - val_accuracy: 0.7396
Epoch 639/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3994 - accuracy: 0.8299 - val_loss: 0.5247 - val_accuracy: 0.7396
Epoch 640/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3995 - accuracy: 0.8281 - val_loss: 0.5247 - val_accuracy: 0.7344
```

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Epoch 641/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3995 - accuracy: 0.8316 - val_loss: 0.5247 - val_accuracy: 0.7344
Epoch 642/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3994 - accuracy: 0.8281 - val_loss: 0.5247 - val_accuracy: 0.7396
Epoch 643/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3994 - accuracy: 0.8299 - val_loss: 0.5247 - val_accuracy: 0.7344
Epoch 644/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3995 - accuracy: 0.8299 - val_loss: 0.5245 - val_accuracy: 0.7396
Epoch 645/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3994 - accuracy: 0.8281 - val_loss: 0.5246 - val_accuracy: 0.7396
Epoch 646/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3995 - accuracy: 0.8281 - val_loss: 0.5245 - val_accuracy: 0.7396
Epoch 647/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3993 - accuracy: 0.8299 - val_loss: 0.5246 - val_accuracy: 0.7396
Epoch 648/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3992 - accuracy: 0.8299 - val_loss: 0.5246 - val_accuracy: 0.7396
Epoch 649/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3993 - accuracy: 0.8299 - val_loss: 0.5246 - val_accuracy: 0.7396
Epoch 650/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3993 - accuracy: 0.8299 - val_loss: 0.5244 - val_accuracy: 0.7396
Epoch 651/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3991 - accuracy: 0.8299 - val_loss: 0.5245 - val_accuracy: 0.7396
Epoch 652/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3992 - accuracy: 0.8316 - val_loss: 0.5246 - val_accuracy: 0.7396
Epoch 653/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3990 - accuracy: 0.8316 - val_loss: 0.5246 - val_accuracy: 0.7396
Epoch 654/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3992 - accuracy: 0.8316 - val_loss: 0.5247 - val_accuracy: 0.7396
Epoch 655/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3992 - accuracy: 0.8316 - val_loss: 0.5247 - val_accuracy: 0.7396
Epoch 656/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3989 - accuracy: 0.8299 - val_loss: 0.5248 - val_accuracy: 0.7396
Epoch 657/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3989 - accuracy: 0.8281 - val_loss: 0.5248 - val_accuracy: 0.7396
Epoch 658/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3990 - accuracy: 0.8299 - val_loss: 0.5249 - val_accuracy: 0.7396
Epoch 659/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3989 - accuracy: 0.8299 - val_loss: 0.5250 - val_accuracy: 0.7396
Epoch 660/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3988 - accuracy: 0.8333 - val_loss: 0.5253 - val_accuracy: 0.7396
Epoch 661/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3990 - accuracy: 0.8316 - val_loss: 0.5252 - val_accuracy: 0.7396
Epoch 662/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3989 - accuracy: 0.8299 - val_loss: 0.5252 - val_accuracy: 0.7396
Epoch 663/1500
18/18 [==============================] - 0s 9ms/step - loss: 0.3989 - accuracy: 0.8299 - val_loss: 0.5253 - val_accuracy: 0.7396
Epoch 664/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3988 - accuracy: 0.8299 - val_loss: 0.5250 - val_accuracy: 0.7396
Epoch 665/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3988 - accuracy: 0.8299 - val_loss: 0.5250 - val_accuracy: 0.7396
Epoch 666/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3986 - accuracy: 0.8299 - val_loss: 0.5250 - val_accuracy: 0.7396
Epoch 667/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3986 - accuracy: 0.8299 - val_loss: 0.5250 - val_accuracy: 0.7396
Epoch 668/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3987 - accuracy: 0.8299 - val_loss: 0.5251 - val_accuracy: 0.7396
Epoch 669/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3988 - accuracy: 0.8281 - val_loss: 0.5252 - val_accuracy: 0.7396
Epoch 670/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3986 - accuracy: 0.8316 - val_loss: 0.5252 - val_accuracy: 0.7396
Epoch 671/1500
18/18 [==============================] - 0s 9ms/step - loss: 0.3990 - accuracy: 0.8316 - val_loss: 0.5253 - val_accuracy: 0.7396
Epoch 672/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3986 - accuracy: 0.8316 - val_loss: 0.5252 - val_accuracy: 0.7396
Epoch 673/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3986 - accuracy: 0.8299 - val_loss: 0.5252 - val_accuracy: 0.7396
Epoch 674/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3985 - accuracy: 0.8281 - val_loss: 0.5252 - val_accuracy: 0.7396
Epoch 675/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3987 - accuracy: 0.8299 - val_loss: 0.5253 - val_accuracy: 0.7396
Epoch 676/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3986 - accuracy: 0.8281 - val_loss: 0.5252 - val_accuracy: 0.7396
Epoch 677/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3985 - accuracy: 0.8299 - val_loss: 0.5253 - val_accuracy: 0.7396
Epoch 678/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3985 - accuracy: 0.8299 - val_loss: 0.5255 - val_accuracy: 0.7396
Epoch 679/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3984 - accuracy: 0.8316 - val_loss: 0.5253 - val_accuracy: 0.7396
Epoch 680/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3985 - accuracy: 0.8299 - val_loss: 0.5253 - val_accuracy: 0.7396
Epoch 681/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3983 - accuracy: 0.8299 - val_loss: 0.5253 - val_accuracy: 0.7396
Epoch 682/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3984 - accuracy: 0.8299 - val_loss: 0.5253 - val_accuracy: 0.7396
Epoch 683/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3985 - accuracy: 0.8281 - val_loss: 0.5253 - val_accuracy: 0.7396
Epoch 684/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3984 - accuracy: 0.8281 - val_loss: 0.5254 - val_accuracy: 0.7396
Epoch 685/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3983 - accuracy: 0.8264 - val_loss: 0.5253 - val_accuracy: 0.7396
Epoch 686/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3984 - accuracy: 0.8281 - val_loss: 0.5253 - val_accuracy: 0.7396
Epoch 687/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3982 - accuracy: 0.8264 - val_loss: 0.5254 - val_accuracy: 0.7396
Epoch 688/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3983 - accuracy: 0.8281 - val_loss: 0.5255 - val_accuracy: 0.7396
Epoch 689/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3981 - accuracy: 0.8281 - val_loss: 0.5253 - val_accuracy: 0.7396
Epoch 690/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3982 - accuracy: 0.8264 - val_loss: 0.5251 - val_accuracy: 0.7396
Epoch 691/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3981 - accuracy: 0.8281 - val_loss: 0.5254 - val_accuracy: 0.7396
Epoch 692/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3983 - accuracy: 0.8281 - val_loss: 0.5255 - val_accuracy: 0.7396
Epoch 693/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3979 - accuracy: 0.8281 - val_loss: 0.5256 - val_accuracy: 0.7396
Epoch 694/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3981 - accuracy: 0.8316 - val_loss: 0.5256 - val_accuracy: 0.7396
Epoch 695/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3979 - accuracy: 0.8264 - val_loss: 0.5257 - val_accuracy: 0.7396
Epoch 696/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3980 - accuracy: 0.8281 - val_loss: 0.5257 - val_accuracy: 0.7396
Epoch 697/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3979 - accuracy: 0.8316 - val_loss: 0.5259 - val_accuracy: 0.7396
Epoch 698/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3980 - accuracy: 0.8281 - val_loss: 0.5258 - val_accuracy: 0.7396
Epoch 699/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3979 - accuracy: 0.8281 - val_loss: 0.5260 - val_accuracy: 0.7396
Epoch 700/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3980 - accuracy: 0.8281 - val_loss: 0.5259 - val_accuracy: 0.7396
Epoch 701/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3979 - accuracy: 0.8264 - val_loss: 0.5255 - val_accuracy: 0.7396
Epoch 702/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3978 - accuracy: 0.8281 - val_loss: 0.5257 - val_accuracy: 0.7396
Epoch 703/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3977 - accuracy: 0.8299 - val_loss: 0.5256 - val_accuracy: 0.7396
Epoch 704/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3979 - accuracy: 0.8299 - val_loss: 0.5259 - val_accuracy: 0.7448
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Epoch 705/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3978 - accuracy: 0.8281 - val_loss: 0.5260 - val_accuracy: 0.7396
Epoch 706/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3978 - accuracy: 0.8264 - val_loss: 0.5258 - val_accuracy: 0.7396
Epoch 707/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3976 - accuracy: 0.8299 - val_loss: 0.5256 - val_accuracy: 0.7396
Epoch 708/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3977 - accuracy: 0.8281 - val_loss: 0.5258 - val_accuracy: 0.7396
Epoch 709/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3976 - accuracy: 0.8281 - val_loss: 0.5259 - val_accuracy: 0.7448
Epoch 710/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3976 - accuracy: 0.8281 - val_loss: 0.5257 - val_accuracy: 0.7396
Epoch 711/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3976 - accuracy: 0.8299 - val_loss: 0.5258 - val_accuracy: 0.7448
Epoch 712/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3977 - accuracy: 0.8281 - val_loss: 0.5260 - val_accuracy: 0.7448
Epoch 713/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3975 - accuracy: 0.8281 - val_loss: 0.5260 - val_accuracy: 0.7396
Epoch 714/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3974 - accuracy: 0.8281 - val_loss: 0.5260 - val_accuracy: 0.7396
Epoch 715/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3974 - accuracy: 0.8281 - val_loss: 0.5259 - val_accuracy: 0.7396
Epoch 716/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3974 - accuracy: 0.8281 - val_loss: 0.5259 - val_accuracy: 0.7396
Epoch 717/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3973 - accuracy: 0.8281 - val_loss: 0.5261 - val_accuracy: 0.7396
Epoch 718/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3975 - accuracy: 0.8281 - val_loss: 0.5261 - val_accuracy: 0.7396
Epoch 719/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3975 - accuracy: 0.8299 - val_loss: 0.5260 - val_accuracy: 0.7448
Epoch 720/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3977 - accuracy: 0.8264 - val_loss: 0.5261 - val_accuracy: 0.7448
Epoch 721/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3974 - accuracy: 0.8281 - val_loss: 0.5262 - val_accuracy: 0.7448
Epoch 722/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3974 - accuracy: 0.8281 - val_loss: 0.5263 - val_accuracy: 0.7448
Epoch 723/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3973 - accuracy: 0.8264 - val_loss: 0.5263 - val_accuracy: 0.7396
Epoch 724/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3973 - accuracy: 0.8281 - val_loss: 0.5264 - val_accuracy: 0.7448
Epoch 725/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3973 - accuracy: 0.8264 - val_loss: 0.5261 - val_accuracy: 0.7448
Epoch 726/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3972 - accuracy: 0.8281 - val_loss: 0.5262 - val_accuracy: 0.7448
Epoch 727/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3973 - accuracy: 0.8281 - val_loss: 0.5262 - val_accuracy: 0.7448
Epoch 728/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3973 - accuracy: 0.8299 - val_loss: 0.5262 - val_accuracy: 0.7396
Epoch 729/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3973 - accuracy: 0.8247 - val_loss: 0.5264 - val_accuracy: 0.7396
Epoch 730/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3974 - accuracy: 0.8281 - val_loss: 0.5269 - val_accuracy: 0.7396
Epoch 731/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3970 - accuracy: 0.8281 - val_loss: 0.5267 - val_accuracy: 0.7396
Epoch 732/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3971 - accuracy: 0.8281 - val_loss: 0.5265 - val_accuracy: 0.7396
Epoch 733/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3969 - accuracy: 0.8299 - val_loss: 0.5262 - val_accuracy: 0.7448
Epoch 734/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3972 - accuracy: 0.8281 - val_loss: 0.5265 - val_accuracy: 0.7448
Epoch 735/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3971 - accuracy: 0.8281 - val_loss: 0.5265 - val_accuracy: 0.7448
Epoch 736/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3971 - accuracy: 0.8281 - val_loss: 0.5267 - val_accuracy: 0.7448
Epoch 737/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3969 - accuracy: 0.8264 - val_loss: 0.5269 - val_accuracy: 0.7396
Epoch 738/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3970 - accuracy: 0.8281 - val_loss: 0.5269 - val_accuracy: 0.7396
Epoch 739/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3969 - accuracy: 0.8264 - val_loss: 0.5268 - val_accuracy: 0.7396
Epoch 740/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3969 - accuracy: 0.8281 - val_loss: 0.5269 - val_accuracy: 0.7396
Epoch 741/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3971 - accuracy: 0.8281 - val_loss: 0.5270 - val_accuracy: 0.7396
Epoch 742/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3969 - accuracy: 0.8299 - val_loss: 0.5270 - val_accuracy: 0.7396
Epoch 743/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3969 - accuracy: 0.8264 - val_loss: 0.5270 - val_accuracy: 0.7396
Epoch 744/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3967 - accuracy: 0.8281 - val_loss: 0.5266 - val_accuracy: 0.7396
Epoch 745/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3967 - accuracy: 0.8281 - val_loss: 0.5267 - val_accuracy: 0.7396
Epoch 746/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3968 - accuracy: 0.8299 - val_loss: 0.5267 - val_accuracy: 0.7396
Epoch 747/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3968 - accuracy: 0.8281 - val_loss: 0.5269 - val_accuracy: 0.7396
Epoch 748/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3971 - accuracy: 0.8281 - val_loss: 0.5268 - val_accuracy: 0.7396
Epoch 749/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3967 - accuracy: 0.8264 - val_loss: 0.5271 - val_accuracy: 0.7396
Epoch 750/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3967 - accuracy: 0.8281 - val_loss: 0.5273 - val_accuracy: 0.7396
Epoch 751/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3967 - accuracy: 0.8281 - val_loss: 0.5271 - val_accuracy: 0.7396
Epoch 752/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3967 - accuracy: 0.8299 - val_loss: 0.5268 - val_accuracy: 0.7396
Epoch 753/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3966 - accuracy: 0.8247 - val_loss: 0.5269 - val_accuracy: 0.7396
Epoch 754/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3967 - accuracy: 0.8299 - val_loss: 0.5271 - val_accuracy: 0.7396
Epoch 755/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3966 - accuracy: 0.8281 - val_loss: 0.5272 - val_accuracy: 0.7396
Epoch 756/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3967 - accuracy: 0.8281 - val_loss: 0.5273 - val_accuracy: 0.7396
Epoch 757/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3965 - accuracy: 0.8299 - val_loss: 0.5272 - val_accuracy: 0.7396
Epoch 758/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3965 - accuracy: 0.8264 - val_loss: 0.5273 - val_accuracy: 0.7396
Epoch 759/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3966 - accuracy: 0.8299 - val_loss: 0.5272 - val_accuracy: 0.7396
Epoch 760/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3965 - accuracy: 0.8281 - val_loss: 0.5273 - val_accuracy: 0.7396
Epoch 761/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3964 - accuracy: 0.8264 - val_loss: 0.5273 - val_accuracy: 0.7396
Epoch 762/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3964 - accuracy: 0.8299 - val_loss: 0.5272 - val_accuracy: 0.7396
Epoch 763/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3965 - accuracy: 0.8299 - val_loss: 0.5270 - val_accuracy: 0.7448
Epoch 764/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3964 - accuracy: 0.8264 - val_loss: 0.5272 - val_accuracy: 0.7396
Epoch 765/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3963 - accuracy: 0.8281 - val_loss: 0.5273 - val_accuracy: 0.7396
Epoch 766/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3962 - accuracy: 0.8281 - val_loss: 0.5273 - val_accuracy: 0.7396
Epoch 767/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3964 - accuracy: 0.8299 - val_loss: 0.5273 - val_accuracy: 0.7396
Epoch 768/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3962 - accuracy: 0.8281 - val_loss: 0.5275 - val_accuracy: 0.7396
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Epoch 769/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3963 - accuracy: 0.8264 - val_loss: 0.5272 - val_accuracy: 0.7448
Epoch 770/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3964 - accuracy: 0.8264 - val_loss: 0.5275 - val_accuracy: 0.7396
Epoch 771/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3962 - accuracy: 0.8264 - val_loss: 0.5275 - val_accuracy: 0.7448
Epoch 772/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3962 - accuracy: 0.8264 - val_loss: 0.5277 - val_accuracy: 0.7396
Epoch 773/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3963 - accuracy: 0.8264 - val_loss: 0.5278 - val_accuracy: 0.7396
Epoch 774/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3962 - accuracy: 0.8299 - val_loss: 0.5275 - val_accuracy: 0.7448
Epoch 775/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3962 - accuracy: 0.8264 - val_loss: 0.5274 - val_accuracy: 0.7448
Epoch 776/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3963 - accuracy: 0.8264 - val_loss: 0.5276 - val_accuracy: 0.7396
Epoch 777/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3960 - accuracy: 0.8264 - val_loss: 0.5277 - val_accuracy: 0.7396
Epoch 778/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3960 - accuracy: 0.8264 - val_loss: 0.5276 - val_accuracy: 0.7448
Epoch 779/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3961 - accuracy: 0.8264 - val_loss: 0.5276 - val_accuracy: 0.7448
Epoch 780/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3960 - accuracy: 0.8264 - val_loss: 0.5276 - val_accuracy: 0.7448
Epoch 781/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3959 - accuracy: 0.8247 - val_loss: 0.5278 - val_accuracy: 0.7396
Epoch 782/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3960 - accuracy: 0.8281 - val_loss: 0.5276 - val_accuracy: 0.7448
Epoch 783/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3962 - accuracy: 0.8264 - val_loss: 0.5279 - val_accuracy: 0.7396
Epoch 784/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3962 - accuracy: 0.8247 - val_loss: 0.5280 - val_accuracy: 0.7396
Epoch 785/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3962 - accuracy: 0.8264 - val_loss: 0.5279 - val_accuracy: 0.7448
Epoch 786/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3961 - accuracy: 0.8264 - val_loss: 0.5279 - val_accuracy: 0.7396
Epoch 787/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3959 - accuracy: 0.8264 - val_loss: 0.5277 - val_accuracy: 0.7448
Epoch 788/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3959 - accuracy: 0.8299 - val_loss: 0.5277 - val_accuracy: 0.7448
Epoch 789/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3960 - accuracy: 0.8281 - val_loss: 0.5279 - val_accuracy: 0.7448
Epoch 790/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3961 - accuracy: 0.8264 - val_loss: 0.5282 - val_accuracy: 0.7396
Epoch 791/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3958 - accuracy: 0.8264 - val_loss: 0.5284 - val_accuracy: 0.7396
Epoch 792/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3958 - accuracy: 0.8264 - val_loss: 0.5283 - val_accuracy: 0.7396
Epoch 793/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3961 - accuracy: 0.8281 - val_loss: 0.5282 - val_accuracy: 0.7396
Epoch 794/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3958 - accuracy: 0.8264 - val_loss: 0.5281 - val_accuracy: 0.7396
Epoch 795/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3958 - accuracy: 0.8264 - val_loss: 0.5281 - val_accuracy: 0.7396
Epoch 796/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3959 - accuracy: 0.8264 - val_loss: 0.5280 - val_accuracy: 0.7448
Epoch 797/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3958 - accuracy: 0.8281 - val_loss: 0.5280 - val_accuracy: 0.7448
Epoch 798/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3958 - accuracy: 0.8264 - val_loss: 0.5281 - val_accuracy: 0.7448
Epoch 799/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3957 - accuracy: 0.8247 - val_loss: 0.5280 - val_accuracy: 0.7448
Epoch 800/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3958 - accuracy: 0.8264 - val_loss: 0.5280 - val_accuracy: 0.7448
Epoch 801/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3958 - accuracy: 0.8264 - val_loss: 0.5281 - val_accuracy: 0.7448
Epoch 802/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3958 - accuracy: 0.8281 - val_loss: 0.5281 - val_accuracy: 0.7448
Epoch 803/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3956 - accuracy: 0.8264 - val_loss: 0.5281 - val_accuracy: 0.7448
Epoch 804/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3955 - accuracy: 0.8264 - val_loss: 0.5279 - val_accuracy: 0.7448
Epoch 805/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3956 - accuracy: 0.8264 - val_loss: 0.5280 - val_accuracy: 0.7448
Epoch 806/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3955 - accuracy: 0.8247 - val_loss: 0.5282 - val_accuracy: 0.7448
Epoch 807/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3954 - accuracy: 0.8264 - val_loss: 0.5283 - val_accuracy: 0.7448
Epoch 808/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3955 - accuracy: 0.8264 - val_loss: 0.5284 - val_accuracy: 0.7448
Epoch 809/1500
18/18 [==============================] - 0s 10ms/step - loss: 0.3956 - accuracy: 0.8281 - val_loss: 0.5282 - val_accuracy: 0.7448
Epoch 810/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3954 - accuracy: 0.8299 - val_loss: 0.5279 - val_accuracy: 0.7448
Epoch 811/1500
18/18 [==============================] - 0s 9ms/step - loss: 0.3953 - accuracy: 0.8264 - val_loss: 0.5282 - val_accuracy: 0.7448
Epoch 812/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3954 - accuracy: 0.8264 - val_loss: 0.5282 - val_accuracy: 0.7448
Epoch 813/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3955 - accuracy: 0.8264 - val_loss: 0.5285 - val_accuracy: 0.7396
Epoch 814/1500
18/18 [==============================] - 0s 10ms/step - loss: 0.3956 - accuracy: 0.8281 - val_loss: 0.5285 - val_accuracy: 0.7396
Epoch 815/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3955 - accuracy: 0.8281 - val_loss: 0.5283 - val_accuracy: 0.7448
Epoch 816/1500
18/18 [==============================] - 0s 11ms/step - loss: 0.3954 - accuracy: 0.8264 - val_loss: 0.5283 - val_accuracy: 0.7448
Epoch 817/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3952 - accuracy: 0.8264 - val_loss: 0.5282 - val_accuracy: 0.7448
Epoch 818/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3954 - accuracy: 0.8264 - val_loss: 0.5282 - val_accuracy: 0.7448
Epoch 819/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3953 - accuracy: 0.8264 - val_loss: 0.5281 - val_accuracy: 0.7448
Epoch 820/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3955 - accuracy: 0.8299 - val_loss: 0.5279 - val_accuracy: 0.7448
Epoch 821/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3954 - accuracy: 0.8264 - val_loss: 0.5284 - val_accuracy: 0.7448
Epoch 822/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3954 - accuracy: 0.8264 - val_loss: 0.5287 - val_accuracy: 0.7448
Epoch 823/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3952 - accuracy: 0.8264 - val_loss: 0.5287 - val_accuracy: 0.7448
Epoch 824/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3954 - accuracy: 0.8264 - val_loss: 0.5284 - val_accuracy: 0.7448
Epoch 825/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3951 - accuracy: 0.8264 - val_loss: 0.5285 - val_accuracy: 0.7448
Epoch 826/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3952 - accuracy: 0.8264 - val_loss: 0.5289 - val_accuracy: 0.7448
Epoch 827/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3951 - accuracy: 0.8264 - val_loss: 0.5290 - val_accuracy: 0.7448
Epoch 828/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3953 - accuracy: 0.8281 - val_loss: 0.5285 - val_accuracy: 0.7448
Epoch 829/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3952 - accuracy: 0.8264 - val_loss: 0.5283 - val_accuracy: 0.7448
Epoch 830/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3952 - accuracy: 0.8264 - val_loss: 0.5282 - val_accuracy: 0.7448
Epoch 831/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3952 - accuracy: 0.8264 - val_loss: 0.5283 - val_accuracy: 0.7448
Epoch 832/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3950 - accuracy: 0.8264 - val_loss: 0.5285 - val_accuracy: 0.7448
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Epoch 833/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3949 - accuracy: 0.8247 - val_loss: 0.5282 - val_accuracy: 0.7448
Epoch 834/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3950 - accuracy: 0.8264 - val_loss: 0.5285 - val_accuracy: 0.7448
Epoch 835/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3949 - accuracy: 0.8264 - val_loss: 0.5286 - val_accuracy: 0.7448
Epoch 836/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3949 - accuracy: 0.8264 - val_loss: 0.5283 - val_accuracy: 0.7448
Epoch 837/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3949 - accuracy: 0.8264 - val_loss: 0.5286 - val_accuracy: 0.7448
Epoch 838/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3950 - accuracy: 0.8264 - val_loss: 0.5286 - val_accuracy: 0.7448
Epoch 839/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3948 - accuracy: 0.8281 - val_loss: 0.5287 - val_accuracy: 0.7448
Epoch 840/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3948 - accuracy: 0.8264 - val_loss: 0.5287 - val_accuracy: 0.7448
Epoch 841/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3949 - accuracy: 0.8264 - val_loss: 0.5289 - val_accuracy: 0.7448
Epoch 842/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3949 - accuracy: 0.8264 - val_loss: 0.5290 - val_accuracy: 0.7448
Epoch 843/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3951 - accuracy: 0.8281 - val_loss: 0.5286 - val_accuracy: 0.7448
Epoch 844/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3949 - accuracy: 0.8264 - val_loss: 0.5286 - val_accuracy: 0.7448
Epoch 845/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3949 - accuracy: 0.8264 - val_loss: 0.5284 - val_accuracy: 0.7448
Epoch 846/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3948 - accuracy: 0.8264 - val_loss: 0.5288 - val_accuracy: 0.7448
Epoch 847/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3948 - accuracy: 0.8264 - val_loss: 0.5289 - val_accuracy: 0.7448
Epoch 848/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3945 - accuracy: 0.8281 - val_loss: 0.5287 - val_accuracy: 0.7448
Epoch 849/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3947 - accuracy: 0.8247 - val_loss: 0.5291 - val_accuracy: 0.7448
Epoch 850/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3946 - accuracy: 0.8281 - val_loss: 0.5290 - val_accuracy: 0.7448
Epoch 851/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3947 - accuracy: 0.8264 - val_loss: 0.5290 - val_accuracy: 0.7448
Epoch 852/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3946 - accuracy: 0.8264 - val_loss: 0.5291 - val_accuracy: 0.7448
Epoch 853/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3947 - accuracy: 0.8264 - val_loss: 0.5292 - val_accuracy: 0.7448
Epoch 854/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3946 - accuracy: 0.8281 - val_loss: 0.5293 - val_accuracy: 0.7448
Epoch 855/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3948 - accuracy: 0.8264 - val_loss: 0.5292 - val_accuracy: 0.7448
Epoch 856/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3947 - accuracy: 0.8299 - val_loss: 0.5290 - val_accuracy: 0.7448
Epoch 857/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3947 - accuracy: 0.8264 - val_loss: 0.5294 - val_accuracy: 0.7396
Epoch 858/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3945 - accuracy: 0.8281 - val_loss: 0.5293 - val_accuracy: 0.7396
Epoch 859/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3946 - accuracy: 0.8264 - val_loss: 0.5293 - val_accuracy: 0.7396
Epoch 860/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3944 - accuracy: 0.8281 - val_loss: 0.5292 - val_accuracy: 0.7448
Epoch 861/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3944 - accuracy: 0.8264 - val_loss: 0.5292 - val_accuracy: 0.7448
Epoch 862/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3946 - accuracy: 0.8264 - val_loss: 0.5294 - val_accuracy: 0.7396
Epoch 863/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3945 - accuracy: 0.8281 - val_loss: 0.5292 - val_accuracy: 0.7448
Epoch 864/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3944 - accuracy: 0.8264 - val_loss: 0.5293 - val_accuracy: 0.7396
Epoch 865/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3943 - accuracy: 0.8264 - val_loss: 0.5294 - val_accuracy: 0.7396
Epoch 866/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3944 - accuracy: 0.8264 - val_loss: 0.5294 - val_accuracy: 0.7396
Epoch 867/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3944 - accuracy: 0.8264 - val_loss: 0.5298 - val_accuracy: 0.7396
Epoch 868/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3944 - accuracy: 0.8264 - val_loss: 0.5296 - val_accuracy: 0.7396
Epoch 869/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3944 - accuracy: 0.8281 - val_loss: 0.5297 - val_accuracy: 0.7396
Epoch 870/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3943 - accuracy: 0.8264 - val_loss: 0.5296 - val_accuracy: 0.7396
Epoch 871/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3944 - accuracy: 0.8264 - val_loss: 0.5297 - val_accuracy: 0.7396
Epoch 872/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3942 - accuracy: 0.8264 - val_loss: 0.5297 - val_accuracy: 0.7396
Epoch 873/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3944 - accuracy: 0.8264 - val_loss: 0.5294 - val_accuracy: 0.7396
Epoch 874/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3944 - accuracy: 0.8264 - val_loss: 0.5292 - val_accuracy: 0.7448
Epoch 875/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3943 - accuracy: 0.8264 - val_loss: 0.5294 - val_accuracy: 0.7396
Epoch 876/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3942 - accuracy: 0.8264 - val_loss: 0.5293 - val_accuracy: 0.7396
Epoch 877/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3944 - accuracy: 0.8264 - val_loss: 0.5292 - val_accuracy: 0.7396
Epoch 878/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3942 - accuracy: 0.8264 - val_loss: 0.5297 - val_accuracy: 0.7396
Epoch 879/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3942 - accuracy: 0.8281 - val_loss: 0.5295 - val_accuracy: 0.7396
Epoch 880/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3942 - accuracy: 0.8264 - val_loss: 0.5293 - val_accuracy: 0.7396
Epoch 881/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3941 - accuracy: 0.8264 - val_loss: 0.5294 - val_accuracy: 0.7396
Epoch 882/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3941 - accuracy: 0.8264 - val_loss: 0.5295 - val_accuracy: 0.7396
Epoch 883/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3942 - accuracy: 0.8264 - val_loss: 0.5295 - val_accuracy: 0.7396
Epoch 884/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3942 - accuracy: 0.8264 - val_loss: 0.5296 - val_accuracy: 0.7396
Epoch 885/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3941 - accuracy: 0.8264 - val_loss: 0.5297 - val_accuracy: 0.7448
Epoch 886/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3941 - accuracy: 0.8264 - val_loss: 0.5298 - val_accuracy: 0.7396
Epoch 887/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3940 - accuracy: 0.8281 - val_loss: 0.5298 - val_accuracy: 0.7396
Epoch 888/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3939 - accuracy: 0.8264 - val_loss: 0.5299 - val_accuracy: 0.7396
Epoch 889/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3940 - accuracy: 0.8299 - val_loss: 0.5298 - val_accuracy: 0.7448
Epoch 890/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3940 - accuracy: 0.8264 - val_loss: 0.5298 - val_accuracy: 0.7448
Epoch 891/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3940 - accuracy: 0.8264 - val_loss: 0.5298 - val_accuracy: 0.7396
Epoch 892/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3941 - accuracy: 0.8281 - val_loss: 0.5296 - val_accuracy: 0.7448
Epoch 893/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3939 - accuracy: 0.8264 - val_loss: 0.5299 - val_accuracy: 0.7396
Epoch 894/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3940 - accuracy: 0.8264 - val_loss: 0.5301 - val_accuracy: 0.7396
Epoch 895/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3939 - accuracy: 0.8281 - val_loss: 0.5300 - val_accuracy: 0.7396
Epoch 896/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3940 - accuracy: 0.8264 - val_loss: 0.5300 - val_accuracy: 0.7396
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Epoch 897/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3937 - accuracy: 0.8264 - val_loss: 0.5300 - val_accuracy: 0.7396
Epoch 898/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3940 - accuracy: 0.8264 - val_loss: 0.5302 - val_accuracy: 0.7396
Epoch 899/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3939 - accuracy: 0.8264 - val_loss: 0.5302 - val_accuracy: 0.7396
Epoch 900/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3938 - accuracy: 0.8281 - val_loss: 0.5300 - val_accuracy: 0.7396
Epoch 901/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3938 - accuracy: 0.8264 - val_loss: 0.5302 - val_accuracy: 0.7344
Epoch 902/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3938 - accuracy: 0.8264 - val_loss: 0.5305 - val_accuracy: 0.7344
Epoch 903/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3940 - accuracy: 0.8281 - val_loss: 0.5305 - val_accuracy: 0.7344
Epoch 904/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3939 - accuracy: 0.8264 - val_loss: 0.5306 - val_accuracy: 0.7344
Epoch 905/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3935 - accuracy: 0.8264 - val_loss: 0.5306 - val_accuracy: 0.7344
Epoch 906/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3937 - accuracy: 0.8264 - val_loss: 0.5307 - val_accuracy: 0.7344
Epoch 907/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3937 - accuracy: 0.8281 - val_loss: 0.5305 - val_accuracy: 0.7344
Epoch 908/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3936 - accuracy: 0.8247 - val_loss: 0.5306 - val_accuracy: 0.7344
Epoch 909/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3935 - accuracy: 0.8264 - val_loss: 0.5308 - val_accuracy: 0.7344
Epoch 910/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3937 - accuracy: 0.8264 - val_loss: 0.5304 - val_accuracy: 0.7344
Epoch 911/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3935 - accuracy: 0.8264 - val_loss: 0.5303 - val_accuracy: 0.7344
Epoch 912/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3935 - accuracy: 0.8264 - val_loss: 0.5304 - val_accuracy: 0.7344
Epoch 913/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3935 - accuracy: 0.8264 - val_loss: 0.5303 - val_accuracy: 0.7344
Epoch 914/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3935 - accuracy: 0.8247 - val_loss: 0.5304 - val_accuracy: 0.7344
Epoch 915/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3936 - accuracy: 0.8247 - val_loss: 0.5306 - val_accuracy: 0.7344
Epoch 916/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3936 - accuracy: 0.8264 - val_loss: 0.5305 - val_accuracy: 0.7344
Epoch 917/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3937 - accuracy: 0.8264 - val_loss: 0.5305 - val_accuracy: 0.7344
Epoch 918/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3934 - accuracy: 0.8264 - val_loss: 0.5305 - val_accuracy: 0.7344
Epoch 919/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3936 - accuracy: 0.8247 - val_loss: 0.5306 - val_accuracy: 0.7344
Epoch 920/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3933 - accuracy: 0.8264 - val_loss: 0.5304 - val_accuracy: 0.7344
Epoch 921/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3935 - accuracy: 0.8264 - val_loss: 0.5301 - val_accuracy: 0.7396
Epoch 922/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3933 - accuracy: 0.8247 - val_loss: 0.5305 - val_accuracy: 0.7344
Epoch 923/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3933 - accuracy: 0.8247 - val_loss: 0.5310 - val_accuracy: 0.7344
Epoch 924/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3932 - accuracy: 0.8247 - val_loss: 0.5312 - val_accuracy: 0.7344
Epoch 925/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3933 - accuracy: 0.8247 - val_loss: 0.5314 - val_accuracy: 0.7344
Epoch 926/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3934 - accuracy: 0.8264 - val_loss: 0.5310 - val_accuracy: 0.7344
Epoch 927/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3933 - accuracy: 0.8247 - val_loss: 0.5310 - val_accuracy: 0.7344
Epoch 928/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3932 - accuracy: 0.8281 - val_loss: 0.5309 - val_accuracy: 0.7344
Epoch 929/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3932 - accuracy: 0.8299 - val_loss: 0.5311 - val_accuracy: 0.7344
Epoch 930/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3931 - accuracy: 0.8247 - val_loss: 0.5314 - val_accuracy: 0.7344
Epoch 931/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3929 - accuracy: 0.8281 - val_loss: 0.5312 - val_accuracy: 0.7344
Epoch 932/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3930 - accuracy: 0.8264 - val_loss: 0.5312 - val_accuracy: 0.7344
Epoch 933/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3930 - accuracy: 0.8281 - val_loss: 0.5315 - val_accuracy: 0.7344
Epoch 934/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3931 - accuracy: 0.8299 - val_loss: 0.5312 - val_accuracy: 0.7344
Epoch 935/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3928 - accuracy: 0.8299 - val_loss: 0.5311 - val_accuracy: 0.7344
Epoch 936/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3930 - accuracy: 0.8264 - val_loss: 0.5313 - val_accuracy: 0.7344
Epoch 937/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3928 - accuracy: 0.8264 - val_loss: 0.5314 - val_accuracy: 0.7344
Epoch 938/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3928 - accuracy: 0.8281 - val_loss: 0.5314 - val_accuracy: 0.7344
Epoch 939/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3927 - accuracy: 0.8264 - val_loss: 0.5315 - val_accuracy: 0.7344
Epoch 940/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3927 - accuracy: 0.8281 - val_loss: 0.5316 - val_accuracy: 0.7344
Epoch 941/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3925 - accuracy: 0.8281 - val_loss: 0.5315 - val_accuracy: 0.7344
Epoch 942/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3928 - accuracy: 0.8299 - val_loss: 0.5315 - val_accuracy: 0.7344
Epoch 943/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3928 - accuracy: 0.8299 - val_loss: 0.5314 - val_accuracy: 0.7344
Epoch 944/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3926 - accuracy: 0.8281 - val_loss: 0.5318 - val_accuracy: 0.7344
Epoch 945/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3924 - accuracy: 0.8299 - val_loss: 0.5315 - val_accuracy: 0.7344
Epoch 946/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3925 - accuracy: 0.8281 - val_loss: 0.5318 - val_accuracy: 0.7344
Epoch 947/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3926 - accuracy: 0.8299 - val_loss: 0.5317 - val_accuracy: 0.7396
Epoch 948/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3923 - accuracy: 0.8281 - val_loss: 0.5316 - val_accuracy: 0.7396
Epoch 949/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3921 - accuracy: 0.8299 - val_loss: 0.5318 - val_accuracy: 0.7396
Epoch 950/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3924 - accuracy: 0.8299 - val_loss: 0.5317 - val_accuracy: 0.7396
Epoch 951/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3922 - accuracy: 0.8299 - val_loss: 0.5317 - val_accuracy: 0.7396
Epoch 952/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3920 - accuracy: 0.8299 - val_loss: 0.5320 - val_accuracy: 0.7396
Epoch 953/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3922 - accuracy: 0.8281 - val_loss: 0.5322 - val_accuracy: 0.7396
Epoch 954/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3919 - accuracy: 0.8299 - val_loss: 0.5322 - val_accuracy: 0.7396
Epoch 955/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3918 - accuracy: 0.8299 - val_loss: 0.5322 - val_accuracy: 0.7396
Epoch 956/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3917 - accuracy: 0.8316 - val_loss: 0.5321 - val_accuracy: 0.7396
Epoch 957/1500
18/18 [==============================] - 0s 11ms/step - loss: 0.3916 - accuracy: 0.8299 - val_loss: 0.5322 - val_accuracy: 0.7396
Epoch 958/1500
18/18 [==============================] - 0s 9ms/step - loss: 0.3917 - accuracy: 0.8299 - val_loss: 0.5321 - val_accuracy: 0.7396
Epoch 959/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3916 - accuracy: 0.8281 - val_loss: 0.5323 - val_accuracy: 0.7396
Epoch 960/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3915 - accuracy: 0.8299 - val_loss: 0.5322 - val_accuracy: 0.7396
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Epoch 961/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3913 - accuracy: 0.8299 - val_loss: 0.5321 - val_accuracy: 0.7396
Epoch 962/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3912 - accuracy: 0.8299 - val_loss: 0.5323 - val_accuracy: 0.7396
Epoch 963/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3913 - accuracy: 0.8299 - val_loss: 0.5327 - val_accuracy: 0.7396
Epoch 964/1500
18/18 [==============================] - 0s 9ms/step - loss: 0.3912 - accuracy: 0.8316 - val_loss: 0.5327 - val_accuracy: 0.7396
Epoch 965/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3914 - accuracy: 0.8299 - val_loss: 0.5326 - val_accuracy: 0.7448
Epoch 966/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3911 - accuracy: 0.8299 - val_loss: 0.5328 - val_accuracy: 0.7448
Epoch 967/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3910 - accuracy: 0.8299 - val_loss: 0.5326 - val_accuracy: 0.7448
Epoch 968/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3907 - accuracy: 0.8281 - val_loss: 0.5325 - val_accuracy: 0.7448
Epoch 969/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3904 - accuracy: 0.8299 - val_loss: 0.5329 - val_accuracy: 0.7448
Epoch 970/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3906 - accuracy: 0.8316 - val_loss: 0.5330 - val_accuracy: 0.7448
Epoch 971/1500
18/18 [==============================] - 0s 9ms/step - loss: 0.3903 - accuracy: 0.8299 - val_loss: 0.5332 - val_accuracy: 0.7448
Epoch 972/1500
18/18 [==============================] - 0s 9ms/step - loss: 0.3903 - accuracy: 0.8281 - val_loss: 0.5330 - val_accuracy: 0.7448
Epoch 973/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3902 - accuracy: 0.8281 - val_loss: 0.5331 - val_accuracy: 0.7448
Epoch 974/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3903 - accuracy: 0.8281 - val_loss: 0.5334 - val_accuracy: 0.7448
Epoch 975/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3904 - accuracy: 0.8281 - val_loss: 0.5338 - val_accuracy: 0.7500
Epoch 976/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3899 - accuracy: 0.8281 - val_loss: 0.5338 - val_accuracy: 0.7500
Epoch 977/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3899 - accuracy: 0.8281 - val_loss: 0.5339 - val_accuracy: 0.7500
Epoch 978/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3899 - accuracy: 0.8281 - val_loss: 0.5344 - val_accuracy: 0.7500
Epoch 979/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3899 - accuracy: 0.8281 - val_loss: 0.5343 - val_accuracy: 0.7500
Epoch 980/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3896 - accuracy: 0.8281 - val_loss: 0.5346 - val_accuracy: 0.7500
Epoch 981/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3897 - accuracy: 0.8281 - val_loss: 0.5349 - val_accuracy: 0.7448
Epoch 982/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3895 - accuracy: 0.8281 - val_loss: 0.5348 - val_accuracy: 0.7448
Epoch 983/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3897 - accuracy: 0.8281 - val_loss: 0.5347 - val_accuracy: 0.7500
Epoch 984/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3895 - accuracy: 0.8281 - val_loss: 0.5349 - val_accuracy: 0.7500
Epoch 985/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3893 - accuracy: 0.8281 - val_loss: 0.5348 - val_accuracy: 0.7500
Epoch 986/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3894 - accuracy: 0.8281 - val_loss: 0.5349 - val_accuracy: 0.7500
Epoch 987/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3895 - accuracy: 0.8299 - val_loss: 0.5349 - val_accuracy: 0.7500
Epoch 988/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3892 - accuracy: 0.8299 - val_loss: 0.5348 - val_accuracy: 0.7500
Epoch 989/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3890 - accuracy: 0.8281 - val_loss: 0.5350 - val_accuracy: 0.7500
Epoch 990/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3891 - accuracy: 0.8299 - val_loss: 0.5349 - val_accuracy: 0.7500
Epoch 991/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3890 - accuracy: 0.8299 - val_loss: 0.5349 - val_accuracy: 0.7552
Epoch 992/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3890 - accuracy: 0.8299 - val_loss: 0.5351 - val_accuracy: 0.7552
Epoch 993/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3889 - accuracy: 0.8316 - val_loss: 0.5352 - val_accuracy: 0.7552
Epoch 994/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3890 - accuracy: 0.8316 - val_loss: 0.5350 - val_accuracy: 0.7500
Epoch 995/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3888 - accuracy: 0.8299 - val_loss: 0.5352 - val_accuracy: 0.7552
Epoch 996/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3887 - accuracy: 0.8299 - val_loss: 0.5353 - val_accuracy: 0.7552
Epoch 997/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3889 - accuracy: 0.8316 - val_loss: 0.5355 - val_accuracy: 0.7552
Epoch 998/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3886 - accuracy: 0.8299 - val_loss: 0.5354 - val_accuracy: 0.7552
Epoch 999/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3885 - accuracy: 0.8299 - val_loss: 0.5354 - val_accuracy: 0.7552
Epoch 1000/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3885 - accuracy: 0.8316 - val_loss: 0.5357 - val_accuracy: 0.7552
Epoch 1001/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3887 - accuracy: 0.8299 - val_loss: 0.5364 - val_accuracy: 0.7552
Epoch 1002/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3886 - accuracy: 0.8299 - val_loss: 0.5365 - val_accuracy: 0.7552
Epoch 1003/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3883 - accuracy: 0.8316 - val_loss: 0.5361 - val_accuracy: 0.7552
Epoch 1004/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3884 - accuracy: 0.8299 - val_loss: 0.5362 - val_accuracy: 0.7552
Epoch 1005/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3882 - accuracy: 0.8316 - val_loss: 0.5360 - val_accuracy: 0.7552
Epoch 1006/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3885 - accuracy: 0.8299 - val_loss: 0.5363 - val_accuracy: 0.7552
Epoch 1007/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3881 - accuracy: 0.8299 - val_loss: 0.5363 - val_accuracy: 0.7552
Epoch 1008/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3882 - accuracy: 0.8316 - val_loss: 0.5364 - val_accuracy: 0.7552
Epoch 1009/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3880 - accuracy: 0.8299 - val_loss: 0.5367 - val_accuracy: 0.7552
Epoch 1010/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3881 - accuracy: 0.8316 - val_loss: 0.5367 - val_accuracy: 0.7552
Epoch 1011/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3881 - accuracy: 0.8299 - val_loss: 0.5368 - val_accuracy: 0.7552
Epoch 1012/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3880 - accuracy: 0.8333 - val_loss: 0.5367 - val_accuracy: 0.7552
Epoch 1013/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3880 - accuracy: 0.8316 - val_loss: 0.5372 - val_accuracy: 0.7552
Epoch 1014/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3878 - accuracy: 0.8299 - val_loss: 0.5371 - val_accuracy: 0.7552
Epoch 1015/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3881 - accuracy: 0.8333 - val_loss: 0.5368 - val_accuracy: 0.7552
Epoch 1016/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3880 - accuracy: 0.8316 - val_loss: 0.5369 - val_accuracy: 0.7552
Epoch 1017/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3878 - accuracy: 0.8316 - val_loss: 0.5369 - val_accuracy: 0.7552
Epoch 1018/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3879 - accuracy: 0.8333 - val_loss: 0.5369 - val_accuracy: 0.7500
Epoch 1019/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3877 - accuracy: 0.8316 - val_loss: 0.5369 - val_accuracy: 0.7500
Epoch 1020/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3877 - accuracy: 0.8316 - val_loss: 0.5372 - val_accuracy: 0.7552
Epoch 1021/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3878 - accuracy: 0.8316 - val_loss: 0.5373 - val_accuracy: 0.7500
Epoch 1022/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3874 - accuracy: 0.8316 - val_loss: 0.5375 - val_accuracy: 0.7552
Epoch 1023/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3877 - accuracy: 0.8333 - val_loss: 0.5373 - val_accuracy: 0.7500
Epoch 1024/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3877 - accuracy: 0.8316 - val_loss: 0.5374 - val_accuracy: 0.7500
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Epoch 1025/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3873 - accuracy: 0.8316 - val_loss: 0.5375 - val_accuracy: 0.7500
Epoch 1026/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3875 - accuracy: 0.8316 - val_loss: 0.5376 - val_accuracy: 0.7500
Epoch 1027/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3875 - accuracy: 0.8316 - val_loss: 0.5378 - val_accuracy: 0.7500
Epoch 1028/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3875 - accuracy: 0.8316 - val_loss: 0.5378 - val_accuracy: 0.7500
Epoch 1029/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3876 - accuracy: 0.8316 - val_loss: 0.5380 - val_accuracy: 0.7500
Epoch 1030/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3874 - accuracy: 0.8333 - val_loss: 0.5382 - val_accuracy: 0.7500
Epoch 1031/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3873 - accuracy: 0.8333 - val_loss: 0.5381 - val_accuracy: 0.7500
Epoch 1032/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3874 - accuracy: 0.8333 - val_loss: 0.5381 - val_accuracy: 0.7500
Epoch 1033/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3875 - accuracy: 0.8333 - val_loss: 0.5381 - val_accuracy: 0.7500
Epoch 1034/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3874 - accuracy: 0.8333 - val_loss: 0.5380 - val_accuracy: 0.7500
Epoch 1035/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3873 - accuracy: 0.8333 - val_loss: 0.5380 - val_accuracy: 0.7500
Epoch 1036/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3874 - accuracy: 0.8333 - val_loss: 0.5379 - val_accuracy: 0.7500
Epoch 1037/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3873 - accuracy: 0.8333 - val_loss: 0.5380 - val_accuracy: 0.7500
Epoch 1038/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3872 - accuracy: 0.8316 - val_loss: 0.5383 - val_accuracy: 0.7500
Epoch 1039/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3871 - accuracy: 0.8351 - val_loss: 0.5382 - val_accuracy: 0.7500
Epoch 1040/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3873 - accuracy: 0.8333 - val_loss: 0.5383 - val_accuracy: 0.7500
Epoch 1041/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3871 - accuracy: 0.8299 - val_loss: 0.5385 - val_accuracy: 0.7500
Epoch 1042/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3870 - accuracy: 0.8316 - val_loss: 0.5389 - val_accuracy: 0.7500
Epoch 1043/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3871 - accuracy: 0.8316 - val_loss: 0.5391 - val_accuracy: 0.7552
Epoch 1044/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3873 - accuracy: 0.8316 - val_loss: 0.5390 - val_accuracy: 0.7552
Epoch 1045/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3870 - accuracy: 0.8333 - val_loss: 0.5389 - val_accuracy: 0.7500
Epoch 1046/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3868 - accuracy: 0.8316 - val_loss: 0.5388 - val_accuracy: 0.7500
Epoch 1047/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3872 - accuracy: 0.8333 - val_loss: 0.5393 - val_accuracy: 0.7500
Epoch 1048/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3869 - accuracy: 0.8333 - val_loss: 0.5392 - val_accuracy: 0.7500
Epoch 1049/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3868 - accuracy: 0.8316 - val_loss: 0.5392 - val_accuracy: 0.7500
Epoch 1050/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3871 - accuracy: 0.8333 - val_loss: 0.5391 - val_accuracy: 0.7500
Epoch 1051/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3870 - accuracy: 0.8316 - val_loss: 0.5394 - val_accuracy: 0.7500
Epoch 1052/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3870 - accuracy: 0.8333 - val_loss: 0.5392 - val_accuracy: 0.7500
Epoch 1053/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3868 - accuracy: 0.8333 - val_loss: 0.5390 - val_accuracy: 0.7500
Epoch 1054/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3869 - accuracy: 0.8316 - val_loss: 0.5394 - val_accuracy: 0.7500
Epoch 1055/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3868 - accuracy: 0.8351 - val_loss: 0.5390 - val_accuracy: 0.7448
Epoch 1056/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3869 - accuracy: 0.8333 - val_loss: 0.5391 - val_accuracy: 0.7500
Epoch 1057/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3866 - accuracy: 0.8333 - val_loss: 0.5394 - val_accuracy: 0.7500
Epoch 1058/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3869 - accuracy: 0.8333 - val_loss: 0.5398 - val_accuracy: 0.7500
Epoch 1059/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3869 - accuracy: 0.8333 - val_loss: 0.5397 - val_accuracy: 0.7500
Epoch 1060/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3867 - accuracy: 0.8333 - val_loss: 0.5397 - val_accuracy: 0.7500
Epoch 1061/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3866 - accuracy: 0.8351 - val_loss: 0.5396 - val_accuracy: 0.7500
Epoch 1062/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3867 - accuracy: 0.8333 - val_loss: 0.5393 - val_accuracy: 0.7500
Epoch 1063/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3865 - accuracy: 0.8333 - val_loss: 0.5395 - val_accuracy: 0.7500
Epoch 1064/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3865 - accuracy: 0.8333 - val_loss: 0.5395 - val_accuracy: 0.7500
Epoch 1065/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3865 - accuracy: 0.8333 - val_loss: 0.5395 - val_accuracy: 0.7500
Epoch 1066/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3865 - accuracy: 0.8299 - val_loss: 0.5401 - val_accuracy: 0.7500
Epoch 1067/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3865 - accuracy: 0.8333 - val_loss: 0.5399 - val_accuracy: 0.7500
Epoch 1068/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3865 - accuracy: 0.8316 - val_loss: 0.5400 - val_accuracy: 0.7500
Epoch 1069/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3866 - accuracy: 0.8351 - val_loss: 0.5397 - val_accuracy: 0.7500
Epoch 1070/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3864 - accuracy: 0.8333 - val_loss: 0.5399 - val_accuracy: 0.7500
Epoch 1071/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3864 - accuracy: 0.8333 - val_loss: 0.5400 - val_accuracy: 0.7448
Epoch 1072/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3864 - accuracy: 0.8333 - val_loss: 0.5398 - val_accuracy: 0.7500
Epoch 1073/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3863 - accuracy: 0.8333 - val_loss: 0.5398 - val_accuracy: 0.7500
Epoch 1074/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3863 - accuracy: 0.8333 - val_loss: 0.5398 - val_accuracy: 0.7500
Epoch 1075/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3862 - accuracy: 0.8351 - val_loss: 0.5399 - val_accuracy: 0.7500
Epoch 1076/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3863 - accuracy: 0.8333 - val_loss: 0.5400 - val_accuracy: 0.7500
Epoch 1077/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3863 - accuracy: 0.8351 - val_loss: 0.5401 - val_accuracy: 0.7448
Epoch 1078/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3863 - accuracy: 0.8333 - val_loss: 0.5401 - val_accuracy: 0.7448
Epoch 1079/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3866 - accuracy: 0.8333 - val_loss: 0.5402 - val_accuracy: 0.7448
Epoch 1080/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3861 - accuracy: 0.8351 - val_loss: 0.5399 - val_accuracy: 0.7448
Epoch 1081/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3861 - accuracy: 0.8333 - val_loss: 0.5398 - val_accuracy: 0.7448
Epoch 1082/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3862 - accuracy: 0.8333 - val_loss: 0.5402 - val_accuracy: 0.7448
Epoch 1083/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3861 - accuracy: 0.8333 - val_loss: 0.5408 - val_accuracy: 0.7500
Epoch 1084/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3863 - accuracy: 0.8333 - val_loss: 0.5405 - val_accuracy: 0.7500
Epoch 1085/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3861 - accuracy: 0.8351 - val_loss: 0.5405 - val_accuracy: 0.7500
Epoch 1086/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3863 - accuracy: 0.8351 - val_loss: 0.5405 - val_accuracy: 0.7500
Epoch 1087/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3861 - accuracy: 0.8333 - val_loss: 0.5403 - val_accuracy: 0.7448
Epoch 1088/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3863 - accuracy: 0.8351 - val_loss: 0.5404 - val_accuracy: 0.7396
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Epoch 1089/1500
18/18 [==============================] - 0s 9ms/step - loss: 0.3858 - accuracy: 0.8333 - val_loss: 0.5403 - val_accuracy: 0.7448
Epoch 1090/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3861 - accuracy: 0.8333 - val_loss: 0.5401 - val_accuracy: 0.7448
Epoch 1091/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3862 - accuracy: 0.8351 - val_loss: 0.5407 - val_accuracy: 0.7500
Epoch 1092/1500
18/18 [==============================] - 0s 9ms/step - loss: 0.3861 - accuracy: 0.8351 - val_loss: 0.5409 - val_accuracy: 0.7500
Epoch 1093/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3859 - accuracy: 0.8333 - val_loss: 0.5408 - val_accuracy: 0.7500
Epoch 1094/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3858 - accuracy: 0.8333 - val_loss: 0.5408 - val_accuracy: 0.7500
Epoch 1095/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3857 - accuracy: 0.8333 - val_loss: 0.5408 - val_accuracy: 0.7500
Epoch 1096/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3857 - accuracy: 0.8333 - val_loss: 0.5410 - val_accuracy: 0.7500
Epoch 1097/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3856 - accuracy: 0.8333 - val_loss: 0.5410 - val_accuracy: 0.7500
Epoch 1098/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3858 - accuracy: 0.8368 - val_loss: 0.5404 - val_accuracy: 0.7448
Epoch 1099/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3858 - accuracy: 0.8351 - val_loss: 0.5405 - val_accuracy: 0.7500
Epoch 1100/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3857 - accuracy: 0.8333 - val_loss: 0.5407 - val_accuracy: 0.7396
Epoch 1101/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3855 - accuracy: 0.8351 - val_loss: 0.5410 - val_accuracy: 0.7448
Epoch 1102/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3856 - accuracy: 0.8351 - val_loss: 0.5409 - val_accuracy: 0.7448
Epoch 1103/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3858 - accuracy: 0.8351 - val_loss: 0.5411 - val_accuracy: 0.7448
Epoch 1104/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3855 - accuracy: 0.8351 - val_loss: 0.5413 - val_accuracy: 0.7448
Epoch 1105/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3858 - accuracy: 0.8333 - val_loss: 0.5413 - val_accuracy: 0.7448
Epoch 1106/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3856 - accuracy: 0.8351 - val_loss: 0.5412 - val_accuracy: 0.7500
Epoch 1107/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3856 - accuracy: 0.8333 - val_loss: 0.5409 - val_accuracy: 0.7500
Epoch 1108/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3856 - accuracy: 0.8333 - val_loss: 0.5412 - val_accuracy: 0.7500
Epoch 1109/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3854 - accuracy: 0.8351 - val_loss: 0.5412 - val_accuracy: 0.7500
Epoch 1110/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3853 - accuracy: 0.8351 - val_loss: 0.5413 - val_accuracy: 0.7500
Epoch 1111/1500
18/18 [==============================] - 0s 9ms/step - loss: 0.3853 - accuracy: 0.8351 - val_loss: 0.5412 - val_accuracy: 0.7500
Epoch 1112/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3855 - accuracy: 0.8351 - val_loss: 0.5411 - val_accuracy: 0.7500
Epoch 1113/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3854 - accuracy: 0.8351 - val_loss: 0.5413 - val_accuracy: 0.7500
Epoch 1114/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3852 - accuracy: 0.8351 - val_loss: 0.5414 - val_accuracy: 0.7500
Epoch 1115/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3851 - accuracy: 0.8351 - val_loss: 0.5414 - val_accuracy: 0.7500
Epoch 1116/1500
18/18 [==============================] - 0s 9ms/step - loss: 0.3851 - accuracy: 0.8351 - val_loss: 0.5413 - val_accuracy: 0.7500
Epoch 1117/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3851 - accuracy: 0.8351 - val_loss: 0.5414 - val_accuracy: 0.7500
Epoch 1118/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3853 - accuracy: 0.8333 - val_loss: 0.5414 - val_accuracy: 0.7500
Epoch 1119/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3850 - accuracy: 0.8351 - val_loss: 0.5416 - val_accuracy: 0.7500
Epoch 1120/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3850 - accuracy: 0.8368 - val_loss: 0.5416 - val_accuracy: 0.7448
Epoch 1121/1500
18/18 [==============================] - 0s 11ms/step - loss: 0.3852 - accuracy: 0.8351 - val_loss: 0.5415 - val_accuracy: 0.7448
Epoch 1122/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3849 - accuracy: 0.8351 - val_loss: 0.5418 - val_accuracy: 0.7500
Epoch 1123/1500
18/18 [==============================] - 0s 10ms/step - loss: 0.3849 - accuracy: 0.8351 - val_loss: 0.5419 - val_accuracy: 0.7500
Epoch 1124/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3852 - accuracy: 0.8351 - val_loss: 0.5416 - val_accuracy: 0.7500
Epoch 1125/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3850 - accuracy: 0.8368 - val_loss: 0.5415 - val_accuracy: 0.7448
Epoch 1126/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3851 - accuracy: 0.8333 - val_loss: 0.5416 - val_accuracy: 0.7448
Epoch 1127/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3850 - accuracy: 0.8316 - val_loss: 0.5421 - val_accuracy: 0.7500
Epoch 1128/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3849 - accuracy: 0.8333 - val_loss: 0.5424 - val_accuracy: 0.7500
Epoch 1129/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3847 - accuracy: 0.8368 - val_loss: 0.5424 - val_accuracy: 0.7500
Epoch 1130/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3848 - accuracy: 0.8351 - val_loss: 0.5422 - val_accuracy: 0.7500
Epoch 1131/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3848 - accuracy: 0.8351 - val_loss: 0.5421 - val_accuracy: 0.7448
Epoch 1132/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3849 - accuracy: 0.8351 - val_loss: 0.5420 - val_accuracy: 0.7448
Epoch 1133/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3849 - accuracy: 0.8351 - val_loss: 0.5424 - val_accuracy: 0.7448
Epoch 1134/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3848 - accuracy: 0.8351 - val_loss: 0.5427 - val_accuracy: 0.7448
Epoch 1135/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3847 - accuracy: 0.8351 - val_loss: 0.5427 - val_accuracy: 0.7448
Epoch 1136/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3850 - accuracy: 0.8368 - val_loss: 0.5425 - val_accuracy: 0.7448
Epoch 1137/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3849 - accuracy: 0.8351 - val_loss: 0.5424 - val_accuracy: 0.7448
Epoch 1138/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3847 - accuracy: 0.8351 - val_loss: 0.5422 - val_accuracy: 0.7396
Epoch 1139/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3844 - accuracy: 0.8333 - val_loss: 0.5430 - val_accuracy: 0.7448
Epoch 1140/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3848 - accuracy: 0.8351 - val_loss: 0.5429 - val_accuracy: 0.7448
Epoch 1141/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3846 - accuracy: 0.8368 - val_loss: 0.5426 - val_accuracy: 0.7396
Epoch 1142/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3846 - accuracy: 0.8333 - val_loss: 0.5427 - val_accuracy: 0.7396
Epoch 1143/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3845 - accuracy: 0.8299 - val_loss: 0.5431 - val_accuracy: 0.7396
Epoch 1144/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3845 - accuracy: 0.8351 - val_loss: 0.5429 - val_accuracy: 0.7396
Epoch 1145/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3846 - accuracy: 0.8351 - val_loss: 0.5431 - val_accuracy: 0.7396
Epoch 1146/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3845 - accuracy: 0.8368 - val_loss: 0.5431 - val_accuracy: 0.7396
Epoch 1147/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3844 - accuracy: 0.8351 - val_loss: 0.5436 - val_accuracy: 0.7448
Epoch 1148/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3845 - accuracy: 0.8333 - val_loss: 0.5437 - val_accuracy: 0.7448
Epoch 1149/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3843 - accuracy: 0.8333 - val_loss: 0.5437 - val_accuracy: 0.7448
Epoch 1150/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3842 - accuracy: 0.8351 - val_loss: 0.5435 - val_accuracy: 0.7396
Epoch 1151/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3847 - accuracy: 0.8333 - val_loss: 0.5437 - val_accuracy: 0.7396
Epoch 1152/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3843 - accuracy: 0.8351 - val_loss: 0.5437 - val_accuracy: 0.7396
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Epoch 1153/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3842 - accuracy: 0.8351 - val_loss: 0.5438 - val_accuracy: 0.7396
Epoch 1154/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3844 - accuracy: 0.8351 - val_loss: 0.5438 - val_accuracy: 0.7396
Epoch 1155/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3841 - accuracy: 0.8351 - val_loss: 0.5442 - val_accuracy: 0.7396
Epoch 1156/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3843 - accuracy: 0.8351 - val_loss: 0.5443 - val_accuracy: 0.7396
Epoch 1157/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3840 - accuracy: 0.8368 - val_loss: 0.5439 - val_accuracy: 0.7344
Epoch 1158/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3843 - accuracy: 0.8333 - val_loss: 0.5441 - val_accuracy: 0.7344
Epoch 1159/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3839 - accuracy: 0.8351 - val_loss: 0.5443 - val_accuracy: 0.7344
Epoch 1160/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3845 - accuracy: 0.8351 - val_loss: 0.5441 - val_accuracy: 0.7344
Epoch 1161/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3841 - accuracy: 0.8351 - val_loss: 0.5442 - val_accuracy: 0.7344
Epoch 1162/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3841 - accuracy: 0.8351 - val_loss: 0.5443 - val_accuracy: 0.7344
Epoch 1163/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3841 - accuracy: 0.8351 - val_loss: 0.5445 - val_accuracy: 0.7344
Epoch 1164/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3840 - accuracy: 0.8351 - val_loss: 0.5446 - val_accuracy: 0.7344
Epoch 1165/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3840 - accuracy: 0.8368 - val_loss: 0.5444 - val_accuracy: 0.7344
Epoch 1166/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3838 - accuracy: 0.8351 - val_loss: 0.5443 - val_accuracy: 0.7344
Epoch 1167/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3840 - accuracy: 0.8333 - val_loss: 0.5446 - val_accuracy: 0.7344
Epoch 1168/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3836 - accuracy: 0.8351 - val_loss: 0.5445 - val_accuracy: 0.7344
Epoch 1169/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3836 - accuracy: 0.8351 - val_loss: 0.5450 - val_accuracy: 0.7396
Epoch 1170/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3838 - accuracy: 0.8351 - val_loss: 0.5450 - val_accuracy: 0.7396
Epoch 1171/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3836 - accuracy: 0.8368 - val_loss: 0.5451 - val_accuracy: 0.7396
Epoch 1172/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3835 - accuracy: 0.8368 - val_loss: 0.5453 - val_accuracy: 0.7396
Epoch 1173/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3839 - accuracy: 0.8351 - val_loss: 0.5451 - val_accuracy: 0.7344
Epoch 1174/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3838 - accuracy: 0.8351 - val_loss: 0.5457 - val_accuracy: 0.7396
Epoch 1175/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3836 - accuracy: 0.8368 - val_loss: 0.5456 - val_accuracy: 0.7396
Epoch 1176/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3835 - accuracy: 0.8368 - val_loss: 0.5456 - val_accuracy: 0.7396
Epoch 1177/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3837 - accuracy: 0.8403 - val_loss: 0.5454 - val_accuracy: 0.7396
Epoch 1178/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3837 - accuracy: 0.8368 - val_loss: 0.5454 - val_accuracy: 0.7344
Epoch 1179/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3835 - accuracy: 0.8385 - val_loss: 0.5455 - val_accuracy: 0.7396
Epoch 1180/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3833 - accuracy: 0.8403 - val_loss: 0.5451 - val_accuracy: 0.7292
Epoch 1181/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3835 - accuracy: 0.8368 - val_loss: 0.5452 - val_accuracy: 0.7292
Epoch 1182/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3836 - accuracy: 0.8385 - val_loss: 0.5455 - val_accuracy: 0.7292
Epoch 1183/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3835 - accuracy: 0.8351 - val_loss: 0.5462 - val_accuracy: 0.7344
Epoch 1184/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3834 - accuracy: 0.8403 - val_loss: 0.5459 - val_accuracy: 0.7344
Epoch 1185/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3833 - accuracy: 0.8368 - val_loss: 0.5461 - val_accuracy: 0.7344
Epoch 1186/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3833 - accuracy: 0.8351 - val_loss: 0.5461 - val_accuracy: 0.7344
Epoch 1187/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3832 - accuracy: 0.8351 - val_loss: 0.5462 - val_accuracy: 0.7396
Epoch 1188/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3831 - accuracy: 0.8403 - val_loss: 0.5458 - val_accuracy: 0.7344
Epoch 1189/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3832 - accuracy: 0.8368 - val_loss: 0.5459 - val_accuracy: 0.7344
Epoch 1190/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3833 - accuracy: 0.8351 - val_loss: 0.5464 - val_accuracy: 0.7344
Epoch 1191/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3833 - accuracy: 0.8368 - val_loss: 0.5464 - val_accuracy: 0.7396
Epoch 1192/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3835 - accuracy: 0.8368 - val_loss: 0.5461 - val_accuracy: 0.7344
Epoch 1193/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3832 - accuracy: 0.8351 - val_loss: 0.5465 - val_accuracy: 0.7344
Epoch 1194/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3831 - accuracy: 0.8368 - val_loss: 0.5471 - val_accuracy: 0.7344
Epoch 1195/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3832 - accuracy: 0.8368 - val_loss: 0.5470 - val_accuracy: 0.7344
Epoch 1196/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3833 - accuracy: 0.8368 - val_loss: 0.5469 - val_accuracy: 0.7344
Epoch 1197/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3831 - accuracy: 0.8403 - val_loss: 0.5468 - val_accuracy: 0.7344
Epoch 1198/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3831 - accuracy: 0.8385 - val_loss: 0.5466 - val_accuracy: 0.7344
Epoch 1199/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3833 - accuracy: 0.8351 - val_loss: 0.5468 - val_accuracy: 0.7344
Epoch 1200/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3831 - accuracy: 0.8385 - val_loss: 0.5470 - val_accuracy: 0.7344
Epoch 1201/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3830 - accuracy: 0.8403 - val_loss: 0.5467 - val_accuracy: 0.7292
Epoch 1202/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3830 - accuracy: 0.8351 - val_loss: 0.5470 - val_accuracy: 0.7292
Epoch 1203/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3827 - accuracy: 0.8368 - val_loss: 0.5469 - val_accuracy: 0.7292
Epoch 1204/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3826 - accuracy: 0.8368 - val_loss: 0.5471 - val_accuracy: 0.7292
Epoch 1205/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3827 - accuracy: 0.8385 - val_loss: 0.5469 - val_accuracy: 0.7292
Epoch 1206/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3827 - accuracy: 0.8368 - val_loss: 0.5469 - val_accuracy: 0.7292
Epoch 1207/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3826 - accuracy: 0.8351 - val_loss: 0.5473 - val_accuracy: 0.7292
Epoch 1208/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3826 - accuracy: 0.8385 - val_loss: 0.5470 - val_accuracy: 0.7292
Epoch 1209/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3825 - accuracy: 0.8351 - val_loss: 0.5474 - val_accuracy: 0.7292
Epoch 1210/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3828 - accuracy: 0.8420 - val_loss: 0.5469 - val_accuracy: 0.7292
Epoch 1211/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3825 - accuracy: 0.8351 - val_loss: 0.5475 - val_accuracy: 0.7292
Epoch 1212/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3824 - accuracy: 0.8368 - val_loss: 0.5477 - val_accuracy: 0.7292
Epoch 1213/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3827 - accuracy: 0.8351 - val_loss: 0.5477 - val_accuracy: 0.7292
Epoch 1214/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3825 - accuracy: 0.8351 - val_loss: 0.5480 - val_accuracy: 0.7292
Epoch 1215/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3825 - accuracy: 0.8385 - val_loss: 0.5481 - val_accuracy: 0.7292
Epoch 1216/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3823 - accuracy: 0.8368 - val_loss: 0.5483 - val_accuracy: 0.7292
```

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Epoch 1217/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3823 - accuracy: 0.8368 - val_loss: 0.5479 - val_accuracy: 0.7292
Epoch 1218/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3824 - accuracy: 0.8385 - val_loss: 0.5481 - val_accuracy: 0.7292
Epoch 1219/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3823 - accuracy: 0.8385 - val_loss: 0.5481 - val_accuracy: 0.7292
Epoch 1220/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3823 - accuracy: 0.8368 - val_loss: 0.5478 - val_accuracy: 0.7292
Epoch 1221/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3822 - accuracy: 0.8385 - val_loss: 0.5478 - val_accuracy: 0.7292
Epoch 1222/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3822 - accuracy: 0.8351 - val_loss: 0.5482 - val_accuracy: 0.7292
Epoch 1223/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3823 - accuracy: 0.8368 - val_loss: 0.5482 - val_accuracy: 0.7292
Epoch 1224/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3822 - accuracy: 0.8368 - val_loss: 0.5483 - val_accuracy: 0.7292
Epoch 1225/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3821 - accuracy: 0.8368 - val_loss: 0.5484 - val_accuracy: 0.7292
Epoch 1226/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3819 - accuracy: 0.8385 - val_loss: 0.5484 - val_accuracy: 0.7240
Epoch 1227/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3822 - accuracy: 0.8368 - val_loss: 0.5485 - val_accuracy: 0.7240
Epoch 1228/1500
18/18 [==============================] - 0s 9ms/step - loss: 0.3821 - accuracy: 0.8368 - val_loss: 0.5488 - val_accuracy: 0.7240
Epoch 1229/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3819 - accuracy: 0.8368 - val_loss: 0.5488 - val_accuracy: 0.7240
Epoch 1230/1500
18/18 [==============================] - 0s 9ms/step - loss: 0.3816 - accuracy: 0.8385 - val_loss: 0.5487 - val_accuracy: 0.7240
Epoch 1231/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3819 - accuracy: 0.8351 - val_loss: 0.5489 - val_accuracy: 0.7240
Epoch 1232/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3819 - accuracy: 0.8368 - val_loss: 0.5487 - val_accuracy: 0.7188
Epoch 1233/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3818 - accuracy: 0.8368 - val_loss: 0.5489 - val_accuracy: 0.7240
Epoch 1234/1500
18/18 [==============================] - 0s 9ms/step - loss: 0.3816 - accuracy: 0.8368 - val_loss: 0.5488 - val_accuracy: 0.7240
Epoch 1235/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3817 - accuracy: 0.8385 - val_loss: 0.5490 - val_accuracy: 0.7240
Epoch 1236/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3817 - accuracy: 0.8368 - val_loss: 0.5491 - val_accuracy: 0.7240
Epoch 1237/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3816 - accuracy: 0.8368 - val_loss: 0.5495 - val_accuracy: 0.7240
Epoch 1238/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3814 - accuracy: 0.8368 - val_loss: 0.5496 - val_accuracy: 0.7240
Epoch 1239/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3817 - accuracy: 0.8368 - val_loss: 0.5496 - val_accuracy: 0.7240
Epoch 1240/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3815 - accuracy: 0.8368 - val_loss: 0.5496 - val_accuracy: 0.7240
Epoch 1241/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3814 - accuracy: 0.8385 - val_loss: 0.5496 - val_accuracy: 0.7240
Epoch 1242/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3814 - accuracy: 0.8368 - val_loss: 0.5500 - val_accuracy: 0.7240
Epoch 1243/1500
18/18 [==============================] - 0s 9ms/step - loss: 0.3815 - accuracy: 0.8403 - val_loss: 0.5500 - val_accuracy: 0.7240
Epoch 1244/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3812 - accuracy: 0.8351 - val_loss: 0.5501 - val_accuracy: 0.7240
Epoch 1245/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3813 - accuracy: 0.8385 - val_loss: 0.5503 - val_accuracy: 0.7240
Epoch 1246/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3812 - accuracy: 0.8368 - val_loss: 0.5503 - val_accuracy: 0.7240
Epoch 1247/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3812 - accuracy: 0.8368 - val_loss: 0.5504 - val_accuracy: 0.7240
Epoch 1248/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3813 - accuracy: 0.8368 - val_loss: 0.5504 - val_accuracy: 0.7240
Epoch 1249/1500
18/18 [==============================] - 0s 9ms/step - loss: 0.3808 - accuracy: 0.8385 - val_loss: 0.5504 - val_accuracy: 0.7240
Epoch 1250/1500
18/18 [==============================] - 0s 10ms/step - loss: 0.3810 - accuracy: 0.8368 - val_loss: 0.5505 - val_accuracy: 0.7240
Epoch 1251/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3812 - accuracy: 0.8385 - val_loss: 0.5504 - val_accuracy: 0.7240
Epoch 1252/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3810 - accuracy: 0.8385 - val_loss: 0.5505 - val_accuracy: 0.7240
Epoch 1253/1500
18/18 [==============================] - 0s 9ms/step - loss: 0.3813 - accuracy: 0.8368 - val_loss: 0.5508 - val_accuracy: 0.7240
Epoch 1254/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3811 - accuracy: 0.8368 - val_loss: 0.5511 - val_accuracy: 0.7240
Epoch 1255/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3811 - accuracy: 0.8385 - val_loss: 0.5513 - val_accuracy: 0.7240
Epoch 1256/1500
18/18 [==============================] - 0s 10ms/step - loss: 0.3808 - accuracy: 0.8368 - val_loss: 0.5512 - val_accuracy: 0.7240
Epoch 1257/1500
18/18 [==============================] - 0s 9ms/step - loss: 0.3808 - accuracy: 0.8385 - val_loss: 0.5508 - val_accuracy: 0.7240
Epoch 1258/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3807 - accuracy: 0.8368 - val_loss: 0.5511 - val_accuracy: 0.7240
Epoch 1259/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3807 - accuracy: 0.8368 - val_loss: 0.5511 - val_accuracy: 0.7240
Epoch 1260/1500
18/18 [==============================] - 0s 10ms/step - loss: 0.3808 - accuracy: 0.8385 - val_loss: 0.5506 - val_accuracy: 0.7240
Epoch 1261/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3807 - accuracy: 0.8351 - val_loss: 0.5509 - val_accuracy: 0.7240
Epoch 1262/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3804 - accuracy: 0.8385 - val_loss: 0.5509 - val_accuracy: 0.7240
Epoch 1263/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3806 - accuracy: 0.8368 - val_loss: 0.5509 - val_accuracy: 0.7240
Epoch 1264/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3804 - accuracy: 0.8385 - val_loss: 0.5511 - val_accuracy: 0.7240
Epoch 1265/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3804 - accuracy: 0.8385 - val_loss: 0.5510 - val_accuracy: 0.7240
Epoch 1266/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3804 - accuracy: 0.8351 - val_loss: 0.5510 - val_accuracy: 0.7240
Epoch 1267/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3804 - accuracy: 0.8351 - val_loss: 0.5515 - val_accuracy: 0.7240
Epoch 1268/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3804 - accuracy: 0.8368 - val_loss: 0.5519 - val_accuracy: 0.7188
Epoch 1269/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3804 - accuracy: 0.8368 - val_loss: 0.5522 - val_accuracy: 0.7188
Epoch 1270/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3803 - accuracy: 0.8368 - val_loss: 0.5524 - val_accuracy: 0.7188
Epoch 1271/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3806 - accuracy: 0.8368 - val_loss: 0.5524 - val_accuracy: 0.7188
Epoch 1272/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3802 - accuracy: 0.8368 - val_loss: 0.5521 - val_accuracy: 0.7188
Epoch 1273/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3803 - accuracy: 0.8368 - val_loss: 0.5523 - val_accuracy: 0.7188
Epoch 1274/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3803 - accuracy: 0.8403 - val_loss: 0.5523 - val_accuracy: 0.7188
Epoch 1275/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3802 - accuracy: 0.8385 - val_loss: 0.5524 - val_accuracy: 0.7240
Epoch 1276/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3801 - accuracy: 0.8385 - val_loss: 0.5523 - val_accuracy: 0.7240
Epoch 1277/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3802 - accuracy: 0.8351 - val_loss: 0.5525 - val_accuracy: 0.7240
Epoch 1278/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3801 - accuracy: 0.8368 - val_loss: 0.5524 - val_accuracy: 0.7240
Epoch 1279/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3799 - accuracy: 0.8351 - val_loss: 0.5525 - val_accuracy: 0.7240
Epoch 1280/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3801 - accuracy: 0.8368 - val_loss: 0.5532 - val_accuracy: 0.7188
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Epoch 1281/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3799 - accuracy: 0.8351 - val_loss: 0.5533 - val_accuracy: 0.7188
Epoch 1282/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3800 - accuracy: 0.8385 - val_loss: 0.5528 - val_accuracy: 0.7240
Epoch 1283/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3800 - accuracy: 0.8351 - val_loss: 0.5530 - val_accuracy: 0.7188
Epoch 1284/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3799 - accuracy: 0.8385 - val_loss: 0.5528 - val_accuracy: 0.7240
Epoch 1285/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3798 - accuracy: 0.8385 - val_loss: 0.5528 - val_accuracy: 0.7240
Epoch 1286/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3797 - accuracy: 0.8403 - val_loss: 0.5528 - val_accuracy: 0.7240
Epoch 1287/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3800 - accuracy: 0.8351 - val_loss: 0.5530 - val_accuracy: 0.7188
Epoch 1288/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3797 - accuracy: 0.8368 - val_loss: 0.5532 - val_accuracy: 0.7188
Epoch 1289/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3797 - accuracy: 0.8368 - val_loss: 0.5535 - val_accuracy: 0.7188
Epoch 1290/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3797 - accuracy: 0.8403 - val_loss: 0.5534 - val_accuracy: 0.7188
Epoch 1291/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3799 - accuracy: 0.8385 - val_loss: 0.5534 - val_accuracy: 0.7188
Epoch 1292/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3796 - accuracy: 0.8368 - val_loss: 0.5535 - val_accuracy: 0.7188
Epoch 1293/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3796 - accuracy: 0.8403 - val_loss: 0.5533 - val_accuracy: 0.7240
Epoch 1294/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3797 - accuracy: 0.8351 - val_loss: 0.5535 - val_accuracy: 0.7188
Epoch 1295/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3793 - accuracy: 0.8368 - val_loss: 0.5537 - val_accuracy: 0.7188
Epoch 1296/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3795 - accuracy: 0.8333 - val_loss: 0.5538 - val_accuracy: 0.7188
Epoch 1297/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3793 - accuracy: 0.8368 - val_loss: 0.5539 - val_accuracy: 0.7188
Epoch 1298/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3794 - accuracy: 0.8333 - val_loss: 0.5541 - val_accuracy: 0.7188
Epoch 1299/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3795 - accuracy: 0.8368 - val_loss: 0.5542 - val_accuracy: 0.7188
Epoch 1300/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3794 - accuracy: 0.8351 - val_loss: 0.5541 - val_accuracy: 0.7188
Epoch 1301/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3793 - accuracy: 0.8351 - val_loss: 0.5542 - val_accuracy: 0.7188
Epoch 1302/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3793 - accuracy: 0.8368 - val_loss: 0.5542 - val_accuracy: 0.7188
Epoch 1303/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3793 - accuracy: 0.8368 - val_loss: 0.5543 - val_accuracy: 0.7188
Epoch 1304/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3792 - accuracy: 0.8351 - val_loss: 0.5543 - val_accuracy: 0.7188
Epoch 1305/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3795 - accuracy: 0.8351 - val_loss: 0.5546 - val_accuracy: 0.7188
Epoch 1306/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3792 - accuracy: 0.8351 - val_loss: 0.5545 - val_accuracy: 0.7188
Epoch 1307/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3792 - accuracy: 0.8385 - val_loss: 0.5544 - val_accuracy: 0.7188
Epoch 1308/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3794 - accuracy: 0.8385 - val_loss: 0.5542 - val_accuracy: 0.7240
Epoch 1309/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3793 - accuracy: 0.8368 - val_loss: 0.5543 - val_accuracy: 0.7240
Epoch 1310/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3790 - accuracy: 0.8351 - val_loss: 0.5545 - val_accuracy: 0.7188
Epoch 1311/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3793 - accuracy: 0.8368 - val_loss: 0.5545 - val_accuracy: 0.7188
Epoch 1312/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3792 - accuracy: 0.8351 - val_loss: 0.5547 - val_accuracy: 0.7188
Epoch 1313/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3792 - accuracy: 0.8333 - val_loss: 0.5550 - val_accuracy: 0.7188
Epoch 1314/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3790 - accuracy: 0.8368 - val_loss: 0.5553 - val_accuracy: 0.7188
Epoch 1315/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3790 - accuracy: 0.8368 - val_loss: 0.5554 - val_accuracy: 0.7188
Epoch 1316/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3790 - accuracy: 0.8351 - val_loss: 0.5553 - val_accuracy: 0.7188
Epoch 1317/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3790 - accuracy: 0.8333 - val_loss: 0.5554 - val_accuracy: 0.7188
Epoch 1318/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3793 - accuracy: 0.8385 - val_loss: 0.5552 - val_accuracy: 0.7188
Epoch 1319/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3790 - accuracy: 0.8351 - val_loss: 0.5555 - val_accuracy: 0.7188
Epoch 1320/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3789 - accuracy: 0.8368 - val_loss: 0.5555 - val_accuracy: 0.7188
Epoch 1321/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3787 - accuracy: 0.8351 - val_loss: 0.5557 - val_accuracy: 0.7188
Epoch 1322/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3789 - accuracy: 0.8368 - val_loss: 0.5558 - val_accuracy: 0.7188
Epoch 1323/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3787 - accuracy: 0.8351 - val_loss: 0.5557 - val_accuracy: 0.7188
Epoch 1324/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3786 - accuracy: 0.8351 - val_loss: 0.5557 - val_accuracy: 0.7188
Epoch 1325/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3789 - accuracy: 0.8385 - val_loss: 0.5556 - val_accuracy: 0.7188
Epoch 1326/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3790 - accuracy: 0.8333 - val_loss: 0.5559 - val_accuracy: 0.7188
Epoch 1327/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3789 - accuracy: 0.8351 - val_loss: 0.5560 - val_accuracy: 0.7188
Epoch 1328/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3787 - accuracy: 0.8351 - val_loss: 0.5563 - val_accuracy: 0.7188
Epoch 1329/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3787 - accuracy: 0.8368 - val_loss: 0.5565 - val_accuracy: 0.7188
Epoch 1330/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3786 - accuracy: 0.8368 - val_loss: 0.5565 - val_accuracy: 0.7188
Epoch 1331/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3785 - accuracy: 0.8351 - val_loss: 0.5569 - val_accuracy: 0.7188
Epoch 1332/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3787 - accuracy: 0.8368 - val_loss: 0.5567 - val_accuracy: 0.7188
Epoch 1333/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3785 - accuracy: 0.8385 - val_loss: 0.5567 - val_accuracy: 0.7188
Epoch 1334/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3785 - accuracy: 0.8351 - val_loss: 0.5570 - val_accuracy: 0.7188
Epoch 1335/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3784 - accuracy: 0.8368 - val_loss: 0.5572 - val_accuracy: 0.7188
Epoch 1336/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3784 - accuracy: 0.8351 - val_loss: 0.5573 - val_accuracy: 0.7188
Epoch 1337/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3784 - accuracy: 0.8368 - val_loss: 0.5571 - val_accuracy: 0.7188
Epoch 1338/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3784 - accuracy: 0.8351 - val_loss: 0.5574 - val_accuracy: 0.7188
Epoch 1339/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3785 - accuracy: 0.8351 - val_loss: 0.5574 - val_accuracy: 0.7188
Epoch 1340/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3784 - accuracy: 0.8351 - val_loss: 0.5573 - val_accuracy: 0.7188
Epoch 1341/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3786 - accuracy: 0.8351 - val_loss: 0.5574 - val_accuracy: 0.7188
Epoch 1342/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3781 - accuracy: 0.8351 - val_loss: 0.5575 - val_accuracy: 0.7188
Epoch 1343/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3783 - accuracy: 0.8385 - val_loss: 0.5576 - val_accuracy: 0.7188
Epoch 1344/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3780 - accuracy: 0.8351 - val_loss: 0.5579 - val_accuracy: 0.7188
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Epoch 1345/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3783 - accuracy: 0.8333 - val_loss: 0.5582 - val_accuracy: 0.7188
Epoch 1346/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3781 - accuracy: 0.8368 - val_loss: 0.5581 - val_accuracy: 0.7188
Epoch 1347/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3784 - accuracy: 0.8351 - val_loss: 0.5583 - val_accuracy: 0.7188
Epoch 1348/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3782 - accuracy: 0.8351 - val_loss: 0.5584 - val_accuracy: 0.7188
Epoch 1349/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3779 - accuracy: 0.8333 - val_loss: 0.5586 - val_accuracy: 0.7188
Epoch 1350/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3780 - accuracy: 0.8333 - val_loss: 0.5589 - val_accuracy: 0.7188
Epoch 1351/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3780 - accuracy: 0.8351 - val_loss: 0.5587 - val_accuracy: 0.7188
Epoch 1352/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3778 - accuracy: 0.8351 - val_loss: 0.5590 - val_accuracy: 0.7188
Epoch 1353/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3780 - accuracy: 0.8368 - val_loss: 0.5592 - val_accuracy: 0.7188
Epoch 1354/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3777 - accuracy: 0.8368 - val_loss: 0.5590 - val_accuracy: 0.7188
Epoch 1355/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3778 - accuracy: 0.8385 - val_loss: 0.5588 - val_accuracy: 0.7188
Epoch 1356/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3780 - accuracy: 0.8368 - val_loss: 0.5586 - val_accuracy: 0.7188
Epoch 1357/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3779 - accuracy: 0.8351 - val_loss: 0.5589 - val_accuracy: 0.7188
Epoch 1358/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3781 - accuracy: 0.8368 - val_loss: 0.5589 - val_accuracy: 0.7188
Epoch 1359/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3780 - accuracy: 0.8368 - val_loss: 0.5589 - val_accuracy: 0.7188
Epoch 1360/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3777 - accuracy: 0.8351 - val_loss: 0.5594 - val_accuracy: 0.7188
Epoch 1361/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3776 - accuracy: 0.8351 - val_loss: 0.5600 - val_accuracy: 0.7188
Epoch 1362/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3777 - accuracy: 0.8368 - val_loss: 0.5595 - val_accuracy: 0.7188
Epoch 1363/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3778 - accuracy: 0.8351 - val_loss: 0.5597 - val_accuracy: 0.7188
Epoch 1364/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3777 - accuracy: 0.8351 - val_loss: 0.5595 - val_accuracy: 0.7188
Epoch 1365/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3776 - accuracy: 0.8333 - val_loss: 0.5597 - val_accuracy: 0.7188
Epoch 1366/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3778 - accuracy: 0.8333 - val_loss: 0.5599 - val_accuracy: 0.7188
Epoch 1367/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3776 - accuracy: 0.8368 - val_loss: 0.5598 - val_accuracy: 0.7188
Epoch 1368/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3774 - accuracy: 0.8351 - val_loss: 0.5599 - val_accuracy: 0.7188
Epoch 1369/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3774 - accuracy: 0.8351 - val_loss: 0.5601 - val_accuracy: 0.7188
Epoch 1370/1500
18/18 [==============================] - 0s 9ms/step - loss: 0.3775 - accuracy: 0.8351 - val_loss: 0.5601 - val_accuracy: 0.7188
Epoch 1371/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3775 - accuracy: 0.8351 - val_loss: 0.5600 - val_accuracy: 0.7188
Epoch 1372/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3775 - accuracy: 0.8351 - val_loss: 0.5603 - val_accuracy: 0.7188
Epoch 1373/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3773 - accuracy: 0.8351 - val_loss: 0.5604 - val_accuracy: 0.7188
Epoch 1374/1500
18/18 [==============================] - 0s 10ms/step - loss: 0.3773 - accuracy: 0.8368 - val_loss: 0.5605 - val_accuracy: 0.7188
Epoch 1375/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3772 - accuracy: 0.8368 - val_loss: 0.5606 - val_accuracy: 0.7188
Epoch 1376/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3773 - accuracy: 0.8351 - val_loss: 0.5607 - val_accuracy: 0.7188
Epoch 1377/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3774 - accuracy: 0.8351 - val_loss: 0.5605 - val_accuracy: 0.7188
Epoch 1378/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3773 - accuracy: 0.8351 - val_loss: 0.5607 - val_accuracy: 0.7188
Epoch 1379/1500
18/18 [==============================] - 0s 9ms/step - loss: 0.3773 - accuracy: 0.8351 - val_loss: 0.5606 - val_accuracy: 0.7188
Epoch 1380/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3773 - accuracy: 0.8351 - val_loss: 0.5604 - val_accuracy: 0.7188
Epoch 1381/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3773 - accuracy: 0.8351 - val_loss: 0.5608 - val_accuracy: 0.7188
Epoch 1382/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3772 - accuracy: 0.8351 - val_loss: 0.5612 - val_accuracy: 0.7188
Epoch 1383/1500
18/18 [==============================] - 0s 9ms/step - loss: 0.3772 - accuracy: 0.8351 - val_loss: 0.5613 - val_accuracy: 0.7188
Epoch 1384/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3771 - accuracy: 0.8351 - val_loss: 0.5614 - val_accuracy: 0.7188
Epoch 1385/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3770 - accuracy: 0.8368 - val_loss: 0.5614 - val_accuracy: 0.7188
Epoch 1386/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3769 - accuracy: 0.8368 - val_loss: 0.5616 - val_accuracy: 0.7240
Epoch 1387/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3769 - accuracy: 0.8351 - val_loss: 0.5622 - val_accuracy: 0.7188
Epoch 1388/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3767 - accuracy: 0.8385 - val_loss: 0.5618 - val_accuracy: 0.7240
Epoch 1389/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3767 - accuracy: 0.8351 - val_loss: 0.5619 - val_accuracy: 0.7240
Epoch 1390/1500
18/18 [==============================] - 0s 10ms/step - loss: 0.3768 - accuracy: 0.8351 - val_loss: 0.5620 - val_accuracy: 0.7240
Epoch 1391/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3767 - accuracy: 0.8351 - val_loss: 0.5623 - val_accuracy: 0.7240
Epoch 1392/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3768 - accuracy: 0.8351 - val_loss: 0.5625 - val_accuracy: 0.7240
Epoch 1393/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3765 - accuracy: 0.8351 - val_loss: 0.5623 - val_accuracy: 0.7240
Epoch 1394/1500
18/18 [==============================] - 0s 18ms/step - loss: 0.3767 - accuracy: 0.8403 - val_loss: 0.5618 - val_accuracy: 0.7240
Epoch 1395/1500
18/18 [==============================] - 1s 31ms/step - loss: 0.3767 - accuracy: 0.8333 - val_loss: 0.5626 - val_accuracy: 0.7240
Epoch 1396/1500
18/18 [==============================] - 0s 16ms/step - loss: 0.3764 - accuracy: 0.8351 - val_loss: 0.5628 - val_accuracy: 0.7240
Epoch 1397/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3766 - accuracy: 0.8333 - val_loss: 0.5628 - val_accuracy: 0.7240
Epoch 1398/1500
18/18 [==============================] - 0s 9ms/step - loss: 0.3765 - accuracy: 0.8385 - val_loss: 0.5630 - val_accuracy: 0.7240
Epoch 1399/1500
18/18 [==============================] - 0s 27ms/step - loss: 0.3762 - accuracy: 0.8351 - val_loss: 0.5636 - val_accuracy: 0.7188
Epoch 1400/1500
18/18 [==============================] - 0s 25ms/step - loss: 0.3764 - accuracy: 0.8403 - val_loss: 0.5634 - val_accuracy: 0.7240
Epoch 1401/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3765 - accuracy: 0.8368 - val_loss: 0.5634 - val_accuracy: 0.7240
Epoch 1402/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3762 - accuracy: 0.8385 - val_loss: 0.5634 - val_accuracy: 0.7240
Epoch 1403/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3762 - accuracy: 0.8403 - val_loss: 0.5634 - val_accuracy: 0.7240
Epoch 1404/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3763 - accuracy: 0.8385 - val_loss: 0.5637 - val_accuracy: 0.7240
Epoch 1405/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3763 - accuracy: 0.8333 - val_loss: 0.5640 - val_accuracy: 0.7240
Epoch 1406/1500
18/18 [==============================] - 1s 32ms/step - loss: 0.3764 - accuracy: 0.8333 - val_loss: 0.5647 - val_accuracy: 0.7240
Epoch 1407/1500
18/18 [==============================] - 0s 11ms/step - loss: 0.3762 - accuracy: 0.8368 - val_loss: 0.5646 - val_accuracy: 0.7240
Epoch 1408/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3760 - accuracy: 0.8403 - val_loss: 0.5641 - val_accuracy: 0.7240
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Epoch 1409/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3765 - accuracy: 0.8368 - val_loss: 0.5642 - val_accuracy: 0.7240
Epoch 1410/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3760 - accuracy: 0.8351 - val_loss: 0.5644 - val_accuracy: 0.7240
Epoch 1411/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3762 - accuracy: 0.8333 - val_loss: 0.5644 - val_accuracy: 0.7240
Epoch 1412/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3764 - accuracy: 0.8368 - val_loss: 0.5642 - val_accuracy: 0.7240
Epoch 1413/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3760 - accuracy: 0.8368 - val_loss: 0.5649 - val_accuracy: 0.7240
Epoch 1414/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3759 - accuracy: 0.8333 - val_loss: 0.5651 - val_accuracy: 0.7240
Epoch 1415/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3760 - accuracy: 0.8333 - val_loss: 0.5654 - val_accuracy: 0.7240
Epoch 1416/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3759 - accuracy: 0.8351 - val_loss: 0.5655 - val_accuracy: 0.7240
Epoch 1417/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3758 - accuracy: 0.8420 - val_loss: 0.5651 - val_accuracy: 0.7240
Epoch 1418/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3756 - accuracy: 0.8385 - val_loss: 0.5651 - val_accuracy: 0.7240
Epoch 1419/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3759 - accuracy: 0.8368 - val_loss: 0.5655 - val_accuracy: 0.7240
Epoch 1420/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3758 - accuracy: 0.8351 - val_loss: 0.5659 - val_accuracy: 0.7240
Epoch 1421/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3757 - accuracy: 0.8385 - val_loss: 0.5659 - val_accuracy: 0.7240
Epoch 1422/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3757 - accuracy: 0.8368 - val_loss: 0.5660 - val_accuracy: 0.7240
Epoch 1423/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3758 - accuracy: 0.8385 - val_loss: 0.5657 - val_accuracy: 0.7240
Epoch 1424/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3758 - accuracy: 0.8368 - val_loss: 0.5661 - val_accuracy: 0.7240
Epoch 1425/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3756 - accuracy: 0.8385 - val_loss: 0.5659 - val_accuracy: 0.7240
Epoch 1426/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3757 - accuracy: 0.8368 - val_loss: 0.5663 - val_accuracy: 0.7240
Epoch 1427/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3756 - accuracy: 0.8385 - val_loss: 0.5667 - val_accuracy: 0.7240
Epoch 1428/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3755 - accuracy: 0.8385 - val_loss: 0.5667 - val_accuracy: 0.7240
Epoch 1429/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3760 - accuracy: 0.8420 - val_loss: 0.5670 - val_accuracy: 0.7240
Epoch 1430/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3755 - accuracy: 0.8368 - val_loss: 0.5671 - val_accuracy: 0.7240
Epoch 1431/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3754 - accuracy: 0.8403 - val_loss: 0.5676 - val_accuracy: 0.7240
Epoch 1432/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3754 - accuracy: 0.8403 - val_loss: 0.5678 - val_accuracy: 0.7240
Epoch 1433/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3753 - accuracy: 0.8385 - val_loss: 0.5680 - val_accuracy: 0.7292
Epoch 1434/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3756 - accuracy: 0.8403 - val_loss: 0.5676 - val_accuracy: 0.7240
Epoch 1435/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3752 - accuracy: 0.8420 - val_loss: 0.5673 - val_accuracy: 0.7240
Epoch 1436/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3752 - accuracy: 0.8420 - val_loss: 0.5672 - val_accuracy: 0.7240
Epoch 1437/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3753 - accuracy: 0.8385 - val_loss: 0.5675 - val_accuracy: 0.7240
Epoch 1438/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3753 - accuracy: 0.8403 - val_loss: 0.5681 - val_accuracy: 0.7240
Epoch 1439/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3750 - accuracy: 0.8403 - val_loss: 0.5679 - val_accuracy: 0.7240
Epoch 1440/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3751 - accuracy: 0.8385 - val_loss: 0.5679 - val_accuracy: 0.7240
Epoch 1441/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3751 - accuracy: 0.8368 - val_loss: 0.5682 - val_accuracy: 0.7240
Epoch 1442/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3750 - accuracy: 0.8438 - val_loss: 0.5678 - val_accuracy: 0.7240
Epoch 1443/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3751 - accuracy: 0.8333 - val_loss: 0.5684 - val_accuracy: 0.7240
Epoch 1444/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3748 - accuracy: 0.8420 - val_loss: 0.5686 - val_accuracy: 0.7240
Epoch 1445/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3750 - accuracy: 0.8403 - val_loss: 0.5691 - val_accuracy: 0.7240
Epoch 1446/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3753 - accuracy: 0.8438 - val_loss: 0.5687 - val_accuracy: 0.7240
Epoch 1447/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3750 - accuracy: 0.8420 - val_loss: 0.5687 - val_accuracy: 0.7240
Epoch 1448/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3749 - accuracy: 0.8420 - val_loss: 0.5689 - val_accuracy: 0.7240
Epoch 1449/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3749 - accuracy: 0.8403 - val_loss: 0.5690 - val_accuracy: 0.7240
Epoch 1450/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3749 - accuracy: 0.8420 - val_loss: 0.5688 - val_accuracy: 0.7240
Epoch 1451/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3748 - accuracy: 0.8385 - val_loss: 0.5695 - val_accuracy: 0.7240
Epoch 1452/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3750 - accuracy: 0.8420 - val_loss: 0.5695 - val_accuracy: 0.7240
Epoch 1453/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3750 - accuracy: 0.8403 - val_loss: 0.5692 - val_accuracy: 0.7240
Epoch 1454/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3747 - accuracy: 0.8368 - val_loss: 0.5699 - val_accuracy: 0.7240
Epoch 1455/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3746 - accuracy: 0.8420 - val_loss: 0.5701 - val_accuracy: 0.7240
Epoch 1456/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3747 - accuracy: 0.8420 - val_loss: 0.5696 - val_accuracy: 0.7240
Epoch 1457/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3749 - accuracy: 0.8420 - val_loss: 0.5698 - val_accuracy: 0.7240
Epoch 1458/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3750 - accuracy: 0.8368 - val_loss: 0.5700 - val_accuracy: 0.7292
Epoch 1459/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3747 - accuracy: 0.8420 - val_loss: 0.5700 - val_accuracy: 0.7240
Epoch 1460/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3745 - accuracy: 0.8420 - val_loss: 0.5703 - val_accuracy: 0.7240
Epoch 1461/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3748 - accuracy: 0.8420 - val_loss: 0.5706 - val_accuracy: 0.7240
Epoch 1462/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3746 - accuracy: 0.8438 - val_loss: 0.5706 - val_accuracy: 0.7240
Epoch 1463/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3746 - accuracy: 0.8385 - val_loss: 0.5710 - val_accuracy: 0.7240
Epoch 1464/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3749 - accuracy: 0.8403 - val_loss: 0.5710 - val_accuracy: 0.7240
Epoch 1465/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3743 - accuracy: 0.8420 - val_loss: 0.5708 - val_accuracy: 0.7240
Epoch 1466/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3748 - accuracy: 0.8420 - val_loss: 0.5705 - val_accuracy: 0.7240
Epoch 1467/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3746 - accuracy: 0.8420 - val_loss: 0.5711 - val_accuracy: 0.7240
Epoch 1468/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3746 - accuracy: 0.8438 - val_loss: 0.5711 - val_accuracy: 0.7240
Epoch 1469/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3742 - accuracy: 0.8438 - val_loss: 0.5708 - val_accuracy: 0.7240
Epoch 1470/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3743 - accuracy: 0.8420 - val_loss: 0.5710 - val_accuracy: 0.7240
Epoch 1471/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3745 - accuracy: 0.8420 - val_loss: 0.5713 - val_accuracy: 0.7240
Epoch 1472/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3747 - accuracy: 0.8438 - val_loss: 0.5712 - val_accuracy: 0.7240
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Epoch 1473/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3745 - accuracy: 0.8385 - val_loss: 0.5716 - val_accuracy: 0.7240
Epoch 1474/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3744 - accuracy: 0.8403 - val_loss: 0.5715 - val_accuracy: 0.7240
Epoch 1475/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3744 - accuracy: 0.8351 - val_loss: 0.5721 - val_accuracy: 0.7292
Epoch 1476/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3744 - accuracy: 0.8420 - val_loss: 0.5718 - val_accuracy: 0.7240
Epoch 1477/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3742 - accuracy: 0.8403 - val_loss: 0.5715 - val_accuracy: 0.7240
Epoch 1478/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3743 - accuracy: 0.8420 - val_loss: 0.5725 - val_accuracy: 0.7240
Epoch 1479/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3743 - accuracy: 0.8438 - val_loss: 0.5726 - val_accuracy: 0.7240
Epoch 1480/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3741 - accuracy: 0.8420 - val_loss: 0.5730 - val_accuracy: 0.7240
Epoch 1481/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3740 - accuracy: 0.8455 - val_loss: 0.5727 - val_accuracy: 0.7240
Epoch 1482/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3739 - accuracy: 0.8420 - val_loss: 0.5727 - val_accuracy: 0.7240
Epoch 1483/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3739 - accuracy: 0.8420 - val_loss: 0.5729 - val_accuracy: 0.7240
Epoch 1484/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3743 - accuracy: 0.8455 - val_loss: 0.5723 - val_accuracy: 0.7240
Epoch 1485/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3742 - accuracy: 0.8403 - val_loss: 0.5728 - val_accuracy: 0.7240
Epoch 1486/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3739 - accuracy: 0.8420 - val_loss: 0.5734 - val_accuracy: 0.7292
Epoch 1487/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3740 - accuracy: 0.8438 - val_loss: 0.5732 - val_accuracy: 0.7240
Epoch 1488/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3742 - accuracy: 0.8438 - val_loss: 0.5730 - val_accuracy: 0.7240
Epoch 1489/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3741 - accuracy: 0.8403 - val_loss: 0.5732 - val_accuracy: 0.7240
Epoch 1490/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3741 - accuracy: 0.8368 - val_loss: 0.5740 - val_accuracy: 0.7292
Epoch 1491/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3739 - accuracy: 0.8420 - val_loss: 0.5736 - val_accuracy: 0.7292
Epoch 1492/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3739 - accuracy: 0.8438 - val_loss: 0.5735 - val_accuracy: 0.7292
Epoch 1493/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3737 - accuracy: 0.8438 - val_loss: 0.5739 - val_accuracy: 0.7240
Epoch 1494/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3737 - accuracy: 0.8385 - val_loss: 0.5745 - val_accuracy: 0.7292
Epoch 1495/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3737 - accuracy: 0.8438 - val_loss: 0.5740 - val_accuracy: 0.7240
Epoch 1496/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3736 - accuracy: 0.8438 - val_loss: 0.5739 - val_accuracy: 0.7292
Epoch 1497/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3738 - accuracy: 0.8438 - val_loss: 0.5740 - val_accuracy: 0.7240
Epoch 1498/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3739 - accuracy: 0.8403 - val_loss: 0.5749 - val_accuracy: 0.7292
Epoch 1499/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3737 - accuracy: 0.8420 - val_loss: 0.5745 - val_accuracy: 0.7292
Epoch 1500/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3736 - accuracy: 0.8420 - val_loss: 0.5745 - val_accuracy: 0.7292
```

In [ ]:
```
#y_pred_class_nn = new_model.predict(X_test_norm)
#y_pred_prob_nn = np.argmax(y_pred_class_nn, axis=1)
```

In [ ]:
```
y_pred_prob_nnew = new_model.predict(X_test_norm)
y_pred_class_nnew = (y_pred_prob_nnew > 0.5).astype('int32')
```

```
6/6 [==============================] - 0s 2ms/step
```

In [ ]:
```
y_pred_class_nnew[:10]
```

Out[ ]:
```
array([[1],
       [1],
       [0],
       [0],
       [0],
       [1],
       [0],
       [0],
       [1],
       [0]], dtype=int32)
```

In [ ]:
```
y_pred_prob_nnew[:10]
```

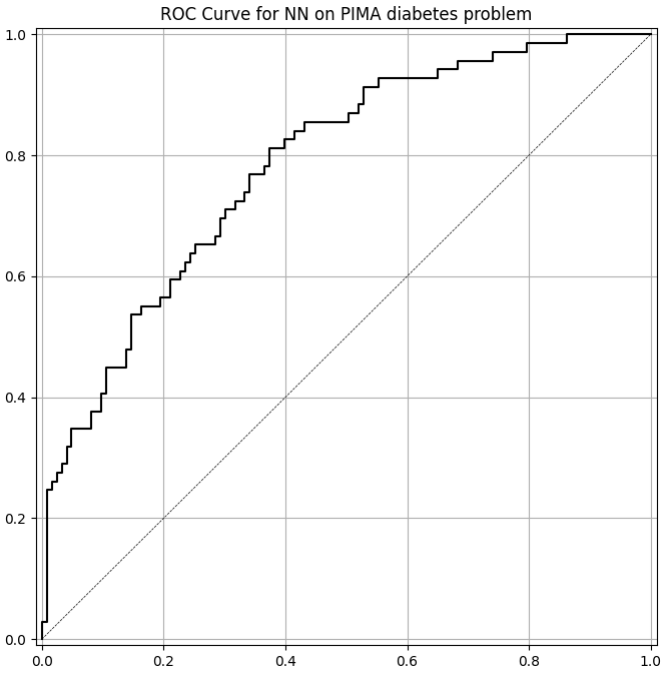
Out[ ]:
```
array([[0.84498954],
       [0.54498696],
       [0.37894908],
       [0.09194799],
       [0.14860062],
       [0.7145625 ],
       [0.00742441],
       [0.4904466 ],
       [0.85841143],
       [0.19457255]], dtype=float32)
```

In [ ]:
```
def plot_roc(y_test, y_pred, new_model_name):
    fpr, tpr, thr = roc_curve(y_test, y_pred)
    fig, ax = plt.subplots(figsize=(8, 8))
    ax.plot(fpr, tpr, 'k-')
    ax.plot([0, 1], [0, 1], 'k--', linewidth=.5)  # roc curve for random model
    ax.grid(True)
    ax.set(title='ROC Curve for {} on PIMA diabetes problem'.format(new_model_name),
           xlim=[-0.01, 1.01], ylim=[-0.01, 1.01])
```

In [ ]:
```
print('accuracy is {:.3f}'.format(accuracy_score(y_test,y_pred_class_nnew)))#y_pred_prob_nnew
print('roc-auc is {:.3f}'.format(roc_auc_score(y_test,y_pred_prob_nnew)))#y_pred_prob_nnew

plot_roc(y_test, y_pred_prob_nnew, 'NN')
```

```
accuracy is 0.729
roc-auc is 0.784
```



- This model shows worst result even though we've used more than 1 hidden layer, The model shows a moderate level of accuracy, and The ROC-AUC score of 0.801 suggests a satisfactory discrimination ability, indicating that the model performs reasonably well in distinguishing between positive and negative cases.

In [ ]:
```
#print('accuracy is {:.3f}'.format(accuracy_score(y_test, y_pred_class_nn)))#y_pred_class_nn
#print('roc-auc is {:.3f}'.format(roc_auc_score(y_test, y_pred_prob_nn)))#y_pred_prob_nn

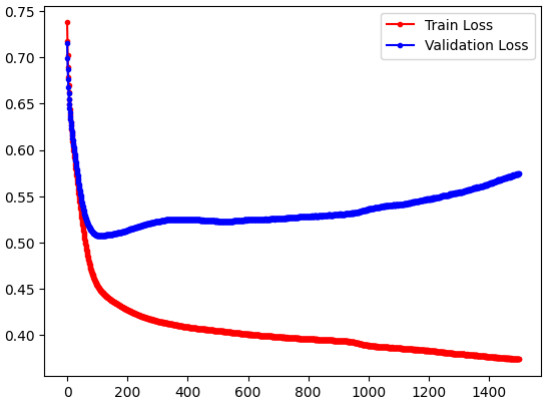
#plot_roc(y_test, y_pred_prob_nn, 'NN')
```

In [ ]:
```
run_hist_2.history.keys()
```

Out[ ]:
```
dict_keys(['loss', 'accuracy', 'val_loss', 'val_accuracy'])
```

In [ ]:
```
fig, ax = plt.subplots()
ax.plot(run_hist_2.history["loss"],'r', marker='.', label="Train Loss")
ax.plot(run_hist_2.history["val_loss"],'b', marker='.', label="Validation Loss")
ax.legend()
```

Out[ ]:
```
<matplotlib.legend.Legend at 0x7cf71b655600>
```



Learning rate = 001, epochs = 800,

In [ ]:
```
new_model2 = Sequential([
    Dense(6, input_shape=(8,), activation="relu"),
    Dense(6, input_shape=(8,), activation="relu"),
    Dense(1, activation="sigmoid")
])
```

In [ ]:
```
new_model2.compile(SGD(lr = .001), "binary_crossentropy", metrics=["accuracy"])
run_hist_3 = new_model2.fit(X_train_norm, y_train, validation_data=(X_test_norm, y_test), epochs=800)
```

```
WARNING:absl:`lr` is deprecated in Keras optimizer, please use `learning_rate` or use the legacy optimizer, e.g.,tf.keras.optimizers.legacy.SGD.
```

```
Epoch 1/800
18/18 [==============================] - 1s 14ms/step - loss: 0.7897 - accuracy: 0.3715 - val_loss: 0.7313 - val_accuracy: 0.4323
Epoch 2/800
18/18 [==============================] - 0s 4ms/step - loss: 0.7428 - accuracy: 0.4115 - val_loss: 0.7004 - val_accuracy: 0.5104
Epoch 3/800
18/18 [==============================] - 0s 4ms/step - loss: 0.7134 - accuracy: 0.5208 - val_loss: 0.6812 - val_accuracy: 0.5833
Epoch 4/800
18/18 [==============================] - 0s 4ms/step - loss: 0.6950 - accuracy: 0.5938 - val_loss: 0.6704 - val_accuracy: 0.6250
Epoch 5/800
18/18 [==============================] - 0s 4ms/step - loss: 0.6829 - accuracy: 0.6372 - val_loss: 0.6627 - val_accuracy: 0.6510
Epoch 6/800
18/18 [==============================] - 0s 5ms/step - loss: 0.6738 - accuracy: 0.6562 - val_loss: 0.6565 - val_accuracy: 0.6510
Epoch 7/800
18/18 [==============================] - 0s 4ms/step - loss: 0.6662 - accuracy: 0.6753 - val_loss: 0.6510 - val_accuracy: 0.6562
Epoch 8/800
18/18 [==============================] - 0s 4ms/step - loss: 0.6596 - accuracy: 0.6771 - val_loss: 0.6458 - val_accuracy: 0.6615
Epoch 9/800
18/18 [==============================] - 0s 4ms/step - loss: 0.6538 - accuracy: 0.6875 - val_loss: 0.6411 - val_accuracy: 0.6562
Epoch 10/800
18/18 [==============================] - 0s 4ms/step - loss: 0.6486 - accuracy: 0.6979 - val_loss: 0.6367 - val_accuracy: 0.6667
Epoch 11/800
18/18 [==============================] - 0s 4ms/step - loss: 0.6437 - accuracy: 0.7049 - val_loss: 0.6324 - val_accuracy: 0.6719
Epoch 12/800
18/18 [==============================] - 0s 4ms/step - loss: 0.6389 - accuracy: 0.7066 - val_loss: 0.6284 - val_accuracy: 0.6719
Epoch 13/800
18/18 [==============================] - 0s 3ms/step - loss: 0.6343 - accuracy: 0.7101 - val_loss: 0.6245 - val_accuracy: 0.6823
Epoch 14/800
18/18 [==============================] - 0s 4ms/step - loss: 0.6301 - accuracy: 0.7118 - val_loss: 0.6208 - val_accuracy: 0.6927
Epoch 15/800
18/18 [==============================] - 0s 3ms/step - loss: 0.6258 - accuracy: 0.7135 - val_loss: 0.6171 - val_accuracy: 0.6979
Epoch 16/800
18/18 [==============================] - 0s 5ms/step - loss: 0.6216 - accuracy: 0.7153 - val_loss: 0.6135 - val_accuracy: 0.7031
Epoch 17/800
18/18 [==============================] - 0s 4ms/step - loss: 0.6176 - accuracy: 0.7188 - val_loss: 0.6098 - val_accuracy: 0.7031
Epoch 18/800
18/18 [==============================] - 0s 3ms/step - loss: 0.6136 - accuracy: 0.7205 - val_loss: 0.6062 - val_accuracy: 0.7083
Epoch 19/800
18/18 [==============================] - 0s 4ms/step - loss: 0.6096 - accuracy: 0.7188 - val_loss: 0.6026 - val_accuracy: 0.7083
Epoch 20/800
18/18 [==============================] - 0s 4ms/step - loss: 0.6057 - accuracy: 0.7170 - val_loss: 0.5989 - val_accuracy: 0.7188
Epoch 21/800
18/18 [==============================] - 0s 3ms/step - loss: 0.6019 - accuracy: 0.7135 - val_loss: 0.5952 - val_accuracy: 0.7188
Epoch 22/800
18/18 [==============================] - 0s 4ms/step - loss: 0.5981 - accuracy: 0.7135 - val_loss: 0.5915 - val_accuracy: 0.7188
Epoch 23/800
18/18 [==============================] - 0s 4ms/step - loss: 0.5943 - accuracy: 0.7170 - val_loss: 0.5878 - val_accuracy: 0.7240
Epoch 24/800
18/18 [==============================] - 0s 4ms/step - loss: 0.5904 - accuracy: 0.7240 - val_loss: 0.5841 - val_accuracy: 0.7292
Epoch 25/800
18/18 [==============================] - 0s 4ms/step - loss: 0.5864 - accuracy: 0.7240 - val_loss: 0.5803 - val_accuracy: 0.7292
Epoch 26/800
18/18 [==============================] - 0s 4ms/step - loss: 0.5825 - accuracy: 0.7292 - val_loss: 0.5765 - val_accuracy: 0.7292
Epoch 27/800
18/18 [==============================] - 0s 4ms/step - loss: 0.5783 - accuracy: 0.7257 - val_loss: 0.5727 - val_accuracy: 0.7240
Epoch 28/800
18/18 [==============================] - 0s 4ms/step - loss: 0.5742 - accuracy: 0.7257 - val_loss: 0.5689 - val_accuracy: 0.7188
Epoch 29/800
18/18 [==============================] - 0s 5ms/step - loss: 0.5699 - accuracy: 0.7326 - val_loss: 0.5651 - val_accuracy: 0.7240
Epoch 30/800
18/18 [==============================] - 0s 4ms/step - loss: 0.5659 - accuracy: 0.7326 - val_loss: 0.5613 - val_accuracy: 0.7292
Epoch 31/800
18/18 [==============================] - 0s 4ms/step - loss: 0.5617 - accuracy: 0.7396 - val_loss: 0.5574 - val_accuracy: 0.7344
Epoch 32/800
18/18 [==============================] - 0s 4ms/step - loss: 0.5576 - accuracy: 0.7396 - val_loss: 0.5536 - val_accuracy: 0.7344
Epoch 33/800
18/18 [==============================] - 0s 4ms/step - loss: 0.5535 - accuracy: 0.7448 - val_loss: 0.5497 - val_accuracy: 0.7396
Epoch 34/800
18/18 [==============================] - 0s 4ms/step - loss: 0.5494 - accuracy: 0.7465 - val_loss: 0.5461 - val_accuracy: 0.7396
Epoch 35/800
18/18 [==============================] - 0s 4ms/step - loss: 0.5457 - accuracy: 0.7483 - val_loss: 0.5427 - val_accuracy: 0.7448
Epoch 36/800
18/18 [==============================] - 0s 4ms/step - loss: 0.5419 - accuracy: 0.7465 - val_loss: 0.5396 - val_accuracy: 0.7448
Epoch 37/800
18/18 [==============================] - 0s 4ms/step - loss: 0.5383 - accuracy: 0.7483 - val_loss: 0.5366 - val_accuracy: 0.7448
Epoch 38/800
18/18 [==============================] - 0s 4ms/step - loss: 0.5350 - accuracy: 0.7483 - val_loss: 0.5336 - val_accuracy: 0.7448
Epoch 39/800
18/18 [==============================] - 0s 3ms/step - loss: 0.5318 - accuracy: 0.7483 - val_loss: 0.5309 - val_accuracy: 0.7552
Epoch 40/800
18/18 [==============================] - 0s 4ms/step - loss: 0.5286 - accuracy: 0.7483 - val_loss: 0.5283 - val_accuracy: 0.7500
Epoch 41/800
18/18 [==============================] - 0s 3ms/step - loss: 0.5257 - accuracy: 0.7483 - val_loss: 0.5259 - val_accuracy: 0.7500
Epoch 42/800
18/18 [==============================] - 0s 5ms/step - loss: 0.5229 - accuracy: 0.7517 - val_loss: 0.5237 - val_accuracy: 0.7552
Epoch 43/800
18/18 [==============================] - 0s 4ms/step - loss: 0.5202 - accuracy: 0.7517 - val_loss: 0.5216 - val_accuracy: 0.7552
Epoch 44/800
18/18 [==============================] - 0s 4ms/step - loss: 0.5178 - accuracy: 0.7517 - val_loss: 0.5196 - val_accuracy: 0.7552
Epoch 45/800
18/18 [==============================] - 0s 4ms/step - loss: 0.5154 - accuracy: 0.7535 - val_loss: 0.5177 - val_accuracy: 0.7552
Epoch 46/800
18/18 [==============================] - 0s 3ms/step - loss: 0.5130 - accuracy: 0.7535 - val_loss: 0.5158 - val_accuracy: 0.7552
Epoch 47/800
18/18 [==============================] - 0s 4ms/step - loss: 0.5109 - accuracy: 0.7535 - val_loss: 0.5140 - val_accuracy: 0.7604
Epoch 48/800
18/18 [==============================] - 0s 4ms/step - loss: 0.5087 - accuracy: 0.7500 - val_loss: 0.5123 - val_accuracy: 0.7604
Epoch 49/800
18/18 [==============================] - 0s 4ms/step - loss: 0.5067 - accuracy: 0.7517 - val_loss: 0.5106 - val_accuracy: 0.7656
Epoch 50/800
18/18 [==============================] - 0s 5ms/step - loss: 0.5047 - accuracy: 0.7535 - val_loss: 0.5090 - val_accuracy: 0.7656
Epoch 51/800
18/18 [==============================] - 0s 3ms/step - loss: 0.5028 - accuracy: 0.7587 - val_loss: 0.5074 - val_accuracy: 0.7656
Epoch 52/800
18/18 [==============================] - 0s 3ms/step - loss: 0.5008 - accuracy: 0.7587 - val_loss: 0.5059 - val_accuracy: 0.7708
Epoch 53/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4990 - accuracy: 0.7622 - val_loss: 0.5044 - val_accuracy: 0.7708
Epoch 54/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4973 - accuracy: 0.7622 - val_loss: 0.5028 - val_accuracy: 0.7604
Epoch 55/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4957 - accuracy: 0.7622 - val_loss: 0.5014 - val_accuracy: 0.7604
Epoch 56/800
18/18 [==============================] - 0s 3ms/step - loss: 0.4940 - accuracy: 0.7639 - val_loss: 0.5000 - val_accuracy: 0.7656
Epoch 57/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4923 - accuracy: 0.7656 - val_loss: 0.4986 - val_accuracy: 0.7760
Epoch 58/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4908 - accuracy: 0.7622 - val_loss: 0.4973 - val_accuracy: 0.7760
Epoch 59/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4893 - accuracy: 0.7639 - val_loss: 0.4960 - val_accuracy: 0.7812
Epoch 60/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4879 - accuracy: 0.7604 - val_loss: 0.4948 - val_accuracy: 0.7760
Epoch 61/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4865 - accuracy: 0.7639 - val_loss: 0.4937 - val_accuracy: 0.7812
Epoch 62/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4852 - accuracy: 0.7674 - val_loss: 0.4926 - val_accuracy: 0.7812
Epoch 63/800
18/18 [==============================] - 0s 3ms/step - loss: 0.4838 - accuracy: 0.7674 - val_loss: 0.4916 - val_accuracy: 0.7812
Epoch 64/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4826 - accuracy: 0.7674 - val_loss: 0.4905 - val_accuracy: 0.7865
```

```
Epoch 65/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4815 - accuracy: 0.7674 - val_loss: 0.4896 - val_accuracy: 0.7865
Epoch 66/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4803 - accuracy: 0.7691 - val_loss: 0.4887 - val_accuracy: 0.7865
Epoch 67/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4792 - accuracy: 0.7726 - val_loss: 0.4879 - val_accuracy: 0.7917
Epoch 68/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4782 - accuracy: 0.7743 - val_loss: 0.4871 - val_accuracy: 0.7917
Epoch 69/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4772 - accuracy: 0.7760 - val_loss: 0.4863 - val_accuracy: 0.7969
Epoch 70/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4763 - accuracy: 0.7795 - val_loss: 0.4857 - val_accuracy: 0.7917
Epoch 71/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4755 - accuracy: 0.7795 - val_loss: 0.4849 - val_accuracy: 0.7917
Epoch 72/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4746 - accuracy: 0.7812 - val_loss: 0.4843 - val_accuracy: 0.7917
Epoch 73/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4737 - accuracy: 0.7812 - val_loss: 0.4836 - val_accuracy: 0.7969
Epoch 74/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4729 - accuracy: 0.7847 - val_loss: 0.4831 - val_accuracy: 0.7969
Epoch 75/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4722 - accuracy: 0.7830 - val_loss: 0.4826 - val_accuracy: 0.7969
Epoch 76/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4714 - accuracy: 0.7847 - val_loss: 0.4822 - val_accuracy: 0.7969
Epoch 77/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4707 - accuracy: 0.7812 - val_loss: 0.4818 - val_accuracy: 0.7917
Epoch 78/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4699 - accuracy: 0.7830 - val_loss: 0.4814 - val_accuracy: 0.7917
Epoch 79/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4693 - accuracy: 0.7830 - val_loss: 0.4810 - val_accuracy: 0.7917
Epoch 80/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4686 - accuracy: 0.7830 - val_loss: 0.4807 - val_accuracy: 0.7865
Epoch 81/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4680 - accuracy: 0.7812 - val_loss: 0.4803 - val_accuracy: 0.7865
Epoch 82/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4673 - accuracy: 0.7830 - val_loss: 0.4800 - val_accuracy: 0.7865
Epoch 83/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4668 - accuracy: 0.7812 - val_loss: 0.4797 - val_accuracy: 0.7865
Epoch 84/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4661 - accuracy: 0.7812 - val_loss: 0.4794 - val_accuracy: 0.7865
Epoch 85/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4655 - accuracy: 0.7812 - val_loss: 0.4792 - val_accuracy: 0.7865
Epoch 86/800
18/18 [==============================] - 0s 7ms/step - loss: 0.4651 - accuracy: 0.7812 - val_loss: 0.4790 - val_accuracy: 0.7865
Epoch 87/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4645 - accuracy: 0.7847 - val_loss: 0.4789 - val_accuracy: 0.7865
Epoch 88/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4641 - accuracy: 0.7847 - val_loss: 0.4787 - val_accuracy: 0.7865
Epoch 89/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4637 - accuracy: 0.7847 - val_loss: 0.4785 - val_accuracy: 0.7812
Epoch 90/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4631 - accuracy: 0.7882 - val_loss: 0.4783 - val_accuracy: 0.7812
Epoch 91/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4628 - accuracy: 0.7865 - val_loss: 0.4782 - val_accuracy: 0.7812
Epoch 92/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4623 - accuracy: 0.7865 - val_loss: 0.4781 - val_accuracy: 0.7760
Epoch 93/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4619 - accuracy: 0.7865 - val_loss: 0.4780 - val_accuracy: 0.7760
Epoch 94/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4615 - accuracy: 0.7899 - val_loss: 0.4779 - val_accuracy: 0.7760
Epoch 95/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4611 - accuracy: 0.7899 - val_loss: 0.4778 - val_accuracy: 0.7760
Epoch 96/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4607 - accuracy: 0.7899 - val_loss: 0.4778 - val_accuracy: 0.7708
Epoch 97/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4603 - accuracy: 0.7899 - val_loss: 0.4777 - val_accuracy: 0.7708
Epoch 98/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4599 - accuracy: 0.7899 - val_loss: 0.4777 - val_accuracy: 0.7708
Epoch 99/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4594 - accuracy: 0.7899 - val_loss: 0.4776 - val_accuracy: 0.7708
Epoch 100/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4592 - accuracy: 0.7899 - val_loss: 0.4775 - val_accuracy: 0.7760
Epoch 101/800
18/18 [==============================] - 0s 8ms/step - loss: 0.4589 - accuracy: 0.7882 - val_loss: 0.4774 - val_accuracy: 0.7760
Epoch 102/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4584 - accuracy: 0.7865 - val_loss: 0.4773 - val_accuracy: 0.7760
Epoch 103/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4580 - accuracy: 0.7847 - val_loss: 0.4773 - val_accuracy: 0.7760
Epoch 104/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4579 - accuracy: 0.7847 - val_loss: 0.4772 - val_accuracy: 0.7812
Epoch 105/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4574 - accuracy: 0.7847 - val_loss: 0.4771 - val_accuracy: 0.7812
Epoch 106/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4570 - accuracy: 0.7847 - val_loss: 0.4770 - val_accuracy: 0.7760
Epoch 107/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4569 - accuracy: 0.7830 - val_loss: 0.4769 - val_accuracy: 0.7708
Epoch 108/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4565 - accuracy: 0.7847 - val_loss: 0.4768 - val_accuracy: 0.7708
Epoch 109/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4563 - accuracy: 0.7847 - val_loss: 0.4767 - val_accuracy: 0.7708
Epoch 110/800
18/18 [==============================] - 0s 7ms/step - loss: 0.4560 - accuracy: 0.7830 - val_loss: 0.4767 - val_accuracy: 0.7760
Epoch 111/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4557 - accuracy: 0.7812 - val_loss: 0.4767 - val_accuracy: 0.7812
Epoch 112/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4555 - accuracy: 0.7830 - val_loss: 0.4766 - val_accuracy: 0.7812
Epoch 113/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4552 - accuracy: 0.7830 - val_loss: 0.4766 - val_accuracy: 0.7812
Epoch 114/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4549 - accuracy: 0.7847 - val_loss: 0.4765 - val_accuracy: 0.7812
Epoch 115/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4547 - accuracy: 0.7830 - val_loss: 0.4764 - val_accuracy: 0.7812
Epoch 116/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4546 - accuracy: 0.7847 - val_loss: 0.4764 - val_accuracy: 0.7812
Epoch 117/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4543 - accuracy: 0.7847 - val_loss: 0.4763 - val_accuracy: 0.7760
Epoch 118/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4542 - accuracy: 0.7812 - val_loss: 0.4763 - val_accuracy: 0.7760
Epoch 119/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4539 - accuracy: 0.7812 - val_loss: 0.4762 - val_accuracy: 0.7760
Epoch 120/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4537 - accuracy: 0.7812 - val_loss: 0.4761 - val_accuracy: 0.7760
Epoch 121/800
18/18 [==============================] - 0s 3ms/step - loss: 0.4536 - accuracy: 0.7812 - val_loss: 0.4760 - val_accuracy: 0.7760
Epoch 122/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4532 - accuracy: 0.7795 - val_loss: 0.4759 - val_accuracy: 0.7760
Epoch 123/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4531 - accuracy: 0.7778 - val_loss: 0.4759 - val_accuracy: 0.7760
Epoch 124/800
18/18 [==============================] - 0s 3ms/step - loss: 0.4529 - accuracy: 0.7795 - val_loss: 0.4758 - val_accuracy: 0.7760
Epoch 125/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4529 - accuracy: 0.7778 - val_loss: 0.4758 - val_accuracy: 0.7760
Epoch 126/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4526 - accuracy: 0.7812 - val_loss: 0.4757 - val_accuracy: 0.7760
Epoch 127/800
18/18 [==============================] - 0s 3ms/step - loss: 0.4524 - accuracy: 0.7812 - val_loss: 0.4757 - val_accuracy: 0.7760
Epoch 128/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4525 - accuracy: 0.7812 - val_loss: 0.4756 - val_accuracy: 0.7760
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Epoch 129/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4521 - accuracy: 0.7795 - val_loss: 0.4756 - val_accuracy: 0.7760
Epoch 130/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4519 - accuracy: 0.7812 - val_loss: 0.4755 - val_accuracy: 0.7760
Epoch 131/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4517 - accuracy: 0.7795 - val_loss: 0.4754 - val_accuracy: 0.7760
Epoch 132/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4516 - accuracy: 0.7795 - val_loss: 0.4754 - val_accuracy: 0.7760
Epoch 133/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4515 - accuracy: 0.7795 - val_loss: 0.4754 - val_accuracy: 0.7760
Epoch 134/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4512 - accuracy: 0.7812 - val_loss: 0.4754 - val_accuracy: 0.7760
Epoch 135/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4511 - accuracy: 0.7778 - val_loss: 0.4754 - val_accuracy: 0.7760
Epoch 136/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4509 - accuracy: 0.7812 - val_loss: 0.4754 - val_accuracy: 0.7760
Epoch 137/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4508 - accuracy: 0.7795 - val_loss: 0.4754 - val_accuracy: 0.7760
Epoch 138/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4507 - accuracy: 0.7778 - val_loss: 0.4754 - val_accuracy: 0.7760
Epoch 139/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4506 - accuracy: 0.7795 - val_loss: 0.4754 - val_accuracy: 0.7760
Epoch 140/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4504 - accuracy: 0.7795 - val_loss: 0.4754 - val_accuracy: 0.7760
Epoch 141/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4503 - accuracy: 0.7812 - val_loss: 0.4754 - val_accuracy: 0.7760
Epoch 142/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4502 - accuracy: 0.7812 - val_loss: 0.4754 - val_accuracy: 0.7812
Epoch 143/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4500 - accuracy: 0.7812 - val_loss: 0.4754 - val_accuracy: 0.7812
Epoch 144/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4499 - accuracy: 0.7812 - val_loss: 0.4754 - val_accuracy: 0.7812
Epoch 145/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4498 - accuracy: 0.7812 - val_loss: 0.4754 - val_accuracy: 0.7812
Epoch 146/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4495 - accuracy: 0.7812 - val_loss: 0.4754 - val_accuracy: 0.7812
Epoch 147/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4495 - accuracy: 0.7812 - val_loss: 0.4754 - val_accuracy: 0.7812
Epoch 148/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4494 - accuracy: 0.7812 - val_loss: 0.4755 - val_accuracy: 0.7812
Epoch 149/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4493 - accuracy: 0.7830 - val_loss: 0.4755 - val_accuracy: 0.7812
Epoch 150/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4491 - accuracy: 0.7812 - val_loss: 0.4755 - val_accuracy: 0.7812
Epoch 151/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4489 - accuracy: 0.7795 - val_loss: 0.4754 - val_accuracy: 0.7812
Epoch 152/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4489 - accuracy: 0.7812 - val_loss: 0.4755 - val_accuracy: 0.7812
Epoch 153/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4486 - accuracy: 0.7847 - val_loss: 0.4754 - val_accuracy: 0.7812
Epoch 154/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4486 - accuracy: 0.7812 - val_loss: 0.4754 - val_accuracy: 0.7812
Epoch 155/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4486 - accuracy: 0.7812 - val_loss: 0.4754 - val_accuracy: 0.7812
Epoch 156/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4482 - accuracy: 0.7812 - val_loss: 0.4754 - val_accuracy: 0.7812
Epoch 157/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4482 - accuracy: 0.7847 - val_loss: 0.4754 - val_accuracy: 0.7812
Epoch 158/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4482 - accuracy: 0.7812 - val_loss: 0.4753 - val_accuracy: 0.7812
Epoch 159/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4479 - accuracy: 0.7830 - val_loss: 0.4753 - val_accuracy: 0.7812
Epoch 160/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4478 - accuracy: 0.7812 - val_loss: 0.4752 - val_accuracy: 0.7812
Epoch 161/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4478 - accuracy: 0.7830 - val_loss: 0.4752 - val_accuracy: 0.7812
Epoch 162/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4475 - accuracy: 0.7830 - val_loss: 0.4752 - val_accuracy: 0.7812
Epoch 163/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4475 - accuracy: 0.7812 - val_loss: 0.4752 - val_accuracy: 0.7812
Epoch 164/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4473 - accuracy: 0.7812 - val_loss: 0.4751 - val_accuracy: 0.7812
Epoch 165/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4472 - accuracy: 0.7812 - val_loss: 0.4751 - val_accuracy: 0.7812
Epoch 166/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4471 - accuracy: 0.7795 - val_loss: 0.4751 - val_accuracy: 0.7812
Epoch 167/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4469 - accuracy: 0.7795 - val_loss: 0.4751 - val_accuracy: 0.7812
Epoch 168/800
18/18 [==============================] - 0s 3ms/step - loss: 0.4469 - accuracy: 0.7795 - val_loss: 0.4751 - val_accuracy: 0.7812
Epoch 169/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4468 - accuracy: 0.7812 - val_loss: 0.4751 - val_accuracy: 0.7812
Epoch 170/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4466 - accuracy: 0.7830 - val_loss: 0.4751 - val_accuracy: 0.7812
Epoch 171/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4466 - accuracy: 0.7795 - val_loss: 0.4751 - val_accuracy: 0.7812
Epoch 172/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4464 - accuracy: 0.7795 - val_loss: 0.4751 - val_accuracy: 0.7812
Epoch 173/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4464 - accuracy: 0.7795 - val_loss: 0.4751 - val_accuracy: 0.7812
Epoch 174/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4463 - accuracy: 0.7760 - val_loss: 0.4751 - val_accuracy: 0.7812
Epoch 175/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4461 - accuracy: 0.7778 - val_loss: 0.4751 - val_accuracy: 0.7812
Epoch 176/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4461 - accuracy: 0.7795 - val_loss: 0.4752 - val_accuracy: 0.7812
Epoch 177/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4459 - accuracy: 0.7812 - val_loss: 0.4752 - val_accuracy: 0.7812
Epoch 178/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4459 - accuracy: 0.7778 - val_loss: 0.4752 - val_accuracy: 0.7812
Epoch 179/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4458 - accuracy: 0.7795 - val_loss: 0.4752 - val_accuracy: 0.7812
Epoch 180/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4457 - accuracy: 0.7778 - val_loss: 0.4752 - val_accuracy: 0.7812
Epoch 181/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4456 - accuracy: 0.7760 - val_loss: 0.4751 - val_accuracy: 0.7812
Epoch 182/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4456 - accuracy: 0.7795 - val_loss: 0.4751 - val_accuracy: 0.7812
Epoch 183/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4455 - accuracy: 0.7778 - val_loss: 0.4752 - val_accuracy: 0.7812
Epoch 184/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4455 - accuracy: 0.7812 - val_loss: 0.4752 - val_accuracy: 0.7812
Epoch 185/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4454 - accuracy: 0.7795 - val_loss: 0.4752 - val_accuracy: 0.7812
Epoch 186/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4452 - accuracy: 0.7795 - val_loss: 0.4752 - val_accuracy: 0.7812
Epoch 187/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4453 - accuracy: 0.7778 - val_loss: 0.4752 - val_accuracy: 0.7812
Epoch 188/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4452 - accuracy: 0.7778 - val_loss: 0.4751 - val_accuracy: 0.7760
Epoch 189/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4450 - accuracy: 0.7812 - val_loss: 0.4752 - val_accuracy: 0.7760
Epoch 190/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4450 - accuracy: 0.7778 - val_loss: 0.4751 - val_accuracy: 0.7812
Epoch 191/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4449 - accuracy: 0.7795 - val_loss: 0.4751 - val_accuracy: 0.7760
Epoch 192/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4448 - accuracy: 0.7830 - val_loss: 0.4751 - val_accuracy: 0.7760
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Epoch 193/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4447 - accuracy: 0.7795 - val_loss: 0.4752 - val_accuracy: 0.7760
Epoch 194/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4446 - accuracy: 0.7778 - val_loss: 0.4751 - val_accuracy: 0.7760
Epoch 195/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4446 - accuracy: 0.7812 - val_loss: 0.4752 - val_accuracy: 0.7760
Epoch 196/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4446 - accuracy: 0.7778 - val_loss: 0.4752 - val_accuracy: 0.7760
Epoch 197/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4444 - accuracy: 0.7795 - val_loss: 0.4752 - val_accuracy: 0.7708
Epoch 198/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4444 - accuracy: 0.7795 - val_loss: 0.4753 - val_accuracy: 0.7708
Epoch 199/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4443 - accuracy: 0.7795 - val_loss: 0.4753 - val_accuracy: 0.7708
Epoch 200/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4443 - accuracy: 0.7743 - val_loss: 0.4752 - val_accuracy: 0.7760
Epoch 201/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4442 - accuracy: 0.7812 - val_loss: 0.4753 - val_accuracy: 0.7708
Epoch 202/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4441 - accuracy: 0.7795 - val_loss: 0.4753 - val_accuracy: 0.7708
Epoch 203/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4438 - accuracy: 0.7778 - val_loss: 0.4753 - val_accuracy: 0.7708
Epoch 204/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4439 - accuracy: 0.7778 - val_loss: 0.4752 - val_accuracy: 0.7708
Epoch 205/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4438 - accuracy: 0.7795 - val_loss: 0.4753 - val_accuracy: 0.7708
Epoch 206/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4438 - accuracy: 0.7778 - val_loss: 0.4752 - val_accuracy: 0.7708
Epoch 207/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4437 - accuracy: 0.7795 - val_loss: 0.4752 - val_accuracy: 0.7708
Epoch 208/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4436 - accuracy: 0.7795 - val_loss: 0.4752 - val_accuracy: 0.7708
Epoch 209/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4436 - accuracy: 0.7812 - val_loss: 0.4753 - val_accuracy: 0.7708
Epoch 210/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4435 - accuracy: 0.7778 - val_loss: 0.4753 - val_accuracy: 0.7708
Epoch 211/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4435 - accuracy: 0.7795 - val_loss: 0.4753 - val_accuracy: 0.7708
Epoch 212/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4434 - accuracy: 0.7778 - val_loss: 0.4754 - val_accuracy: 0.7708
Epoch 213/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4433 - accuracy: 0.7795 - val_loss: 0.4753 - val_accuracy: 0.7708
Epoch 214/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4434 - accuracy: 0.7812 - val_loss: 0.4753 - val_accuracy: 0.7708
Epoch 215/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4432 - accuracy: 0.7795 - val_loss: 0.4753 - val_accuracy: 0.7708
Epoch 216/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4431 - accuracy: 0.7778 - val_loss: 0.4754 - val_accuracy: 0.7708
Epoch 217/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4431 - accuracy: 0.7795 - val_loss: 0.4754 - val_accuracy: 0.7708
Epoch 218/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4430 - accuracy: 0.7795 - val_loss: 0.4756 - val_accuracy: 0.7708
Epoch 219/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4430 - accuracy: 0.7812 - val_loss: 0.4756 - val_accuracy: 0.7708
Epoch 220/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4428 - accuracy: 0.7795 - val_loss: 0.4756 - val_accuracy: 0.7708
Epoch 221/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4429 - accuracy: 0.7795 - val_loss: 0.4757 - val_accuracy: 0.7708
Epoch 222/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4427 - accuracy: 0.7778 - val_loss: 0.4757 - val_accuracy: 0.7708
Epoch 223/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4428 - accuracy: 0.7778 - val_loss: 0.4757 - val_accuracy: 0.7656
Epoch 224/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4427 - accuracy: 0.7795 - val_loss: 0.4758 - val_accuracy: 0.7656
Epoch 225/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4426 - accuracy: 0.7778 - val_loss: 0.4759 - val_accuracy: 0.7656
Epoch 226/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4426 - accuracy: 0.7778 - val_loss: 0.4759 - val_accuracy: 0.7656
Epoch 227/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4424 - accuracy: 0.7778 - val_loss: 0.4760 - val_accuracy: 0.7656
Epoch 228/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4424 - accuracy: 0.7778 - val_loss: 0.4760 - val_accuracy: 0.7656
Epoch 229/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4425 - accuracy: 0.7760 - val_loss: 0.4761 - val_accuracy: 0.7656
Epoch 230/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4422 - accuracy: 0.7760 - val_loss: 0.4762 - val_accuracy: 0.7656
Epoch 231/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4423 - accuracy: 0.7778 - val_loss: 0.4762 - val_accuracy: 0.7656
Epoch 232/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4422 - accuracy: 0.7812 - val_loss: 0.4762 - val_accuracy: 0.7656
Epoch 233/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4421 - accuracy: 0.7760 - val_loss: 0.4763 - val_accuracy: 0.7656
Epoch 234/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4423 - accuracy: 0.7760 - val_loss: 0.4763 - val_accuracy: 0.7656
Epoch 235/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4420 - accuracy: 0.7760 - val_loss: 0.4764 - val_accuracy: 0.7656
Epoch 236/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4419 - accuracy: 0.7795 - val_loss: 0.4764 - val_accuracy: 0.7656
Epoch 237/800
18/18 [==============================] - 0s 3ms/step - loss: 0.4419 - accuracy: 0.7795 - val_loss: 0.4765 - val_accuracy: 0.7656
Epoch 238/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4417 - accuracy: 0.7812 - val_loss: 0.4766 - val_accuracy: 0.7656
Epoch 239/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4417 - accuracy: 0.7778 - val_loss: 0.4766 - val_accuracy: 0.7656
Epoch 240/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4417 - accuracy: 0.7795 - val_loss: 0.4767 - val_accuracy: 0.7656
Epoch 241/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4415 - accuracy: 0.7812 - val_loss: 0.4767 - val_accuracy: 0.7656
Epoch 242/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4416 - accuracy: 0.7778 - val_loss: 0.4767 - val_accuracy: 0.7656
Epoch 243/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4416 - accuracy: 0.7795 - val_loss: 0.4768 - val_accuracy: 0.7656
Epoch 244/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4414 - accuracy: 0.7778 - val_loss: 0.4769 - val_accuracy: 0.7656
Epoch 245/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4413 - accuracy: 0.7778 - val_loss: 0.4769 - val_accuracy: 0.7656
Epoch 246/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4412 - accuracy: 0.7795 - val_loss: 0.4770 - val_accuracy: 0.7656
Epoch 247/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4411 - accuracy: 0.7795 - val_loss: 0.4770 - val_accuracy: 0.7656
Epoch 248/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4410 - accuracy: 0.7795 - val_loss: 0.4771 - val_accuracy: 0.7656
Epoch 249/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4410 - accuracy: 0.7830 - val_loss: 0.4771 - val_accuracy: 0.7656
Epoch 250/800
18/18 [==============================] - 0s 7ms/step - loss: 0.4410 - accuracy: 0.7812 - val_loss: 0.4771 - val_accuracy: 0.7656
Epoch 251/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4409 - accuracy: 0.7795 - val_loss: 0.4772 - val_accuracy: 0.7656
Epoch 252/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4409 - accuracy: 0.7795 - val_loss: 0.4772 - val_accuracy: 0.7656
Epoch 253/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4409 - accuracy: 0.7795 - val_loss: 0.4772 - val_accuracy: 0.7656
Epoch 254/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4408 - accuracy: 0.7812 - val_loss: 0.4772 - val_accuracy: 0.7656
Epoch 255/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4406 - accuracy: 0.7795 - val_loss: 0.4772 - val_accuracy: 0.7656
Epoch 256/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4407 - accuracy: 0.7795 - val_loss: 0.4773 - val_accuracy: 0.7656
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Epoch 257/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4406 - accuracy: 0.7795 - val_loss: 0.4773 - val_accuracy: 0.7656
Epoch 258/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4403 - accuracy: 0.7812 - val_loss: 0.4773 - val_accuracy: 0.7656
Epoch 259/800
18/18 [==============================] - 0s 7ms/step - loss: 0.4404 - accuracy: 0.7795 - val_loss: 0.4773 - val_accuracy: 0.7656
Epoch 260/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4404 - accuracy: 0.7812 - val_loss: 0.4773 - val_accuracy: 0.7656
Epoch 261/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4403 - accuracy: 0.7812 - val_loss: 0.4774 - val_accuracy: 0.7656
Epoch 262/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4402 - accuracy: 0.7812 - val_loss: 0.4774 - val_accuracy: 0.7656
Epoch 263/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4402 - accuracy: 0.7778 - val_loss: 0.4774 - val_accuracy: 0.7656
Epoch 264/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4402 - accuracy: 0.7830 - val_loss: 0.4775 - val_accuracy: 0.7656
Epoch 265/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4400 - accuracy: 0.7830 - val_loss: 0.4775 - val_accuracy: 0.7656
Epoch 266/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4400 - accuracy: 0.7812 - val_loss: 0.4775 - val_accuracy: 0.7656
Epoch 267/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4399 - accuracy: 0.7847 - val_loss: 0.4776 - val_accuracy: 0.7656
Epoch 268/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4399 - accuracy: 0.7830 - val_loss: 0.4776 - val_accuracy: 0.7656
Epoch 269/800
18/18 [==============================] - 0s 7ms/step - loss: 0.4399 - accuracy: 0.7830 - val_loss: 0.4777 - val_accuracy: 0.7656
Epoch 270/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4397 - accuracy: 0.7795 - val_loss: 0.4777 - val_accuracy: 0.7656
Epoch 271/800
18/18 [==============================] - 0s 7ms/step - loss: 0.4398 - accuracy: 0.7795 - val_loss: 0.4777 - val_accuracy: 0.7656
Epoch 272/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4397 - accuracy: 0.7812 - val_loss: 0.4778 - val_accuracy: 0.7656
Epoch 273/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4395 - accuracy: 0.7812 - val_loss: 0.4779 - val_accuracy: 0.7656
Epoch 274/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4395 - accuracy: 0.7830 - val_loss: 0.4779 - val_accuracy: 0.7656
Epoch 275/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4394 - accuracy: 0.7830 - val_loss: 0.4780 - val_accuracy: 0.7656
Epoch 276/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4394 - accuracy: 0.7812 - val_loss: 0.4781 - val_accuracy: 0.7656
Epoch 277/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4396 - accuracy: 0.7795 - val_loss: 0.4781 - val_accuracy: 0.7656
Epoch 278/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4393 - accuracy: 0.7812 - val_loss: 0.4782 - val_accuracy: 0.7656
Epoch 279/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4393 - accuracy: 0.7847 - val_loss: 0.4782 - val_accuracy: 0.7656
Epoch 280/800
18/18 [==============================] - 0s 7ms/step - loss: 0.4393 - accuracy: 0.7830 - val_loss: 0.4783 - val_accuracy: 0.7656
Epoch 281/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4391 - accuracy: 0.7830 - val_loss: 0.4783 - val_accuracy: 0.7656
Epoch 282/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4392 - accuracy: 0.7847 - val_loss: 0.4783 - val_accuracy: 0.7656
Epoch 283/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4391 - accuracy: 0.7812 - val_loss: 0.4784 - val_accuracy: 0.7656
Epoch 284/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4392 - accuracy: 0.7795 - val_loss: 0.4784 - val_accuracy: 0.7656
Epoch 285/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4391 - accuracy: 0.7812 - val_loss: 0.4785 - val_accuracy: 0.7656
Epoch 286/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4389 - accuracy: 0.7847 - val_loss: 0.4785 - val_accuracy: 0.7656
Epoch 287/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4389 - accuracy: 0.7830 - val_loss: 0.4784 - val_accuracy: 0.7656
Epoch 288/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4389 - accuracy: 0.7812 - val_loss: 0.4785 - val_accuracy: 0.7656
Epoch 289/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4388 - accuracy: 0.7795 - val_loss: 0.4785 - val_accuracy: 0.7656
Epoch 290/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4388 - accuracy: 0.7812 - val_loss: 0.4786 - val_accuracy: 0.7656
Epoch 291/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4388 - accuracy: 0.7812 - val_loss: 0.4785 - val_accuracy: 0.7656
Epoch 292/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4386 - accuracy: 0.7830 - val_loss: 0.4786 - val_accuracy: 0.7656
Epoch 293/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4386 - accuracy: 0.7812 - val_loss: 0.4786 - val_accuracy: 0.7656
Epoch 294/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4385 - accuracy: 0.7778 - val_loss: 0.4786 - val_accuracy: 0.7656
Epoch 295/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4386 - accuracy: 0.7795 - val_loss: 0.4787 - val_accuracy: 0.7656
Epoch 296/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4384 - accuracy: 0.7812 - val_loss: 0.4788 - val_accuracy: 0.7656
Epoch 297/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4384 - accuracy: 0.7830 - val_loss: 0.4789 - val_accuracy: 0.7656
Epoch 298/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4385 - accuracy: 0.7795 - val_loss: 0.4790 - val_accuracy: 0.7656
Epoch 299/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4383 - accuracy: 0.7812 - val_loss: 0.4790 - val_accuracy: 0.7656
Epoch 300/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4383 - accuracy: 0.7795 - val_loss: 0.4790 - val_accuracy: 0.7656
Epoch 301/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4383 - accuracy: 0.7830 - val_loss: 0.4790 - val_accuracy: 0.7656
Epoch 302/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4382 - accuracy: 0.7795 - val_loss: 0.4789 - val_accuracy: 0.7656
Epoch 303/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4382 - accuracy: 0.7812 - val_loss: 0.4788 - val_accuracy: 0.7656
Epoch 304/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4382 - accuracy: 0.7812 - val_loss: 0.4787 - val_accuracy: 0.7656
Epoch 305/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4379 - accuracy: 0.7795 - val_loss: 0.4787 - val_accuracy: 0.7656
Epoch 306/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4380 - accuracy: 0.7795 - val_loss: 0.4787 - val_accuracy: 0.7656
Epoch 307/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4378 - accuracy: 0.7795 - val_loss: 0.4786 - val_accuracy: 0.7656
Epoch 308/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4378 - accuracy: 0.7795 - val_loss: 0.4787 - val_accuracy: 0.7656
Epoch 309/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4376 - accuracy: 0.7795 - val_loss: 0.4787 - val_accuracy: 0.7656
Epoch 310/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4377 - accuracy: 0.7795 - val_loss: 0.4786 - val_accuracy: 0.7708
Epoch 311/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4375 - accuracy: 0.7795 - val_loss: 0.4786 - val_accuracy: 0.7708
Epoch 312/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4375 - accuracy: 0.7795 - val_loss: 0.4786 - val_accuracy: 0.7656
Epoch 313/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4374 - accuracy: 0.7795 - val_loss: 0.4786 - val_accuracy: 0.7656
Epoch 314/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4372 - accuracy: 0.7795 - val_loss: 0.4785 - val_accuracy: 0.7708
Epoch 315/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4373 - accuracy: 0.7812 - val_loss: 0.4785 - val_accuracy: 0.7708
Epoch 316/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4372 - accuracy: 0.7778 - val_loss: 0.4785 - val_accuracy: 0.7708
Epoch 317/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4372 - accuracy: 0.7795 - val_loss: 0.4785 - val_accuracy: 0.7708
Epoch 318/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4372 - accuracy: 0.7812 - val_loss: 0.4785 - val_accuracy: 0.7708
Epoch 319/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4370 - accuracy: 0.7795 - val_loss: 0.4784 - val_accuracy: 0.7708
Epoch 320/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4370 - accuracy: 0.7795 - val_loss: 0.4784 - val_accuracy: 0.7708
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Epoch 321/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4369 - accuracy: 0.7795 - val_loss: 0.4783 - val_accuracy: 0.7708
Epoch 322/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4369 - accuracy: 0.7795 - val_loss: 0.4783 - val_accuracy: 0.7760
Epoch 323/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4368 - accuracy: 0.7795 - val_loss: 0.4783 - val_accuracy: 0.7760
Epoch 324/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4367 - accuracy: 0.7812 - val_loss: 0.4784 - val_accuracy: 0.7760
Epoch 325/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4367 - accuracy: 0.7812 - val_loss: 0.4784 - val_accuracy: 0.7760
Epoch 326/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4364 - accuracy: 0.7795 - val_loss: 0.4784 - val_accuracy: 0.7760
Epoch 327/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4364 - accuracy: 0.7795 - val_loss: 0.4784 - val_accuracy: 0.7760
Epoch 328/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4363 - accuracy: 0.7795 - val_loss: 0.4785 - val_accuracy: 0.7760
Epoch 329/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4363 - accuracy: 0.7778 - val_loss: 0.4786 - val_accuracy: 0.7760
Epoch 330/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4362 - accuracy: 0.7795 - val_loss: 0.4786 - val_accuracy: 0.7760
Epoch 331/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4361 - accuracy: 0.7812 - val_loss: 0.4786 - val_accuracy: 0.7760
Epoch 332/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4361 - accuracy: 0.7778 - val_loss: 0.4786 - val_accuracy: 0.7760
Epoch 333/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4360 - accuracy: 0.7812 - val_loss: 0.4786 - val_accuracy: 0.7760
Epoch 334/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4362 - accuracy: 0.7795 - val_loss: 0.4787 - val_accuracy: 0.7760
Epoch 335/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4359 - accuracy: 0.7812 - val_loss: 0.4788 - val_accuracy: 0.7760
Epoch 336/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4358 - accuracy: 0.7795 - val_loss: 0.4788 - val_accuracy: 0.7760
Epoch 337/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4356 - accuracy: 0.7830 - val_loss: 0.4789 - val_accuracy: 0.7760
Epoch 338/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4356 - accuracy: 0.7830 - val_loss: 0.4790 - val_accuracy: 0.7760
Epoch 339/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4356 - accuracy: 0.7812 - val_loss: 0.4791 - val_accuracy: 0.7760
Epoch 340/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4355 - accuracy: 0.7812 - val_loss: 0.4792 - val_accuracy: 0.7760
Epoch 341/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4355 - accuracy: 0.7795 - val_loss: 0.4792 - val_accuracy: 0.7760
Epoch 342/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4353 - accuracy: 0.7812 - val_loss: 0.4792 - val_accuracy: 0.7760
Epoch 343/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4352 - accuracy: 0.7795 - val_loss: 0.4793 - val_accuracy: 0.7760
Epoch 344/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4353 - accuracy: 0.7830 - val_loss: 0.4793 - val_accuracy: 0.7760
Epoch 345/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4352 - accuracy: 0.7795 - val_loss: 0.4794 - val_accuracy: 0.7760
Epoch 346/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4351 - accuracy: 0.7812 - val_loss: 0.4794 - val_accuracy: 0.7760
Epoch 347/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4351 - accuracy: 0.7795 - val_loss: 0.4794 - val_accuracy: 0.7760
Epoch 348/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4350 - accuracy: 0.7812 - val_loss: 0.4795 - val_accuracy: 0.7760
Epoch 349/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4348 - accuracy: 0.7812 - val_loss: 0.4796 - val_accuracy: 0.7760
Epoch 350/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4348 - accuracy: 0.7812 - val_loss: 0.4797 - val_accuracy: 0.7760
Epoch 351/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4348 - accuracy: 0.7812 - val_loss: 0.4797 - val_accuracy: 0.7760
Epoch 352/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4347 - accuracy: 0.7812 - val_loss: 0.4797 - val_accuracy: 0.7760
Epoch 353/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4345 - accuracy: 0.7812 - val_loss: 0.4798 - val_accuracy: 0.7760
Epoch 354/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4344 - accuracy: 0.7812 - val_loss: 0.4798 - val_accuracy: 0.7760
Epoch 355/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4345 - accuracy: 0.7830 - val_loss: 0.4799 - val_accuracy: 0.7760
Epoch 356/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4343 - accuracy: 0.7812 - val_loss: 0.4799 - val_accuracy: 0.7760
Epoch 357/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4343 - accuracy: 0.7812 - val_loss: 0.4799 - val_accuracy: 0.7708
Epoch 358/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4342 - accuracy: 0.7812 - val_loss: 0.4799 - val_accuracy: 0.7708
Epoch 359/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4342 - accuracy: 0.7830 - val_loss: 0.4800 - val_accuracy: 0.7760
Epoch 360/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4341 - accuracy: 0.7830 - val_loss: 0.4801 - val_accuracy: 0.7708
Epoch 361/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4340 - accuracy: 0.7830 - val_loss: 0.4801 - val_accuracy: 0.7708
Epoch 362/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4341 - accuracy: 0.7812 - val_loss: 0.4801 - val_accuracy: 0.7708
Epoch 363/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4339 - accuracy: 0.7812 - val_loss: 0.4802 - val_accuracy: 0.7760
Epoch 364/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4338 - accuracy: 0.7812 - val_loss: 0.4802 - val_accuracy: 0.7760
Epoch 365/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4339 - accuracy: 0.7812 - val_loss: 0.4803 - val_accuracy: 0.7760
Epoch 366/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4339 - accuracy: 0.7812 - val_loss: 0.4803 - val_accuracy: 0.7708
Epoch 367/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4336 - accuracy: 0.7812 - val_loss: 0.4804 - val_accuracy: 0.7708
Epoch 368/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4336 - accuracy: 0.7830 - val_loss: 0.4805 - val_accuracy: 0.7708
Epoch 369/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4334 - accuracy: 0.7847 - val_loss: 0.4805 - val_accuracy: 0.7708
Epoch 370/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4334 - accuracy: 0.7847 - val_loss: 0.4806 - val_accuracy: 0.7708
Epoch 371/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4334 - accuracy: 0.7812 - val_loss: 0.4807 - val_accuracy: 0.7760
Epoch 372/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4333 - accuracy: 0.7830 - val_loss: 0.4808 - val_accuracy: 0.7760
Epoch 373/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4332 - accuracy: 0.7865 - val_loss: 0.4808 - val_accuracy: 0.7760
Epoch 374/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4332 - accuracy: 0.7812 - val_loss: 0.4808 - val_accuracy: 0.7760
Epoch 375/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4331 - accuracy: 0.7865 - val_loss: 0.4810 - val_accuracy: 0.7760
Epoch 376/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4331 - accuracy: 0.7847 - val_loss: 0.4811 - val_accuracy: 0.7760
Epoch 377/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4330 - accuracy: 0.7865 - val_loss: 0.4811 - val_accuracy: 0.7760
Epoch 378/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4330 - accuracy: 0.7847 - val_loss: 0.4812 - val_accuracy: 0.7760
Epoch 379/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4328 - accuracy: 0.7882 - val_loss: 0.4813 - val_accuracy: 0.7760
Epoch 380/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4329 - accuracy: 0.7865 - val_loss: 0.4813 - val_accuracy: 0.7760
Epoch 381/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4328 - accuracy: 0.7865 - val_loss: 0.4814 - val_accuracy: 0.7760
Epoch 382/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4327 - accuracy: 0.7865 - val_loss: 0.4815 - val_accuracy: 0.7760
Epoch 383/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4327 - accuracy: 0.7882 - val_loss: 0.4816 - val_accuracy: 0.7760
Epoch 384/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4326 - accuracy: 0.7865 - val_loss: 0.4816 - val_accuracy: 0.7760
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Epoch 385/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4325 - accuracy: 0.7847 - val_loss: 0.4817 - val_accuracy: 0.7760
Epoch 386/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4324 - accuracy: 0.7882 - val_loss: 0.4817 - val_accuracy: 0.7760
Epoch 387/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4324 - accuracy: 0.7882 - val_loss: 0.4818 - val_accuracy: 0.7760
Epoch 388/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4324 - accuracy: 0.7882 - val_loss: 0.4818 - val_accuracy: 0.7760
Epoch 389/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4323 - accuracy: 0.7865 - val_loss: 0.4819 - val_accuracy: 0.7760
Epoch 390/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4323 - accuracy: 0.7865 - val_loss: 0.4819 - val_accuracy: 0.7760
Epoch 391/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4322 - accuracy: 0.7865 - val_loss: 0.4820 - val_accuracy: 0.7760
Epoch 392/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4321 - accuracy: 0.7865 - val_loss: 0.4821 - val_accuracy: 0.7760
Epoch 393/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4321 - accuracy: 0.7882 - val_loss: 0.4822 - val_accuracy: 0.7760
Epoch 394/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4321 - accuracy: 0.7865 - val_loss: 0.4823 - val_accuracy: 0.7760
Epoch 395/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4320 - accuracy: 0.7865 - val_loss: 0.4823 - val_accuracy: 0.7760
Epoch 396/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4320 - accuracy: 0.7865 - val_loss: 0.4823 - val_accuracy: 0.7760
Epoch 397/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4319 - accuracy: 0.7882 - val_loss: 0.4824 - val_accuracy: 0.7760
Epoch 398/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4319 - accuracy: 0.7882 - val_loss: 0.4825 - val_accuracy: 0.7760
Epoch 399/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4317 - accuracy: 0.7882 - val_loss: 0.4825 - val_accuracy: 0.7760
Epoch 400/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4317 - accuracy: 0.7882 - val_loss: 0.4826 - val_accuracy: 0.7760
Epoch 401/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4317 - accuracy: 0.7882 - val_loss: 0.4826 - val_accuracy: 0.7760
Epoch 402/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4317 - accuracy: 0.7882 - val_loss: 0.4826 - val_accuracy: 0.7760
Epoch 403/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4316 - accuracy: 0.7882 - val_loss: 0.4826 - val_accuracy: 0.7760
Epoch 404/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4315 - accuracy: 0.7882 - val_loss: 0.4828 - val_accuracy: 0.7760
Epoch 405/800
18/18 [==============================] - 0s 7ms/step - loss: 0.4315 - accuracy: 0.7882 - val_loss: 0.4828 - val_accuracy: 0.7760
Epoch 406/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4313 - accuracy: 0.7882 - val_loss: 0.4829 - val_accuracy: 0.7760
Epoch 407/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4314 - accuracy: 0.7882 - val_loss: 0.4830 - val_accuracy: 0.7760
Epoch 408/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4313 - accuracy: 0.7882 - val_loss: 0.4831 - val_accuracy: 0.7760
Epoch 409/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4311 - accuracy: 0.7882 - val_loss: 0.4832 - val_accuracy: 0.7760
Epoch 410/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4311 - accuracy: 0.7882 - val_loss: 0.4832 - val_accuracy: 0.7760
Epoch 411/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4311 - accuracy: 0.7882 - val_loss: 0.4833 - val_accuracy: 0.7760
Epoch 412/800
18/18 [==============================] - 0s 7ms/step - loss: 0.4310 - accuracy: 0.7882 - val_loss: 0.4834 - val_accuracy: 0.7708
Epoch 413/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4311 - accuracy: 0.7865 - val_loss: 0.4834 - val_accuracy: 0.7760
Epoch 414/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4311 - accuracy: 0.7882 - val_loss: 0.4835 - val_accuracy: 0.7708
Epoch 415/800
18/18 [==============================] - 0s 9ms/step - loss: 0.4310 - accuracy: 0.7882 - val_loss: 0.4836 - val_accuracy: 0.7708
Epoch 416/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4309 - accuracy: 0.7882 - val_loss: 0.4836 - val_accuracy: 0.7708
Epoch 417/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4308 - accuracy: 0.7882 - val_loss: 0.4837 - val_accuracy: 0.7708
Epoch 418/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4308 - accuracy: 0.7882 - val_loss: 0.4837 - val_accuracy: 0.7708
Epoch 419/800
18/18 [==============================] - 0s 7ms/step - loss: 0.4307 - accuracy: 0.7882 - val_loss: 0.4838 - val_accuracy: 0.7708
Epoch 420/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4308 - accuracy: 0.7882 - val_loss: 0.4839 - val_accuracy: 0.7708
Epoch 421/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4306 - accuracy: 0.7882 - val_loss: 0.4840 - val_accuracy: 0.7708
Epoch 422/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4306 - accuracy: 0.7882 - val_loss: 0.4841 - val_accuracy: 0.7708
Epoch 423/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4305 - accuracy: 0.7882 - val_loss: 0.4842 - val_accuracy: 0.7708
Epoch 424/800
18/18 [==============================] - 0s 8ms/step - loss: 0.4306 - accuracy: 0.7882 - val_loss: 0.4843 - val_accuracy: 0.7708
Epoch 425/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4306 - accuracy: 0.7882 - val_loss: 0.4843 - val_accuracy: 0.7708
Epoch 426/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4304 - accuracy: 0.7882 - val_loss: 0.4844 - val_accuracy: 0.7708
Epoch 427/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4303 - accuracy: 0.7882 - val_loss: 0.4845 - val_accuracy: 0.7708
Epoch 428/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4302 - accuracy: 0.7882 - val_loss: 0.4845 - val_accuracy: 0.7708
Epoch 429/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4302 - accuracy: 0.7882 - val_loss: 0.4846 - val_accuracy: 0.7708
Epoch 430/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4301 - accuracy: 0.7882 - val_loss: 0.4846 - val_accuracy: 0.7708
Epoch 431/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4303 - accuracy: 0.7882 - val_loss: 0.4848 - val_accuracy: 0.7708
Epoch 432/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4303 - accuracy: 0.7882 - val_loss: 0.4849 - val_accuracy: 0.7708
Epoch 433/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4301 - accuracy: 0.7882 - val_loss: 0.4850 - val_accuracy: 0.7708
Epoch 434/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4300 - accuracy: 0.7882 - val_loss: 0.4851 - val_accuracy: 0.7708
Epoch 435/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4300 - accuracy: 0.7882 - val_loss: 0.4853 - val_accuracy: 0.7708
Epoch 436/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4298 - accuracy: 0.7882 - val_loss: 0.4854 - val_accuracy: 0.7708
Epoch 437/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4298 - accuracy: 0.7882 - val_loss: 0.4854 - val_accuracy: 0.7708
Epoch 438/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4298 - accuracy: 0.7882 - val_loss: 0.4855 - val_accuracy: 0.7708
Epoch 439/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4297 - accuracy: 0.7882 - val_loss: 0.4857 - val_accuracy: 0.7708
Epoch 440/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4298 - accuracy: 0.7882 - val_loss: 0.4857 - val_accuracy: 0.7708
Epoch 441/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4296 - accuracy: 0.7882 - val_loss: 0.4858 - val_accuracy: 0.7708
Epoch 442/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4296 - accuracy: 0.7882 - val_loss: 0.4859 - val_accuracy: 0.7708
Epoch 443/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4295 - accuracy: 0.7882 - val_loss: 0.4860 - val_accuracy: 0.7708
Epoch 444/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4295 - accuracy: 0.7882 - val_loss: 0.4860 - val_accuracy: 0.7708
Epoch 445/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4295 - accuracy: 0.7882 - val_loss: 0.4862 - val_accuracy: 0.7708
Epoch 446/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4294 - accuracy: 0.7882 - val_loss: 0.4863 - val_accuracy: 0.7708
Epoch 447/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4295 - accuracy: 0.7882 - val_loss: 0.4864 - val_accuracy: 0.7708
Epoch 448/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4293 - accuracy: 0.7882 - val_loss: 0.4866 - val_accuracy: 0.7708
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Epoch 449/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4293 - accuracy: 0.7882 - val_loss: 0.4866 - val_accuracy: 0.7708
Epoch 450/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4293 - accuracy: 0.7899 - val_loss: 0.4867 - val_accuracy: 0.7708
Epoch 451/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4292 - accuracy: 0.7882 - val_loss: 0.4867 - val_accuracy: 0.7708
Epoch 452/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4292 - accuracy: 0.7899 - val_loss: 0.4868 - val_accuracy: 0.7708
Epoch 453/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4291 - accuracy: 0.7882 - val_loss: 0.4869 - val_accuracy: 0.7708
Epoch 454/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4291 - accuracy: 0.7882 - val_loss: 0.4870 - val_accuracy: 0.7708
Epoch 455/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4291 - accuracy: 0.7882 - val_loss: 0.4871 - val_accuracy: 0.7708
Epoch 456/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4290 - accuracy: 0.7882 - val_loss: 0.4871 - val_accuracy: 0.7708
Epoch 457/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4290 - accuracy: 0.7882 - val_loss: 0.4873 - val_accuracy: 0.7708
Epoch 458/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4290 - accuracy: 0.7882 - val_loss: 0.4873 - val_accuracy: 0.7708
Epoch 459/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4289 - accuracy: 0.7882 - val_loss: 0.4874 - val_accuracy: 0.7708
Epoch 460/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4290 - accuracy: 0.7882 - val_loss: 0.4875 - val_accuracy: 0.7708
Epoch 461/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4288 - accuracy: 0.7882 - val_loss: 0.4876 - val_accuracy: 0.7708
Epoch 462/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4289 - accuracy: 0.7882 - val_loss: 0.4877 - val_accuracy: 0.7708
Epoch 463/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4289 - accuracy: 0.7865 - val_loss: 0.4877 - val_accuracy: 0.7708
Epoch 464/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4288 - accuracy: 0.7882 - val_loss: 0.4878 - val_accuracy: 0.7708
Epoch 465/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4287 - accuracy: 0.7899 - val_loss: 0.4879 - val_accuracy: 0.7708
Epoch 466/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4287 - accuracy: 0.7882 - val_loss: 0.4880 - val_accuracy: 0.7708
Epoch 467/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4286 - accuracy: 0.7899 - val_loss: 0.4879 - val_accuracy: 0.7708
Epoch 468/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4285 - accuracy: 0.7899 - val_loss: 0.4880 - val_accuracy: 0.7708
Epoch 469/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4287 - accuracy: 0.7899 - val_loss: 0.4881 - val_accuracy: 0.7708
Epoch 470/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4284 - accuracy: 0.7899 - val_loss: 0.4882 - val_accuracy: 0.7708
Epoch 471/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4284 - accuracy: 0.7882 - val_loss: 0.4884 - val_accuracy: 0.7708
Epoch 472/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4285 - accuracy: 0.7882 - val_loss: 0.4884 - val_accuracy: 0.7708
Epoch 473/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4283 - accuracy: 0.7899 - val_loss: 0.4885 - val_accuracy: 0.7708
Epoch 474/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4284 - accuracy: 0.7882 - val_loss: 0.4884 - val_accuracy: 0.7708
Epoch 475/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4282 - accuracy: 0.7882 - val_loss: 0.4885 - val_accuracy: 0.7708
Epoch 476/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4282 - accuracy: 0.7882 - val_loss: 0.4884 - val_accuracy: 0.7708
Epoch 477/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4282 - accuracy: 0.7899 - val_loss: 0.4885 - val_accuracy: 0.7708
Epoch 478/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4281 - accuracy: 0.7899 - val_loss: 0.4886 - val_accuracy: 0.7708
Epoch 479/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4281 - accuracy: 0.7899 - val_loss: 0.4886 - val_accuracy: 0.7708
Epoch 480/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4281 - accuracy: 0.7899 - val_loss: 0.4887 - val_accuracy: 0.7708
Epoch 481/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4280 - accuracy: 0.7882 - val_loss: 0.4889 - val_accuracy: 0.7708
Epoch 482/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4280 - accuracy: 0.7882 - val_loss: 0.4888 - val_accuracy: 0.7708
Epoch 483/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4279 - accuracy: 0.7882 - val_loss: 0.4890 - val_accuracy: 0.7708
Epoch 484/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4280 - accuracy: 0.7882 - val_loss: 0.4889 - val_accuracy: 0.7708
Epoch 485/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4279 - accuracy: 0.7899 - val_loss: 0.4889 - val_accuracy: 0.7708
Epoch 486/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4279 - accuracy: 0.7899 - val_loss: 0.4891 - val_accuracy: 0.7708
Epoch 487/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4279 - accuracy: 0.7882 - val_loss: 0.4891 - val_accuracy: 0.7708
Epoch 488/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4279 - accuracy: 0.7899 - val_loss: 0.4892 - val_accuracy: 0.7708
Epoch 489/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4277 - accuracy: 0.7899 - val_loss: 0.4893 - val_accuracy: 0.7708
Epoch 490/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4276 - accuracy: 0.7899 - val_loss: 0.4894 - val_accuracy: 0.7708
Epoch 491/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4278 - accuracy: 0.7899 - val_loss: 0.4896 - val_accuracy: 0.7708
Epoch 492/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4276 - accuracy: 0.7882 - val_loss: 0.4897 - val_accuracy: 0.7708
Epoch 493/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4276 - accuracy: 0.7899 - val_loss: 0.4896 - val_accuracy: 0.7708
Epoch 494/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4276 - accuracy: 0.7899 - val_loss: 0.4897 - val_accuracy: 0.7708
Epoch 495/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4275 - accuracy: 0.7882 - val_loss: 0.4898 - val_accuracy: 0.7708
Epoch 496/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4273 - accuracy: 0.7882 - val_loss: 0.4898 - val_accuracy: 0.7708
Epoch 497/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4274 - accuracy: 0.7882 - val_loss: 0.4899 - val_accuracy: 0.7708
Epoch 498/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4273 - accuracy: 0.7882 - val_loss: 0.4900 - val_accuracy: 0.7708
Epoch 499/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4273 - accuracy: 0.7882 - val_loss: 0.4900 - val_accuracy: 0.7708
Epoch 500/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4272 - accuracy: 0.7882 - val_loss: 0.4901 - val_accuracy: 0.7708
Epoch 501/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4272 - accuracy: 0.7899 - val_loss: 0.4902 - val_accuracy: 0.7708
Epoch 502/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4273 - accuracy: 0.7899 - val_loss: 0.4902 - val_accuracy: 0.7708
Epoch 503/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4272 - accuracy: 0.7899 - val_loss: 0.4902 - val_accuracy: 0.7708
Epoch 504/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4271 - accuracy: 0.7882 - val_loss: 0.4903 - val_accuracy: 0.7708
Epoch 505/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4271 - accuracy: 0.7882 - val_loss: 0.4904 - val_accuracy: 0.7708
Epoch 506/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4270 - accuracy: 0.7882 - val_loss: 0.4905 - val_accuracy: 0.7708
Epoch 507/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4271 - accuracy: 0.7882 - val_loss: 0.4906 - val_accuracy: 0.7708
Epoch 508/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4270 - accuracy: 0.7899 - val_loss: 0.4907 - val_accuracy: 0.7708
Epoch 509/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4270 - accuracy: 0.7882 - val_loss: 0.4908 - val_accuracy: 0.7708
Epoch 510/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4270 - accuracy: 0.7882 - val_loss: 0.4909 - val_accuracy: 0.7708
Epoch 511/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4269 - accuracy: 0.7882 - val_loss: 0.4909 - val_accuracy: 0.7708
Epoch 512/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4269 - accuracy: 0.7882 - val_loss: 0.4910 - val_accuracy: 0.7708
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Epoch 513/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4269 - accuracy: 0.7882 - val_loss: 0.4909 - val_accuracy: 0.7708
Epoch 514/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4267 - accuracy: 0.7882 - val_loss: 0.4908 - val_accuracy: 0.7708
Epoch 515/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4267 - accuracy: 0.7882 - val_loss: 0.4910 - val_accuracy: 0.7708
Epoch 516/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4266 - accuracy: 0.7865 - val_loss: 0.4911 - val_accuracy: 0.7708
Epoch 517/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4267 - accuracy: 0.7865 - val_loss: 0.4911 - val_accuracy: 0.7708
Epoch 518/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4265 - accuracy: 0.7882 - val_loss: 0.4912 - val_accuracy: 0.7708
Epoch 519/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4267 - accuracy: 0.7865 - val_loss: 0.4911 - val_accuracy: 0.7708
Epoch 520/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4265 - accuracy: 0.7865 - val_loss: 0.4912 - val_accuracy: 0.7708
Epoch 521/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4265 - accuracy: 0.7865 - val_loss: 0.4913 - val_accuracy: 0.7708
Epoch 522/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4263 - accuracy: 0.7865 - val_loss: 0.4914 - val_accuracy: 0.7708
Epoch 523/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4264 - accuracy: 0.7865 - val_loss: 0.4914 - val_accuracy: 0.7708
Epoch 524/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4264 - accuracy: 0.7865 - val_loss: 0.4915 - val_accuracy: 0.7708
Epoch 525/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4264 - accuracy: 0.7899 - val_loss: 0.4917 - val_accuracy: 0.7708
Epoch 526/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4261 - accuracy: 0.7865 - val_loss: 0.4918 - val_accuracy: 0.7708
Epoch 527/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4263 - accuracy: 0.7865 - val_loss: 0.4917 - val_accuracy: 0.7708
Epoch 528/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4262 - accuracy: 0.7882 - val_loss: 0.4918 - val_accuracy: 0.7708
Epoch 529/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4261 - accuracy: 0.7865 - val_loss: 0.4919 - val_accuracy: 0.7708
Epoch 530/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4260 - accuracy: 0.7865 - val_loss: 0.4918 - val_accuracy: 0.7708
Epoch 531/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4261 - accuracy: 0.7865 - val_loss: 0.4919 - val_accuracy: 0.7708
Epoch 532/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4261 - accuracy: 0.7865 - val_loss: 0.4920 - val_accuracy: 0.7708
Epoch 533/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4260 - accuracy: 0.7882 - val_loss: 0.4921 - val_accuracy: 0.7708
Epoch 534/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4260 - accuracy: 0.7865 - val_loss: 0.4922 - val_accuracy: 0.7708
Epoch 535/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4259 - accuracy: 0.7865 - val_loss: 0.4923 - val_accuracy: 0.7708
Epoch 536/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4258 - accuracy: 0.7865 - val_loss: 0.4923 - val_accuracy: 0.7656
Epoch 537/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4258 - accuracy: 0.7865 - val_loss: 0.4924 - val_accuracy: 0.7656
Epoch 538/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4257 - accuracy: 0.7865 - val_loss: 0.4925 - val_accuracy: 0.7656
Epoch 539/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4257 - accuracy: 0.7865 - val_loss: 0.4926 - val_accuracy: 0.7656
Epoch 540/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4256 - accuracy: 0.7865 - val_loss: 0.4927 - val_accuracy: 0.7656
Epoch 541/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4257 - accuracy: 0.7882 - val_loss: 0.4927 - val_accuracy: 0.7656
Epoch 542/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4255 - accuracy: 0.7865 - val_loss: 0.4927 - val_accuracy: 0.7656
Epoch 543/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4255 - accuracy: 0.7865 - val_loss: 0.4928 - val_accuracy: 0.7656
Epoch 544/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4253 - accuracy: 0.7865 - val_loss: 0.4929 - val_accuracy: 0.7656
Epoch 545/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4253 - accuracy: 0.7882 - val_loss: 0.4929 - val_accuracy: 0.7656
Epoch 546/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4254 - accuracy: 0.7865 - val_loss: 0.4930 - val_accuracy: 0.7656
Epoch 547/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4253 - accuracy: 0.7865 - val_loss: 0.4931 - val_accuracy: 0.7656
Epoch 548/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4252 - accuracy: 0.7865 - val_loss: 0.4931 - val_accuracy: 0.7656
Epoch 549/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4252 - accuracy: 0.7865 - val_loss: 0.4931 - val_accuracy: 0.7656
Epoch 550/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4250 - accuracy: 0.7882 - val_loss: 0.4932 - val_accuracy: 0.7656
Epoch 551/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4250 - accuracy: 0.7882 - val_loss: 0.4933 - val_accuracy: 0.7656
Epoch 552/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4250 - accuracy: 0.7882 - val_loss: 0.4933 - val_accuracy: 0.7656
Epoch 553/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4251 - accuracy: 0.7882 - val_loss: 0.4935 - val_accuracy: 0.7656
Epoch 554/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4251 - accuracy: 0.7882 - val_loss: 0.4935 - val_accuracy: 0.7656
Epoch 555/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4250 - accuracy: 0.7865 - val_loss: 0.4935 - val_accuracy: 0.7656
Epoch 556/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4248 - accuracy: 0.7882 - val_loss: 0.4936 - val_accuracy: 0.7656
Epoch 557/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4248 - accuracy: 0.7882 - val_loss: 0.4937 - val_accuracy: 0.7656
Epoch 558/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4247 - accuracy: 0.7882 - val_loss: 0.4937 - val_accuracy: 0.7656
Epoch 559/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4247 - accuracy: 0.7882 - val_loss: 0.4937 - val_accuracy: 0.7656
Epoch 560/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4247 - accuracy: 0.7899 - val_loss: 0.4937 - val_accuracy: 0.7656
Epoch 561/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4246 - accuracy: 0.7882 - val_loss: 0.4938 - val_accuracy: 0.7656
Epoch 562/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4245 - accuracy: 0.7899 - val_loss: 0.4938 - val_accuracy: 0.7656
Epoch 563/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4246 - accuracy: 0.7882 - val_loss: 0.4939 - val_accuracy: 0.7656
Epoch 564/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4245 - accuracy: 0.7865 - val_loss: 0.4939 - val_accuracy: 0.7656
Epoch 565/800
18/18 [==============================] - 0s 7ms/step - loss: 0.4246 - accuracy: 0.7899 - val_loss: 0.4939 - val_accuracy: 0.7656
Epoch 566/800
18/18 [==============================] - 0s 7ms/step - loss: 0.4243 - accuracy: 0.7882 - val_loss: 0.4940 - val_accuracy: 0.7656
Epoch 567/800
18/18 [==============================] - 0s 7ms/step - loss: 0.4245 - accuracy: 0.7917 - val_loss: 0.4941 - val_accuracy: 0.7656
Epoch 568/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4243 - accuracy: 0.7865 - val_loss: 0.4941 - val_accuracy: 0.7656
Epoch 569/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4243 - accuracy: 0.7882 - val_loss: 0.4941 - val_accuracy: 0.7656
Epoch 570/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4243 - accuracy: 0.7899 - val_loss: 0.4941 - val_accuracy: 0.7656
Epoch 571/800
18/18 [==============================] - 0s 9ms/step - loss: 0.4242 - accuracy: 0.7899 - val_loss: 0.4942 - val_accuracy: 0.7656
Epoch 572/800
18/18 [==============================] - 0s 7ms/step - loss: 0.4240 - accuracy: 0.7899 - val_loss: 0.4943 - val_accuracy: 0.7656
Epoch 573/800
18/18 [==============================] - 0s 9ms/step - loss: 0.4240 - accuracy: 0.7882 - val_loss: 0.4943 - val_accuracy: 0.7656
Epoch 574/800
18/18 [==============================] - 0s 7ms/step - loss: 0.4241 - accuracy: 0.7882 - val_loss: 0.4943 - val_accuracy: 0.7656
Epoch 575/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4238 - accuracy: 0.7899 - val_loss: 0.4944 - val_accuracy: 0.7656
Epoch 576/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4239 - accuracy: 0.7899 - val_loss: 0.4945 - val_accuracy: 0.7656
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Epoch 577/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4238 - accuracy: 0.7899 - val_loss: 0.4945 - val_accuracy: 0.7656
Epoch 578/800
18/18 [==============================] - 0s 7ms/step - loss: 0.4238 - accuracy: 0.7899 - val_loss: 0.4946 - val_accuracy: 0.7656
Epoch 579/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4237 - accuracy: 0.7899 - val_loss: 0.4946 - val_accuracy: 0.7656
Epoch 580/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4237 - accuracy: 0.7865 - val_loss: 0.4947 - val_accuracy: 0.7656
Epoch 581/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4234 - accuracy: 0.7899 - val_loss: 0.4947 - val_accuracy: 0.7656
Epoch 582/800
18/18 [==============================] - 0s 7ms/step - loss: 0.4235 - accuracy: 0.7899 - val_loss: 0.4948 - val_accuracy: 0.7656
Epoch 583/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4236 - accuracy: 0.7882 - val_loss: 0.4948 - val_accuracy: 0.7656
Epoch 584/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4235 - accuracy: 0.7899 - val_loss: 0.4949 - val_accuracy: 0.7656
Epoch 585/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4235 - accuracy: 0.7882 - val_loss: 0.4951 - val_accuracy: 0.7656
Epoch 586/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4233 - accuracy: 0.7899 - val_loss: 0.4952 - val_accuracy: 0.7656
Epoch 587/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4233 - accuracy: 0.7899 - val_loss: 0.4953 - val_accuracy: 0.7656
Epoch 588/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4232 - accuracy: 0.7899 - val_loss: 0.4954 - val_accuracy: 0.7656
Epoch 589/800
18/18 [==============================] - 0s 9ms/step - loss: 0.4232 - accuracy: 0.7899 - val_loss: 0.4954 - val_accuracy: 0.7656
Epoch 590/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4232 - accuracy: 0.7899 - val_loss: 0.4955 - val_accuracy: 0.7656
Epoch 591/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4231 - accuracy: 0.7917 - val_loss: 0.4955 - val_accuracy: 0.7656
Epoch 592/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4231 - accuracy: 0.7917 - val_loss: 0.4956 - val_accuracy: 0.7656
Epoch 593/800
18/18 [==============================] - 0s 7ms/step - loss: 0.4229 - accuracy: 0.7917 - val_loss: 0.4957 - val_accuracy: 0.7656
Epoch 594/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4228 - accuracy: 0.7917 - val_loss: 0.4958 - val_accuracy: 0.7656
Epoch 595/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4228 - accuracy: 0.7865 - val_loss: 0.4960 - val_accuracy: 0.7656
Epoch 596/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4228 - accuracy: 0.7899 - val_loss: 0.4960 - val_accuracy: 0.7656
Epoch 597/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4227 - accuracy: 0.7899 - val_loss: 0.4961 - val_accuracy: 0.7656
Epoch 598/800
18/18 [==============================] - 0s 7ms/step - loss: 0.4229 - accuracy: 0.7882 - val_loss: 0.4961 - val_accuracy: 0.7656
Epoch 599/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4227 - accuracy: 0.7882 - val_loss: 0.4963 - val_accuracy: 0.7656
Epoch 600/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4227 - accuracy: 0.7899 - val_loss: 0.4964 - val_accuracy: 0.7656
Epoch 601/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4225 - accuracy: 0.7899 - val_loss: 0.4965 - val_accuracy: 0.7656
Epoch 602/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4225 - accuracy: 0.7917 - val_loss: 0.4965 - val_accuracy: 0.7656
Epoch 603/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4225 - accuracy: 0.7899 - val_loss: 0.4966 - val_accuracy: 0.7656
Epoch 604/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4224 - accuracy: 0.7899 - val_loss: 0.4967 - val_accuracy: 0.7656
Epoch 605/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4223 - accuracy: 0.7899 - val_loss: 0.4967 - val_accuracy: 0.7656
Epoch 606/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4223 - accuracy: 0.7899 - val_loss: 0.4968 - val_accuracy: 0.7656
Epoch 607/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4221 - accuracy: 0.7899 - val_loss: 0.4969 - val_accuracy: 0.7656
Epoch 608/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4223 - accuracy: 0.7917 - val_loss: 0.4969 - val_accuracy: 0.7656
Epoch 609/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4221 - accuracy: 0.7917 - val_loss: 0.4970 - val_accuracy: 0.7656
Epoch 610/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4221 - accuracy: 0.7899 - val_loss: 0.4971 - val_accuracy: 0.7656
Epoch 611/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4221 - accuracy: 0.7899 - val_loss: 0.4971 - val_accuracy: 0.7656
Epoch 612/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4219 - accuracy: 0.7899 - val_loss: 0.4971 - val_accuracy: 0.7656
Epoch 613/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4219 - accuracy: 0.7899 - val_loss: 0.4972 - val_accuracy: 0.7656
Epoch 614/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4220 - accuracy: 0.7882 - val_loss: 0.4973 - val_accuracy: 0.7656
Epoch 615/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4219 - accuracy: 0.7899 - val_loss: 0.4974 - val_accuracy: 0.7656
Epoch 616/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4218 - accuracy: 0.7899 - val_loss: 0.4975 - val_accuracy: 0.7656
Epoch 617/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4218 - accuracy: 0.7899 - val_loss: 0.4976 - val_accuracy: 0.7656
Epoch 618/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4217 - accuracy: 0.7899 - val_loss: 0.4976 - val_accuracy: 0.7656
Epoch 619/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4216 - accuracy: 0.7917 - val_loss: 0.4977 - val_accuracy: 0.7656
Epoch 620/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4216 - accuracy: 0.7882 - val_loss: 0.4978 - val_accuracy: 0.7656
Epoch 621/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4216 - accuracy: 0.7882 - val_loss: 0.4979 - val_accuracy: 0.7656
Epoch 622/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4215 - accuracy: 0.7899 - val_loss: 0.4979 - val_accuracy: 0.7656
Epoch 623/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4215 - accuracy: 0.7882 - val_loss: 0.4979 - val_accuracy: 0.7656
Epoch 624/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4214 - accuracy: 0.7882 - val_loss: 0.4979 - val_accuracy: 0.7656
Epoch 625/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4214 - accuracy: 0.7882 - val_loss: 0.4978 - val_accuracy: 0.7656
Epoch 626/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4214 - accuracy: 0.7882 - val_loss: 0.4979 - val_accuracy: 0.7656
Epoch 627/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4212 - accuracy: 0.7882 - val_loss: 0.4978 - val_accuracy: 0.7708
Epoch 628/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4212 - accuracy: 0.7899 - val_loss: 0.4979 - val_accuracy: 0.7708
Epoch 629/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4212 - accuracy: 0.7882 - val_loss: 0.4981 - val_accuracy: 0.7708
Epoch 630/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4211 - accuracy: 0.7865 - val_loss: 0.4982 - val_accuracy: 0.7708
Epoch 631/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4210 - accuracy: 0.7882 - val_loss: 0.4981 - val_accuracy: 0.7708
Epoch 632/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4210 - accuracy: 0.7899 - val_loss: 0.4983 - val_accuracy: 0.7708
Epoch 633/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4210 - accuracy: 0.7865 - val_loss: 0.4983 - val_accuracy: 0.7708
Epoch 634/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4208 - accuracy: 0.7882 - val_loss: 0.4984 - val_accuracy: 0.7708
Epoch 635/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4209 - accuracy: 0.7865 - val_loss: 0.4984 - val_accuracy: 0.7708
Epoch 636/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4209 - accuracy: 0.7882 - val_loss: 0.4985 - val_accuracy: 0.7708
Epoch 637/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4207 - accuracy: 0.7882 - val_loss: 0.4985 - val_accuracy: 0.7708
Epoch 638/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4207 - accuracy: 0.7899 - val_loss: 0.4986 - val_accuracy: 0.7708
Epoch 639/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4207 - accuracy: 0.7882 - val_loss: 0.4987 - val_accuracy: 0.7708
Epoch 640/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4206 - accuracy: 0.7847 - val_loss: 0.4987 - val_accuracy: 0.7708
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Epoch 641/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4205 - accuracy: 0.7882 - val_loss: 0.4989 - val_accuracy: 0.7708
Epoch 642/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4204 - accuracy: 0.7882 - val_loss: 0.4990 - val_accuracy: 0.7708
Epoch 643/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4205 - accuracy: 0.7847 - val_loss: 0.4988 - val_accuracy: 0.7708
Epoch 644/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4205 - accuracy: 0.7882 - val_loss: 0.4990 - val_accuracy: 0.7708
Epoch 645/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4203 - accuracy: 0.7882 - val_loss: 0.4991 - val_accuracy: 0.7708
Epoch 646/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4203 - accuracy: 0.7865 - val_loss: 0.4991 - val_accuracy: 0.7708
Epoch 647/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4202 - accuracy: 0.7865 - val_loss: 0.4990 - val_accuracy: 0.7708
Epoch 648/800
18/18 [==============================] - 0s 7ms/step - loss: 0.4201 - accuracy: 0.7882 - val_loss: 0.4991 - val_accuracy: 0.7708
Epoch 649/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4202 - accuracy: 0.7882 - val_loss: 0.4991 - val_accuracy: 0.7708
Epoch 650/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4201 - accuracy: 0.7865 - val_loss: 0.4991 - val_accuracy: 0.7708
Epoch 651/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4201 - accuracy: 0.7882 - val_loss: 0.4992 - val_accuracy: 0.7708
Epoch 652/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4199 - accuracy: 0.7882 - val_loss: 0.4994 - val_accuracy: 0.7708
Epoch 653/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4199 - accuracy: 0.7865 - val_loss: 0.4993 - val_accuracy: 0.7708
Epoch 654/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4199 - accuracy: 0.7865 - val_loss: 0.4995 - val_accuracy: 0.7708
Epoch 655/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4198 - accuracy: 0.7882 - val_loss: 0.4997 - val_accuracy: 0.7708
Epoch 656/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4199 - accuracy: 0.7899 - val_loss: 0.4996 - val_accuracy: 0.7708
Epoch 657/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4197 - accuracy: 0.7882 - val_loss: 0.4996 - val_accuracy: 0.7708
Epoch 658/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4197 - accuracy: 0.7899 - val_loss: 0.4997 - val_accuracy: 0.7708
Epoch 659/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4197 - accuracy: 0.7882 - val_loss: 0.4998 - val_accuracy: 0.7708
Epoch 660/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4196 - accuracy: 0.7899 - val_loss: 0.4999 - val_accuracy: 0.7708
Epoch 661/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4195 - accuracy: 0.7882 - val_loss: 0.4998 - val_accuracy: 0.7708
Epoch 662/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4197 - accuracy: 0.7899 - val_loss: 0.4996 - val_accuracy: 0.7708
Epoch 663/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4195 - accuracy: 0.7865 - val_loss: 0.4997 - val_accuracy: 0.7708
Epoch 664/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4193 - accuracy: 0.7899 - val_loss: 0.4999 - val_accuracy: 0.7708
Epoch 665/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4195 - accuracy: 0.7882 - val_loss: 0.4999 - val_accuracy: 0.7708
Epoch 666/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4193 - accuracy: 0.7882 - val_loss: 0.4998 - val_accuracy: 0.7708
Epoch 667/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4192 - accuracy: 0.7865 - val_loss: 0.5000 - val_accuracy: 0.7708
Epoch 668/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4191 - accuracy: 0.7882 - val_loss: 0.5001 - val_accuracy: 0.7708
Epoch 669/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4192 - accuracy: 0.7899 - val_loss: 0.5000 - val_accuracy: 0.7708
Epoch 670/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4191 - accuracy: 0.7899 - val_loss: 0.5001 - val_accuracy: 0.7708
Epoch 671/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4191 - accuracy: 0.7882 - val_loss: 0.5003 - val_accuracy: 0.7708
Epoch 672/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4189 - accuracy: 0.7899 - val_loss: 0.5003 - val_accuracy: 0.7708
Epoch 673/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4190 - accuracy: 0.7899 - val_loss: 0.5005 - val_accuracy: 0.7708
Epoch 674/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4189 - accuracy: 0.7899 - val_loss: 0.5006 - val_accuracy: 0.7708
Epoch 675/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4188 - accuracy: 0.7882 - val_loss: 0.5007 - val_accuracy: 0.7708
Epoch 676/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4188 - accuracy: 0.7899 - val_loss: 0.5006 - val_accuracy: 0.7656
Epoch 677/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4187 - accuracy: 0.7899 - val_loss: 0.5008 - val_accuracy: 0.7656
Epoch 678/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4186 - accuracy: 0.7899 - val_loss: 0.5007 - val_accuracy: 0.7656
Epoch 679/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4186 - accuracy: 0.7899 - val_loss: 0.5008 - val_accuracy: 0.7708
Epoch 680/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4185 - accuracy: 0.7899 - val_loss: 0.5009 - val_accuracy: 0.7708
Epoch 681/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4187 - accuracy: 0.7899 - val_loss: 0.5009 - val_accuracy: 0.7760
Epoch 682/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4184 - accuracy: 0.7882 - val_loss: 0.5009 - val_accuracy: 0.7760
Epoch 683/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4184 - accuracy: 0.7882 - val_loss: 0.5010 - val_accuracy: 0.7760
Epoch 684/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4184 - accuracy: 0.7882 - val_loss: 0.5011 - val_accuracy: 0.7760
Epoch 685/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4184 - accuracy: 0.7882 - val_loss: 0.5012 - val_accuracy: 0.7760
Epoch 686/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4181 - accuracy: 0.7882 - val_loss: 0.5013 - val_accuracy: 0.7760
Epoch 687/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4180 - accuracy: 0.7882 - val_loss: 0.5014 - val_accuracy: 0.7760
Epoch 688/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4179 - accuracy: 0.7865 - val_loss: 0.5015 - val_accuracy: 0.7760
Epoch 689/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4180 - accuracy: 0.7882 - val_loss: 0.5017 - val_accuracy: 0.7708
Epoch 690/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4179 - accuracy: 0.7899 - val_loss: 0.5017 - val_accuracy: 0.7708
Epoch 691/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4179 - accuracy: 0.7882 - val_loss: 0.5018 - val_accuracy: 0.7708
Epoch 692/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4180 - accuracy: 0.7865 - val_loss: 0.5018 - val_accuracy: 0.7760
Epoch 693/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4177 - accuracy: 0.7882 - val_loss: 0.5019 - val_accuracy: 0.7708
Epoch 694/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4177 - accuracy: 0.7882 - val_loss: 0.5019 - val_accuracy: 0.7708
Epoch 695/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4177 - accuracy: 0.7899 - val_loss: 0.5019 - val_accuracy: 0.7760
Epoch 696/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4176 - accuracy: 0.7865 - val_loss: 0.5020 - val_accuracy: 0.7760
Epoch 697/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4175 - accuracy: 0.7882 - val_loss: 0.5020 - val_accuracy: 0.7708
Epoch 698/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4175 - accuracy: 0.7865 - val_loss: 0.5021 - val_accuracy: 0.7708
Epoch 699/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4176 - accuracy: 0.7865 - val_loss: 0.5021 - val_accuracy: 0.7708
Epoch 700/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4174 - accuracy: 0.7899 - val_loss: 0.5020 - val_accuracy: 0.7760
Epoch 701/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4171 - accuracy: 0.7865 - val_loss: 0.5021 - val_accuracy: 0.7708
Epoch 702/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4172 - accuracy: 0.7882 - val_loss: 0.5022 - val_accuracy: 0.7708
Epoch 703/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4172 - accuracy: 0.7865 - val_loss: 0.5023 - val_accuracy: 0.7708
Epoch 704/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4171 - accuracy: 0.7899 - val_loss: 0.5024 - val_accuracy: 0.7708
```

```
Epoch 705/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4171 - accuracy: 0.7882 - val_loss: 0.5024 - val_accuracy: 0.7708
Epoch 706/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4169 - accuracy: 0.7899 - val_loss: 0.5025 - val_accuracy: 0.7708
Epoch 707/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4169 - accuracy: 0.7882 - val_loss: 0.5027 - val_accuracy: 0.7708
Epoch 708/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4168 - accuracy: 0.7865 - val_loss: 0.5027 - val_accuracy: 0.7708
Epoch 709/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4169 - accuracy: 0.7917 - val_loss: 0.5026 - val_accuracy: 0.7708
Epoch 710/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4167 - accuracy: 0.7899 - val_loss: 0.5025 - val_accuracy: 0.7760
Epoch 711/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4166 - accuracy: 0.7899 - val_loss: 0.5027 - val_accuracy: 0.7760
Epoch 712/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4167 - accuracy: 0.7882 - val_loss: 0.5027 - val_accuracy: 0.7760
Epoch 713/800
18/18 [==============================] - 0s 7ms/step - loss: 0.4165 - accuracy: 0.7899 - val_loss: 0.5028 - val_accuracy: 0.7760
Epoch 714/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4164 - accuracy: 0.7899 - val_loss: 0.5028 - val_accuracy: 0.7760
Epoch 715/800
18/18 [==============================] - 0s 8ms/step - loss: 0.4163 - accuracy: 0.7882 - val_loss: 0.5025 - val_accuracy: 0.7760
Epoch 716/800
18/18 [==============================] - 0s 8ms/step - loss: 0.4165 - accuracy: 0.7865 - val_loss: 0.5026 - val_accuracy: 0.7760
Epoch 717/800
18/18 [==============================] - 0s 8ms/step - loss: 0.4163 - accuracy: 0.7882 - val_loss: 0.5028 - val_accuracy: 0.7760
Epoch 718/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4162 - accuracy: 0.7882 - val_loss: 0.5029 - val_accuracy: 0.7760
Epoch 719/800
18/18 [==============================] - 0s 7ms/step - loss: 0.4160 - accuracy: 0.7865 - val_loss: 0.5030 - val_accuracy: 0.7760
Epoch 720/800
18/18 [==============================] - 0s 9ms/step - loss: 0.4162 - accuracy: 0.7899 - val_loss: 0.5030 - val_accuracy: 0.7760
Epoch 721/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4160 - accuracy: 0.7882 - val_loss: 0.5032 - val_accuracy: 0.7760
Epoch 722/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4160 - accuracy: 0.7882 - val_loss: 0.5032 - val_accuracy: 0.7760
Epoch 723/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4159 - accuracy: 0.7847 - val_loss: 0.5030 - val_accuracy: 0.7760
Epoch 724/800
18/18 [==============================] - 0s 7ms/step - loss: 0.4158 - accuracy: 0.7847 - val_loss: 0.5031 - val_accuracy: 0.7760
Epoch 725/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4157 - accuracy: 0.7882 - val_loss: 0.5033 - val_accuracy: 0.7760
Epoch 726/800
18/18 [==============================] - 0s 7ms/step - loss: 0.4157 - accuracy: 0.7865 - val_loss: 0.5033 - val_accuracy: 0.7760
Epoch 727/800
18/18 [==============================] - 0s 7ms/step - loss: 0.4157 - accuracy: 0.7882 - val_loss: 0.5034 - val_accuracy: 0.7760
Epoch 728/800
18/18 [==============================] - 0s 7ms/step - loss: 0.4156 - accuracy: 0.7847 - val_loss: 0.5033 - val_accuracy: 0.7760
Epoch 729/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4156 - accuracy: 0.7882 - val_loss: 0.5034 - val_accuracy: 0.7760
Epoch 730/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4154 - accuracy: 0.7865 - val_loss: 0.5035 - val_accuracy: 0.7760
Epoch 731/800
18/18 [==============================] - 0s 8ms/step - loss: 0.4153 - accuracy: 0.7882 - val_loss: 0.5034 - val_accuracy: 0.7760
Epoch 732/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4152 - accuracy: 0.7865 - val_loss: 0.5036 - val_accuracy: 0.7760
Epoch 733/800
18/18 [==============================] - 0s 8ms/step - loss: 0.4153 - accuracy: 0.7882 - val_loss: 0.5037 - val_accuracy: 0.7760
Epoch 734/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4151 - accuracy: 0.7882 - val_loss: 0.5037 - val_accuracy: 0.7760
Epoch 735/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4152 - accuracy: 0.7899 - val_loss: 0.5038 - val_accuracy: 0.7760
Epoch 736/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4151 - accuracy: 0.7865 - val_loss: 0.5039 - val_accuracy: 0.7760
Epoch 737/800
18/18 [==============================] - 0s 10ms/step - loss: 0.4151 - accuracy: 0.7865 - val_loss: 0.5041 - val_accuracy: 0.7760
Epoch 738/800
18/18 [==============================] - 0s 8ms/step - loss: 0.4150 - accuracy: 0.7865 - val_loss: 0.5042 - val_accuracy: 0.7760
Epoch 739/800
18/18 [==============================] - 0s 7ms/step - loss: 0.4148 - accuracy: 0.7882 - val_loss: 0.5043 - val_accuracy: 0.7760
Epoch 740/800
18/18 [==============================] - 0s 8ms/step - loss: 0.4148 - accuracy: 0.7865 - val_loss: 0.5042 - val_accuracy: 0.7760
Epoch 741/800
18/18 [==============================] - 0s 8ms/step - loss: 0.4148 - accuracy: 0.7899 - val_loss: 0.5043 - val_accuracy: 0.7760
Epoch 742/800
18/18 [==============================] - 0s 7ms/step - loss: 0.4147 - accuracy: 0.7865 - val_loss: 0.5044 - val_accuracy: 0.7760
Epoch 743/800
18/18 [==============================] - 0s 7ms/step - loss: 0.4145 - accuracy: 0.7882 - val_loss: 0.5045 - val_accuracy: 0.7760
Epoch 744/800
18/18 [==============================] - 0s 7ms/step - loss: 0.4146 - accuracy: 0.7882 - val_loss: 0.5046 - val_accuracy: 0.7760
Epoch 745/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4146 - accuracy: 0.7882 - val_loss: 0.5046 - val_accuracy: 0.7760
Epoch 746/800
18/18 [==============================] - 0s 7ms/step - loss: 0.4144 - accuracy: 0.7882 - val_loss: 0.5045 - val_accuracy: 0.7760
Epoch 747/800
18/18 [==============================] - 0s 8ms/step - loss: 0.4144 - accuracy: 0.7847 - val_loss: 0.5046 - val_accuracy: 0.7760
Epoch 748/800
18/18 [==============================] - 0s 8ms/step - loss: 0.4144 - accuracy: 0.7865 - val_loss: 0.5045 - val_accuracy: 0.7760
Epoch 749/800
18/18 [==============================] - 0s 7ms/step - loss: 0.4143 - accuracy: 0.7865 - val_loss: 0.5046 - val_accuracy: 0.7760
Epoch 750/800
18/18 [==============================] - 0s 7ms/step - loss: 0.4142 - accuracy: 0.7847 - val_loss: 0.5047 - val_accuracy: 0.7760
Epoch 751/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4143 - accuracy: 0.7882 - val_loss: 0.5048 - val_accuracy: 0.7760
Epoch 752/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4143 - accuracy: 0.7865 - val_loss: 0.5047 - val_accuracy: 0.7760
Epoch 753/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4141 - accuracy: 0.7865 - val_loss: 0.5048 - val_accuracy: 0.7760
Epoch 754/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4140 - accuracy: 0.7865 - val_loss: 0.5048 - val_accuracy: 0.7760
Epoch 755/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4139 - accuracy: 0.7899 - val_loss: 0.5048 - val_accuracy: 0.7760
Epoch 756/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4139 - accuracy: 0.7865 - val_loss: 0.5050 - val_accuracy: 0.7760
Epoch 757/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4137 - accuracy: 0.7899 - val_loss: 0.5048 - val_accuracy: 0.7760
Epoch 758/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4138 - accuracy: 0.7847 - val_loss: 0.5048 - val_accuracy: 0.7760
Epoch 759/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4138 - accuracy: 0.7847 - val_loss: 0.5049 - val_accuracy: 0.7760
Epoch 760/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4137 - accuracy: 0.7917 - val_loss: 0.5050 - val_accuracy: 0.7760
Epoch 761/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4138 - accuracy: 0.7882 - val_loss: 0.5051 - val_accuracy: 0.7760
Epoch 762/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4136 - accuracy: 0.7951 - val_loss: 0.5051 - val_accuracy: 0.7760
Epoch 763/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4135 - accuracy: 0.7917 - val_loss: 0.5050 - val_accuracy: 0.7760
Epoch 764/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4134 - accuracy: 0.7917 - val_loss: 0.5051 - val_accuracy: 0.7760
Epoch 765/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4134 - accuracy: 0.7899 - val_loss: 0.5050 - val_accuracy: 0.7760
Epoch 766/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4132 - accuracy: 0.7917 - val_loss: 0.5049 - val_accuracy: 0.7760
Epoch 767/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4132 - accuracy: 0.7899 - val_loss: 0.5051 - val_accuracy: 0.7760
Epoch 768/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4132 - accuracy: 0.7917 - val_loss: 0.5053 - val_accuracy: 0.7760
```

```
Epoch 769/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4132 - accuracy: 0.7882 - val_loss: 0.5055 - val_accuracy: 0.7760
Epoch 770/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4130 - accuracy: 0.7934 - val_loss: 0.5054 - val_accuracy: 0.7760
Epoch 771/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4130 - accuracy: 0.7899 - val_loss: 0.5054 - val_accuracy: 0.7760
Epoch 772/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4129 - accuracy: 0.7934 - val_loss: 0.5055 - val_accuracy: 0.7760
Epoch 773/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4129 - accuracy: 0.7934 - val_loss: 0.5056 - val_accuracy: 0.7760
Epoch 774/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4130 - accuracy: 0.7917 - val_loss: 0.5056 - val_accuracy: 0.7760
Epoch 775/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4128 - accuracy: 0.7934 - val_loss: 0.5057 - val_accuracy: 0.7760
Epoch 776/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4128 - accuracy: 0.7917 - val_loss: 0.5058 - val_accuracy: 0.7760
Epoch 777/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4127 - accuracy: 0.7917 - val_loss: 0.5058 - val_accuracy: 0.7760
Epoch 778/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4126 - accuracy: 0.7951 - val_loss: 0.5059 - val_accuracy: 0.7760
Epoch 779/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4125 - accuracy: 0.7951 - val_loss: 0.5061 - val_accuracy: 0.7760
Epoch 780/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4126 - accuracy: 0.7917 - val_loss: 0.5062 - val_accuracy: 0.7760
Epoch 781/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4125 - accuracy: 0.7917 - val_loss: 0.5062 - val_accuracy: 0.7760
Epoch 782/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4125 - accuracy: 0.7917 - val_loss: 0.5062 - val_accuracy: 0.7760
Epoch 783/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4124 - accuracy: 0.7934 - val_loss: 0.5063 - val_accuracy: 0.7760
Epoch 784/800
18/18 [==============================] - 0s 6ms/step - loss: 0.4123 - accuracy: 0.7934 - val_loss: 0.5063 - val_accuracy: 0.7760
Epoch 785/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4123 - accuracy: 0.7917 - val_loss: 0.5065 - val_accuracy: 0.7760
Epoch 786/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4123 - accuracy: 0.7899 - val_loss: 0.5065 - val_accuracy: 0.7760
Epoch 787/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4123 - accuracy: 0.7917 - val_loss: 0.5065 - val_accuracy: 0.7760
Epoch 788/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4122 - accuracy: 0.7917 - val_loss: 0.5064 - val_accuracy: 0.7760
Epoch 789/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4122 - accuracy: 0.7917 - val_loss: 0.5065 - val_accuracy: 0.7760
Epoch 790/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4120 - accuracy: 0.7934 - val_loss: 0.5068 - val_accuracy: 0.7760
Epoch 791/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4120 - accuracy: 0.7917 - val_loss: 0.5066 - val_accuracy: 0.7760
Epoch 792/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4119 - accuracy: 0.7934 - val_loss: 0.5067 - val_accuracy: 0.7708
Epoch 793/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4120 - accuracy: 0.7917 - val_loss: 0.5068 - val_accuracy: 0.7708
Epoch 794/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4120 - accuracy: 0.7917 - val_loss: 0.5070 - val_accuracy: 0.7708
Epoch 795/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4119 - accuracy: 0.7934 - val_loss: 0.5069 - val_accuracy: 0.7708
Epoch 796/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4118 - accuracy: 0.7917 - val_loss: 0.5071 - val_accuracy: 0.7708
Epoch 797/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4117 - accuracy: 0.7934 - val_loss: 0.5070 - val_accuracy: 0.7708
Epoch 798/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4118 - accuracy: 0.7899 - val_loss: 0.5071 - val_accuracy: 0.7708
Epoch 799/800
18/18 [==============================] - 0s 4ms/step - loss: 0.4118 - accuracy: 0.7899 - val_loss: 0.5072 - val_accuracy: 0.7708
Epoch 800/800
18/18 [==============================] - 0s 5ms/step - loss: 0.4117 - accuracy: 0.7917 - val_loss: 0.5073 - val_accuracy: 0.7708
```

In [ ]:
```
y_pred_prob_nnew1 = new_model2.predict(X_test_norm)
y_pred_class_nnew1 = (y_pred_prob_nnew1 > 0.5).astype('int32')
```

```
6/6 [==============================] - 0s 2ms/step
```

In [ ]:
```
y_pred_class_nnew1[:10]
```

Out[ ]:
```
array([[1],
       [1],
       [0],
       [0],
       [0],
       [1],
       [0],
       [0],
       [1],
       [0]], dtype=int32)
```

In [ ]:
```
y_pred_prob_nnew1[:10]
```

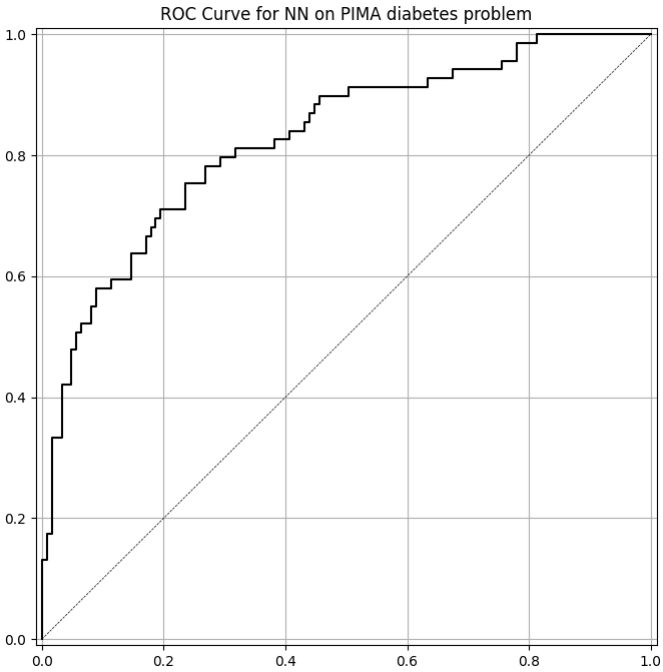
Out[ ]:
```
array([[0.6447143 ],
       [0.762542  ],
       [0.3831105 ],
       [0.11248234],
       [0.24771403],
       [0.53396714],
       [0.01348655],
       [0.45988557],
       [0.887487  ],
       [0.1467733 ]], dtype=float32)
```

In [ ]:
```
def plot_roc(y_test, y_pred, new_model_name1):
    fpr, tpr, thr = roc_curve(y_test, y_pred)
    fig, ax = plt.subplots(figsize=(8, 8))
    ax.plot(fpr, tpr, 'k-')
    ax.plot([0, 1], [0, 1], 'k--', linewidth=.5)  # roc curve for random model
    ax.grid(True)
    ax.set(title='ROC Curve for {} on PIMA diabetes problem'.format(new_model_name1),
           xlim=[-0.01, 1.01], ylim=[-0.01, 1.01])
```

In [ ]:
```
print('accuracy is {:.3f}'.format(accuracy_score(y_test,y_pred_class_nnew1)))#y_pred_prob_nnew
print('roc-auc is {:.3f}'.format(roc_auc_score(y_test,y_pred_prob_nnew1)))#y_pred_prob_nnew

plot_roc(y_test, y_pred_prob_nnew1, 'NN')
```

```
accuracy is 0.771
roc-auc is 0.827
```



- The accuracy of this model, which stands at 74.5%, indicates that the predictions it made were partially accurate. It received an ROC-AUC score of 0.803 in this regard. Higher scores indicate a better separation across classes. This evaluates the model's ability to distinguish between positive and negative examples. Overall, though, this model could be better.

In [ ]:
```
run_hist_3.history.keys()
```

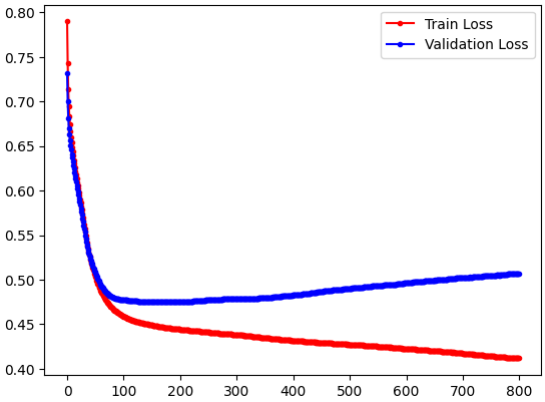
Out[ ]:
```
dict_keys(['loss', 'accuracy', 'val_loss', 'val_accuracy'])
```

In [ ]:
```
fig, ax = plt.subplots()

ax.plot(run_hist_3.history["loss"],'r', marker='.', label="Train Loss")
ax.plot(run_hist_3.history["val_loss"],'b', marker='.', label="Validation Loss")

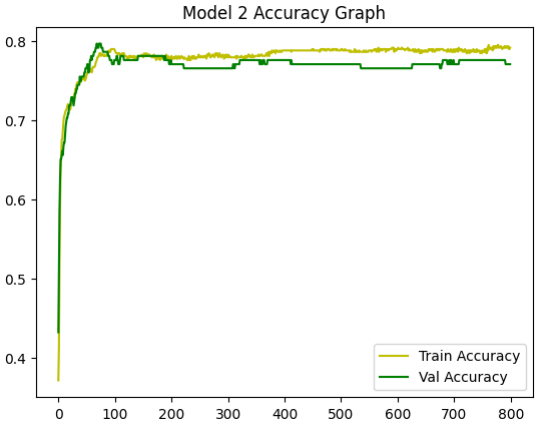
ax.legend()
```

Out[ ]:
```
<matplotlib.legend.Legend at 0x7cf71b44f550>
```



In [ ]:
```
fig, ax = plt.subplots()
ax.plot(run_hist_3.history['accuracy'], 'y', label = 'Train Accuracy')
ax.plot(run_hist_3.history['val_accuracy'], 'g', label = 'Val Accuracy')
plt.title("Model 2 Accuracy Graph")
ax.legend()
```

Out[ ]:
```
<matplotlib.legend.Legend at 0x7cf71b361450>
```



In [ ]:
```
#y_pred_prob_nn_1 = model.predict(X_test_norm)
#y_pred_class_nn_1  = np.argmax(y_pred_prob_nn_1, axis=1)
```

model 3. 1 hidden layer, lr = 002, epoch = 1500

In [ ]:
```
new_model3 = Sequential([
    Dense(6, input_shape=(8,), activation="relu"),
    Dense(1, activation="sigmoid")
])
```

In [ ]:
```
new_model3.compile(SGD(lr = .002), "binary_crossentropy", metrics=["accuracy"])
run_hist_4 = new_model3.fit(X_train_norm, y_train, validation_data=(X_test_norm, y_test), epochs=1500)
```

```
WARNING:absl:`lr` is deprecated in Keras optimizer, please use `learning_rate` or use the legacy optimizer, e.g.,tf.keras.optimizers.legacy.SGD.
```

```
Epoch 1/1500
18/18 [==============================] - 1s 12ms/step - loss: 0.6218 - accuracy: 0.6962 - val_loss: 0.5952 - val_accuracy: 0.7135
Epoch 2/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.6130 - accuracy: 0.7066 - val_loss: 0.5894 - val_accuracy: 0.7188
Epoch 3/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.6051 - accuracy: 0.7066 - val_loss: 0.5842 - val_accuracy: 0.7292
Epoch 4/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.5977 - accuracy: 0.7135 - val_loss: 0.5796 - val_accuracy: 0.7344
Epoch 5/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.5910 - accuracy: 0.7118 - val_loss: 0.5754 - val_accuracy: 0.7604
Epoch 6/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.5849 - accuracy: 0.7118 - val_loss: 0.5716 - val_accuracy: 0.7604
Epoch 7/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.5792 - accuracy: 0.7135 - val_loss: 0.5682 - val_accuracy: 0.7604
Epoch 8/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.5742 - accuracy: 0.7188 - val_loss: 0.5652 - val_accuracy: 0.7656
Epoch 9/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.5695 - accuracy: 0.7222 - val_loss: 0.5623 - val_accuracy: 0.7656
Epoch 10/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.5651 - accuracy: 0.7240 - val_loss: 0.5597 - val_accuracy: 0.7604
Epoch 11/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.5610 - accuracy: 0.7257 - val_loss: 0.5572 - val_accuracy: 0.7656
Epoch 12/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.5571 - accuracy: 0.7274 - val_loss: 0.5548 - val_accuracy: 0.7708
Epoch 13/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.5533 - accuracy: 0.7292 - val_loss: 0.5525 - val_accuracy: 0.7656
Epoch 14/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.5498 - accuracy: 0.7309 - val_loss: 0.5504 - val_accuracy: 0.7656
Epoch 15/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.5466 - accuracy: 0.7326 - val_loss: 0.5485 - val_accuracy: 0.7656
Epoch 16/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.5436 - accuracy: 0.7361 - val_loss: 0.5467 - val_accuracy: 0.7604
Epoch 17/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.5407 - accuracy: 0.7344 - val_loss: 0.5451 - val_accuracy: 0.7656
Epoch 18/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.5379 - accuracy: 0.7378 - val_loss: 0.5435 - val_accuracy: 0.7656
Epoch 19/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.5353 - accuracy: 0.7413 - val_loss: 0.5421 - val_accuracy: 0.7656
Epoch 20/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.5329 - accuracy: 0.7396 - val_loss: 0.5407 - val_accuracy: 0.7656
Epoch 21/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.5305 - accuracy: 0.7378 - val_loss: 0.5394 - val_accuracy: 0.7604
Epoch 22/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.5283 - accuracy: 0.7396 - val_loss: 0.5381 - val_accuracy: 0.7656
Epoch 23/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.5262 - accuracy: 0.7361 - val_loss: 0.5370 - val_accuracy: 0.7656
Epoch 24/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.5243 - accuracy: 0.7378 - val_loss: 0.5359 - val_accuracy: 0.7708
Epoch 25/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.5224 - accuracy: 0.7361 - val_loss: 0.5348 - val_accuracy: 0.7760
Epoch 26/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.5204 - accuracy: 0.7396 - val_loss: 0.5339 - val_accuracy: 0.7760
Epoch 27/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.5186 - accuracy: 0.7431 - val_loss: 0.5329 - val_accuracy: 0.7760
Epoch 28/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.5168 - accuracy: 0.7431 - val_loss: 0.5320 - val_accuracy: 0.7708
Epoch 29/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.5151 - accuracy: 0.7483 - val_loss: 0.5311 - val_accuracy: 0.7708
Epoch 30/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.5135 - accuracy: 0.7517 - val_loss: 0.5302 - val_accuracy: 0.7708
Epoch 31/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.5120 - accuracy: 0.7500 - val_loss: 0.5294 - val_accuracy: 0.7708
Epoch 32/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.5104 - accuracy: 0.7552 - val_loss: 0.5287 - val_accuracy: 0.7708
Epoch 33/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.5090 - accuracy: 0.7552 - val_loss: 0.5279 - val_accuracy: 0.7656
Epoch 34/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.5077 - accuracy: 0.7569 - val_loss: 0.5272 - val_accuracy: 0.7604
Epoch 35/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.5063 - accuracy: 0.7604 - val_loss: 0.5264 - val_accuracy: 0.7656
Epoch 36/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.5050 - accuracy: 0.7674 - val_loss: 0.5257 - val_accuracy: 0.7656
Epoch 37/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.5037 - accuracy: 0.7656 - val_loss: 0.5249 - val_accuracy: 0.7656
Epoch 38/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.5025 - accuracy: 0.7674 - val_loss: 0.5242 - val_accuracy: 0.7656
Epoch 39/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.5012 - accuracy: 0.7691 - val_loss: 0.5235 - val_accuracy: 0.7656
Epoch 40/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.5000 - accuracy: 0.7708 - val_loss: 0.5228 - val_accuracy: 0.7708
Epoch 41/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4988 - accuracy: 0.7726 - val_loss: 0.5221 - val_accuracy: 0.7708
Epoch 42/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4976 - accuracy: 0.7760 - val_loss: 0.5214 - val_accuracy: 0.7708
Epoch 43/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4965 - accuracy: 0.7760 - val_loss: 0.5208 - val_accuracy: 0.7708
Epoch 44/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4955 - accuracy: 0.7778 - val_loss: 0.5201 - val_accuracy: 0.7708
Epoch 45/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4944 - accuracy: 0.7760 - val_loss: 0.5195 - val_accuracy: 0.7708
Epoch 46/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4934 - accuracy: 0.7778 - val_loss: 0.5188 - val_accuracy: 0.7708
Epoch 47/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4924 - accuracy: 0.7760 - val_loss: 0.5182 - val_accuracy: 0.7708
Epoch 48/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4913 - accuracy: 0.7760 - val_loss: 0.5176 - val_accuracy: 0.7708
Epoch 49/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4904 - accuracy: 0.7760 - val_loss: 0.5170 - val_accuracy: 0.7708
Epoch 50/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4894 - accuracy: 0.7760 - val_loss: 0.5164 - val_accuracy: 0.7760
Epoch 51/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4885 - accuracy: 0.7760 - val_loss: 0.5158 - val_accuracy: 0.7760
Epoch 52/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4877 - accuracy: 0.7760 - val_loss: 0.5153 - val_accuracy: 0.7760
Epoch 53/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4867 - accuracy: 0.7760 - val_loss: 0.5147 - val_accuracy: 0.7760
Epoch 54/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4858 - accuracy: 0.7778 - val_loss: 0.5141 - val_accuracy: 0.7760
Epoch 55/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4850 - accuracy: 0.7795 - val_loss: 0.5136 - val_accuracy: 0.7708
Epoch 56/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4842 - accuracy: 0.7812 - val_loss: 0.5131 - val_accuracy: 0.7708
Epoch 57/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4833 - accuracy: 0.7812 - val_loss: 0.5126 - val_accuracy: 0.7708
Epoch 58/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4826 - accuracy: 0.7812 - val_loss: 0.5121 - val_accuracy: 0.7760
Epoch 59/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4819 - accuracy: 0.7760 - val_loss: 0.5116 - val_accuracy: 0.7760
Epoch 60/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4811 - accuracy: 0.7743 - val_loss: 0.5111 - val_accuracy: 0.7760
Epoch 61/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4803 - accuracy: 0.7726 - val_loss: 0.5106 - val_accuracy: 0.7760
Epoch 62/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4797 - accuracy: 0.7743 - val_loss: 0.5102 - val_accuracy: 0.7760
Epoch 63/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4790 - accuracy: 0.7708 - val_loss: 0.5098 - val_accuracy: 0.7760
Epoch 64/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4782 - accuracy: 0.7708 - val_loss: 0.5093 - val_accuracy: 0.7760
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Epoch 65/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4777 - accuracy: 0.7708 - val_loss: 0.5088 - val_accuracy: 0.7812
Epoch 66/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4770 - accuracy: 0.7674 - val_loss: 0.5084 - val_accuracy: 0.7812
Epoch 67/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4763 - accuracy: 0.7674 - val_loss: 0.5081 - val_accuracy: 0.7812
Epoch 68/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4757 - accuracy: 0.7674 - val_loss: 0.5077 - val_accuracy: 0.7812
Epoch 69/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4751 - accuracy: 0.7674 - val_loss: 0.5074 - val_accuracy: 0.7812
Epoch 70/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4744 - accuracy: 0.7674 - val_loss: 0.5070 - val_accuracy: 0.7812
Epoch 71/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4738 - accuracy: 0.7674 - val_loss: 0.5067 - val_accuracy: 0.7812
Epoch 72/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4734 - accuracy: 0.7691 - val_loss: 0.5064 - val_accuracy: 0.7812
Epoch 73/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4728 - accuracy: 0.7691 - val_loss: 0.5061 - val_accuracy: 0.7812
Epoch 74/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4722 - accuracy: 0.7674 - val_loss: 0.5058 - val_accuracy: 0.7760
Epoch 75/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4717 - accuracy: 0.7691 - val_loss: 0.5055 - val_accuracy: 0.7708
Epoch 76/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4712 - accuracy: 0.7674 - val_loss: 0.5052 - val_accuracy: 0.7760
Epoch 77/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4706 - accuracy: 0.7691 - val_loss: 0.5049 - val_accuracy: 0.7760
Epoch 78/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4700 - accuracy: 0.7674 - val_loss: 0.5046 - val_accuracy: 0.7708
Epoch 79/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4696 - accuracy: 0.7674 - val_loss: 0.5043 - val_accuracy: 0.7708
Epoch 80/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4691 - accuracy: 0.7674 - val_loss: 0.5040 - val_accuracy: 0.7708
Epoch 81/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4686 - accuracy: 0.7691 - val_loss: 0.5037 - val_accuracy: 0.7708
Epoch 82/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4680 - accuracy: 0.7708 - val_loss: 0.5034 - val_accuracy: 0.7708
Epoch 83/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4674 - accuracy: 0.7691 - val_loss: 0.5032 - val_accuracy: 0.7708
Epoch 84/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4669 - accuracy: 0.7674 - val_loss: 0.5029 - val_accuracy: 0.7708
Epoch 85/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4663 - accuracy: 0.7674 - val_loss: 0.5026 - val_accuracy: 0.7708
Epoch 86/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4658 - accuracy: 0.7708 - val_loss: 0.5024 - val_accuracy: 0.7760
Epoch 87/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4653 - accuracy: 0.7708 - val_loss: 0.5022 - val_accuracy: 0.7760
Epoch 88/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4647 - accuracy: 0.7708 - val_loss: 0.5020 - val_accuracy: 0.7760
Epoch 89/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4642 - accuracy: 0.7726 - val_loss: 0.5018 - val_accuracy: 0.7708
Epoch 90/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4637 - accuracy: 0.7726 - val_loss: 0.5015 - val_accuracy: 0.7708
Epoch 91/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4631 - accuracy: 0.7743 - val_loss: 0.5013 - val_accuracy: 0.7708
Epoch 92/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4627 - accuracy: 0.7726 - val_loss: 0.5011 - val_accuracy: 0.7708
Epoch 93/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4622 - accuracy: 0.7743 - val_loss: 0.5009 - val_accuracy: 0.7708
Epoch 94/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.4617 - accuracy: 0.7778 - val_loss: 0.5007 - val_accuracy: 0.7708
Epoch 95/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4612 - accuracy: 0.7778 - val_loss: 0.5005 - val_accuracy: 0.7708
Epoch 96/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4608 - accuracy: 0.7760 - val_loss: 0.5003 - val_accuracy: 0.7708
Epoch 97/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4603 - accuracy: 0.7760 - val_loss: 0.5001 - val_accuracy: 0.7708
Epoch 98/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4598 - accuracy: 0.7760 - val_loss: 0.4999 - val_accuracy: 0.7708
Epoch 99/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4593 - accuracy: 0.7812 - val_loss: 0.4997 - val_accuracy: 0.7708
Epoch 100/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4589 - accuracy: 0.7795 - val_loss: 0.4995 - val_accuracy: 0.7708
Epoch 101/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4584 - accuracy: 0.7812 - val_loss: 0.4993 - val_accuracy: 0.7708
Epoch 102/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4578 - accuracy: 0.7847 - val_loss: 0.4991 - val_accuracy: 0.7708
Epoch 103/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4574 - accuracy: 0.7795 - val_loss: 0.4989 - val_accuracy: 0.7708
Epoch 104/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4570 - accuracy: 0.7795 - val_loss: 0.4988 - val_accuracy: 0.7708
Epoch 105/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4565 - accuracy: 0.7795 - val_loss: 0.4986 - val_accuracy: 0.7708
Epoch 106/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4560 - accuracy: 0.7795 - val_loss: 0.4984 - val_accuracy: 0.7708
Epoch 107/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4555 - accuracy: 0.7795 - val_loss: 0.4982 - val_accuracy: 0.7708
Epoch 108/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4551 - accuracy: 0.7795 - val_loss: 0.4981 - val_accuracy: 0.7708
Epoch 109/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4547 - accuracy: 0.7812 - val_loss: 0.4979 - val_accuracy: 0.7708
Epoch 110/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4542 - accuracy: 0.7812 - val_loss: 0.4977 - val_accuracy: 0.7708
Epoch 111/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4539 - accuracy: 0.7812 - val_loss: 0.4976 - val_accuracy: 0.7656
Epoch 112/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4534 - accuracy: 0.7812 - val_loss: 0.4974 - val_accuracy: 0.7656
Epoch 113/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4531 - accuracy: 0.7812 - val_loss: 0.4973 - val_accuracy: 0.7656
Epoch 114/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4527 - accuracy: 0.7812 - val_loss: 0.4971 - val_accuracy: 0.7656
Epoch 115/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4522 - accuracy: 0.7830 - val_loss: 0.4970 - val_accuracy: 0.7656
Epoch 116/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4520 - accuracy: 0.7830 - val_loss: 0.4969 - val_accuracy: 0.7656
Epoch 117/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4515 - accuracy: 0.7847 - val_loss: 0.4967 - val_accuracy: 0.7656
Epoch 118/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4512 - accuracy: 0.7847 - val_loss: 0.4966 - val_accuracy: 0.7656
Epoch 119/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4508 - accuracy: 0.7865 - val_loss: 0.4965 - val_accuracy: 0.7656
Epoch 120/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4505 - accuracy: 0.7865 - val_loss: 0.4964 - val_accuracy: 0.7656
Epoch 121/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4501 - accuracy: 0.7899 - val_loss: 0.4963 - val_accuracy: 0.7656
Epoch 122/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4498 - accuracy: 0.7865 - val_loss: 0.4962 - val_accuracy: 0.7656
Epoch 123/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4495 - accuracy: 0.7865 - val_loss: 0.4960 - val_accuracy: 0.7656
Epoch 124/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4491 - accuracy: 0.7882 - val_loss: 0.4959 - val_accuracy: 0.7708
Epoch 125/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4487 - accuracy: 0.7882 - val_loss: 0.4958 - val_accuracy: 0.7708
Epoch 126/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4484 - accuracy: 0.7847 - val_loss: 0.4958 - val_accuracy: 0.7708
Epoch 127/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4481 - accuracy: 0.7847 - val_loss: 0.4957 - val_accuracy: 0.7708
Epoch 128/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4477 - accuracy: 0.7865 - val_loss: 0.4956 - val_accuracy: 0.7708
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Epoch 129/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4474 - accuracy: 0.7847 - val_loss: 0.4955 - val_accuracy: 0.7708
Epoch 130/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4470 - accuracy: 0.7882 - val_loss: 0.4955 - val_accuracy: 0.7656
Epoch 131/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4468 - accuracy: 0.7865 - val_loss: 0.4954 - val_accuracy: 0.7656
Epoch 132/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4464 - accuracy: 0.7882 - val_loss: 0.4953 - val_accuracy: 0.7656
Epoch 133/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4460 - accuracy: 0.7865 - val_loss: 0.4952 - val_accuracy: 0.7708
Epoch 134/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4458 - accuracy: 0.7882 - val_loss: 0.4952 - val_accuracy: 0.7708
Epoch 135/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4454 - accuracy: 0.7865 - val_loss: 0.4951 - val_accuracy: 0.7708
Epoch 136/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4451 - accuracy: 0.7865 - val_loss: 0.4950 - val_accuracy: 0.7708
Epoch 137/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4447 - accuracy: 0.7865 - val_loss: 0.4950 - val_accuracy: 0.7708
Epoch 138/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4445 - accuracy: 0.7865 - val_loss: 0.4949 - val_accuracy: 0.7708
Epoch 139/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4441 - accuracy: 0.7865 - val_loss: 0.4949 - val_accuracy: 0.7708
Epoch 140/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4438 - accuracy: 0.7865 - val_loss: 0.4948 - val_accuracy: 0.7708
Epoch 141/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4436 - accuracy: 0.7865 - val_loss: 0.4948 - val_accuracy: 0.7708
Epoch 142/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4432 - accuracy: 0.7865 - val_loss: 0.4947 - val_accuracy: 0.7708
Epoch 143/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4429 - accuracy: 0.7847 - val_loss: 0.4947 - val_accuracy: 0.7708
Epoch 144/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4428 - accuracy: 0.7847 - val_loss: 0.4946 - val_accuracy: 0.7708
Epoch 145/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4424 - accuracy: 0.7865 - val_loss: 0.4946 - val_accuracy: 0.7708
Epoch 146/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4423 - accuracy: 0.7847 - val_loss: 0.4946 - val_accuracy: 0.7708
Epoch 147/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4418 - accuracy: 0.7865 - val_loss: 0.4945 - val_accuracy: 0.7708
Epoch 148/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4416 - accuracy: 0.7865 - val_loss: 0.4945 - val_accuracy: 0.7708
Epoch 149/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4413 - accuracy: 0.7865 - val_loss: 0.4944 - val_accuracy: 0.7708
Epoch 150/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4411 - accuracy: 0.7865 - val_loss: 0.4944 - val_accuracy: 0.7708
Epoch 151/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4407 - accuracy: 0.7882 - val_loss: 0.4944 - val_accuracy: 0.7708
Epoch 152/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4405 - accuracy: 0.7865 - val_loss: 0.4943 - val_accuracy: 0.7708
Epoch 153/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4403 - accuracy: 0.7865 - val_loss: 0.4943 - val_accuracy: 0.7708
Epoch 154/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4400 - accuracy: 0.7865 - val_loss: 0.4943 - val_accuracy: 0.7708
Epoch 155/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4397 - accuracy: 0.7847 - val_loss: 0.4942 - val_accuracy: 0.7708
Epoch 156/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4395 - accuracy: 0.7865 - val_loss: 0.4942 - val_accuracy: 0.7708
Epoch 157/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4392 - accuracy: 0.7847 - val_loss: 0.4942 - val_accuracy: 0.7708
Epoch 158/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4390 - accuracy: 0.7882 - val_loss: 0.4942 - val_accuracy: 0.7708
Epoch 159/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4387 - accuracy: 0.7882 - val_loss: 0.4942 - val_accuracy: 0.7708
Epoch 160/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4386 - accuracy: 0.7882 - val_loss: 0.4942 - val_accuracy: 0.7708
Epoch 161/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4383 - accuracy: 0.7882 - val_loss: 0.4942 - val_accuracy: 0.7708
Epoch 162/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4380 - accuracy: 0.7899 - val_loss: 0.4942 - val_accuracy: 0.7708
Epoch 163/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4379 - accuracy: 0.7882 - val_loss: 0.4941 - val_accuracy: 0.7708
Epoch 164/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4376 - accuracy: 0.7899 - val_loss: 0.4941 - val_accuracy: 0.7708
Epoch 165/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4374 - accuracy: 0.7882 - val_loss: 0.4941 - val_accuracy: 0.7708
Epoch 166/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4372 - accuracy: 0.7917 - val_loss: 0.4941 - val_accuracy: 0.7760
Epoch 167/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4370 - accuracy: 0.7899 - val_loss: 0.4941 - val_accuracy: 0.7760
Epoch 168/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4368 - accuracy: 0.7899 - val_loss: 0.4941 - val_accuracy: 0.7760
Epoch 169/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4366 - accuracy: 0.7899 - val_loss: 0.4941 - val_accuracy: 0.7760
Epoch 170/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4364 - accuracy: 0.7899 - val_loss: 0.4941 - val_accuracy: 0.7812
Epoch 171/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4362 - accuracy: 0.7899 - val_loss: 0.4941 - val_accuracy: 0.7812
Epoch 172/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4360 - accuracy: 0.7917 - val_loss: 0.4940 - val_accuracy: 0.7760
Epoch 173/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4358 - accuracy: 0.7917 - val_loss: 0.4940 - val_accuracy: 0.7760
Epoch 174/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4356 - accuracy: 0.7917 - val_loss: 0.4940 - val_accuracy: 0.7760
Epoch 175/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4354 - accuracy: 0.7917 - val_loss: 0.4940 - val_accuracy: 0.7760
Epoch 176/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4352 - accuracy: 0.7917 - val_loss: 0.4939 - val_accuracy: 0.7760
Epoch 177/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4350 - accuracy: 0.7917 - val_loss: 0.4939 - val_accuracy: 0.7760
Epoch 178/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4348 - accuracy: 0.7917 - val_loss: 0.4939 - val_accuracy: 0.7760
Epoch 179/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4346 - accuracy: 0.7917 - val_loss: 0.4939 - val_accuracy: 0.7760
Epoch 180/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4345 - accuracy: 0.7917 - val_loss: 0.4938 - val_accuracy: 0.7760
Epoch 181/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4343 - accuracy: 0.7917 - val_loss: 0.4938 - val_accuracy: 0.7760
Epoch 182/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4341 - accuracy: 0.7917 - val_loss: 0.4938 - val_accuracy: 0.7760
Epoch 183/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4339 - accuracy: 0.7917 - val_loss: 0.4938 - val_accuracy: 0.7760
Epoch 184/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4338 - accuracy: 0.7917 - val_loss: 0.4938 - val_accuracy: 0.7760
Epoch 185/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4336 - accuracy: 0.7917 - val_loss: 0.4937 - val_accuracy: 0.7760
Epoch 186/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4334 - accuracy: 0.7917 - val_loss: 0.4937 - val_accuracy: 0.7760
Epoch 187/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4333 - accuracy: 0.7917 - val_loss: 0.4937 - val_accuracy: 0.7760
Epoch 188/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4332 - accuracy: 0.7917 - val_loss: 0.4937 - val_accuracy: 0.7760
Epoch 189/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4330 - accuracy: 0.7917 - val_loss: 0.4937 - val_accuracy: 0.7760
Epoch 190/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4328 - accuracy: 0.7917 - val_loss: 0.4936 - val_accuracy: 0.7760
Epoch 191/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4327 - accuracy: 0.7917 - val_loss: 0.4937 - val_accuracy: 0.7760
Epoch 192/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4325 - accuracy: 0.7917 - val_loss: 0.4937 - val_accuracy: 0.7760
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Epoch 193/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4323 - accuracy: 0.7917 - val_loss: 0.4937 - val_accuracy: 0.7760
Epoch 194/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4322 - accuracy: 0.7917 - val_loss: 0.4937 - val_accuracy: 0.7760
Epoch 195/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4320 - accuracy: 0.7917 - val_loss: 0.4937 - val_accuracy: 0.7760
Epoch 196/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4320 - accuracy: 0.7917 - val_loss: 0.4937 - val_accuracy: 0.7760
Epoch 197/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4317 - accuracy: 0.7917 - val_loss: 0.4936 - val_accuracy: 0.7760
Epoch 198/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4317 - accuracy: 0.7917 - val_loss: 0.4936 - val_accuracy: 0.7760
Epoch 199/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4315 - accuracy: 0.7917 - val_loss: 0.4936 - val_accuracy: 0.7760
Epoch 200/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4313 - accuracy: 0.7917 - val_loss: 0.4936 - val_accuracy: 0.7760
Epoch 201/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4312 - accuracy: 0.7917 - val_loss: 0.4936 - val_accuracy: 0.7760
Epoch 202/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4311 - accuracy: 0.7917 - val_loss: 0.4936 - val_accuracy: 0.7760
Epoch 203/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4310 - accuracy: 0.7917 - val_loss: 0.4936 - val_accuracy: 0.7760
Epoch 204/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4308 - accuracy: 0.7917 - val_loss: 0.4936 - val_accuracy: 0.7760
Epoch 205/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4307 - accuracy: 0.7934 - val_loss: 0.4936 - val_accuracy: 0.7760
Epoch 206/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4306 - accuracy: 0.7934 - val_loss: 0.4936 - val_accuracy: 0.7760
Epoch 207/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4304 - accuracy: 0.7951 - val_loss: 0.4936 - val_accuracy: 0.7708
Epoch 208/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4303 - accuracy: 0.7917 - val_loss: 0.4936 - val_accuracy: 0.7760
Epoch 209/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4302 - accuracy: 0.7951 - val_loss: 0.4936 - val_accuracy: 0.7760
Epoch 210/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4301 - accuracy: 0.7951 - val_loss: 0.4936 - val_accuracy: 0.7760
Epoch 211/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4299 - accuracy: 0.7951 - val_loss: 0.4936 - val_accuracy: 0.7760
Epoch 212/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4297 - accuracy: 0.7969 - val_loss: 0.4936 - val_accuracy: 0.7760
Epoch 213/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4297 - accuracy: 0.7951 - val_loss: 0.4936 - val_accuracy: 0.7760
Epoch 214/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4295 - accuracy: 0.7969 - val_loss: 0.4936 - val_accuracy: 0.7760
Epoch 215/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4294 - accuracy: 0.7934 - val_loss: 0.4936 - val_accuracy: 0.7760
Epoch 216/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4293 - accuracy: 0.7969 - val_loss: 0.4936 - val_accuracy: 0.7760
Epoch 217/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4292 - accuracy: 0.7951 - val_loss: 0.4936 - val_accuracy: 0.7760
Epoch 218/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4290 - accuracy: 0.7969 - val_loss: 0.4937 - val_accuracy: 0.7760
Epoch 219/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4289 - accuracy: 0.7986 - val_loss: 0.4937 - val_accuracy: 0.7760
Epoch 220/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4288 - accuracy: 0.7951 - val_loss: 0.4937 - val_accuracy: 0.7760
Epoch 221/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4287 - accuracy: 0.7986 - val_loss: 0.4937 - val_accuracy: 0.7760
Epoch 222/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4286 - accuracy: 0.7951 - val_loss: 0.4937 - val_accuracy: 0.7760
Epoch 223/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4284 - accuracy: 0.7986 - val_loss: 0.4937 - val_accuracy: 0.7760
Epoch 224/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4283 - accuracy: 0.7986 - val_loss: 0.4937 - val_accuracy: 0.7760
Epoch 225/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4283 - accuracy: 0.7986 - val_loss: 0.4937 - val_accuracy: 0.7760
Epoch 226/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4281 - accuracy: 0.7969 - val_loss: 0.4937 - val_accuracy: 0.7760
Epoch 227/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4280 - accuracy: 0.7969 - val_loss: 0.4937 - val_accuracy: 0.7760
Epoch 228/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4278 - accuracy: 0.7986 - val_loss: 0.4937 - val_accuracy: 0.7760
Epoch 229/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4278 - accuracy: 0.7969 - val_loss: 0.4937 - val_accuracy: 0.7760
Epoch 230/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4276 - accuracy: 0.7986 - val_loss: 0.4937 - val_accuracy: 0.7760
Epoch 231/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4275 - accuracy: 0.7986 - val_loss: 0.4937 - val_accuracy: 0.7760
Epoch 232/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4273 - accuracy: 0.7986 - val_loss: 0.4937 - val_accuracy: 0.7760
Epoch 233/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4273 - accuracy: 0.7986 - val_loss: 0.4938 - val_accuracy: 0.7708
Epoch 234/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4272 - accuracy: 0.7986 - val_loss: 0.4938 - val_accuracy: 0.7708
Epoch 235/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4270 - accuracy: 0.7969 - val_loss: 0.4938 - val_accuracy: 0.7708
Epoch 236/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4269 - accuracy: 0.7986 - val_loss: 0.4938 - val_accuracy: 0.7708
Epoch 237/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4268 - accuracy: 0.7986 - val_loss: 0.4938 - val_accuracy: 0.7708
Epoch 238/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4267 - accuracy: 0.7986 - val_loss: 0.4938 - val_accuracy: 0.7708
Epoch 239/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4266 - accuracy: 0.8003 - val_loss: 0.4939 - val_accuracy: 0.7656
Epoch 240/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4265 - accuracy: 0.8003 - val_loss: 0.4939 - val_accuracy: 0.7656
Epoch 241/1500
18/18 [==============================] - 0s 3ms/step - loss: 0.4263 - accuracy: 0.8003 - val_loss: 0.4939 - val_accuracy: 0.7708
Epoch 242/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4263 - accuracy: 0.7986 - val_loss: 0.4939 - val_accuracy: 0.7708
Epoch 243/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4262 - accuracy: 0.8003 - val_loss: 0.4940 - val_accuracy: 0.7708
Epoch 244/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4261 - accuracy: 0.8003 - val_loss: 0.4940 - val_accuracy: 0.7708
Epoch 245/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4259 - accuracy: 0.8003 - val_loss: 0.4940 - val_accuracy: 0.7708
Epoch 246/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4258 - accuracy: 0.8003 - val_loss: 0.4940 - val_accuracy: 0.7708
Epoch 247/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4257 - accuracy: 0.8003 - val_loss: 0.4940 - val_accuracy: 0.7708
Epoch 248/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4256 - accuracy: 0.8003 - val_loss: 0.4941 - val_accuracy: 0.7708
Epoch 249/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4255 - accuracy: 0.8003 - val_loss: 0.4941 - val_accuracy: 0.7708
Epoch 250/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4254 - accuracy: 0.8003 - val_loss: 0.4941 - val_accuracy: 0.7708
Epoch 251/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4254 - accuracy: 0.8003 - val_loss: 0.4941 - val_accuracy: 0.7708
Epoch 252/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4252 - accuracy: 0.8003 - val_loss: 0.4942 - val_accuracy: 0.7708
Epoch 253/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4251 - accuracy: 0.8038 - val_loss: 0.4942 - val_accuracy: 0.7708
Epoch 254/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4251 - accuracy: 0.8003 - val_loss: 0.4942 - val_accuracy: 0.7708
Epoch 255/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4249 - accuracy: 0.8038 - val_loss: 0.4942 - val_accuracy: 0.7708
Epoch 256/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4248 - accuracy: 0.8003 - val_loss: 0.4943 - val_accuracy: 0.7708
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Epoch 257/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4247 - accuracy: 0.8021 - val_loss: 0.4943 - val_accuracy: 0.7708
Epoch 258/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4246 - accuracy: 0.8003 - val_loss: 0.4943 - val_accuracy: 0.7708
Epoch 259/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4246 - accuracy: 0.8021 - val_loss: 0.4943 - val_accuracy: 0.7708
Epoch 260/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4245 - accuracy: 0.8038 - val_loss: 0.4944 - val_accuracy: 0.7708
Epoch 261/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4244 - accuracy: 0.8021 - val_loss: 0.4944 - val_accuracy: 0.7760
Epoch 262/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4243 - accuracy: 0.8021 - val_loss: 0.4944 - val_accuracy: 0.7760
Epoch 263/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4242 - accuracy: 0.8038 - val_loss: 0.4945 - val_accuracy: 0.7760
Epoch 264/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4242 - accuracy: 0.8003 - val_loss: 0.4945 - val_accuracy: 0.7760
Epoch 265/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4241 - accuracy: 0.8038 - val_loss: 0.4946 - val_accuracy: 0.7760
Epoch 266/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4240 - accuracy: 0.8038 - val_loss: 0.4946 - val_accuracy: 0.7760
Epoch 267/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4239 - accuracy: 0.8056 - val_loss: 0.4946 - val_accuracy: 0.7760
Epoch 268/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4239 - accuracy: 0.8073 - val_loss: 0.4947 - val_accuracy: 0.7760
Epoch 269/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4238 - accuracy: 0.8056 - val_loss: 0.4947 - val_accuracy: 0.7760
Epoch 270/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4237 - accuracy: 0.8056 - val_loss: 0.4948 - val_accuracy: 0.7760
Epoch 271/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4236 - accuracy: 0.8056 - val_loss: 0.4948 - val_accuracy: 0.7760
Epoch 272/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4236 - accuracy: 0.8056 - val_loss: 0.4948 - val_accuracy: 0.7760
Epoch 273/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4235 - accuracy: 0.8073 - val_loss: 0.4949 - val_accuracy: 0.7760
Epoch 274/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4234 - accuracy: 0.8073 - val_loss: 0.4949 - val_accuracy: 0.7760
Epoch 275/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4233 - accuracy: 0.8073 - val_loss: 0.4949 - val_accuracy: 0.7760
Epoch 276/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4232 - accuracy: 0.8056 - val_loss: 0.4950 - val_accuracy: 0.7760
Epoch 277/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4232 - accuracy: 0.8073 - val_loss: 0.4950 - val_accuracy: 0.7760
Epoch 278/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4231 - accuracy: 0.8090 - val_loss: 0.4951 - val_accuracy: 0.7760
Epoch 279/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4230 - accuracy: 0.8073 - val_loss: 0.4952 - val_accuracy: 0.7760
Epoch 280/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4230 - accuracy: 0.8073 - val_loss: 0.4952 - val_accuracy: 0.7760
Epoch 281/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4230 - accuracy: 0.8073 - val_loss: 0.4953 - val_accuracy: 0.7760
Epoch 282/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4228 - accuracy: 0.8073 - val_loss: 0.4953 - val_accuracy: 0.7760
Epoch 283/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4228 - accuracy: 0.8056 - val_loss: 0.4954 - val_accuracy: 0.7760
Epoch 284/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4227 - accuracy: 0.8073 - val_loss: 0.4955 - val_accuracy: 0.7760
Epoch 285/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4227 - accuracy: 0.8073 - val_loss: 0.4955 - val_accuracy: 0.7760
Epoch 286/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4227 - accuracy: 0.8073 - val_loss: 0.4955 - val_accuracy: 0.7760
Epoch 287/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4226 - accuracy: 0.8090 - val_loss: 0.4955 - val_accuracy: 0.7760
Epoch 288/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4225 - accuracy: 0.8090 - val_loss: 0.4956 - val_accuracy: 0.7708
Epoch 289/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4225 - accuracy: 0.8038 - val_loss: 0.4956 - val_accuracy: 0.7708
Epoch 290/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4224 - accuracy: 0.8038 - val_loss: 0.4957 - val_accuracy: 0.7708
Epoch 291/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4223 - accuracy: 0.8090 - val_loss: 0.4957 - val_accuracy: 0.7708
Epoch 292/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4223 - accuracy: 0.8073 - val_loss: 0.4958 - val_accuracy: 0.7708
Epoch 293/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4221 - accuracy: 0.8056 - val_loss: 0.4958 - val_accuracy: 0.7708
Epoch 294/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4222 - accuracy: 0.8090 - val_loss: 0.4959 - val_accuracy: 0.7708
Epoch 295/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4220 - accuracy: 0.8090 - val_loss: 0.4959 - val_accuracy: 0.7708
Epoch 296/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4221 - accuracy: 0.8073 - val_loss: 0.4960 - val_accuracy: 0.7708
Epoch 297/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4221 - accuracy: 0.8073 - val_loss: 0.4960 - val_accuracy: 0.7708
Epoch 298/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4219 - accuracy: 0.8090 - val_loss: 0.4960 - val_accuracy: 0.7708
Epoch 299/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4219 - accuracy: 0.8073 - val_loss: 0.4961 - val_accuracy: 0.7708
Epoch 300/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4218 - accuracy: 0.8090 - val_loss: 0.4961 - val_accuracy: 0.7708
Epoch 301/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4217 - accuracy: 0.8073 - val_loss: 0.4962 - val_accuracy: 0.7708
Epoch 302/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4218 - accuracy: 0.8090 - val_loss: 0.4962 - val_accuracy: 0.7708
Epoch 303/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4217 - accuracy: 0.8056 - val_loss: 0.4963 - val_accuracy: 0.7708
Epoch 304/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4216 - accuracy: 0.8056 - val_loss: 0.4963 - val_accuracy: 0.7708
Epoch 305/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4216 - accuracy: 0.8056 - val_loss: 0.4964 - val_accuracy: 0.7708
Epoch 306/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4215 - accuracy: 0.8073 - val_loss: 0.4964 - val_accuracy: 0.7708
Epoch 307/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4214 - accuracy: 0.8073 - val_loss: 0.4965 - val_accuracy: 0.7708
Epoch 308/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4213 - accuracy: 0.8073 - val_loss: 0.4965 - val_accuracy: 0.7708
Epoch 309/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4213 - accuracy: 0.8073 - val_loss: 0.4965 - val_accuracy: 0.7708
Epoch 310/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4213 - accuracy: 0.8056 - val_loss: 0.4966 - val_accuracy: 0.7708
Epoch 311/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4212 - accuracy: 0.8073 - val_loss: 0.4966 - val_accuracy: 0.7708
Epoch 312/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4211 - accuracy: 0.8073 - val_loss: 0.4967 - val_accuracy: 0.7708
Epoch 313/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4211 - accuracy: 0.8090 - val_loss: 0.4967 - val_accuracy: 0.7708
Epoch 314/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4211 - accuracy: 0.8056 - val_loss: 0.4968 - val_accuracy: 0.7708
Epoch 315/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4210 - accuracy: 0.8090 - val_loss: 0.4968 - val_accuracy: 0.7708
Epoch 316/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4209 - accuracy: 0.8090 - val_loss: 0.4969 - val_accuracy: 0.7708
Epoch 317/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4209 - accuracy: 0.8090 - val_loss: 0.4969 - val_accuracy: 0.7708
Epoch 318/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4208 - accuracy: 0.8073 - val_loss: 0.4970 - val_accuracy: 0.7708
Epoch 319/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4208 - accuracy: 0.8108 - val_loss: 0.4970 - val_accuracy: 0.7708
Epoch 320/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4207 - accuracy: 0.8108 - val_loss: 0.4970 - val_accuracy: 0.7708
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Epoch 321/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4206 - accuracy: 0.8090 - val_loss: 0.4971 - val_accuracy: 0.7708
Epoch 322/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4206 - accuracy: 0.8108 - val_loss: 0.4971 - val_accuracy: 0.7656
Epoch 323/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4206 - accuracy: 0.8090 - val_loss: 0.4972 - val_accuracy: 0.7656
Epoch 324/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4205 - accuracy: 0.8108 - val_loss: 0.4972 - val_accuracy: 0.7656
Epoch 325/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4205 - accuracy: 0.8108 - val_loss: 0.4972 - val_accuracy: 0.7656
Epoch 326/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4204 - accuracy: 0.8108 - val_loss: 0.4973 - val_accuracy: 0.7656
Epoch 327/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4203 - accuracy: 0.8108 - val_loss: 0.4973 - val_accuracy: 0.7656
Epoch 328/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4203 - accuracy: 0.8108 - val_loss: 0.4974 - val_accuracy: 0.7656
Epoch 329/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4203 - accuracy: 0.8108 - val_loss: 0.4974 - val_accuracy: 0.7656
Epoch 330/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4202 - accuracy: 0.8108 - val_loss: 0.4975 - val_accuracy: 0.7656
Epoch 331/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4202 - accuracy: 0.8108 - val_loss: 0.4975 - val_accuracy: 0.7656
Epoch 332/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4202 - accuracy: 0.8108 - val_loss: 0.4976 - val_accuracy: 0.7656
Epoch 333/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4201 - accuracy: 0.8108 - val_loss: 0.4977 - val_accuracy: 0.7656
Epoch 334/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4201 - accuracy: 0.8108 - val_loss: 0.4977 - val_accuracy: 0.7656
Epoch 335/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4200 - accuracy: 0.8108 - val_loss: 0.4978 - val_accuracy: 0.7656
Epoch 336/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4200 - accuracy: 0.8090 - val_loss: 0.4978 - val_accuracy: 0.7656
Epoch 337/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4199 - accuracy: 0.8108 - val_loss: 0.4979 - val_accuracy: 0.7656
Epoch 338/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4199 - accuracy: 0.8090 - val_loss: 0.4979 - val_accuracy: 0.7656
Epoch 339/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4198 - accuracy: 0.8108 - val_loss: 0.4980 - val_accuracy: 0.7656
Epoch 340/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4198 - accuracy: 0.8108 - val_loss: 0.4980 - val_accuracy: 0.7656
Epoch 341/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4198 - accuracy: 0.8108 - val_loss: 0.4981 - val_accuracy: 0.7656
Epoch 342/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4197 - accuracy: 0.8108 - val_loss: 0.4981 - val_accuracy: 0.7656
Epoch 343/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4196 - accuracy: 0.8108 - val_loss: 0.4982 - val_accuracy: 0.7656
Epoch 344/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4195 - accuracy: 0.8108 - val_loss: 0.4982 - val_accuracy: 0.7656
Epoch 345/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4196 - accuracy: 0.8108 - val_loss: 0.4983 - val_accuracy: 0.7656
Epoch 346/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4195 - accuracy: 0.8108 - val_loss: 0.4983 - val_accuracy: 0.7656
Epoch 347/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4195 - accuracy: 0.8108 - val_loss: 0.4984 - val_accuracy: 0.7656
Epoch 348/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4195 - accuracy: 0.8090 - val_loss: 0.4985 - val_accuracy: 0.7708
Epoch 349/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4194 - accuracy: 0.8108 - val_loss: 0.4985 - val_accuracy: 0.7708
Epoch 350/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4194 - accuracy: 0.8108 - val_loss: 0.4985 - val_accuracy: 0.7708
Epoch 351/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4193 - accuracy: 0.8108 - val_loss: 0.4986 - val_accuracy: 0.7708
Epoch 352/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4193 - accuracy: 0.8108 - val_loss: 0.4987 - val_accuracy: 0.7708
Epoch 353/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4193 - accuracy: 0.8090 - val_loss: 0.4987 - val_accuracy: 0.7708
Epoch 354/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4192 - accuracy: 0.8108 - val_loss: 0.4988 - val_accuracy: 0.7708
Epoch 355/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4191 - accuracy: 0.8090 - val_loss: 0.4988 - val_accuracy: 0.7708
Epoch 356/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4191 - accuracy: 0.8090 - val_loss: 0.4989 - val_accuracy: 0.7708
Epoch 357/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4190 - accuracy: 0.8108 - val_loss: 0.4989 - val_accuracy: 0.7708
Epoch 358/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4190 - accuracy: 0.8108 - val_loss: 0.4990 - val_accuracy: 0.7708
Epoch 359/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4189 - accuracy: 0.8090 - val_loss: 0.4990 - val_accuracy: 0.7708
Epoch 360/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4190 - accuracy: 0.8090 - val_loss: 0.4991 - val_accuracy: 0.7708
Epoch 361/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4189 - accuracy: 0.8108 - val_loss: 0.4991 - val_accuracy: 0.7708
Epoch 362/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4188 - accuracy: 0.8090 - val_loss: 0.4992 - val_accuracy: 0.7708
Epoch 363/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4188 - accuracy: 0.8073 - val_loss: 0.4992 - val_accuracy: 0.7708
Epoch 364/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4188 - accuracy: 0.8073 - val_loss: 0.4993 - val_accuracy: 0.7708
Epoch 365/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4187 - accuracy: 0.8073 - val_loss: 0.4993 - val_accuracy: 0.7708
Epoch 366/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4187 - accuracy: 0.8073 - val_loss: 0.4994 - val_accuracy: 0.7708
Epoch 367/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4186 - accuracy: 0.8073 - val_loss: 0.4994 - val_accuracy: 0.7708
Epoch 368/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4186 - accuracy: 0.8090 - val_loss: 0.4995 - val_accuracy: 0.7708
Epoch 369/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4186 - accuracy: 0.8073 - val_loss: 0.4995 - val_accuracy: 0.7708
Epoch 370/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4185 - accuracy: 0.8073 - val_loss: 0.4996 - val_accuracy: 0.7708
Epoch 371/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4185 - accuracy: 0.8090 - val_loss: 0.4997 - val_accuracy: 0.7708
Epoch 372/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4185 - accuracy: 0.8073 - val_loss: 0.4997 - val_accuracy: 0.7708
Epoch 373/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4184 - accuracy: 0.8073 - val_loss: 0.4998 - val_accuracy: 0.7708
Epoch 374/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4184 - accuracy: 0.8090 - val_loss: 0.4998 - val_accuracy: 0.7708
Epoch 375/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4184 - accuracy: 0.8073 - val_loss: 0.4999 - val_accuracy: 0.7708
Epoch 376/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4183 - accuracy: 0.8073 - val_loss: 0.4999 - val_accuracy: 0.7708
Epoch 377/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4183 - accuracy: 0.8073 - val_loss: 0.4999 - val_accuracy: 0.7708
Epoch 378/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4182 - accuracy: 0.8073 - val_loss: 0.5000 - val_accuracy: 0.7708
Epoch 379/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4182 - accuracy: 0.8073 - val_loss: 0.5000 - val_accuracy: 0.7708
Epoch 380/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4182 - accuracy: 0.8073 - val_loss: 0.5001 - val_accuracy: 0.7708
Epoch 381/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4182 - accuracy: 0.8073 - val_loss: 0.5001 - val_accuracy: 0.7708
Epoch 382/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4181 - accuracy: 0.8073 - val_loss: 0.5001 - val_accuracy: 0.7708
Epoch 383/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4180 - accuracy: 0.8073 - val_loss: 0.5002 - val_accuracy: 0.7708
Epoch 384/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4180 - accuracy: 0.8073 - val_loss: 0.5003 - val_accuracy: 0.7708
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Epoch 385/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4180 - accuracy: 0.8073 - val_loss: 0.5003 - val_accuracy: 0.7708
Epoch 386/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4180 - accuracy: 0.8073 - val_loss: 0.5004 - val_accuracy: 0.7708
Epoch 387/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4179 - accuracy: 0.8073 - val_loss: 0.5004 - val_accuracy: 0.7708
Epoch 388/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4179 - accuracy: 0.8073 - val_loss: 0.5005 - val_accuracy: 0.7708
Epoch 389/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4178 - accuracy: 0.8073 - val_loss: 0.5005 - val_accuracy: 0.7708
Epoch 390/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4177 - accuracy: 0.8073 - val_loss: 0.5006 - val_accuracy: 0.7708
Epoch 391/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4177 - accuracy: 0.8073 - val_loss: 0.5006 - val_accuracy: 0.7708
Epoch 392/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4176 - accuracy: 0.8073 - val_loss: 0.5007 - val_accuracy: 0.7708
Epoch 393/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4176 - accuracy: 0.8073 - val_loss: 0.5007 - val_accuracy: 0.7708
Epoch 394/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4176 - accuracy: 0.8090 - val_loss: 0.5007 - val_accuracy: 0.7708
Epoch 395/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4176 - accuracy: 0.8090 - val_loss: 0.5008 - val_accuracy: 0.7708
Epoch 396/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4175 - accuracy: 0.8090 - val_loss: 0.5008 - val_accuracy: 0.7708
Epoch 397/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4175 - accuracy: 0.8090 - val_loss: 0.5009 - val_accuracy: 0.7708
Epoch 398/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4175 - accuracy: 0.8090 - val_loss: 0.5009 - val_accuracy: 0.7708
Epoch 399/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4173 - accuracy: 0.8090 - val_loss: 0.5009 - val_accuracy: 0.7708
Epoch 400/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4173 - accuracy: 0.8090 - val_loss: 0.5010 - val_accuracy: 0.7708
Epoch 401/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4174 - accuracy: 0.8090 - val_loss: 0.5010 - val_accuracy: 0.7708
Epoch 402/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4174 - accuracy: 0.8090 - val_loss: 0.5010 - val_accuracy: 0.7708
Epoch 403/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4172 - accuracy: 0.8090 - val_loss: 0.5011 - val_accuracy: 0.7708
Epoch 404/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4172 - accuracy: 0.8090 - val_loss: 0.5011 - val_accuracy: 0.7708
Epoch 405/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4172 - accuracy: 0.8090 - val_loss: 0.5012 - val_accuracy: 0.7708
Epoch 406/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4172 - accuracy: 0.8090 - val_loss: 0.5012 - val_accuracy: 0.7708
Epoch 407/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4171 - accuracy: 0.8090 - val_loss: 0.5013 - val_accuracy: 0.7708
Epoch 408/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4171 - accuracy: 0.8090 - val_loss: 0.5013 - val_accuracy: 0.7708
Epoch 409/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4170 - accuracy: 0.8090 - val_loss: 0.5014 - val_accuracy: 0.7708
Epoch 410/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4170 - accuracy: 0.8090 - val_loss: 0.5014 - val_accuracy: 0.7708
Epoch 411/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4169 - accuracy: 0.8090 - val_loss: 0.5015 - val_accuracy: 0.7708
Epoch 412/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4168 - accuracy: 0.8090 - val_loss: 0.5015 - val_accuracy: 0.7708
Epoch 413/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4168 - accuracy: 0.8090 - val_loss: 0.5015 - val_accuracy: 0.7708
Epoch 414/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4168 - accuracy: 0.8090 - val_loss: 0.5016 - val_accuracy: 0.7708
Epoch 415/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4168 - accuracy: 0.8090 - val_loss: 0.5016 - val_accuracy: 0.7708
Epoch 416/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4167 - accuracy: 0.8090 - val_loss: 0.5017 - val_accuracy: 0.7708
Epoch 417/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4166 - accuracy: 0.8090 - val_loss: 0.5017 - val_accuracy: 0.7708
Epoch 418/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4166 - accuracy: 0.8090 - val_loss: 0.5018 - val_accuracy: 0.7708
Epoch 419/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4166 - accuracy: 0.8090 - val_loss: 0.5018 - val_accuracy: 0.7708
Epoch 420/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4165 - accuracy: 0.8090 - val_loss: 0.5018 - val_accuracy: 0.7708
Epoch 421/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4166 - accuracy: 0.8090 - val_loss: 0.5019 - val_accuracy: 0.7708
Epoch 422/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4164 - accuracy: 0.8090 - val_loss: 0.5019 - val_accuracy: 0.7708
Epoch 423/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4164 - accuracy: 0.8090 - val_loss: 0.5019 - val_accuracy: 0.7708
Epoch 424/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4164 - accuracy: 0.8090 - val_loss: 0.5019 - val_accuracy: 0.7708
Epoch 425/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4163 - accuracy: 0.8073 - val_loss: 0.5020 - val_accuracy: 0.7708
Epoch 426/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4162 - accuracy: 0.8090 - val_loss: 0.5020 - val_accuracy: 0.7708
Epoch 427/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4161 - accuracy: 0.8108 - val_loss: 0.5021 - val_accuracy: 0.7708
Epoch 428/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4161 - accuracy: 0.8090 - val_loss: 0.5021 - val_accuracy: 0.7708
Epoch 429/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4160 - accuracy: 0.8090 - val_loss: 0.5021 - val_accuracy: 0.7708
Epoch 430/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4160 - accuracy: 0.8073 - val_loss: 0.5022 - val_accuracy: 0.7708
Epoch 431/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4160 - accuracy: 0.8073 - val_loss: 0.5022 - val_accuracy: 0.7708
Epoch 432/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4159 - accuracy: 0.8108 - val_loss: 0.5022 - val_accuracy: 0.7708
Epoch 433/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4159 - accuracy: 0.8090 - val_loss: 0.5023 - val_accuracy: 0.7708
Epoch 434/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4159 - accuracy: 0.8090 - val_loss: 0.5023 - val_accuracy: 0.7708
Epoch 435/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4158 - accuracy: 0.8073 - val_loss: 0.5024 - val_accuracy: 0.7708
Epoch 436/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4157 - accuracy: 0.8090 - val_loss: 0.5024 - val_accuracy: 0.7708
Epoch 437/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4157 - accuracy: 0.8090 - val_loss: 0.5025 - val_accuracy: 0.7708
Epoch 438/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4157 - accuracy: 0.8073 - val_loss: 0.5025 - val_accuracy: 0.7708
Epoch 439/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4156 - accuracy: 0.8073 - val_loss: 0.5026 - val_accuracy: 0.7708
Epoch 440/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4156 - accuracy: 0.8090 - val_loss: 0.5026 - val_accuracy: 0.7708
Epoch 441/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4155 - accuracy: 0.8090 - val_loss: 0.5026 - val_accuracy: 0.7708
Epoch 442/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4155 - accuracy: 0.8090 - val_loss: 0.5027 - val_accuracy: 0.7708
Epoch 443/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4155 - accuracy: 0.8073 - val_loss: 0.5027 - val_accuracy: 0.7760
Epoch 444/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4154 - accuracy: 0.8073 - val_loss: 0.5028 - val_accuracy: 0.7760
Epoch 445/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4154 - accuracy: 0.8090 - val_loss: 0.5028 - val_accuracy: 0.7760
Epoch 446/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4153 - accuracy: 0.8090 - val_loss: 0.5028 - val_accuracy: 0.7760
Epoch 447/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4153 - accuracy: 0.8108 - val_loss: 0.5028 - val_accuracy: 0.7760
Epoch 448/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4152 - accuracy: 0.8073 - val_loss: 0.5029 - val_accuracy: 0.7760
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Epoch 449/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4152 - accuracy: 0.8090 - val_loss: 0.5029 - val_accuracy: 0.7760
Epoch 450/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4151 - accuracy: 0.8108 - val_loss: 0.5029 - val_accuracy: 0.7760
Epoch 451/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4152 - accuracy: 0.8108 - val_loss: 0.5030 - val_accuracy: 0.7760
Epoch 452/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4150 - accuracy: 0.8090 - val_loss: 0.5030 - val_accuracy: 0.7760
Epoch 453/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4151 - accuracy: 0.8108 - val_loss: 0.5030 - val_accuracy: 0.7760
Epoch 454/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4150 - accuracy: 0.8090 - val_loss: 0.5031 - val_accuracy: 0.7760
Epoch 455/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4149 - accuracy: 0.8108 - val_loss: 0.5031 - val_accuracy: 0.7760
Epoch 456/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4149 - accuracy: 0.8125 - val_loss: 0.5031 - val_accuracy: 0.7760
Epoch 457/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4149 - accuracy: 0.8090 - val_loss: 0.5031 - val_accuracy: 0.7760
Epoch 458/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4149 - accuracy: 0.8090 - val_loss: 0.5032 - val_accuracy: 0.7760
Epoch 459/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4148 - accuracy: 0.8125 - val_loss: 0.5032 - val_accuracy: 0.7760
Epoch 460/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4148 - accuracy: 0.8108 - val_loss: 0.5032 - val_accuracy: 0.7760
Epoch 461/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4147 - accuracy: 0.8125 - val_loss: 0.5032 - val_accuracy: 0.7760
Epoch 462/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4147 - accuracy: 0.8125 - val_loss: 0.5033 - val_accuracy: 0.7760
Epoch 463/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4146 - accuracy: 0.8125 - val_loss: 0.5033 - val_accuracy: 0.7760
Epoch 464/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4146 - accuracy: 0.8125 - val_loss: 0.5033 - val_accuracy: 0.7760
Epoch 465/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4145 - accuracy: 0.8125 - val_loss: 0.5034 - val_accuracy: 0.7760
Epoch 466/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4145 - accuracy: 0.8125 - val_loss: 0.5034 - val_accuracy: 0.7760
Epoch 467/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4145 - accuracy: 0.8108 - val_loss: 0.5034 - val_accuracy: 0.7760
Epoch 468/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4144 - accuracy: 0.8142 - val_loss: 0.5035 - val_accuracy: 0.7760
Epoch 469/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4144 - accuracy: 0.8142 - val_loss: 0.5035 - val_accuracy: 0.7760
Epoch 470/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4143 - accuracy: 0.8142 - val_loss: 0.5035 - val_accuracy: 0.7760
Epoch 471/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4144 - accuracy: 0.8142 - val_loss: 0.5035 - val_accuracy: 0.7760
Epoch 472/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4142 - accuracy: 0.8142 - val_loss: 0.5035 - val_accuracy: 0.7760
Epoch 473/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4142 - accuracy: 0.8142 - val_loss: 0.5036 - val_accuracy: 0.7760
Epoch 474/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4141 - accuracy: 0.8142 - val_loss: 0.5036 - val_accuracy: 0.7760
Epoch 475/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4141 - accuracy: 0.8142 - val_loss: 0.5037 - val_accuracy: 0.7760
Epoch 476/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4141 - accuracy: 0.8142 - val_loss: 0.5037 - val_accuracy: 0.7760
Epoch 477/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4141 - accuracy: 0.8142 - val_loss: 0.5038 - val_accuracy: 0.7760
Epoch 478/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4140 - accuracy: 0.8142 - val_loss: 0.5038 - val_accuracy: 0.7760
Epoch 479/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4139 - accuracy: 0.8142 - val_loss: 0.5038 - val_accuracy: 0.7760
Epoch 480/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4139 - accuracy: 0.8142 - val_loss: 0.5039 - val_accuracy: 0.7760
Epoch 481/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4138 - accuracy: 0.8142 - val_loss: 0.5039 - val_accuracy: 0.7708
Epoch 482/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4139 - accuracy: 0.8142 - val_loss: 0.5040 - val_accuracy: 0.7708
Epoch 483/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4138 - accuracy: 0.8142 - val_loss: 0.5040 - val_accuracy: 0.7708
Epoch 484/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4138 - accuracy: 0.8160 - val_loss: 0.5040 - val_accuracy: 0.7708
Epoch 485/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4137 - accuracy: 0.8142 - val_loss: 0.5041 - val_accuracy: 0.7708
Epoch 486/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4137 - accuracy: 0.8160 - val_loss: 0.5041 - val_accuracy: 0.7708
Epoch 487/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4136 - accuracy: 0.8142 - val_loss: 0.5042 - val_accuracy: 0.7708
Epoch 488/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4136 - accuracy: 0.8142 - val_loss: 0.5042 - val_accuracy: 0.7708
Epoch 489/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4136 - accuracy: 0.8160 - val_loss: 0.5042 - val_accuracy: 0.7708
Epoch 490/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4135 - accuracy: 0.8160 - val_loss: 0.5043 - val_accuracy: 0.7708
Epoch 491/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4135 - accuracy: 0.8160 - val_loss: 0.5043 - val_accuracy: 0.7708
Epoch 492/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4134 - accuracy: 0.8160 - val_loss: 0.5043 - val_accuracy: 0.7708
Epoch 493/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4134 - accuracy: 0.8160 - val_loss: 0.5044 - val_accuracy: 0.7708
Epoch 494/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4133 - accuracy: 0.8160 - val_loss: 0.5044 - val_accuracy: 0.7708
Epoch 495/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4133 - accuracy: 0.8160 - val_loss: 0.5044 - val_accuracy: 0.7708
Epoch 496/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4132 - accuracy: 0.8177 - val_loss: 0.5045 - val_accuracy: 0.7760
Epoch 497/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4132 - accuracy: 0.8160 - val_loss: 0.5045 - val_accuracy: 0.7760
Epoch 498/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4131 - accuracy: 0.8160 - val_loss: 0.5045 - val_accuracy: 0.7760
Epoch 499/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4131 - accuracy: 0.8160 - val_loss: 0.5046 - val_accuracy: 0.7760
Epoch 500/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4131 - accuracy: 0.8160 - val_loss: 0.5046 - val_accuracy: 0.7760
Epoch 501/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4130 - accuracy: 0.8160 - val_loss: 0.5047 - val_accuracy: 0.7760
Epoch 502/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4130 - accuracy: 0.8160 - val_loss: 0.5047 - val_accuracy: 0.7760
Epoch 503/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4129 - accuracy: 0.8160 - val_loss: 0.5048 - val_accuracy: 0.7760
Epoch 504/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4129 - accuracy: 0.8160 - val_loss: 0.5048 - val_accuracy: 0.7760
Epoch 505/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4128 - accuracy: 0.8160 - val_loss: 0.5048 - val_accuracy: 0.7760
Epoch 506/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4128 - accuracy: 0.8160 - val_loss: 0.5049 - val_accuracy: 0.7760
Epoch 507/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4127 - accuracy: 0.8160 - val_loss: 0.5049 - val_accuracy: 0.7760
Epoch 508/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4127 - accuracy: 0.8160 - val_loss: 0.5049 - val_accuracy: 0.7760
Epoch 509/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4127 - accuracy: 0.8160 - val_loss: 0.5050 - val_accuracy: 0.7760
Epoch 510/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4126 - accuracy: 0.8160 - val_loss: 0.5050 - val_accuracy: 0.7760
Epoch 511/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4125 - accuracy: 0.8160 - val_loss: 0.5051 - val_accuracy: 0.7760
Epoch 512/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4125 - accuracy: 0.8160 - val_loss: 0.5051 - val_accuracy: 0.7760
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Epoch 513/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4125 - accuracy: 0.8160 - val_loss: 0.5052 - val_accuracy: 0.7760
Epoch 514/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4125 - accuracy: 0.8142 - val_loss: 0.5052 - val_accuracy: 0.7760
Epoch 515/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4124 - accuracy: 0.8160 - val_loss: 0.5053 - val_accuracy: 0.7760
Epoch 516/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4123 - accuracy: 0.8142 - val_loss: 0.5053 - val_accuracy: 0.7760
Epoch 517/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4123 - accuracy: 0.8142 - val_loss: 0.5053 - val_accuracy: 0.7760
Epoch 518/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4123 - accuracy: 0.8160 - val_loss: 0.5054 - val_accuracy: 0.7760
Epoch 519/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4122 - accuracy: 0.8142 - val_loss: 0.5054 - val_accuracy: 0.7760
Epoch 520/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4122 - accuracy: 0.8177 - val_loss: 0.5055 - val_accuracy: 0.7708
Epoch 521/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4121 - accuracy: 0.8177 - val_loss: 0.5055 - val_accuracy: 0.7708
Epoch 522/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4121 - accuracy: 0.8177 - val_loss: 0.5056 - val_accuracy: 0.7760
Epoch 523/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4120 - accuracy: 0.8160 - val_loss: 0.5056 - val_accuracy: 0.7708
Epoch 524/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4119 - accuracy: 0.8160 - val_loss: 0.5057 - val_accuracy: 0.7708
Epoch 525/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4120 - accuracy: 0.8160 - val_loss: 0.5057 - val_accuracy: 0.7708
Epoch 526/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4119 - accuracy: 0.8177 - val_loss: 0.5058 - val_accuracy: 0.7656
Epoch 527/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4119 - accuracy: 0.8160 - val_loss: 0.5058 - val_accuracy: 0.7708
Epoch 528/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4118 - accuracy: 0.8160 - val_loss: 0.5059 - val_accuracy: 0.7708
Epoch 529/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4118 - accuracy: 0.8142 - val_loss: 0.5059 - val_accuracy: 0.7708
Epoch 530/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4119 - accuracy: 0.8177 - val_loss: 0.5059 - val_accuracy: 0.7656
Epoch 531/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4118 - accuracy: 0.8160 - val_loss: 0.5060 - val_accuracy: 0.7656
Epoch 532/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4117 - accuracy: 0.8160 - val_loss: 0.5061 - val_accuracy: 0.7708
Epoch 533/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4116 - accuracy: 0.8142 - val_loss: 0.5061 - val_accuracy: 0.7656
Epoch 534/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4116 - accuracy: 0.8160 - val_loss: 0.5062 - val_accuracy: 0.7656
Epoch 535/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4116 - accuracy: 0.8160 - val_loss: 0.5063 - val_accuracy: 0.7656
Epoch 536/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4116 - accuracy: 0.8194 - val_loss: 0.5063 - val_accuracy: 0.7656
Epoch 537/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4114 - accuracy: 0.8160 - val_loss: 0.5064 - val_accuracy: 0.7656
Epoch 538/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4114 - accuracy: 0.8160 - val_loss: 0.5064 - val_accuracy: 0.7656
Epoch 539/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4114 - accuracy: 0.8160 - val_loss: 0.5065 - val_accuracy: 0.7656
Epoch 540/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4113 - accuracy: 0.8177 - val_loss: 0.5066 - val_accuracy: 0.7656
Epoch 541/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4114 - accuracy: 0.8177 - val_loss: 0.5067 - val_accuracy: 0.7656
Epoch 542/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4113 - accuracy: 0.8177 - val_loss: 0.5067 - val_accuracy: 0.7656
Epoch 543/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4113 - accuracy: 0.8177 - val_loss: 0.5067 - val_accuracy: 0.7656
Epoch 544/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4112 - accuracy: 0.8160 - val_loss: 0.5068 - val_accuracy: 0.7656
Epoch 545/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4112 - accuracy: 0.8160 - val_loss: 0.5069 - val_accuracy: 0.7656
Epoch 546/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4112 - accuracy: 0.8160 - val_loss: 0.5070 - val_accuracy: 0.7656
Epoch 547/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4112 - accuracy: 0.8177 - val_loss: 0.5070 - val_accuracy: 0.7656
Epoch 548/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4111 - accuracy: 0.8160 - val_loss: 0.5071 - val_accuracy: 0.7656
Epoch 549/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4110 - accuracy: 0.8177 - val_loss: 0.5071 - val_accuracy: 0.7708
Epoch 550/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4110 - accuracy: 0.8177 - val_loss: 0.5072 - val_accuracy: 0.7708
Epoch 551/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4110 - accuracy: 0.8160 - val_loss: 0.5073 - val_accuracy: 0.7708
Epoch 552/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4109 - accuracy: 0.8177 - val_loss: 0.5074 - val_accuracy: 0.7708
Epoch 553/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4109 - accuracy: 0.8177 - val_loss: 0.5074 - val_accuracy: 0.7708
Epoch 554/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4109 - accuracy: 0.8160 - val_loss: 0.5075 - val_accuracy: 0.7708
Epoch 555/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4109 - accuracy: 0.8160 - val_loss: 0.5076 - val_accuracy: 0.7708
Epoch 556/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4109 - accuracy: 0.8177 - val_loss: 0.5076 - val_accuracy: 0.7708
Epoch 557/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4108 - accuracy: 0.8177 - val_loss: 0.5077 - val_accuracy: 0.7708
Epoch 558/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4109 - accuracy: 0.8177 - val_loss: 0.5078 - val_accuracy: 0.7708
Epoch 559/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4108 - accuracy: 0.8177 - val_loss: 0.5078 - val_accuracy: 0.7708
Epoch 560/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4107 - accuracy: 0.8160 - val_loss: 0.5079 - val_accuracy: 0.7708
Epoch 561/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4108 - accuracy: 0.8160 - val_loss: 0.5080 - val_accuracy: 0.7708
Epoch 562/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4106 - accuracy: 0.8177 - val_loss: 0.5080 - val_accuracy: 0.7708
Epoch 563/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4106 - accuracy: 0.8177 - val_loss: 0.5081 - val_accuracy: 0.7708
Epoch 564/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4105 - accuracy: 0.8177 - val_loss: 0.5082 - val_accuracy: 0.7708
Epoch 565/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4105 - accuracy: 0.8177 - val_loss: 0.5082 - val_accuracy: 0.7708
Epoch 566/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4105 - accuracy: 0.8177 - val_loss: 0.5083 - val_accuracy: 0.7708
Epoch 567/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4105 - accuracy: 0.8160 - val_loss: 0.5084 - val_accuracy: 0.7708
Epoch 568/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4105 - accuracy: 0.8142 - val_loss: 0.5084 - val_accuracy: 0.7708
Epoch 569/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4105 - accuracy: 0.8177 - val_loss: 0.5085 - val_accuracy: 0.7708
Epoch 570/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4105 - accuracy: 0.8160 - val_loss: 0.5085 - val_accuracy: 0.7708
Epoch 571/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4103 - accuracy: 0.8142 - val_loss: 0.5085 - val_accuracy: 0.7708
Epoch 572/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4104 - accuracy: 0.8142 - val_loss: 0.5086 - val_accuracy: 0.7708
Epoch 573/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4103 - accuracy: 0.8142 - val_loss: 0.5087 - val_accuracy: 0.7708
Epoch 574/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4103 - accuracy: 0.8160 - val_loss: 0.5087 - val_accuracy: 0.7708
Epoch 575/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4103 - accuracy: 0.8160 - val_loss: 0.5088 - val_accuracy: 0.7708
Epoch 576/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4103 - accuracy: 0.8160 - val_loss: 0.5089 - val_accuracy: 0.7708
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Epoch 577/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4102 - accuracy: 0.8142 - val_loss: 0.5089 - val_accuracy: 0.7708
Epoch 578/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4102 - accuracy: 0.8160 - val_loss: 0.5090 - val_accuracy: 0.7708
Epoch 579/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4102 - accuracy: 0.8142 - val_loss: 0.5091 - val_accuracy: 0.7708
Epoch 580/1500
18/18 [==============================] - 0s 9ms/step - loss: 0.4102 - accuracy: 0.8125 - val_loss: 0.5091 - val_accuracy: 0.7708
Epoch 581/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4101 - accuracy: 0.8125 - val_loss: 0.5092 - val_accuracy: 0.7708
Epoch 582/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4101 - accuracy: 0.8160 - val_loss: 0.5092 - val_accuracy: 0.7708
Epoch 583/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4101 - accuracy: 0.8160 - val_loss: 0.5093 - val_accuracy: 0.7708
Epoch 584/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4101 - accuracy: 0.8125 - val_loss: 0.5093 - val_accuracy: 0.7708
Epoch 585/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4100 - accuracy: 0.8142 - val_loss: 0.5094 - val_accuracy: 0.7708
Epoch 586/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4100 - accuracy: 0.8160 - val_loss: 0.5095 - val_accuracy: 0.7708
Epoch 587/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4100 - accuracy: 0.8160 - val_loss: 0.5095 - val_accuracy: 0.7708
Epoch 588/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.4100 - accuracy: 0.8142 - val_loss: 0.5095 - val_accuracy: 0.7708
Epoch 589/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4099 - accuracy: 0.8125 - val_loss: 0.5097 - val_accuracy: 0.7708
Epoch 590/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4098 - accuracy: 0.8142 - val_loss: 0.5097 - val_accuracy: 0.7708
Epoch 591/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4100 - accuracy: 0.8125 - val_loss: 0.5098 - val_accuracy: 0.7708
Epoch 592/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4099 - accuracy: 0.8160 - val_loss: 0.5098 - val_accuracy: 0.7708
Epoch 593/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4099 - accuracy: 0.8125 - val_loss: 0.5099 - val_accuracy: 0.7708
Epoch 594/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4098 - accuracy: 0.8125 - val_loss: 0.5099 - val_accuracy: 0.7708
Epoch 595/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4098 - accuracy: 0.8125 - val_loss: 0.5100 - val_accuracy: 0.7708
Epoch 596/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4098 - accuracy: 0.8125 - val_loss: 0.5101 - val_accuracy: 0.7708
Epoch 597/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4097 - accuracy: 0.8125 - val_loss: 0.5101 - val_accuracy: 0.7708
Epoch 598/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4097 - accuracy: 0.8125 - val_loss: 0.5101 - val_accuracy: 0.7708
Epoch 599/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4098 - accuracy: 0.8142 - val_loss: 0.5101 - val_accuracy: 0.7708
Epoch 600/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4097 - accuracy: 0.8142 - val_loss: 0.5102 - val_accuracy: 0.7708
Epoch 601/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.4096 - accuracy: 0.8125 - val_loss: 0.5103 - val_accuracy: 0.7708
Epoch 602/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4096 - accuracy: 0.8125 - val_loss: 0.5103 - val_accuracy: 0.7708
Epoch 603/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4096 - accuracy: 0.8108 - val_loss: 0.5103 - val_accuracy: 0.7708
Epoch 604/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4096 - accuracy: 0.8125 - val_loss: 0.5104 - val_accuracy: 0.7708
Epoch 605/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4096 - accuracy: 0.8125 - val_loss: 0.5105 - val_accuracy: 0.7708
Epoch 606/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4095 - accuracy: 0.8125 - val_loss: 0.5105 - val_accuracy: 0.7708
Epoch 607/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4095 - accuracy: 0.8125 - val_loss: 0.5105 - val_accuracy: 0.7708
Epoch 608/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4095 - accuracy: 0.8125 - val_loss: 0.5106 - val_accuracy: 0.7708
Epoch 609/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4095 - accuracy: 0.8142 - val_loss: 0.5107 - val_accuracy: 0.7708
Epoch 610/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4094 - accuracy: 0.8125 - val_loss: 0.5107 - val_accuracy: 0.7708
Epoch 611/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4094 - accuracy: 0.8125 - val_loss: 0.5108 - val_accuracy: 0.7708
Epoch 612/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4094 - accuracy: 0.8142 - val_loss: 0.5108 - val_accuracy: 0.7708
Epoch 613/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4094 - accuracy: 0.8142 - val_loss: 0.5108 - val_accuracy: 0.7708
Epoch 614/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4093 - accuracy: 0.8125 - val_loss: 0.5109 - val_accuracy: 0.7708
Epoch 615/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4094 - accuracy: 0.8142 - val_loss: 0.5109 - val_accuracy: 0.7708
Epoch 616/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4093 - accuracy: 0.8125 - val_loss: 0.5110 - val_accuracy: 0.7708
Epoch 617/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4093 - accuracy: 0.8125 - val_loss: 0.5111 - val_accuracy: 0.7708
Epoch 618/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4092 - accuracy: 0.8125 - val_loss: 0.5111 - val_accuracy: 0.7708
Epoch 619/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4093 - accuracy: 0.8125 - val_loss: 0.5111 - val_accuracy: 0.7708
Epoch 620/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4092 - accuracy: 0.8125 - val_loss: 0.5112 - val_accuracy: 0.7708
Epoch 621/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4091 - accuracy: 0.8125 - val_loss: 0.5113 - val_accuracy: 0.7708
Epoch 622/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4092 - accuracy: 0.8142 - val_loss: 0.5114 - val_accuracy: 0.7708
Epoch 623/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4091 - accuracy: 0.8142 - val_loss: 0.5114 - val_accuracy: 0.7708
Epoch 624/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4091 - accuracy: 0.8125 - val_loss: 0.5114 - val_accuracy: 0.7708
Epoch 625/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4091 - accuracy: 0.8142 - val_loss: 0.5114 - val_accuracy: 0.7708
Epoch 626/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4091 - accuracy: 0.8142 - val_loss: 0.5115 - val_accuracy: 0.7708
Epoch 627/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4091 - accuracy: 0.8177 - val_loss: 0.5115 - val_accuracy: 0.7708
Epoch 628/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4091 - accuracy: 0.8142 - val_loss: 0.5116 - val_accuracy: 0.7708
Epoch 629/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4089 - accuracy: 0.8160 - val_loss: 0.5116 - val_accuracy: 0.7708
Epoch 630/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4090 - accuracy: 0.8142 - val_loss: 0.5117 - val_accuracy: 0.7708
Epoch 631/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4089 - accuracy: 0.8142 - val_loss: 0.5117 - val_accuracy: 0.7708
Epoch 632/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4089 - accuracy: 0.8142 - val_loss: 0.5117 - val_accuracy: 0.7708
Epoch 633/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4088 - accuracy: 0.8142 - val_loss: 0.5118 - val_accuracy: 0.7708
Epoch 634/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4088 - accuracy: 0.8160 - val_loss: 0.5118 - val_accuracy: 0.7708
Epoch 635/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4089 - accuracy: 0.8160 - val_loss: 0.5119 - val_accuracy: 0.7708
Epoch 636/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4088 - accuracy: 0.8142 - val_loss: 0.5120 - val_accuracy: 0.7708
Epoch 637/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4088 - accuracy: 0.8142 - val_loss: 0.5120 - val_accuracy: 0.7708
Epoch 638/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4088 - accuracy: 0.8142 - val_loss: 0.5120 - val_accuracy: 0.7708
Epoch 639/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4087 - accuracy: 0.8160 - val_loss: 0.5120 - val_accuracy: 0.7708
Epoch 640/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4087 - accuracy: 0.8160 - val_loss: 0.5121 - val_accuracy: 0.7708
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Epoch 641/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4088 - accuracy: 0.8142 - val_loss: 0.5121 - val_accuracy: 0.7708
Epoch 642/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4087 - accuracy: 0.8142 - val_loss: 0.5122 - val_accuracy: 0.7708
Epoch 643/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4087 - accuracy: 0.8160 - val_loss: 0.5122 - val_accuracy: 0.7708
Epoch 644/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4087 - accuracy: 0.8160 - val_loss: 0.5123 - val_accuracy: 0.7708
Epoch 645/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4086 - accuracy: 0.8142 - val_loss: 0.5123 - val_accuracy: 0.7708
Epoch 646/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4085 - accuracy: 0.8142 - val_loss: 0.5124 - val_accuracy: 0.7708
Epoch 647/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4086 - accuracy: 0.8142 - val_loss: 0.5124 - val_accuracy: 0.7708
Epoch 648/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4085 - accuracy: 0.8160 - val_loss: 0.5124 - val_accuracy: 0.7656
Epoch 649/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4085 - accuracy: 0.8160 - val_loss: 0.5124 - val_accuracy: 0.7656
Epoch 650/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4085 - accuracy: 0.8160 - val_loss: 0.5125 - val_accuracy: 0.7656
Epoch 651/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4084 - accuracy: 0.8142 - val_loss: 0.5125 - val_accuracy: 0.7656
Epoch 652/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4085 - accuracy: 0.8177 - val_loss: 0.5126 - val_accuracy: 0.7656
Epoch 653/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4083 - accuracy: 0.8142 - val_loss: 0.5127 - val_accuracy: 0.7656
Epoch 654/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4083 - accuracy: 0.8160 - val_loss: 0.5127 - val_accuracy: 0.7656
Epoch 655/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4083 - accuracy: 0.8160 - val_loss: 0.5127 - val_accuracy: 0.7656
Epoch 656/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4084 - accuracy: 0.8142 - val_loss: 0.5128 - val_accuracy: 0.7656
Epoch 657/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4083 - accuracy: 0.8160 - val_loss: 0.5129 - val_accuracy: 0.7656
Epoch 658/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4082 - accuracy: 0.8160 - val_loss: 0.5129 - val_accuracy: 0.7656
Epoch 659/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4082 - accuracy: 0.8160 - val_loss: 0.5130 - val_accuracy: 0.7656
Epoch 660/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4082 - accuracy: 0.8160 - val_loss: 0.5130 - val_accuracy: 0.7656
Epoch 661/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4082 - accuracy: 0.8177 - val_loss: 0.5130 - val_accuracy: 0.7656
Epoch 662/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4081 - accuracy: 0.8160 - val_loss: 0.5131 - val_accuracy: 0.7656
Epoch 663/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4081 - accuracy: 0.8160 - val_loss: 0.5131 - val_accuracy: 0.7656
Epoch 664/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4080 - accuracy: 0.8177 - val_loss: 0.5131 - val_accuracy: 0.7656
Epoch 665/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4079 - accuracy: 0.8177 - val_loss: 0.5131 - val_accuracy: 0.7656
Epoch 666/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4079 - accuracy: 0.8160 - val_loss: 0.5132 - val_accuracy: 0.7656
Epoch 667/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4079 - accuracy: 0.8160 - val_loss: 0.5132 - val_accuracy: 0.7656
Epoch 668/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4079 - accuracy: 0.8142 - val_loss: 0.5133 - val_accuracy: 0.7656
Epoch 669/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4078 - accuracy: 0.8160 - val_loss: 0.5133 - val_accuracy: 0.7656
Epoch 670/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4078 - accuracy: 0.8177 - val_loss: 0.5134 - val_accuracy: 0.7656
Epoch 671/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4078 - accuracy: 0.8160 - val_loss: 0.5134 - val_accuracy: 0.7656
Epoch 672/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4078 - accuracy: 0.8177 - val_loss: 0.5135 - val_accuracy: 0.7656
Epoch 673/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4077 - accuracy: 0.8160 - val_loss: 0.5135 - val_accuracy: 0.7656
Epoch 674/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4077 - accuracy: 0.8177 - val_loss: 0.5136 - val_accuracy: 0.7656
Epoch 675/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4077 - accuracy: 0.8160 - val_loss: 0.5136 - val_accuracy: 0.7656
Epoch 676/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4077 - accuracy: 0.8160 - val_loss: 0.5136 - val_accuracy: 0.7656
Epoch 677/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4077 - accuracy: 0.8194 - val_loss: 0.5137 - val_accuracy: 0.7656
Epoch 678/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4076 - accuracy: 0.8160 - val_loss: 0.5137 - val_accuracy: 0.7656
Epoch 679/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4076 - accuracy: 0.8194 - val_loss: 0.5138 - val_accuracy: 0.7656
Epoch 680/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4076 - accuracy: 0.8194 - val_loss: 0.5138 - val_accuracy: 0.7656
Epoch 681/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4075 - accuracy: 0.8194 - val_loss: 0.5138 - val_accuracy: 0.7656
Epoch 682/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4076 - accuracy: 0.8177 - val_loss: 0.5138 - val_accuracy: 0.7656
Epoch 683/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4074 - accuracy: 0.8160 - val_loss: 0.5139 - val_accuracy: 0.7656
Epoch 684/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4074 - accuracy: 0.8194 - val_loss: 0.5139 - val_accuracy: 0.7656
Epoch 685/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4074 - accuracy: 0.8177 - val_loss: 0.5140 - val_accuracy: 0.7656
Epoch 686/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4074 - accuracy: 0.8194 - val_loss: 0.5140 - val_accuracy: 0.7656
Epoch 687/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4073 - accuracy: 0.8194 - val_loss: 0.5140 - val_accuracy: 0.7656
Epoch 688/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4074 - accuracy: 0.8194 - val_loss: 0.5141 - val_accuracy: 0.7656
Epoch 689/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4073 - accuracy: 0.8177 - val_loss: 0.5141 - val_accuracy: 0.7656
Epoch 690/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4073 - accuracy: 0.8194 - val_loss: 0.5142 - val_accuracy: 0.7656
Epoch 691/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4073 - accuracy: 0.8212 - val_loss: 0.5142 - val_accuracy: 0.7656
Epoch 692/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4072 - accuracy: 0.8194 - val_loss: 0.5142 - val_accuracy: 0.7656
Epoch 693/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4073 - accuracy: 0.8194 - val_loss: 0.5142 - val_accuracy: 0.7656
Epoch 694/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4073 - accuracy: 0.8212 - val_loss: 0.5143 - val_accuracy: 0.7656
Epoch 695/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4071 - accuracy: 0.8194 - val_loss: 0.5143 - val_accuracy: 0.7656
Epoch 696/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4071 - accuracy: 0.8194 - val_loss: 0.5143 - val_accuracy: 0.7656
Epoch 697/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4071 - accuracy: 0.8194 - val_loss: 0.5144 - val_accuracy: 0.7656
Epoch 698/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4071 - accuracy: 0.8194 - val_loss: 0.5144 - val_accuracy: 0.7656
Epoch 699/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4071 - accuracy: 0.8177 - val_loss: 0.5144 - val_accuracy: 0.7656
Epoch 700/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4071 - accuracy: 0.8212 - val_loss: 0.5145 - val_accuracy: 0.7656
Epoch 701/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4071 - accuracy: 0.8212 - val_loss: 0.5145 - val_accuracy: 0.7656
Epoch 702/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4071 - accuracy: 0.8212 - val_loss: 0.5145 - val_accuracy: 0.7656
Epoch 703/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4070 - accuracy: 0.8212 - val_loss: 0.5146 - val_accuracy: 0.7656
Epoch 704/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4070 - accuracy: 0.8194 - val_loss: 0.5146 - val_accuracy: 0.7656
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Epoch 705/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4069 - accuracy: 0.8212 - val_loss: 0.5147 - val_accuracy: 0.7656
Epoch 706/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4068 - accuracy: 0.8194 - val_loss: 0.5147 - val_accuracy: 0.7656
Epoch 707/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4068 - accuracy: 0.8194 - val_loss: 0.5148 - val_accuracy: 0.7656
Epoch 708/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4068 - accuracy: 0.8212 - val_loss: 0.5148 - val_accuracy: 0.7656
Epoch 709/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4068 - accuracy: 0.8212 - val_loss: 0.5149 - val_accuracy: 0.7656
Epoch 710/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4068 - accuracy: 0.8212 - val_loss: 0.5149 - val_accuracy: 0.7656
Epoch 711/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4067 - accuracy: 0.8212 - val_loss: 0.5149 - val_accuracy: 0.7656
Epoch 712/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4067 - accuracy: 0.8194 - val_loss: 0.5150 - val_accuracy: 0.7656
Epoch 713/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4067 - accuracy: 0.8194 - val_loss: 0.5151 - val_accuracy: 0.7656
Epoch 714/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4067 - accuracy: 0.8194 - val_loss: 0.5151 - val_accuracy: 0.7656
Epoch 715/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4066 - accuracy: 0.8212 - val_loss: 0.5151 - val_accuracy: 0.7656
Epoch 716/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4066 - accuracy: 0.8194 - val_loss: 0.5152 - val_accuracy: 0.7656
Epoch 717/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4066 - accuracy: 0.8194 - val_loss: 0.5152 - val_accuracy: 0.7656
Epoch 718/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4066 - accuracy: 0.8212 - val_loss: 0.5153 - val_accuracy: 0.7656
Epoch 719/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4066 - accuracy: 0.8212 - val_loss: 0.5154 - val_accuracy: 0.7656
Epoch 720/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4064 - accuracy: 0.8212 - val_loss: 0.5155 - val_accuracy: 0.7656
Epoch 721/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4065 - accuracy: 0.8194 - val_loss: 0.5156 - val_accuracy: 0.7656
Epoch 722/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4064 - accuracy: 0.8212 - val_loss: 0.5157 - val_accuracy: 0.7656
Epoch 723/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4063 - accuracy: 0.8229 - val_loss: 0.5158 - val_accuracy: 0.7656
Epoch 724/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4062 - accuracy: 0.8212 - val_loss: 0.5159 - val_accuracy: 0.7656
Epoch 725/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4061 - accuracy: 0.8212 - val_loss: 0.5161 - val_accuracy: 0.7656
Epoch 726/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.4060 - accuracy: 0.8212 - val_loss: 0.5162 - val_accuracy: 0.7656
Epoch 727/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4061 - accuracy: 0.8212 - val_loss: 0.5163 - val_accuracy: 0.7656
Epoch 728/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4059 - accuracy: 0.8212 - val_loss: 0.5164 - val_accuracy: 0.7656
Epoch 729/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4060 - accuracy: 0.8212 - val_loss: 0.5165 - val_accuracy: 0.7656
Epoch 730/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4059 - accuracy: 0.8229 - val_loss: 0.5166 - val_accuracy: 0.7656
Epoch 731/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4059 - accuracy: 0.8212 - val_loss: 0.5167 - val_accuracy: 0.7656
Epoch 732/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4057 - accuracy: 0.8194 - val_loss: 0.5167 - val_accuracy: 0.7656
Epoch 733/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4057 - accuracy: 0.8212 - val_loss: 0.5168 - val_accuracy: 0.7656
Epoch 734/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4056 - accuracy: 0.8212 - val_loss: 0.5169 - val_accuracy: 0.7656
Epoch 735/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4056 - accuracy: 0.8194 - val_loss: 0.5170 - val_accuracy: 0.7656
Epoch 736/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4055 - accuracy: 0.8194 - val_loss: 0.5171 - val_accuracy: 0.7656
Epoch 737/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4055 - accuracy: 0.8177 - val_loss: 0.5172 - val_accuracy: 0.7656
Epoch 738/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4054 - accuracy: 0.8194 - val_loss: 0.5172 - val_accuracy: 0.7656
Epoch 739/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4053 - accuracy: 0.8194 - val_loss: 0.5173 - val_accuracy: 0.7656
Epoch 740/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4055 - accuracy: 0.8212 - val_loss: 0.5174 - val_accuracy: 0.7656
Epoch 741/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4053 - accuracy: 0.8194 - val_loss: 0.5175 - val_accuracy: 0.7656
Epoch 742/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4053 - accuracy: 0.8194 - val_loss: 0.5176 - val_accuracy: 0.7656
Epoch 743/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4053 - accuracy: 0.8212 - val_loss: 0.5176 - val_accuracy: 0.7656
Epoch 744/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4051 - accuracy: 0.8212 - val_loss: 0.5177 - val_accuracy: 0.7656
Epoch 745/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4052 - accuracy: 0.8212 - val_loss: 0.5178 - val_accuracy: 0.7656
Epoch 746/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4051 - accuracy: 0.8212 - val_loss: 0.5179 - val_accuracy: 0.7656
Epoch 747/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4050 - accuracy: 0.8212 - val_loss: 0.5179 - val_accuracy: 0.7708
Epoch 748/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4050 - accuracy: 0.8194 - val_loss: 0.5180 - val_accuracy: 0.7708
Epoch 749/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4050 - accuracy: 0.8212 - val_loss: 0.5180 - val_accuracy: 0.7708
Epoch 750/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4049 - accuracy: 0.8212 - val_loss: 0.5181 - val_accuracy: 0.7708
Epoch 751/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4049 - accuracy: 0.8194 - val_loss: 0.5181 - val_accuracy: 0.7708
Epoch 752/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4048 - accuracy: 0.8212 - val_loss: 0.5182 - val_accuracy: 0.7708
Epoch 753/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4048 - accuracy: 0.8212 - val_loss: 0.5182 - val_accuracy: 0.7708
Epoch 754/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4048 - accuracy: 0.8212 - val_loss: 0.5182 - val_accuracy: 0.7708
Epoch 755/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4048 - accuracy: 0.8177 - val_loss: 0.5183 - val_accuracy: 0.7708
Epoch 756/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4047 - accuracy: 0.8194 - val_loss: 0.5184 - val_accuracy: 0.7708
Epoch 757/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4048 - accuracy: 0.8212 - val_loss: 0.5184 - val_accuracy: 0.7708
Epoch 758/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4046 - accuracy: 0.8212 - val_loss: 0.5184 - val_accuracy: 0.7708
Epoch 759/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4046 - accuracy: 0.8212 - val_loss: 0.5185 - val_accuracy: 0.7708
Epoch 760/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4046 - accuracy: 0.8212 - val_loss: 0.5185 - val_accuracy: 0.7708
Epoch 761/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4046 - accuracy: 0.8212 - val_loss: 0.5186 - val_accuracy: 0.7708
Epoch 762/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4045 - accuracy: 0.8212 - val_loss: 0.5186 - val_accuracy: 0.7708
Epoch 763/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4045 - accuracy: 0.8212 - val_loss: 0.5187 - val_accuracy: 0.7708
Epoch 764/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4045 - accuracy: 0.8212 - val_loss: 0.5187 - val_accuracy: 0.7708
Epoch 765/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4044 - accuracy: 0.8194 - val_loss: 0.5188 - val_accuracy: 0.7708
Epoch 766/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.4044 - accuracy: 0.8194 - val_loss: 0.5189 - val_accuracy: 0.7708
Epoch 767/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.4044 - accuracy: 0.8212 - val_loss: 0.5190 - val_accuracy: 0.7708
Epoch 768/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.4044 - accuracy: 0.8177 - val_loss: 0.5191 - val_accuracy: 0.7708
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Epoch 769/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4043 - accuracy: 0.8194 - val_loss: 0.5191 - val_accuracy: 0.7708
Epoch 770/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4043 - accuracy: 0.8212 - val_loss: 0.5191 - val_accuracy: 0.7708
Epoch 771/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4043 - accuracy: 0.8212 - val_loss: 0.5192 - val_accuracy: 0.7708
Epoch 772/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4042 - accuracy: 0.8212 - val_loss: 0.5192 - val_accuracy: 0.7708
Epoch 773/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4043 - accuracy: 0.8194 - val_loss: 0.5193 - val_accuracy: 0.7708
Epoch 774/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4042 - accuracy: 0.8212 - val_loss: 0.5193 - val_accuracy: 0.7708
Epoch 775/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4041 - accuracy: 0.8212 - val_loss: 0.5193 - val_accuracy: 0.7708
Epoch 776/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4041 - accuracy: 0.8194 - val_loss: 0.5193 - val_accuracy: 0.7708
Epoch 777/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4041 - accuracy: 0.8194 - val_loss: 0.5193 - val_accuracy: 0.7708
Epoch 778/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4040 - accuracy: 0.8194 - val_loss: 0.5194 - val_accuracy: 0.7708
Epoch 779/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4041 - accuracy: 0.8194 - val_loss: 0.5195 - val_accuracy: 0.7708
Epoch 780/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4040 - accuracy: 0.8212 - val_loss: 0.5195 - val_accuracy: 0.7708
Epoch 781/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4040 - accuracy: 0.8212 - val_loss: 0.5196 - val_accuracy: 0.7708
Epoch 782/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4041 - accuracy: 0.8212 - val_loss: 0.5195 - val_accuracy: 0.7708
Epoch 783/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4040 - accuracy: 0.8212 - val_loss: 0.5196 - val_accuracy: 0.7708
Epoch 784/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4039 - accuracy: 0.8194 - val_loss: 0.5197 - val_accuracy: 0.7708
Epoch 785/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4039 - accuracy: 0.8212 - val_loss: 0.5197 - val_accuracy: 0.7708
Epoch 786/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4039 - accuracy: 0.8194 - val_loss: 0.5199 - val_accuracy: 0.7708
Epoch 787/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4039 - accuracy: 0.8212 - val_loss: 0.5199 - val_accuracy: 0.7708
Epoch 788/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4039 - accuracy: 0.8194 - val_loss: 0.5199 - val_accuracy: 0.7708
Epoch 789/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4038 - accuracy: 0.8212 - val_loss: 0.5199 - val_accuracy: 0.7708
Epoch 790/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4039 - accuracy: 0.8212 - val_loss: 0.5199 - val_accuracy: 0.7708
Epoch 791/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4038 - accuracy: 0.8194 - val_loss: 0.5200 - val_accuracy: 0.7708
Epoch 792/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4037 - accuracy: 0.8212 - val_loss: 0.5201 - val_accuracy: 0.7708
Epoch 793/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4038 - accuracy: 0.8194 - val_loss: 0.5202 - val_accuracy: 0.7708
Epoch 794/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4037 - accuracy: 0.8229 - val_loss: 0.5202 - val_accuracy: 0.7708
Epoch 795/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4037 - accuracy: 0.8194 - val_loss: 0.5201 - val_accuracy: 0.7708
Epoch 796/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4036 - accuracy: 0.8212 - val_loss: 0.5201 - val_accuracy: 0.7708
Epoch 797/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4036 - accuracy: 0.8212 - val_loss: 0.5201 - val_accuracy: 0.7708
Epoch 798/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4037 - accuracy: 0.8212 - val_loss: 0.5201 - val_accuracy: 0.7708
Epoch 799/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4036 - accuracy: 0.8194 - val_loss: 0.5202 - val_accuracy: 0.7708
Epoch 800/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4037 - accuracy: 0.8194 - val_loss: 0.5202 - val_accuracy: 0.7708
Epoch 801/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4036 - accuracy: 0.8212 - val_loss: 0.5202 - val_accuracy: 0.7708
Epoch 802/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4035 - accuracy: 0.8194 - val_loss: 0.5203 - val_accuracy: 0.7708
Epoch 803/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4036 - accuracy: 0.8177 - val_loss: 0.5203 - val_accuracy: 0.7708
Epoch 804/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4035 - accuracy: 0.8212 - val_loss: 0.5203 - val_accuracy: 0.7708
Epoch 805/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4034 - accuracy: 0.8194 - val_loss: 0.5203 - val_accuracy: 0.7708
Epoch 806/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4035 - accuracy: 0.8194 - val_loss: 0.5203 - val_accuracy: 0.7708
Epoch 807/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4034 - accuracy: 0.8212 - val_loss: 0.5204 - val_accuracy: 0.7656
Epoch 808/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4034 - accuracy: 0.8212 - val_loss: 0.5205 - val_accuracy: 0.7708
Epoch 809/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4032 - accuracy: 0.8212 - val_loss: 0.5205 - val_accuracy: 0.7656
Epoch 810/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4034 - accuracy: 0.8212 - val_loss: 0.5205 - val_accuracy: 0.7656
Epoch 811/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4033 - accuracy: 0.8194 - val_loss: 0.5205 - val_accuracy: 0.7656
Epoch 812/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4033 - accuracy: 0.8212 - val_loss: 0.5205 - val_accuracy: 0.7656
Epoch 813/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4032 - accuracy: 0.8212 - val_loss: 0.5204 - val_accuracy: 0.7656
Epoch 814/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4032 - accuracy: 0.8212 - val_loss: 0.5204 - val_accuracy: 0.7656
Epoch 815/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4032 - accuracy: 0.8212 - val_loss: 0.5204 - val_accuracy: 0.7656
Epoch 816/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4032 - accuracy: 0.8212 - val_loss: 0.5204 - val_accuracy: 0.7656
Epoch 817/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4032 - accuracy: 0.8212 - val_loss: 0.5204 - val_accuracy: 0.7656
Epoch 818/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4032 - accuracy: 0.8194 - val_loss: 0.5205 - val_accuracy: 0.7656
Epoch 819/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4032 - accuracy: 0.8212 - val_loss: 0.5205 - val_accuracy: 0.7656
Epoch 820/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4031 - accuracy: 0.8212 - val_loss: 0.5205 - val_accuracy: 0.7656
Epoch 821/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4031 - accuracy: 0.8212 - val_loss: 0.5205 - val_accuracy: 0.7656
Epoch 822/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4031 - accuracy: 0.8212 - val_loss: 0.5205 - val_accuracy: 0.7656
Epoch 823/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4031 - accuracy: 0.8212 - val_loss: 0.5205 - val_accuracy: 0.7656
Epoch 824/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4030 - accuracy: 0.8194 - val_loss: 0.5206 - val_accuracy: 0.7656
Epoch 825/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4030 - accuracy: 0.8212 - val_loss: 0.5206 - val_accuracy: 0.7656
Epoch 826/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4030 - accuracy: 0.8212 - val_loss: 0.5206 - val_accuracy: 0.7656
Epoch 827/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4030 - accuracy: 0.8212 - val_loss: 0.5206 - val_accuracy: 0.7656
Epoch 828/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4030 - accuracy: 0.8212 - val_loss: 0.5207 - val_accuracy: 0.7656
Epoch 829/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4029 - accuracy: 0.8212 - val_loss: 0.5206 - val_accuracy: 0.7656
Epoch 830/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4029 - accuracy: 0.8212 - val_loss: 0.5207 - val_accuracy: 0.7656
Epoch 831/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4029 - accuracy: 0.8212 - val_loss: 0.5207 - val_accuracy: 0.7656
Epoch 832/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4029 - accuracy: 0.8212 - val_loss: 0.5207 - val_accuracy: 0.7656
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Epoch 833/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4029 - accuracy: 0.8212 - val_loss: 0.5207 - val_accuracy: 0.7656
Epoch 834/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4028 - accuracy: 0.8212 - val_loss: 0.5207 - val_accuracy: 0.7656
Epoch 835/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4028 - accuracy: 0.8212 - val_loss: 0.5207 - val_accuracy: 0.7656
Epoch 836/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4028 - accuracy: 0.8212 - val_loss: 0.5207 - val_accuracy: 0.7656
Epoch 837/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4027 - accuracy: 0.8212 - val_loss: 0.5207 - val_accuracy: 0.7656
Epoch 838/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4027 - accuracy: 0.8212 - val_loss: 0.5207 - val_accuracy: 0.7656
Epoch 839/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4026 - accuracy: 0.8212 - val_loss: 0.5207 - val_accuracy: 0.7656
Epoch 840/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4027 - accuracy: 0.8212 - val_loss: 0.5208 - val_accuracy: 0.7656
Epoch 841/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4026 - accuracy: 0.8212 - val_loss: 0.5208 - val_accuracy: 0.7656
Epoch 842/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4027 - accuracy: 0.8212 - val_loss: 0.5208 - val_accuracy: 0.7656
Epoch 843/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4026 - accuracy: 0.8194 - val_loss: 0.5207 - val_accuracy: 0.7656
Epoch 844/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4025 - accuracy: 0.8212 - val_loss: 0.5207 - val_accuracy: 0.7656
Epoch 845/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4026 - accuracy: 0.8212 - val_loss: 0.5208 - val_accuracy: 0.7656
Epoch 846/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4025 - accuracy: 0.8212 - val_loss: 0.5208 - val_accuracy: 0.7656
Epoch 847/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4025 - accuracy: 0.8212 - val_loss: 0.5208 - val_accuracy: 0.7656
Epoch 848/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4025 - accuracy: 0.8212 - val_loss: 0.5209 - val_accuracy: 0.7656
Epoch 849/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4025 - accuracy: 0.8212 - val_loss: 0.5210 - val_accuracy: 0.7656
Epoch 850/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4024 - accuracy: 0.8212 - val_loss: 0.5210 - val_accuracy: 0.7656
Epoch 851/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4024 - accuracy: 0.8194 - val_loss: 0.5211 - val_accuracy: 0.7656
Epoch 852/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4024 - accuracy: 0.8194 - val_loss: 0.5211 - val_accuracy: 0.7656
Epoch 853/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4024 - accuracy: 0.8212 - val_loss: 0.5211 - val_accuracy: 0.7656
Epoch 854/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4023 - accuracy: 0.8212 - val_loss: 0.5211 - val_accuracy: 0.7656
Epoch 855/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4024 - accuracy: 0.8229 - val_loss: 0.5212 - val_accuracy: 0.7656
Epoch 856/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4023 - accuracy: 0.8229 - val_loss: 0.5212 - val_accuracy: 0.7656
Epoch 857/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4023 - accuracy: 0.8229 - val_loss: 0.5213 - val_accuracy: 0.7656
Epoch 858/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4023 - accuracy: 0.8194 - val_loss: 0.5213 - val_accuracy: 0.7656
Epoch 859/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4022 - accuracy: 0.8229 - val_loss: 0.5214 - val_accuracy: 0.7656
Epoch 860/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4023 - accuracy: 0.8212 - val_loss: 0.5214 - val_accuracy: 0.7656
Epoch 861/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4023 - accuracy: 0.8229 - val_loss: 0.5214 - val_accuracy: 0.7656
Epoch 862/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4023 - accuracy: 0.8229 - val_loss: 0.5215 - val_accuracy: 0.7656
Epoch 863/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4023 - accuracy: 0.8212 - val_loss: 0.5215 - val_accuracy: 0.7656
Epoch 864/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4022 - accuracy: 0.8229 - val_loss: 0.5215 - val_accuracy: 0.7656
Epoch 865/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4021 - accuracy: 0.8212 - val_loss: 0.5215 - val_accuracy: 0.7656
Epoch 866/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4022 - accuracy: 0.8177 - val_loss: 0.5216 - val_accuracy: 0.7656
Epoch 867/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4021 - accuracy: 0.8212 - val_loss: 0.5216 - val_accuracy: 0.7656
Epoch 868/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4021 - accuracy: 0.8212 - val_loss: 0.5216 - val_accuracy: 0.7656
Epoch 869/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4022 - accuracy: 0.8194 - val_loss: 0.5216 - val_accuracy: 0.7656
Epoch 870/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4021 - accuracy: 0.8194 - val_loss: 0.5217 - val_accuracy: 0.7656
Epoch 871/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4021 - accuracy: 0.8229 - val_loss: 0.5217 - val_accuracy: 0.7656
Epoch 872/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4021 - accuracy: 0.8194 - val_loss: 0.5217 - val_accuracy: 0.7656
Epoch 873/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4020 - accuracy: 0.8229 - val_loss: 0.5217 - val_accuracy: 0.7656
Epoch 874/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4020 - accuracy: 0.8229 - val_loss: 0.5218 - val_accuracy: 0.7656
Epoch 875/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4020 - accuracy: 0.8194 - val_loss: 0.5218 - val_accuracy: 0.7656
Epoch 876/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4020 - accuracy: 0.8177 - val_loss: 0.5218 - val_accuracy: 0.7656
Epoch 877/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4019 - accuracy: 0.8194 - val_loss: 0.5219 - val_accuracy: 0.7656
Epoch 878/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4019 - accuracy: 0.8194 - val_loss: 0.5219 - val_accuracy: 0.7656
Epoch 879/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4019 - accuracy: 0.8177 - val_loss: 0.5219 - val_accuracy: 0.7656
Epoch 880/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4018 - accuracy: 0.8212 - val_loss: 0.5220 - val_accuracy: 0.7656
Epoch 881/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4019 - accuracy: 0.8194 - val_loss: 0.5220 - val_accuracy: 0.7656
Epoch 882/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4018 - accuracy: 0.8194 - val_loss: 0.5221 - val_accuracy: 0.7656
Epoch 883/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.4019 - accuracy: 0.8177 - val_loss: 0.5221 - val_accuracy: 0.7656
Epoch 884/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4018 - accuracy: 0.8177 - val_loss: 0.5221 - val_accuracy: 0.7656
Epoch 885/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4018 - accuracy: 0.8177 - val_loss: 0.5222 - val_accuracy: 0.7656
Epoch 886/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4018 - accuracy: 0.8177 - val_loss: 0.5221 - val_accuracy: 0.7656
Epoch 887/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4017 - accuracy: 0.8177 - val_loss: 0.5222 - val_accuracy: 0.7656
Epoch 888/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4017 - accuracy: 0.8177 - val_loss: 0.5222 - val_accuracy: 0.7656
Epoch 889/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4017 - accuracy: 0.8212 - val_loss: 0.5223 - val_accuracy: 0.7656
Epoch 890/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4017 - accuracy: 0.8177 - val_loss: 0.5223 - val_accuracy: 0.7656
Epoch 891/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4017 - accuracy: 0.8177 - val_loss: 0.5224 - val_accuracy: 0.7656
Epoch 892/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.4017 - accuracy: 0.8177 - val_loss: 0.5224 - val_accuracy: 0.7656
Epoch 893/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.4018 - accuracy: 0.8177 - val_loss: 0.5224 - val_accuracy: 0.7656
Epoch 894/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4017 - accuracy: 0.8177 - val_loss: 0.5224 - val_accuracy: 0.7656
Epoch 895/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4016 - accuracy: 0.8194 - val_loss: 0.5224 - val_accuracy: 0.7656
Epoch 896/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.4017 - accuracy: 0.8177 - val_loss: 0.5225 - val_accuracy: 0.7656
```

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Epoch 897/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4016 - accuracy: 0.8177 - val_loss: 0.5225 - val_accuracy: 0.7656
Epoch 898/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.4016 - accuracy: 0.8177 - val_loss: 0.5224 - val_accuracy: 0.7656
Epoch 899/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4015 - accuracy: 0.8177 - val_loss: 0.5224 - val_accuracy: 0.7656
Epoch 900/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4016 - accuracy: 0.8194 - val_loss: 0.5225 - val_accuracy: 0.7656
Epoch 901/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4015 - accuracy: 0.8194 - val_loss: 0.5225 - val_accuracy: 0.7656
Epoch 902/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4015 - accuracy: 0.8177 - val_loss: 0.5226 - val_accuracy: 0.7656
Epoch 903/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4016 - accuracy: 0.8177 - val_loss: 0.5226 - val_accuracy: 0.7656
Epoch 904/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4014 - accuracy: 0.8177 - val_loss: 0.5226 - val_accuracy: 0.7656
Epoch 905/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4015 - accuracy: 0.8194 - val_loss: 0.5226 - val_accuracy: 0.7656
Epoch 906/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4014 - accuracy: 0.8177 - val_loss: 0.5226 - val_accuracy: 0.7656
Epoch 907/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.4014 - accuracy: 0.8194 - val_loss: 0.5227 - val_accuracy: 0.7656
Epoch 908/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.4014 - accuracy: 0.8177 - val_loss: 0.5227 - val_accuracy: 0.7656
Epoch 909/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4015 - accuracy: 0.8177 - val_loss: 0.5227 - val_accuracy: 0.7656
Epoch 910/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4014 - accuracy: 0.8194 - val_loss: 0.5227 - val_accuracy: 0.7656
Epoch 911/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4014 - accuracy: 0.8177 - val_loss: 0.5227 - val_accuracy: 0.7656
Epoch 912/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4014 - accuracy: 0.8194 - val_loss: 0.5228 - val_accuracy: 0.7656
Epoch 913/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4013 - accuracy: 0.8212 - val_loss: 0.5229 - val_accuracy: 0.7656
Epoch 914/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.4012 - accuracy: 0.8177 - val_loss: 0.5229 - val_accuracy: 0.7656
Epoch 915/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4013 - accuracy: 0.8177 - val_loss: 0.5229 - val_accuracy: 0.7656
Epoch 916/1500
18/18 [==============================] - 0s 10ms/step - loss: 0.4012 - accuracy: 0.8194 - val_loss: 0.5230 - val_accuracy: 0.7656
Epoch 917/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4012 - accuracy: 0.8177 - val_loss: 0.5230 - val_accuracy: 0.7656
Epoch 918/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.4013 - accuracy: 0.8177 - val_loss: 0.5230 - val_accuracy: 0.7604
Epoch 919/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4012 - accuracy: 0.8177 - val_loss: 0.5230 - val_accuracy: 0.7656
Epoch 920/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.4011 - accuracy: 0.8194 - val_loss: 0.5230 - val_accuracy: 0.7604
Epoch 921/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4012 - accuracy: 0.8177 - val_loss: 0.5230 - val_accuracy: 0.7604
Epoch 922/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4011 - accuracy: 0.8194 - val_loss: 0.5231 - val_accuracy: 0.7604
Epoch 923/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4011 - accuracy: 0.8177 - val_loss: 0.5231 - val_accuracy: 0.7604
Epoch 924/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4010 - accuracy: 0.8212 - val_loss: 0.5232 - val_accuracy: 0.7604
Epoch 925/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4011 - accuracy: 0.8177 - val_loss: 0.5232 - val_accuracy: 0.7604
Epoch 926/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4011 - accuracy: 0.8177 - val_loss: 0.5232 - val_accuracy: 0.7604
Epoch 927/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4010 - accuracy: 0.8177 - val_loss: 0.5233 - val_accuracy: 0.7604
Epoch 928/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4009 - accuracy: 0.8177 - val_loss: 0.5233 - val_accuracy: 0.7604
Epoch 929/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4010 - accuracy: 0.8212 - val_loss: 0.5234 - val_accuracy: 0.7604
Epoch 930/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4009 - accuracy: 0.8177 - val_loss: 0.5233 - val_accuracy: 0.7604
Epoch 931/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4009 - accuracy: 0.8194 - val_loss: 0.5234 - val_accuracy: 0.7604
Epoch 932/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4009 - accuracy: 0.8177 - val_loss: 0.5234 - val_accuracy: 0.7604
Epoch 933/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4009 - accuracy: 0.8177 - val_loss: 0.5235 - val_accuracy: 0.7604
Epoch 934/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4009 - accuracy: 0.8177 - val_loss: 0.5235 - val_accuracy: 0.7604
Epoch 935/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4008 - accuracy: 0.8177 - val_loss: 0.5234 - val_accuracy: 0.7604
Epoch 936/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4009 - accuracy: 0.8177 - val_loss: 0.5235 - val_accuracy: 0.7604
Epoch 937/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4008 - accuracy: 0.8194 - val_loss: 0.5235 - val_accuracy: 0.7604
Epoch 938/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4008 - accuracy: 0.8177 - val_loss: 0.5236 - val_accuracy: 0.7604
Epoch 939/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4006 - accuracy: 0.8194 - val_loss: 0.5236 - val_accuracy: 0.7604
Epoch 940/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4008 - accuracy: 0.8194 - val_loss: 0.5237 - val_accuracy: 0.7604
Epoch 941/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4007 - accuracy: 0.8177 - val_loss: 0.5236 - val_accuracy: 0.7604
Epoch 942/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4005 - accuracy: 0.8194 - val_loss: 0.5237 - val_accuracy: 0.7604
Epoch 943/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4006 - accuracy: 0.8194 - val_loss: 0.5238 - val_accuracy: 0.7604
Epoch 944/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4007 - accuracy: 0.8212 - val_loss: 0.5239 - val_accuracy: 0.7604
Epoch 945/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4005 - accuracy: 0.8194 - val_loss: 0.5240 - val_accuracy: 0.7604
Epoch 946/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4007 - accuracy: 0.8194 - val_loss: 0.5239 - val_accuracy: 0.7656
Epoch 947/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4005 - accuracy: 0.8194 - val_loss: 0.5240 - val_accuracy: 0.7656
Epoch 948/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4005 - accuracy: 0.8194 - val_loss: 0.5240 - val_accuracy: 0.7604
Epoch 949/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4005 - accuracy: 0.8194 - val_loss: 0.5240 - val_accuracy: 0.7604
Epoch 950/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4004 - accuracy: 0.8194 - val_loss: 0.5240 - val_accuracy: 0.7604
Epoch 951/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4004 - accuracy: 0.8194 - val_loss: 0.5240 - val_accuracy: 0.7656
Epoch 952/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4004 - accuracy: 0.8194 - val_loss: 0.5240 - val_accuracy: 0.7656
Epoch 953/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4005 - accuracy: 0.8177 - val_loss: 0.5239 - val_accuracy: 0.7656
Epoch 954/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4003 - accuracy: 0.8194 - val_loss: 0.5239 - val_accuracy: 0.7656
Epoch 955/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4003 - accuracy: 0.8194 - val_loss: 0.5239 - val_accuracy: 0.7656
Epoch 956/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4003 - accuracy: 0.8229 - val_loss: 0.5240 - val_accuracy: 0.7656
Epoch 957/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4003 - accuracy: 0.8212 - val_loss: 0.5240 - val_accuracy: 0.7656
Epoch 958/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4003 - accuracy: 0.8194 - val_loss: 0.5239 - val_accuracy: 0.7656
Epoch 959/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4003 - accuracy: 0.8177 - val_loss: 0.5239 - val_accuracy: 0.7656
Epoch 960/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4002 - accuracy: 0.8194 - val_loss: 0.5240 - val_accuracy: 0.7656
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Epoch 961/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4002 - accuracy: 0.8194 - val_loss: 0.5239 - val_accuracy: 0.7656
Epoch 962/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4003 - accuracy: 0.8177 - val_loss: 0.5239 - val_accuracy: 0.7656
Epoch 963/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4003 - accuracy: 0.8194 - val_loss: 0.5240 - val_accuracy: 0.7656
Epoch 964/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4003 - accuracy: 0.8177 - val_loss: 0.5240 - val_accuracy: 0.7656
Epoch 965/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4001 - accuracy: 0.8194 - val_loss: 0.5241 - val_accuracy: 0.7656
Epoch 966/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.4001 - accuracy: 0.8177 - val_loss: 0.5241 - val_accuracy: 0.7656
Epoch 967/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4001 - accuracy: 0.8212 - val_loss: 0.5241 - val_accuracy: 0.7656
Epoch 968/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4001 - accuracy: 0.8212 - val_loss: 0.5241 - val_accuracy: 0.7656
Epoch 969/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4001 - accuracy: 0.8212 - val_loss: 0.5242 - val_accuracy: 0.7656
Epoch 970/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4001 - accuracy: 0.8212 - val_loss: 0.5242 - val_accuracy: 0.7656
Epoch 971/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4000 - accuracy: 0.8177 - val_loss: 0.5242 - val_accuracy: 0.7656
Epoch 972/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.4001 - accuracy: 0.8212 - val_loss: 0.5241 - val_accuracy: 0.7656
Epoch 973/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4000 - accuracy: 0.8212 - val_loss: 0.5241 - val_accuracy: 0.7656
Epoch 974/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3999 - accuracy: 0.8194 - val_loss: 0.5241 - val_accuracy: 0.7656
Epoch 975/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.4000 - accuracy: 0.8212 - val_loss: 0.5241 - val_accuracy: 0.7656
Epoch 976/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3999 - accuracy: 0.8194 - val_loss: 0.5242 - val_accuracy: 0.7656
Epoch 977/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3999 - accuracy: 0.8177 - val_loss: 0.5242 - val_accuracy: 0.7656
Epoch 978/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3999 - accuracy: 0.8194 - val_loss: 0.5242 - val_accuracy: 0.7656
Epoch 979/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3999 - accuracy: 0.8212 - val_loss: 0.5243 - val_accuracy: 0.7656
Epoch 980/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3999 - accuracy: 0.8177 - val_loss: 0.5244 - val_accuracy: 0.7656
Epoch 981/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3999 - accuracy: 0.8194 - val_loss: 0.5244 - val_accuracy: 0.7656
Epoch 982/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3999 - accuracy: 0.8212 - val_loss: 0.5243 - val_accuracy: 0.7656
Epoch 983/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3998 - accuracy: 0.8177 - val_loss: 0.5244 - val_accuracy: 0.7656
Epoch 984/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3998 - accuracy: 0.8194 - val_loss: 0.5244 - val_accuracy: 0.7656
Epoch 985/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3998 - accuracy: 0.8177 - val_loss: 0.5244 - val_accuracy: 0.7656
Epoch 986/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3998 - accuracy: 0.8194 - val_loss: 0.5244 - val_accuracy: 0.7656
Epoch 987/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3997 - accuracy: 0.8177 - val_loss: 0.5243 - val_accuracy: 0.7656
Epoch 988/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3998 - accuracy: 0.8212 - val_loss: 0.5243 - val_accuracy: 0.7656
Epoch 989/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3998 - accuracy: 0.8160 - val_loss: 0.5243 - val_accuracy: 0.7656
Epoch 990/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3997 - accuracy: 0.8194 - val_loss: 0.5243 - val_accuracy: 0.7656
Epoch 991/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3997 - accuracy: 0.8229 - val_loss: 0.5244 - val_accuracy: 0.7656
Epoch 992/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3999 - accuracy: 0.8194 - val_loss: 0.5244 - val_accuracy: 0.7656
Epoch 993/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3997 - accuracy: 0.8212 - val_loss: 0.5244 - val_accuracy: 0.7656
Epoch 994/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3997 - accuracy: 0.8212 - val_loss: 0.5245 - val_accuracy: 0.7656
Epoch 995/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3997 - accuracy: 0.8194 - val_loss: 0.5244 - val_accuracy: 0.7656
Epoch 996/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3996 - accuracy: 0.8212 - val_loss: 0.5244 - val_accuracy: 0.7656
Epoch 997/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3997 - accuracy: 0.8194 - val_loss: 0.5244 - val_accuracy: 0.7656
Epoch 998/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3996 - accuracy: 0.8194 - val_loss: 0.5244 - val_accuracy: 0.7656
Epoch 999/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3995 - accuracy: 0.8177 - val_loss: 0.5244 - val_accuracy: 0.7656
Epoch 1000/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3996 - accuracy: 0.8212 - val_loss: 0.5245 - val_accuracy: 0.7656
Epoch 1001/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3995 - accuracy: 0.8229 - val_loss: 0.5246 - val_accuracy: 0.7656
Epoch 1002/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3997 - accuracy: 0.8194 - val_loss: 0.5246 - val_accuracy: 0.7656
Epoch 1003/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3995 - accuracy: 0.8212 - val_loss: 0.5245 - val_accuracy: 0.7656
Epoch 1004/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3995 - accuracy: 0.8194 - val_loss: 0.5246 - val_accuracy: 0.7656
Epoch 1005/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3995 - accuracy: 0.8229 - val_loss: 0.5246 - val_accuracy: 0.7656
Epoch 1006/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3995 - accuracy: 0.8212 - val_loss: 0.5246 - val_accuracy: 0.7656
Epoch 1007/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3996 - accuracy: 0.8194 - val_loss: 0.5246 - val_accuracy: 0.7656
Epoch 1008/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3994 - accuracy: 0.8194 - val_loss: 0.5247 - val_accuracy: 0.7656
Epoch 1009/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3994 - accuracy: 0.8212 - val_loss: 0.5247 - val_accuracy: 0.7656
Epoch 1010/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3993 - accuracy: 0.8229 - val_loss: 0.5248 - val_accuracy: 0.7656
Epoch 1011/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3994 - accuracy: 0.8212 - val_loss: 0.5248 - val_accuracy: 0.7656
Epoch 1012/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3994 - accuracy: 0.8212 - val_loss: 0.5247 - val_accuracy: 0.7656
Epoch 1013/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3993 - accuracy: 0.8212 - val_loss: 0.5247 - val_accuracy: 0.7656
Epoch 1014/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3993 - accuracy: 0.8212 - val_loss: 0.5248 - val_accuracy: 0.7656
Epoch 1015/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3993 - accuracy: 0.8212 - val_loss: 0.5248 - val_accuracy: 0.7656
Epoch 1016/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3993 - accuracy: 0.8212 - val_loss: 0.5249 - val_accuracy: 0.7656
Epoch 1017/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3992 - accuracy: 0.8212 - val_loss: 0.5249 - val_accuracy: 0.7656
Epoch 1018/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3993 - accuracy: 0.8229 - val_loss: 0.5249 - val_accuracy: 0.7656
Epoch 1019/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3992 - accuracy: 0.8229 - val_loss: 0.5249 - val_accuracy: 0.7656
Epoch 1020/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3993 - accuracy: 0.8229 - val_loss: 0.5249 - val_accuracy: 0.7656
Epoch 1021/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3991 - accuracy: 0.8229 - val_loss: 0.5249 - val_accuracy: 0.7656
Epoch 1022/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3994 - accuracy: 0.8212 - val_loss: 0.5250 - val_accuracy: 0.7656
Epoch 1023/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3991 - accuracy: 0.8212 - val_loss: 0.5250 - val_accuracy: 0.7656
Epoch 1024/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3992 - accuracy: 0.8229 - val_loss: 0.5250 - val_accuracy: 0.7656
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Epoch 1025/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3991 - accuracy: 0.8229 - val_loss: 0.5249 - val_accuracy: 0.7656
Epoch 1026/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3991 - accuracy: 0.8229 - val_loss: 0.5250 - val_accuracy: 0.7656
Epoch 1027/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3991 - accuracy: 0.8229 - val_loss: 0.5250 - val_accuracy: 0.7656
Epoch 1028/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3991 - accuracy: 0.8229 - val_loss: 0.5250 - val_accuracy: 0.7656
Epoch 1029/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3991 - accuracy: 0.8229 - val_loss: 0.5251 - val_accuracy: 0.7656
Epoch 1030/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3991 - accuracy: 0.8229 - val_loss: 0.5252 - val_accuracy: 0.7656
Epoch 1031/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3991 - accuracy: 0.8229 - val_loss: 0.5251 - val_accuracy: 0.7656
Epoch 1032/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3991 - accuracy: 0.8229 - val_loss: 0.5252 - val_accuracy: 0.7656
Epoch 1033/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3991 - accuracy: 0.8229 - val_loss: 0.5251 - val_accuracy: 0.7656
Epoch 1034/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3992 - accuracy: 0.8229 - val_loss: 0.5252 - val_accuracy: 0.7656
Epoch 1035/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3990 - accuracy: 0.8229 - val_loss: 0.5252 - val_accuracy: 0.7656
Epoch 1036/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3989 - accuracy: 0.8212 - val_loss: 0.5253 - val_accuracy: 0.7656
Epoch 1037/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3990 - accuracy: 0.8229 - val_loss: 0.5253 - val_accuracy: 0.7656
Epoch 1038/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3991 - accuracy: 0.8229 - val_loss: 0.5253 - val_accuracy: 0.7656
Epoch 1039/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3989 - accuracy: 0.8229 - val_loss: 0.5253 - val_accuracy: 0.7656
Epoch 1040/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3989 - accuracy: 0.8229 - val_loss: 0.5252 - val_accuracy: 0.7656
Epoch 1041/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3989 - accuracy: 0.8229 - val_loss: 0.5254 - val_accuracy: 0.7656
Epoch 1042/1500
18/18 [==============================] - 0s 9ms/step - loss: 0.3989 - accuracy: 0.8229 - val_loss: 0.5254 - val_accuracy: 0.7656
Epoch 1043/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3989 - accuracy: 0.8212 - val_loss: 0.5255 - val_accuracy: 0.7656
Epoch 1044/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3989 - accuracy: 0.8229 - val_loss: 0.5255 - val_accuracy: 0.7656
Epoch 1045/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3988 - accuracy: 0.8212 - val_loss: 0.5255 - val_accuracy: 0.7656
Epoch 1046/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3989 - accuracy: 0.8229 - val_loss: 0.5256 - val_accuracy: 0.7656
Epoch 1047/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3988 - accuracy: 0.8212 - val_loss: 0.5257 - val_accuracy: 0.7656
Epoch 1048/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3988 - accuracy: 0.8212 - val_loss: 0.5257 - val_accuracy: 0.7656
Epoch 1049/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3988 - accuracy: 0.8229 - val_loss: 0.5257 - val_accuracy: 0.7656
Epoch 1050/1500
18/18 [==============================] - 0s 10ms/step - loss: 0.3988 - accuracy: 0.8229 - val_loss: 0.5257 - val_accuracy: 0.7656
Epoch 1051/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3987 - accuracy: 0.8229 - val_loss: 0.5258 - val_accuracy: 0.7656
Epoch 1052/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3987 - accuracy: 0.8229 - val_loss: 0.5258 - val_accuracy: 0.7656
Epoch 1053/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3987 - accuracy: 0.8229 - val_loss: 0.5258 - val_accuracy: 0.7656
Epoch 1054/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3988 - accuracy: 0.8229 - val_loss: 0.5259 - val_accuracy: 0.7656
Epoch 1055/1500
18/18 [==============================] - 0s 9ms/step - loss: 0.3987 - accuracy: 0.8229 - val_loss: 0.5258 - val_accuracy: 0.7656
Epoch 1056/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3987 - accuracy: 0.8229 - val_loss: 0.5259 - val_accuracy: 0.7656
Epoch 1057/1500
18/18 [==============================] - 0s 9ms/step - loss: 0.3987 - accuracy: 0.8229 - val_loss: 0.5259 - val_accuracy: 0.7656
Epoch 1058/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3986 - accuracy: 0.8229 - val_loss: 0.5259 - val_accuracy: 0.7656
Epoch 1059/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3986 - accuracy: 0.8229 - val_loss: 0.5260 - val_accuracy: 0.7656
Epoch 1060/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3986 - accuracy: 0.8229 - val_loss: 0.5260 - val_accuracy: 0.7656
Epoch 1061/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3986 - accuracy: 0.8229 - val_loss: 0.5260 - val_accuracy: 0.7656
Epoch 1062/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3985 - accuracy: 0.8229 - val_loss: 0.5260 - val_accuracy: 0.7656
Epoch 1063/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3986 - accuracy: 0.8229 - val_loss: 0.5259 - val_accuracy: 0.7656
Epoch 1064/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3985 - accuracy: 0.8229 - val_loss: 0.5260 - val_accuracy: 0.7656
Epoch 1065/1500
18/18 [==============================] - 0s 9ms/step - loss: 0.3985 - accuracy: 0.8229 - val_loss: 0.5262 - val_accuracy: 0.7656
Epoch 1066/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3984 - accuracy: 0.8229 - val_loss: 0.5262 - val_accuracy: 0.7656
Epoch 1067/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3985 - accuracy: 0.8229 - val_loss: 0.5262 - val_accuracy: 0.7656
Epoch 1068/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3985 - accuracy: 0.8229 - val_loss: 0.5262 - val_accuracy: 0.7656
Epoch 1069/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3984 - accuracy: 0.8229 - val_loss: 0.5262 - val_accuracy: 0.7656
Epoch 1070/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3984 - accuracy: 0.8229 - val_loss: 0.5262 - val_accuracy: 0.7656
Epoch 1071/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3984 - accuracy: 0.8229 - val_loss: 0.5263 - val_accuracy: 0.7656
Epoch 1072/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3984 - accuracy: 0.8229 - val_loss: 0.5264 - val_accuracy: 0.7656
Epoch 1073/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3984 - accuracy: 0.8229 - val_loss: 0.5263 - val_accuracy: 0.7656
Epoch 1074/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3983 - accuracy: 0.8229 - val_loss: 0.5265 - val_accuracy: 0.7656
Epoch 1075/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3983 - accuracy: 0.8229 - val_loss: 0.5264 - val_accuracy: 0.7656
Epoch 1076/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3983 - accuracy: 0.8229 - val_loss: 0.5265 - val_accuracy: 0.7656
Epoch 1077/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3983 - accuracy: 0.8229 - val_loss: 0.5266 - val_accuracy: 0.7656
Epoch 1078/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3983 - accuracy: 0.8229 - val_loss: 0.5266 - val_accuracy: 0.7656
Epoch 1079/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3982 - accuracy: 0.8229 - val_loss: 0.5267 - val_accuracy: 0.7656
Epoch 1080/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3983 - accuracy: 0.8229 - val_loss: 0.5267 - val_accuracy: 0.7656
Epoch 1081/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3983 - accuracy: 0.8229 - val_loss: 0.5267 - val_accuracy: 0.7656
Epoch 1082/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3983 - accuracy: 0.8229 - val_loss: 0.5267 - val_accuracy: 0.7656
Epoch 1083/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3982 - accuracy: 0.8229 - val_loss: 0.5268 - val_accuracy: 0.7656
Epoch 1084/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3982 - accuracy: 0.8229 - val_loss: 0.5269 - val_accuracy: 0.7656
Epoch 1085/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3982 - accuracy: 0.8229 - val_loss: 0.5269 - val_accuracy: 0.7656
Epoch 1086/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3982 - accuracy: 0.8229 - val_loss: 0.5269 - val_accuracy: 0.7656
Epoch 1087/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3982 - accuracy: 0.8229 - val_loss: 0.5270 - val_accuracy: 0.7656
Epoch 1088/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3981 - accuracy: 0.8229 - val_loss: 0.5270 - val_accuracy: 0.7656
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Epoch 1089/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3980 - accuracy: 0.8229 - val_loss: 0.5270 - val_accuracy: 0.7656
Epoch 1090/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3982 - accuracy: 0.8229 - val_loss: 0.5271 - val_accuracy: 0.7656
Epoch 1091/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3980 - accuracy: 0.8229 - val_loss: 0.5271 - val_accuracy: 0.7656
Epoch 1092/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3980 - accuracy: 0.8229 - val_loss: 0.5271 - val_accuracy: 0.7656
Epoch 1093/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3980 - accuracy: 0.8247 - val_loss: 0.5272 - val_accuracy: 0.7656
Epoch 1094/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3981 - accuracy: 0.8229 - val_loss: 0.5272 - val_accuracy: 0.7656
Epoch 1095/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3981 - accuracy: 0.8229 - val_loss: 0.5273 - val_accuracy: 0.7656
Epoch 1096/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3981 - accuracy: 0.8247 - val_loss: 0.5273 - val_accuracy: 0.7656
Epoch 1097/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3980 - accuracy: 0.8229 - val_loss: 0.5273 - val_accuracy: 0.7656
Epoch 1098/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3981 - accuracy: 0.8229 - val_loss: 0.5274 - val_accuracy: 0.7656
Epoch 1099/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3980 - accuracy: 0.8229 - val_loss: 0.5276 - val_accuracy: 0.7656
Epoch 1100/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3979 - accuracy: 0.8229 - val_loss: 0.5277 - val_accuracy: 0.7656
Epoch 1101/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3980 - accuracy: 0.8229 - val_loss: 0.5276 - val_accuracy: 0.7656
Epoch 1102/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3979 - accuracy: 0.8247 - val_loss: 0.5277 - val_accuracy: 0.7656
Epoch 1103/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3979 - accuracy: 0.8247 - val_loss: 0.5277 - val_accuracy: 0.7656
Epoch 1104/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3979 - accuracy: 0.8212 - val_loss: 0.5277 - val_accuracy: 0.7656
Epoch 1105/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3979 - accuracy: 0.8229 - val_loss: 0.5277 - val_accuracy: 0.7656
Epoch 1106/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3979 - accuracy: 0.8247 - val_loss: 0.5278 - val_accuracy: 0.7656
Epoch 1107/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3978 - accuracy: 0.8229 - val_loss: 0.5278 - val_accuracy: 0.7656
Epoch 1108/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3978 - accuracy: 0.8247 - val_loss: 0.5279 - val_accuracy: 0.7656
Epoch 1109/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3978 - accuracy: 0.8229 - val_loss: 0.5279 - val_accuracy: 0.7656
Epoch 1110/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3978 - accuracy: 0.8247 - val_loss: 0.5280 - val_accuracy: 0.7656
Epoch 1111/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3978 - accuracy: 0.8229 - val_loss: 0.5280 - val_accuracy: 0.7656
Epoch 1112/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3978 - accuracy: 0.8229 - val_loss: 0.5280 - val_accuracy: 0.7656
Epoch 1113/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3978 - accuracy: 0.8212 - val_loss: 0.5281 - val_accuracy: 0.7656
Epoch 1114/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3977 - accuracy: 0.8229 - val_loss: 0.5281 - val_accuracy: 0.7656
Epoch 1115/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3976 - accuracy: 0.8229 - val_loss: 0.5281 - val_accuracy: 0.7656
Epoch 1116/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3977 - accuracy: 0.8229 - val_loss: 0.5282 - val_accuracy: 0.7656
Epoch 1117/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3977 - accuracy: 0.8229 - val_loss: 0.5282 - val_accuracy: 0.7656
Epoch 1118/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3976 - accuracy: 0.8229 - val_loss: 0.5283 - val_accuracy: 0.7656
Epoch 1119/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3976 - accuracy: 0.8212 - val_loss: 0.5283 - val_accuracy: 0.7656
Epoch 1120/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3977 - accuracy: 0.8212 - val_loss: 0.5284 - val_accuracy: 0.7656
Epoch 1121/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3976 - accuracy: 0.8212 - val_loss: 0.5284 - val_accuracy: 0.7656
Epoch 1122/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3976 - accuracy: 0.8212 - val_loss: 0.5285 - val_accuracy: 0.7656
Epoch 1123/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3976 - accuracy: 0.8229 - val_loss: 0.5285 - val_accuracy: 0.7656
Epoch 1124/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3975 - accuracy: 0.8229 - val_loss: 0.5286 - val_accuracy: 0.7656
Epoch 1125/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3975 - accuracy: 0.8212 - val_loss: 0.5287 - val_accuracy: 0.7656
Epoch 1126/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3975 - accuracy: 0.8229 - val_loss: 0.5287 - val_accuracy: 0.7656
Epoch 1127/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3975 - accuracy: 0.8229 - val_loss: 0.5288 - val_accuracy: 0.7656
Epoch 1128/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3975 - accuracy: 0.8229 - val_loss: 0.5287 - val_accuracy: 0.7656
Epoch 1129/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3974 - accuracy: 0.8229 - val_loss: 0.5287 - val_accuracy: 0.7656
Epoch 1130/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3974 - accuracy: 0.8229 - val_loss: 0.5288 - val_accuracy: 0.7656
Epoch 1131/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3973 - accuracy: 0.8212 - val_loss: 0.5288 - val_accuracy: 0.7656
Epoch 1132/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3974 - accuracy: 0.8194 - val_loss: 0.5289 - val_accuracy: 0.7656
Epoch 1133/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3974 - accuracy: 0.8229 - val_loss: 0.5290 - val_accuracy: 0.7656
Epoch 1134/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3974 - accuracy: 0.8212 - val_loss: 0.5290 - val_accuracy: 0.7656
Epoch 1135/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3974 - accuracy: 0.8212 - val_loss: 0.5290 - val_accuracy: 0.7656
Epoch 1136/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3973 - accuracy: 0.8212 - val_loss: 0.5290 - val_accuracy: 0.7656
Epoch 1137/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3973 - accuracy: 0.8229 - val_loss: 0.5291 - val_accuracy: 0.7656
Epoch 1138/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3973 - accuracy: 0.8212 - val_loss: 0.5291 - val_accuracy: 0.7656
Epoch 1139/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3973 - accuracy: 0.8212 - val_loss: 0.5292 - val_accuracy: 0.7656
Epoch 1140/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3973 - accuracy: 0.8194 - val_loss: 0.5292 - val_accuracy: 0.7656
Epoch 1141/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3973 - accuracy: 0.8194 - val_loss: 0.5294 - val_accuracy: 0.7656
Epoch 1142/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3973 - accuracy: 0.8194 - val_loss: 0.5293 - val_accuracy: 0.7656
Epoch 1143/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3972 - accuracy: 0.8194 - val_loss: 0.5293 - val_accuracy: 0.7656
Epoch 1144/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3973 - accuracy: 0.8212 - val_loss: 0.5293 - val_accuracy: 0.7656
Epoch 1145/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3972 - accuracy: 0.8194 - val_loss: 0.5293 - val_accuracy: 0.7656
Epoch 1146/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3972 - accuracy: 0.8212 - val_loss: 0.5293 - val_accuracy: 0.7656
Epoch 1147/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3971 - accuracy: 0.8194 - val_loss: 0.5294 - val_accuracy: 0.7656
Epoch 1148/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3972 - accuracy: 0.8194 - val_loss: 0.5295 - val_accuracy: 0.7656
Epoch 1149/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3971 - accuracy: 0.8194 - val_loss: 0.5295 - val_accuracy: 0.7656
Epoch 1150/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3971 - accuracy: 0.8194 - val_loss: 0.5296 - val_accuracy: 0.7708
Epoch 1151/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3971 - accuracy: 0.8194 - val_loss: 0.5297 - val_accuracy: 0.7708
Epoch 1152/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3971 - accuracy: 0.8194 - val_loss: 0.5298 - val_accuracy: 0.7708
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Epoch 1153/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3972 - accuracy: 0.8194 - val_loss: 0.5298 - val_accuracy: 0.7708
Epoch 1154/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3970 - accuracy: 0.8194 - val_loss: 0.5298 - val_accuracy: 0.7708
Epoch 1155/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3970 - accuracy: 0.8194 - val_loss: 0.5299 - val_accuracy: 0.7708
Epoch 1156/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3972 - accuracy: 0.8194 - val_loss: 0.5299 - val_accuracy: 0.7708
Epoch 1157/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3970 - accuracy: 0.8194 - val_loss: 0.5299 - val_accuracy: 0.7708
Epoch 1158/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3969 - accuracy: 0.8194 - val_loss: 0.5300 - val_accuracy: 0.7708
Epoch 1159/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3970 - accuracy: 0.8194 - val_loss: 0.5300 - val_accuracy: 0.7708
Epoch 1160/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3968 - accuracy: 0.8194 - val_loss: 0.5300 - val_accuracy: 0.7708
Epoch 1161/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3969 - accuracy: 0.8194 - val_loss: 0.5300 - val_accuracy: 0.7708
Epoch 1162/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3969 - accuracy: 0.8194 - val_loss: 0.5301 - val_accuracy: 0.7708
Epoch 1163/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3968 - accuracy: 0.8194 - val_loss: 0.5302 - val_accuracy: 0.7708
Epoch 1164/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3968 - accuracy: 0.8194 - val_loss: 0.5302 - val_accuracy: 0.7708
Epoch 1165/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3968 - accuracy: 0.8194 - val_loss: 0.5303 - val_accuracy: 0.7708
Epoch 1166/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3967 - accuracy: 0.8194 - val_loss: 0.5303 - val_accuracy: 0.7708
Epoch 1167/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3968 - accuracy: 0.8194 - val_loss: 0.5303 - val_accuracy: 0.7708
Epoch 1168/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3968 - accuracy: 0.8194 - val_loss: 0.5304 - val_accuracy: 0.7708
Epoch 1169/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3967 - accuracy: 0.8194 - val_loss: 0.5304 - val_accuracy: 0.7708
Epoch 1170/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3966 - accuracy: 0.8194 - val_loss: 0.5305 - val_accuracy: 0.7708
Epoch 1171/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3967 - accuracy: 0.8194 - val_loss: 0.5305 - val_accuracy: 0.7708
Epoch 1172/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3967 - accuracy: 0.8194 - val_loss: 0.5307 - val_accuracy: 0.7708
Epoch 1173/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3967 - accuracy: 0.8194 - val_loss: 0.5307 - val_accuracy: 0.7708
Epoch 1174/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3967 - accuracy: 0.8194 - val_loss: 0.5307 - val_accuracy: 0.7708
Epoch 1175/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3966 - accuracy: 0.8194 - val_loss: 0.5306 - val_accuracy: 0.7708
Epoch 1176/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3966 - accuracy: 0.8194 - val_loss: 0.5307 - val_accuracy: 0.7708
Epoch 1177/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3967 - accuracy: 0.8194 - val_loss: 0.5308 - val_accuracy: 0.7708
Epoch 1178/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3965 - accuracy: 0.8194 - val_loss: 0.5309 - val_accuracy: 0.7708
Epoch 1179/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3965 - accuracy: 0.8194 - val_loss: 0.5309 - val_accuracy: 0.7708
Epoch 1180/1500
18/18 [==============================] - 0s 9ms/step - loss: 0.3965 - accuracy: 0.8194 - val_loss: 0.5310 - val_accuracy: 0.7708
Epoch 1181/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3965 - accuracy: 0.8194 - val_loss: 0.5311 - val_accuracy: 0.7708
Epoch 1182/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3965 - accuracy: 0.8194 - val_loss: 0.5310 - val_accuracy: 0.7708
Epoch 1183/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3965 - accuracy: 0.8194 - val_loss: 0.5310 - val_accuracy: 0.7708
Epoch 1184/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3964 - accuracy: 0.8194 - val_loss: 0.5310 - val_accuracy: 0.7708
Epoch 1185/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3964 - accuracy: 0.8194 - val_loss: 0.5311 - val_accuracy: 0.7708
Epoch 1186/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3964 - accuracy: 0.8194 - val_loss: 0.5311 - val_accuracy: 0.7708
Epoch 1187/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3964 - accuracy: 0.8194 - val_loss: 0.5312 - val_accuracy: 0.7708
Epoch 1188/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3964 - accuracy: 0.8194 - val_loss: 0.5312 - val_accuracy: 0.7708
Epoch 1189/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3964 - accuracy: 0.8194 - val_loss: 0.5313 - val_accuracy: 0.7708
Epoch 1190/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3965 - accuracy: 0.8194 - val_loss: 0.5314 - val_accuracy: 0.7708
Epoch 1191/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3963 - accuracy: 0.8194 - val_loss: 0.5315 - val_accuracy: 0.7708
Epoch 1192/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3963 - accuracy: 0.8177 - val_loss: 0.5316 - val_accuracy: 0.7708
Epoch 1193/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3964 - accuracy: 0.8194 - val_loss: 0.5316 - val_accuracy: 0.7708
Epoch 1194/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3963 - accuracy: 0.8194 - val_loss: 0.5316 - val_accuracy: 0.7708
Epoch 1195/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3963 - accuracy: 0.8194 - val_loss: 0.5317 - val_accuracy: 0.7708
Epoch 1196/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3962 - accuracy: 0.8194 - val_loss: 0.5316 - val_accuracy: 0.7708
Epoch 1197/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3963 - accuracy: 0.8194 - val_loss: 0.5316 - val_accuracy: 0.7708
Epoch 1198/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3963 - accuracy: 0.8194 - val_loss: 0.5316 - val_accuracy: 0.7708
Epoch 1199/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3962 - accuracy: 0.8177 - val_loss: 0.5317 - val_accuracy: 0.7708
Epoch 1200/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3963 - accuracy: 0.8177 - val_loss: 0.5318 - val_accuracy: 0.7708
Epoch 1201/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3962 - accuracy: 0.8177 - val_loss: 0.5319 - val_accuracy: 0.7708
Epoch 1202/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3962 - accuracy: 0.8194 - val_loss: 0.5319 - val_accuracy: 0.7708
Epoch 1203/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3962 - accuracy: 0.8177 - val_loss: 0.5320 - val_accuracy: 0.7708
Epoch 1204/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3962 - accuracy: 0.8177 - val_loss: 0.5320 - val_accuracy: 0.7708
Epoch 1205/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3961 - accuracy: 0.8177 - val_loss: 0.5320 - val_accuracy: 0.7708
Epoch 1206/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3961 - accuracy: 0.8177 - val_loss: 0.5321 - val_accuracy: 0.7708
Epoch 1207/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3961 - accuracy: 0.8177 - val_loss: 0.5321 - val_accuracy: 0.7708
Epoch 1208/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3962 - accuracy: 0.8194 - val_loss: 0.5321 - val_accuracy: 0.7708
Epoch 1209/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3960 - accuracy: 0.8177 - val_loss: 0.5322 - val_accuracy: 0.7708
Epoch 1210/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3961 - accuracy: 0.8177 - val_loss: 0.5322 - val_accuracy: 0.7708
Epoch 1211/1500
18/18 [==============================] - 0s 9ms/step - loss: 0.3961 - accuracy: 0.8177 - val_loss: 0.5321 - val_accuracy: 0.7708
Epoch 1212/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3961 - accuracy: 0.8177 - val_loss: 0.5322 - val_accuracy: 0.7708
Epoch 1213/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3960 - accuracy: 0.8194 - val_loss: 0.5321 - val_accuracy: 0.7708
Epoch 1214/1500
18/18 [==============================] - 0s 10ms/step - loss: 0.3960 - accuracy: 0.8177 - val_loss: 0.5321 - val_accuracy: 0.7708
Epoch 1215/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3960 - accuracy: 0.8194 - val_loss: 0.5322 - val_accuracy: 0.7708
Epoch 1216/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3960 - accuracy: 0.8177 - val_loss: 0.5323 - val_accuracy: 0.7708
```

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Epoch 1217/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3962 - accuracy: 0.8177 - val_loss: 0.5323 - val_accuracy: 0.7708
Epoch 1218/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3960 - accuracy: 0.8177 - val_loss: 0.5324 - val_accuracy: 0.7708
Epoch 1219/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3959 - accuracy: 0.8177 - val_loss: 0.5324 - val_accuracy: 0.7708
Epoch 1220/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3959 - accuracy: 0.8177 - val_loss: 0.5324 - val_accuracy: 0.7708
Epoch 1221/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3960 - accuracy: 0.8177 - val_loss: 0.5325 - val_accuracy: 0.7708
Epoch 1222/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3959 - accuracy: 0.8177 - val_loss: 0.5326 - val_accuracy: 0.7708
Epoch 1223/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3958 - accuracy: 0.8177 - val_loss: 0.5326 - val_accuracy: 0.7708
Epoch 1224/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3959 - accuracy: 0.8177 - val_loss: 0.5327 - val_accuracy: 0.7708
Epoch 1225/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3959 - accuracy: 0.8177 - val_loss: 0.5326 - val_accuracy: 0.7708
Epoch 1226/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3958 - accuracy: 0.8177 - val_loss: 0.5326 - val_accuracy: 0.7708
Epoch 1227/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3959 - accuracy: 0.8177 - val_loss: 0.5327 - val_accuracy: 0.7708
Epoch 1228/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3959 - accuracy: 0.8177 - val_loss: 0.5326 - val_accuracy: 0.7708
Epoch 1229/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3958 - accuracy: 0.8194 - val_loss: 0.5327 - val_accuracy: 0.7708
Epoch 1230/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3959 - accuracy: 0.8177 - val_loss: 0.5327 - val_accuracy: 0.7708
Epoch 1231/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3960 - accuracy: 0.8177 - val_loss: 0.5328 - val_accuracy: 0.7708
Epoch 1232/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3958 - accuracy: 0.8177 - val_loss: 0.5328 - val_accuracy: 0.7708
Epoch 1233/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3958 - accuracy: 0.8177 - val_loss: 0.5329 - val_accuracy: 0.7708
Epoch 1234/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3958 - accuracy: 0.8177 - val_loss: 0.5330 - val_accuracy: 0.7708
Epoch 1235/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3958 - accuracy: 0.8177 - val_loss: 0.5330 - val_accuracy: 0.7708
Epoch 1236/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3958 - accuracy: 0.8177 - val_loss: 0.5330 - val_accuracy: 0.7708
Epoch 1237/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3957 - accuracy: 0.8177 - val_loss: 0.5331 - val_accuracy: 0.7708
Epoch 1238/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3958 - accuracy: 0.8177 - val_loss: 0.5331 - val_accuracy: 0.7708
Epoch 1239/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3958 - accuracy: 0.8177 - val_loss: 0.5331 - val_accuracy: 0.7656
Epoch 1240/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3958 - accuracy: 0.8177 - val_loss: 0.5332 - val_accuracy: 0.7708
Epoch 1241/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3957 - accuracy: 0.8177 - val_loss: 0.5333 - val_accuracy: 0.7708
Epoch 1242/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3957 - accuracy: 0.8177 - val_loss: 0.5334 - val_accuracy: 0.7708
Epoch 1243/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3957 - accuracy: 0.8177 - val_loss: 0.5335 - val_accuracy: 0.7708
Epoch 1244/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3957 - accuracy: 0.8177 - val_loss: 0.5334 - val_accuracy: 0.7708
Epoch 1245/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3958 - accuracy: 0.8177 - val_loss: 0.5334 - val_accuracy: 0.7708
Epoch 1246/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3957 - accuracy: 0.8177 - val_loss: 0.5335 - val_accuracy: 0.7708
Epoch 1247/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3956 - accuracy: 0.8177 - val_loss: 0.5335 - val_accuracy: 0.7708
Epoch 1248/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3956 - accuracy: 0.8177 - val_loss: 0.5335 - val_accuracy: 0.7708
Epoch 1249/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3957 - accuracy: 0.8177 - val_loss: 0.5336 - val_accuracy: 0.7708
Epoch 1250/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3956 - accuracy: 0.8177 - val_loss: 0.5337 - val_accuracy: 0.7708
Epoch 1251/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3957 - accuracy: 0.8177 - val_loss: 0.5337 - val_accuracy: 0.7708
Epoch 1252/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3956 - accuracy: 0.8177 - val_loss: 0.5338 - val_accuracy: 0.7708
Epoch 1253/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3957 - accuracy: 0.8177 - val_loss: 0.5336 - val_accuracy: 0.7656
Epoch 1254/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3957 - accuracy: 0.8177 - val_loss: 0.5337 - val_accuracy: 0.7656
Epoch 1255/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3956 - accuracy: 0.8177 - val_loss: 0.5337 - val_accuracy: 0.7656
Epoch 1256/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3956 - accuracy: 0.8177 - val_loss: 0.5338 - val_accuracy: 0.7708
Epoch 1257/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3956 - accuracy: 0.8177 - val_loss: 0.5338 - val_accuracy: 0.7656
Epoch 1258/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3956 - accuracy: 0.8177 - val_loss: 0.5337 - val_accuracy: 0.7656
Epoch 1259/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3956 - accuracy: 0.8177 - val_loss: 0.5338 - val_accuracy: 0.7656
Epoch 1260/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3956 - accuracy: 0.8177 - val_loss: 0.5338 - val_accuracy: 0.7656
Epoch 1261/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3956 - accuracy: 0.8177 - val_loss: 0.5339 - val_accuracy: 0.7656
Epoch 1262/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3955 - accuracy: 0.8177 - val_loss: 0.5340 - val_accuracy: 0.7656
Epoch 1263/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3955 - accuracy: 0.8177 - val_loss: 0.5341 - val_accuracy: 0.7656
Epoch 1264/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3955 - accuracy: 0.8177 - val_loss: 0.5342 - val_accuracy: 0.7656
Epoch 1265/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3955 - accuracy: 0.8177 - val_loss: 0.5341 - val_accuracy: 0.7656
Epoch 1266/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3955 - accuracy: 0.8177 - val_loss: 0.5342 - val_accuracy: 0.7656
Epoch 1267/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3955 - accuracy: 0.8177 - val_loss: 0.5343 - val_accuracy: 0.7656
Epoch 1268/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3954 - accuracy: 0.8177 - val_loss: 0.5342 - val_accuracy: 0.7656
Epoch 1269/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3956 - accuracy: 0.8177 - val_loss: 0.5343 - val_accuracy: 0.7656
Epoch 1270/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3955 - accuracy: 0.8177 - val_loss: 0.5344 - val_accuracy: 0.7656
Epoch 1271/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3955 - accuracy: 0.8177 - val_loss: 0.5344 - val_accuracy: 0.7656
Epoch 1272/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3955 - accuracy: 0.8177 - val_loss: 0.5344 - val_accuracy: 0.7656
Epoch 1273/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3954 - accuracy: 0.8177 - val_loss: 0.5344 - val_accuracy: 0.7656
Epoch 1274/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3954 - accuracy: 0.8177 - val_loss: 0.5344 - val_accuracy: 0.7656
Epoch 1275/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3953 - accuracy: 0.8177 - val_loss: 0.5345 - val_accuracy: 0.7656
Epoch 1276/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3954 - accuracy: 0.8177 - val_loss: 0.5345 - val_accuracy: 0.7656
Epoch 1277/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3953 - accuracy: 0.8177 - val_loss: 0.5345 - val_accuracy: 0.7656
Epoch 1278/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3953 - accuracy: 0.8177 - val_loss: 0.5344 - val_accuracy: 0.7656
Epoch 1279/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3953 - accuracy: 0.8177 - val_loss: 0.5345 - val_accuracy: 0.7656
Epoch 1280/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3953 - accuracy: 0.8177 - val_loss: 0.5345 - val_accuracy: 0.7656
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Epoch 1281/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3952 - accuracy: 0.8177 - val_loss: 0.5346 - val_accuracy: 0.7656
Epoch 1282/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3953 - accuracy: 0.8177 - val_loss: 0.5346 - val_accuracy: 0.7656
Epoch 1283/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3952 - accuracy: 0.8177 - val_loss: 0.5346 - val_accuracy: 0.7656
Epoch 1284/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3953 - accuracy: 0.8177 - val_loss: 0.5347 - val_accuracy: 0.7656
Epoch 1285/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3952 - accuracy: 0.8177 - val_loss: 0.5348 - val_accuracy: 0.7656
Epoch 1286/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3953 - accuracy: 0.8177 - val_loss: 0.5348 - val_accuracy: 0.7656
Epoch 1287/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3952 - accuracy: 0.8177 - val_loss: 0.5347 - val_accuracy: 0.7656
Epoch 1288/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3952 - accuracy: 0.8177 - val_loss: 0.5348 - val_accuracy: 0.7656
Epoch 1289/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3953 - accuracy: 0.8177 - val_loss: 0.5347 - val_accuracy: 0.7656
Epoch 1290/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3952 - accuracy: 0.8177 - val_loss: 0.5347 - val_accuracy: 0.7656
Epoch 1291/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3952 - accuracy: 0.8177 - val_loss: 0.5348 - val_accuracy: 0.7656
Epoch 1292/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3953 - accuracy: 0.8194 - val_loss: 0.5348 - val_accuracy: 0.7656
Epoch 1293/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3951 - accuracy: 0.8177 - val_loss: 0.5349 - val_accuracy: 0.7656
Epoch 1294/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3951 - accuracy: 0.8177 - val_loss: 0.5349 - val_accuracy: 0.7656
Epoch 1295/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3951 - accuracy: 0.8177 - val_loss: 0.5350 - val_accuracy: 0.7656
Epoch 1296/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3952 - accuracy: 0.8177 - val_loss: 0.5351 - val_accuracy: 0.7656
Epoch 1297/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3951 - accuracy: 0.8194 - val_loss: 0.5351 - val_accuracy: 0.7656
Epoch 1298/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3952 - accuracy: 0.8177 - val_loss: 0.5351 - val_accuracy: 0.7656
Epoch 1299/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3951 - accuracy: 0.8177 - val_loss: 0.5351 - val_accuracy: 0.7656
Epoch 1300/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3951 - accuracy: 0.8177 - val_loss: 0.5352 - val_accuracy: 0.7656
Epoch 1301/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3950 - accuracy: 0.8194 - val_loss: 0.5353 - val_accuracy: 0.7656
Epoch 1302/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3950 - accuracy: 0.8194 - val_loss: 0.5353 - val_accuracy: 0.7656
Epoch 1303/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3951 - accuracy: 0.8177 - val_loss: 0.5353 - val_accuracy: 0.7656
Epoch 1304/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3951 - accuracy: 0.8194 - val_loss: 0.5353 - val_accuracy: 0.7656
Epoch 1305/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3949 - accuracy: 0.8194 - val_loss: 0.5353 - val_accuracy: 0.7656
Epoch 1306/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3951 - accuracy: 0.8194 - val_loss: 0.5354 - val_accuracy: 0.7656
Epoch 1307/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3950 - accuracy: 0.8177 - val_loss: 0.5354 - val_accuracy: 0.7656
Epoch 1308/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3950 - accuracy: 0.8194 - val_loss: 0.5353 - val_accuracy: 0.7656
Epoch 1309/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3950 - accuracy: 0.8177 - val_loss: 0.5352 - val_accuracy: 0.7656
Epoch 1310/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3949 - accuracy: 0.8177 - val_loss: 0.5353 - val_accuracy: 0.7656
Epoch 1311/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3950 - accuracy: 0.8194 - val_loss: 0.5353 - val_accuracy: 0.7656
Epoch 1312/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3950 - accuracy: 0.8194 - val_loss: 0.5353 - val_accuracy: 0.7656
Epoch 1313/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3949 - accuracy: 0.8194 - val_loss: 0.5354 - val_accuracy: 0.7656
Epoch 1314/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3949 - accuracy: 0.8194 - val_loss: 0.5353 - val_accuracy: 0.7656
Epoch 1315/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3949 - accuracy: 0.8177 - val_loss: 0.5353 - val_accuracy: 0.7656
Epoch 1316/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3949 - accuracy: 0.8194 - val_loss: 0.5354 - val_accuracy: 0.7656
Epoch 1317/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3949 - accuracy: 0.8194 - val_loss: 0.5352 - val_accuracy: 0.7656
Epoch 1318/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3950 - accuracy: 0.8194 - val_loss: 0.5352 - val_accuracy: 0.7656
Epoch 1319/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3949 - accuracy: 0.8194 - val_loss: 0.5352 - val_accuracy: 0.7656
Epoch 1320/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3948 - accuracy: 0.8194 - val_loss: 0.5353 - val_accuracy: 0.7656
Epoch 1321/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3948 - accuracy: 0.8194 - val_loss: 0.5354 - val_accuracy: 0.7656
Epoch 1322/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3948 - accuracy: 0.8194 - val_loss: 0.5355 - val_accuracy: 0.7656
Epoch 1323/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3947 - accuracy: 0.8194 - val_loss: 0.5356 - val_accuracy: 0.7656
Epoch 1324/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3947 - accuracy: 0.8194 - val_loss: 0.5356 - val_accuracy: 0.7656
Epoch 1325/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3947 - accuracy: 0.8194 - val_loss: 0.5357 - val_accuracy: 0.7656
Epoch 1326/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3948 - accuracy: 0.8194 - val_loss: 0.5357 - val_accuracy: 0.7656
Epoch 1327/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3948 - accuracy: 0.8194 - val_loss: 0.5356 - val_accuracy: 0.7656
Epoch 1328/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3948 - accuracy: 0.8194 - val_loss: 0.5356 - val_accuracy: 0.7656
Epoch 1329/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3947 - accuracy: 0.8194 - val_loss: 0.5356 - val_accuracy: 0.7656
Epoch 1330/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3948 - accuracy: 0.8194 - val_loss: 0.5356 - val_accuracy: 0.7656
Epoch 1331/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3949 - accuracy: 0.8194 - val_loss: 0.5356 - val_accuracy: 0.7656
Epoch 1332/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3946 - accuracy: 0.8194 - val_loss: 0.5357 - val_accuracy: 0.7656
Epoch 1333/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3947 - accuracy: 0.8194 - val_loss: 0.5357 - val_accuracy: 0.7656
Epoch 1334/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3947 - accuracy: 0.8194 - val_loss: 0.5357 - val_accuracy: 0.7656
Epoch 1335/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3947 - accuracy: 0.8212 - val_loss: 0.5358 - val_accuracy: 0.7656
Epoch 1336/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3946 - accuracy: 0.8194 - val_loss: 0.5358 - val_accuracy: 0.7656
Epoch 1337/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3946 - accuracy: 0.8194 - val_loss: 0.5358 - val_accuracy: 0.7656
Epoch 1338/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3946 - accuracy: 0.8212 - val_loss: 0.5359 - val_accuracy: 0.7656
Epoch 1339/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3946 - accuracy: 0.8212 - val_loss: 0.5359 - val_accuracy: 0.7656
Epoch 1340/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3947 - accuracy: 0.8212 - val_loss: 0.5359 - val_accuracy: 0.7656
Epoch 1341/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3946 - accuracy: 0.8194 - val_loss: 0.5360 - val_accuracy: 0.7656
Epoch 1342/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3947 - accuracy: 0.8212 - val_loss: 0.5360 - val_accuracy: 0.7656
Epoch 1343/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3946 - accuracy: 0.8212 - val_loss: 0.5359 - val_accuracy: 0.7656
Epoch 1344/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3946 - accuracy: 0.8212 - val_loss: 0.5359 - val_accuracy: 0.7656
```

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Epoch 1345/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3946 - accuracy: 0.8212 - val_loss: 0.5359 - val_accuracy: 0.7656
Epoch 1346/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3945 - accuracy: 0.8212 - val_loss: 0.5360 - val_accuracy: 0.7656
Epoch 1347/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3946 - accuracy: 0.8212 - val_loss: 0.5360 - val_accuracy: 0.7656
Epoch 1348/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3945 - accuracy: 0.8194 - val_loss: 0.5360 - val_accuracy: 0.7656
Epoch 1349/1500
18/18 [==============================] - 0s 9ms/step - loss: 0.3945 - accuracy: 0.8212 - val_loss: 0.5361 - val_accuracy: 0.7656
Epoch 1350/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3945 - accuracy: 0.8194 - val_loss: 0.5363 - val_accuracy: 0.7656
Epoch 1351/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3945 - accuracy: 0.8212 - val_loss: 0.5362 - val_accuracy: 0.7656
Epoch 1352/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3945 - accuracy: 0.8194 - val_loss: 0.5361 - val_accuracy: 0.7656
Epoch 1353/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3946 - accuracy: 0.8194 - val_loss: 0.5361 - val_accuracy: 0.7656
Epoch 1354/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3944 - accuracy: 0.8194 - val_loss: 0.5361 - val_accuracy: 0.7656
Epoch 1355/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3944 - accuracy: 0.8212 - val_loss: 0.5361 - val_accuracy: 0.7656
Epoch 1356/1500
18/18 [==============================] - 0s 10ms/step - loss: 0.3943 - accuracy: 0.8194 - val_loss: 0.5361 - val_accuracy: 0.7656
Epoch 1357/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3944 - accuracy: 0.8194 - val_loss: 0.5362 - val_accuracy: 0.7656
Epoch 1358/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3943 - accuracy: 0.8194 - val_loss: 0.5362 - val_accuracy: 0.7656
Epoch 1359/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3943 - accuracy: 0.8194 - val_loss: 0.5362 - val_accuracy: 0.7656
Epoch 1360/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3944 - accuracy: 0.8194 - val_loss: 0.5361 - val_accuracy: 0.7656
Epoch 1361/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3944 - accuracy: 0.8194 - val_loss: 0.5361 - val_accuracy: 0.7656
Epoch 1362/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3944 - accuracy: 0.8194 - val_loss: 0.5360 - val_accuracy: 0.7656
Epoch 1363/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3943 - accuracy: 0.8194 - val_loss: 0.5360 - val_accuracy: 0.7656
Epoch 1364/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3944 - accuracy: 0.8194 - val_loss: 0.5360 - val_accuracy: 0.7656
Epoch 1365/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3943 - accuracy: 0.8194 - val_loss: 0.5361 - val_accuracy: 0.7656
Epoch 1366/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3943 - accuracy: 0.8194 - val_loss: 0.5362 - val_accuracy: 0.7656
Epoch 1367/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3943 - accuracy: 0.8194 - val_loss: 0.5363 - val_accuracy: 0.7656
Epoch 1368/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3943 - accuracy: 0.8194 - val_loss: 0.5363 - val_accuracy: 0.7656
Epoch 1369/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3943 - accuracy: 0.8194 - val_loss: 0.5364 - val_accuracy: 0.7656
Epoch 1370/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3943 - accuracy: 0.8194 - val_loss: 0.5364 - val_accuracy: 0.7656
Epoch 1371/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3941 - accuracy: 0.8194 - val_loss: 0.5364 - val_accuracy: 0.7656
Epoch 1372/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3942 - accuracy: 0.8194 - val_loss: 0.5365 - val_accuracy: 0.7656
Epoch 1373/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3943 - accuracy: 0.8194 - val_loss: 0.5365 - val_accuracy: 0.7656
Epoch 1374/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3942 - accuracy: 0.8194 - val_loss: 0.5364 - val_accuracy: 0.7656
Epoch 1375/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3942 - accuracy: 0.8194 - val_loss: 0.5365 - val_accuracy: 0.7656
Epoch 1376/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3942 - accuracy: 0.8194 - val_loss: 0.5366 - val_accuracy: 0.7656
Epoch 1377/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3941 - accuracy: 0.8194 - val_loss: 0.5366 - val_accuracy: 0.7656
Epoch 1378/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3942 - accuracy: 0.8194 - val_loss: 0.5366 - val_accuracy: 0.7656
Epoch 1379/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3942 - accuracy: 0.8194 - val_loss: 0.5366 - val_accuracy: 0.7656
Epoch 1380/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3940 - accuracy: 0.8194 - val_loss: 0.5365 - val_accuracy: 0.7656
Epoch 1381/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3942 - accuracy: 0.8194 - val_loss: 0.5366 - val_accuracy: 0.7656
Epoch 1382/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3941 - accuracy: 0.8194 - val_loss: 0.5365 - val_accuracy: 0.7656
Epoch 1383/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3941 - accuracy: 0.8194 - val_loss: 0.5366 - val_accuracy: 0.7656
Epoch 1384/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3942 - accuracy: 0.8194 - val_loss: 0.5368 - val_accuracy: 0.7656
Epoch 1385/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3940 - accuracy: 0.8194 - val_loss: 0.5367 - val_accuracy: 0.7656
Epoch 1386/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3940 - accuracy: 0.8194 - val_loss: 0.5367 - val_accuracy: 0.7656
Epoch 1387/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3940 - accuracy: 0.8194 - val_loss: 0.5367 - val_accuracy: 0.7656
Epoch 1388/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3940 - accuracy: 0.8194 - val_loss: 0.5367 - val_accuracy: 0.7656
Epoch 1389/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3940 - accuracy: 0.8194 - val_loss: 0.5368 - val_accuracy: 0.7656
Epoch 1390/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3941 - accuracy: 0.8194 - val_loss: 0.5369 - val_accuracy: 0.7656
Epoch 1391/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3941 - accuracy: 0.8194 - val_loss: 0.5370 - val_accuracy: 0.7656
Epoch 1392/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3939 - accuracy: 0.8194 - val_loss: 0.5370 - val_accuracy: 0.7656
Epoch 1393/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3940 - accuracy: 0.8194 - val_loss: 0.5370 - val_accuracy: 0.7656
Epoch 1394/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3940 - accuracy: 0.8194 - val_loss: 0.5371 - val_accuracy: 0.7656
Epoch 1395/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3940 - accuracy: 0.8194 - val_loss: 0.5371 - val_accuracy: 0.7656
Epoch 1396/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3940 - accuracy: 0.8194 - val_loss: 0.5371 - val_accuracy: 0.7656
Epoch 1397/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3939 - accuracy: 0.8194 - val_loss: 0.5371 - val_accuracy: 0.7656
Epoch 1398/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3939 - accuracy: 0.8194 - val_loss: 0.5370 - val_accuracy: 0.7656
Epoch 1399/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3939 - accuracy: 0.8194 - val_loss: 0.5371 - val_accuracy: 0.7656
Epoch 1400/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3940 - accuracy: 0.8194 - val_loss: 0.5371 - val_accuracy: 0.7656
Epoch 1401/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3939 - accuracy: 0.8194 - val_loss: 0.5370 - val_accuracy: 0.7656
Epoch 1402/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3939 - accuracy: 0.8194 - val_loss: 0.5370 - val_accuracy: 0.7656
Epoch 1403/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3938 - accuracy: 0.8194 - val_loss: 0.5370 - val_accuracy: 0.7656
Epoch 1404/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3940 - accuracy: 0.8194 - val_loss: 0.5371 - val_accuracy: 0.7656
Epoch 1405/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3938 - accuracy: 0.8194 - val_loss: 0.5371 - val_accuracy: 0.7656
Epoch 1406/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3939 - accuracy: 0.8194 - val_loss: 0.5371 - val_accuracy: 0.7656
Epoch 1407/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3938 - accuracy: 0.8194 - val_loss: 0.5370 - val_accuracy: 0.7656
Epoch 1408/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3938 - accuracy: 0.8212 - val_loss: 0.5372 - val_accuracy: 0.7656
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Epoch 1409/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3939 - accuracy: 0.8194 - val_loss: 0.5371 - val_accuracy: 0.7656
Epoch 1410/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3938 - accuracy: 0.8194 - val_loss: 0.5371 - val_accuracy: 0.7656
Epoch 1411/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3938 - accuracy: 0.8194 - val_loss: 0.5370 - val_accuracy: 0.7656
Epoch 1412/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3938 - accuracy: 0.8212 - val_loss: 0.5371 - val_accuracy: 0.7656
Epoch 1413/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3938 - accuracy: 0.8212 - val_loss: 0.5372 - val_accuracy: 0.7656
Epoch 1414/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3938 - accuracy: 0.8212 - val_loss: 0.5371 - val_accuracy: 0.7656
Epoch 1415/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3937 - accuracy: 0.8212 - val_loss: 0.5372 - val_accuracy: 0.7656
Epoch 1416/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3938 - accuracy: 0.8212 - val_loss: 0.5371 - val_accuracy: 0.7656
Epoch 1417/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3938 - accuracy: 0.8212 - val_loss: 0.5372 - val_accuracy: 0.7656
Epoch 1418/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3937 - accuracy: 0.8212 - val_loss: 0.5371 - val_accuracy: 0.7656
Epoch 1419/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3937 - accuracy: 0.8212 - val_loss: 0.5372 - val_accuracy: 0.7656
Epoch 1420/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3936 - accuracy: 0.8212 - val_loss: 0.5374 - val_accuracy: 0.7656
Epoch 1421/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3936 - accuracy: 0.8212 - val_loss: 0.5374 - val_accuracy: 0.7656
Epoch 1422/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3938 - accuracy: 0.8212 - val_loss: 0.5374 - val_accuracy: 0.7656
Epoch 1423/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3937 - accuracy: 0.8229 - val_loss: 0.5375 - val_accuracy: 0.7656
Epoch 1424/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3938 - accuracy: 0.8212 - val_loss: 0.5374 - val_accuracy: 0.7656
Epoch 1425/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3936 - accuracy: 0.8212 - val_loss: 0.5374 - val_accuracy: 0.7656
Epoch 1426/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3936 - accuracy: 0.8212 - val_loss: 0.5374 - val_accuracy: 0.7656
Epoch 1427/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3937 - accuracy: 0.8212 - val_loss: 0.5374 - val_accuracy: 0.7656
Epoch 1428/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3937 - accuracy: 0.8212 - val_loss: 0.5375 - val_accuracy: 0.7656
Epoch 1429/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3936 - accuracy: 0.8229 - val_loss: 0.5375 - val_accuracy: 0.7656
Epoch 1430/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3936 - accuracy: 0.8212 - val_loss: 0.5375 - val_accuracy: 0.7656
Epoch 1431/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3937 - accuracy: 0.8212 - val_loss: 0.5375 - val_accuracy: 0.7656
Epoch 1432/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3936 - accuracy: 0.8212 - val_loss: 0.5376 - val_accuracy: 0.7656
Epoch 1433/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3936 - accuracy: 0.8212 - val_loss: 0.5376 - val_accuracy: 0.7656
Epoch 1434/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3935 - accuracy: 0.8212 - val_loss: 0.5376 - val_accuracy: 0.7656
Epoch 1435/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3936 - accuracy: 0.8229 - val_loss: 0.5376 - val_accuracy: 0.7656
Epoch 1436/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3935 - accuracy: 0.8212 - val_loss: 0.5376 - val_accuracy: 0.7656
Epoch 1437/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3936 - accuracy: 0.8212 - val_loss: 0.5377 - val_accuracy: 0.7656
Epoch 1438/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3935 - accuracy: 0.8212 - val_loss: 0.5377 - val_accuracy: 0.7656
Epoch 1439/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3936 - accuracy: 0.8212 - val_loss: 0.5378 - val_accuracy: 0.7604
Epoch 1440/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3935 - accuracy: 0.8212 - val_loss: 0.5377 - val_accuracy: 0.7656
Epoch 1441/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3934 - accuracy: 0.8212 - val_loss: 0.5377 - val_accuracy: 0.7656
Epoch 1442/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3936 - accuracy: 0.8212 - val_loss: 0.5376 - val_accuracy: 0.7656
Epoch 1443/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3934 - accuracy: 0.8212 - val_loss: 0.5377 - val_accuracy: 0.7656
Epoch 1444/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3935 - accuracy: 0.8212 - val_loss: 0.5377 - val_accuracy: 0.7656
Epoch 1445/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3937 - accuracy: 0.8229 - val_loss: 0.5377 - val_accuracy: 0.7656
Epoch 1446/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3934 - accuracy: 0.8229 - val_loss: 0.5379 - val_accuracy: 0.7604
Epoch 1447/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3934 - accuracy: 0.8229 - val_loss: 0.5379 - val_accuracy: 0.7604
Epoch 1448/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3934 - accuracy: 0.8212 - val_loss: 0.5378 - val_accuracy: 0.7656
Epoch 1449/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3934 - accuracy: 0.8229 - val_loss: 0.5378 - val_accuracy: 0.7604
Epoch 1450/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3934 - accuracy: 0.8229 - val_loss: 0.5380 - val_accuracy: 0.7604
Epoch 1451/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3934 - accuracy: 0.8212 - val_loss: 0.5379 - val_accuracy: 0.7604
Epoch 1452/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3934 - accuracy: 0.8212 - val_loss: 0.5378 - val_accuracy: 0.7656
Epoch 1453/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3935 - accuracy: 0.8229 - val_loss: 0.5379 - val_accuracy: 0.7656
Epoch 1454/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3934 - accuracy: 0.8212 - val_loss: 0.5379 - val_accuracy: 0.7604
Epoch 1455/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3934 - accuracy: 0.8212 - val_loss: 0.5380 - val_accuracy: 0.7604
Epoch 1456/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3934 - accuracy: 0.8229 - val_loss: 0.5380 - val_accuracy: 0.7604
Epoch 1457/1500
18/18 [==============================] - 0s 4ms/step - loss: 0.3934 - accuracy: 0.8212 - val_loss: 0.5381 - val_accuracy: 0.7604
Epoch 1458/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3933 - accuracy: 0.8212 - val_loss: 0.5380 - val_accuracy: 0.7604
Epoch 1459/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3935 - accuracy: 0.8229 - val_loss: 0.5379 - val_accuracy: 0.7656
Epoch 1460/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3934 - accuracy: 0.8229 - val_loss: 0.5378 - val_accuracy: 0.7656
Epoch 1461/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3933 - accuracy: 0.8229 - val_loss: 0.5377 - val_accuracy: 0.7656
Epoch 1462/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3933 - accuracy: 0.8229 - val_loss: 0.5378 - val_accuracy: 0.7656
Epoch 1463/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3933 - accuracy: 0.8212 - val_loss: 0.5377 - val_accuracy: 0.7656
Epoch 1464/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3933 - accuracy: 0.8229 - val_loss: 0.5379 - val_accuracy: 0.7656
Epoch 1465/1500
18/18 [==============================] - 0s 9ms/step - loss: 0.3932 - accuracy: 0.8229 - val_loss: 0.5380 - val_accuracy: 0.7656
Epoch 1466/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3932 - accuracy: 0.8229 - val_loss: 0.5381 - val_accuracy: 0.7604
Epoch 1467/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3932 - accuracy: 0.8212 - val_loss: 0.5380 - val_accuracy: 0.7552
Epoch 1468/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3932 - accuracy: 0.8229 - val_loss: 0.5381 - val_accuracy: 0.7604
Epoch 1469/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3932 - accuracy: 0.8229 - val_loss: 0.5382 - val_accuracy: 0.7604
Epoch 1470/1500
18/18 [==============================] - 0s 9ms/step - loss: 0.3933 - accuracy: 0.8212 - val_loss: 0.5382 - val_accuracy: 0.7552
Epoch 1471/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3932 - accuracy: 0.8229 - val_loss: 0.5381 - val_accuracy: 0.7604
Epoch 1472/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3932 - accuracy: 0.8229 - val_loss: 0.5381 - val_accuracy: 0.7604
```

```
Epoch 1473/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3932 - accuracy: 0.8229 - val_loss: 0.5383 - val_accuracy: 0.7604
Epoch 1474/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3932 - accuracy: 0.8229 - val_loss: 0.5384 - val_accuracy: 0.7604
Epoch 1475/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3931 - accuracy: 0.8212 - val_loss: 0.5382 - val_accuracy: 0.7604
Epoch 1476/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3931 - accuracy: 0.8229 - val_loss: 0.5383 - val_accuracy: 0.7604
Epoch 1477/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3931 - accuracy: 0.8229 - val_loss: 0.5383 - val_accuracy: 0.7604
Epoch 1478/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3931 - accuracy: 0.8229 - val_loss: 0.5383 - val_accuracy: 0.7604
Epoch 1479/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3931 - accuracy: 0.8212 - val_loss: 0.5383 - val_accuracy: 0.7604
Epoch 1480/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3931 - accuracy: 0.8229 - val_loss: 0.5384 - val_accuracy: 0.7604
Epoch 1481/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3931 - accuracy: 0.8212 - val_loss: 0.5383 - val_accuracy: 0.7604
Epoch 1482/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3930 - accuracy: 0.8229 - val_loss: 0.5384 - val_accuracy: 0.7604
Epoch 1483/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3931 - accuracy: 0.8229 - val_loss: 0.5385 - val_accuracy: 0.7604
Epoch 1484/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3931 - accuracy: 0.8229 - val_loss: 0.5383 - val_accuracy: 0.7604
Epoch 1485/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3930 - accuracy: 0.8229 - val_loss: 0.5384 - val_accuracy: 0.7604
Epoch 1486/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3931 - accuracy: 0.8229 - val_loss: 0.5385 - val_accuracy: 0.7604
Epoch 1487/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3930 - accuracy: 0.8229 - val_loss: 0.5384 - val_accuracy: 0.7604
Epoch 1488/1500
18/18 [==============================] - 0s 5ms/step - loss: 0.3931 - accuracy: 0.8229 - val_loss: 0.5385 - val_accuracy: 0.7604
Epoch 1489/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3931 - accuracy: 0.8247 - val_loss: 0.5385 - val_accuracy: 0.7604
Epoch 1490/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3930 - accuracy: 0.8247 - val_loss: 0.5386 - val_accuracy: 0.7604
Epoch 1491/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3931 - accuracy: 0.8229 - val_loss: 0.5387 - val_accuracy: 0.7604
Epoch 1492/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3931 - accuracy: 0.8264 - val_loss: 0.5387 - val_accuracy: 0.7604
Epoch 1493/1500
18/18 [==============================] - 0s 8ms/step - loss: 0.3932 - accuracy: 0.8247 - val_loss: 0.5387 - val_accuracy: 0.7604
Epoch 1494/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3930 - accuracy: 0.8229 - val_loss: 0.5385 - val_accuracy: 0.7604
Epoch 1495/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3930 - accuracy: 0.8264 - val_loss: 0.5386 - val_accuracy: 0.7604
Epoch 1496/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3931 - accuracy: 0.8247 - val_loss: 0.5387 - val_accuracy: 0.7604
Epoch 1497/1500
18/18 [==============================] - 0s 9ms/step - loss: 0.3930 - accuracy: 0.8229 - val_loss: 0.5387 - val_accuracy: 0.7604
Epoch 1498/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3930 - accuracy: 0.8247 - val_loss: 0.5386 - val_accuracy: 0.7604
Epoch 1499/1500
18/18 [==============================] - 0s 7ms/step - loss: 0.3930 - accuracy: 0.8264 - val_loss: 0.5386 - val_accuracy: 0.7604
Epoch 1500/1500
18/18 [==============================] - 0s 6ms/step - loss: 0.3929 - accuracy: 0.8264 - val_loss: 0.5387 - val_accuracy: 0.7604
```

In [ ]:
```
y_pred_prob_nnew2 = new_model2.predict(X_test_norm)
y_pred_class_nnew2 = (y_pred_prob_nnew2 > 0.5).astype('int32')
```

```
6/6 [==============================] - 0s 2ms/step
```

In [ ]:
```
y_pred_class_nnew2[:10]
```

Out[ ]:
```
array([[1],
       [1],
       [0],
       [0],
       [0],
       [1],
       [0],
       [0],
       [1],
       [0]], dtype=int32)
```

In [ ]:
```
y_pred_prob_nnew2[:10]
```

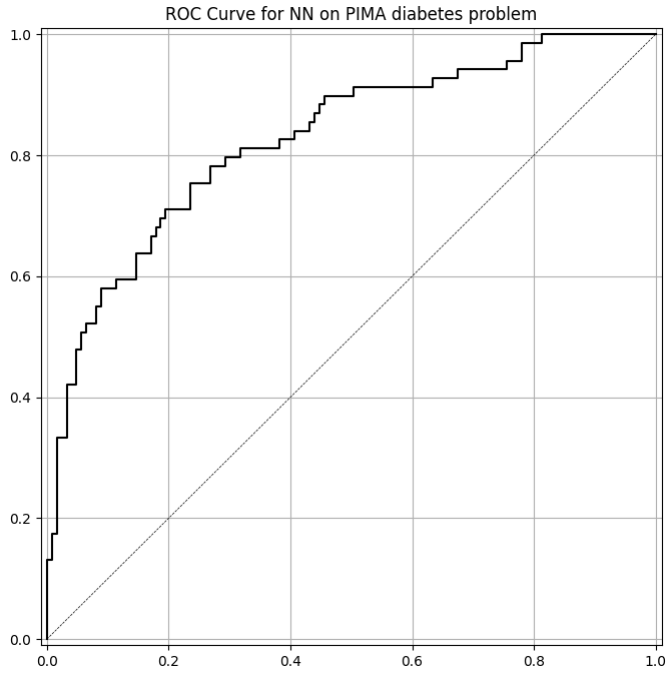
Out[ ]:
```
array([[0.6447143 ],
       [0.762542  ],
       [0.3831105 ],
       [0.11248234],
       [0.24771403],
       [0.53396714],
       [0.01348655],
       [0.45988557],
       [0.887487  ],
       [0.1467733 ]], dtype=float32)
```

In [ ]:
```
def plot_roc(y_test, y_pred, new_model_name):
    fpr, tpr, thr = roc_curve(y_test, y_pred)
    fig, ax = plt.subplots(figsize=(8, 8))
    ax.plot(fpr, tpr, 'k-')
    ax.plot([0, 1], [0, 1], 'k--', linewidth=.5)  # roc curve for random model
    ax.grid(True)
    ax.set(title='ROC Curve for {} on PIMA diabetes problem'.format(new_model_name),
           xlim=[-0.01, 1.01], ylim=[-0.01, 1.01])
```

In [ ]:
```
print('accuracy is {:.3f}'.format(accuracy_score(y_test,y_pred_class_nnew2)))#y_pred_prob_nnew
print('roc-auc is {:.3f}'.format(roc_auc_score(y_test,y_pred_prob_nnew2)))#y_pred_prob_nnew

plot_roc(y_test, y_pred_prob_nnew2, 'NN')
```

```
accuracy is 0.771
roc-auc is 0.827
```



- This model shows the accuracy, standing at 74.5%, signifies that the model's predictions were correct at some point. In terms of ROC-AUC, it achieved a score of 0.803. This assesses the model's capability to distinguish between positive and negative instances, with higher values suggesting a superior separation between classes. But overall, not a good model.

In [ ]:
```
run_hist_3.history.keys()
```

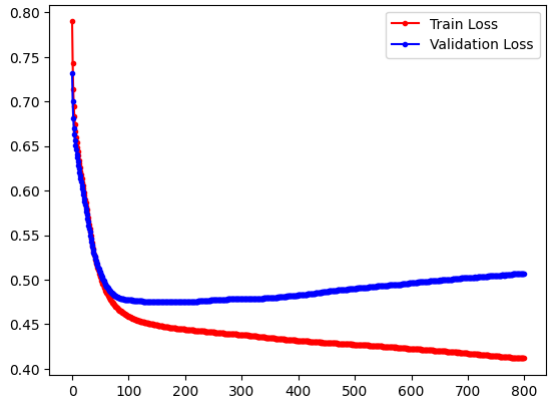
Out[ ]:
```
dict_keys(['loss', 'accuracy', 'val_loss', 'val_accuracy'])
```

In [ ]:
```
fig, ax = plt.subplots()

ax.plot(run_hist_3.history["loss"],'r', marker='.', label="Train Loss")
ax.plot(run_hist_3.history["val_loss"],'b', marker='.', label="Validation Loss")

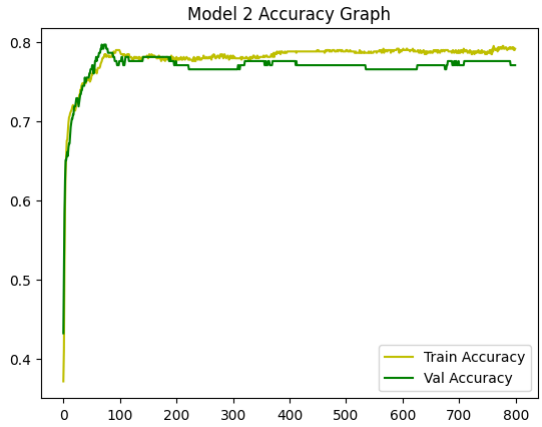
ax.legend()
```

Out[ ]:
```
<matplotlib.legend.Legend at 0x7cf71b2d7310>
```



In [ ]:
```
fig, ax = plt.subplots()
ax.plot(run_hist_3.history['accuracy'], 'y', label = 'Train Accuracy')
ax.plot(run_hist_3.history['val_accuracy'], 'g', label = 'Val Accuracy')
plt.title("Model 2 Accuracy Graph")
ax.legend()
```

Out[ ]:
```
<matplotlib.legend.Legend at 0x7cf71b02ded0>
```



Using Byukilmaz.csv

In [74]:
```
from __future__ import absolute_import, division, print_function

import warnings
warnings.filterwarnings("ignore")


import numpy as np
import pandas as pd
import matplotlib.pyplot as plt

from sklearn.model_selection import train_test_split
from sklearn.preprocessing import StandardScaler
from sklearn.metrics import confusion_matrix, precision_recall_curve, roc_auc_score, roc_curve, accuracy_score
from sklearn.ensemble import RandomForestClassifier

import seaborn as sns

%matplotlib inline
```

In [75]:
```
## Import Keras objects for Deep Learning

from keras.models  import Sequential
from keras.layers import Input, Dense, Flatten, Dropout, BatchNormalization
from keras.optimizers import Adam, SGD, RMSprop
```

In [76]:
```
byu_df = pd.read_csv('/content/drive/Shareddrives/CPE312/HOA5/buyukyilmaz.csv')
byu_df
```

Out[76]:

	meanfreq	sd	median	Q25	Q75	IQR	skew	kurt	sp.ent	sfm	...	centroid	meanfun	minfun	maxfun	meandom	mindom	maxdom	dfrange	modindx	gender
0	0.059781	0.064241	0.032027	0.015071	0.090193	0.075122	12.863462	274.402906	0.893369	0.491918	...	0.059781	0.084279	0.015702	0.275862	0.007812	0.007812	0.007812	0.000000	0.000000	male
1	0.066009	0.067310	0.040229	0.019414	0.092666	0.073252	22.423285	634.613855	0.892193	0.513724	...	0.066009	0.107937	0.015826	0.250000	0.009014	0.007812	0.054688	0.046875	0.052632	male
2	0.077316	0.083829	0.036718	0.008701	0.131908	0.123207	30.757155	1024.927705	0.846389	0.478905	...	0.077316	0.098706	0.015656	0.271186	0.007990	0.007812	0.015625	0.007812	0.046512	male
3	0.151228	0.072111	0.158011	0.096582	0.207955	0.111374	1.232831	4.177296	0.963322	0.727232	...	0.151228	0.088965	0.017798	0.250000	0.201497	0.007812	0.562500	0.554688	0.247119	male
4	0.135120	0.079146	0.124656	0.078720	0.206045	0.127325	1.101174	4.333713	0.971955	0.783568	...	0.135120	0.106398	0.016931	0.266667	0.712812	0.007812	5.484375	5.476562	0.208274	male
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
3163	0.131884	0.084734	0.153707	0.049285	0.201144	0.151859	1.762129	6.630383	0.962934	0.763182	...	0.131884	0.182790	0.083770	0.262295	0.832899	0.007812	4.210938	4.203125	0.161929	female
3164	0.116221	0.089221	0.076758	0.042718	0.204911	0.162193	0.693730	2.503954	0.960716	0.709570	...	0.116221	0.188980	0.034409	0.275862	0.909856	0.039062	3.679688	3.640625	0.277897	female
3165	0.142056	0.095798	0.183731	0.033424	0.224360	0.190936	1.876502	6.604509	0.946854	0.654196	...	0.142056	0.209918	0.039506	0.275862	0.494271	0.007812	2.937500	2.929688	0.194759	female
3166	0.143659	0.090628	0.184976	0.043508	0.219943	0.176435	1.591065	5.388298	0.950436	0.675470	...	0.143659	0.172375	0.034483	0.250000	0.791360	0.007812	3.593750	3.585938	0.311002	female
3167	0.165509	0.092884	0.183044	0.070072	0.250827	0.180756	1.705029	5.769115	0.938829	0.601529	...	0.165509	0.185607	0.062257	0.271186	0.227022	0.007812	0.554688	0.546875	0.350000	female

3168 rows × 21 columns

In [77]:
```
print('Data Shape: ', byu_df.shape, '\n\n')
print('Data Types:\n', byu_df.dtypes)
```

```
Data Shape:  (3168, 21)


Data Types:
 meanfreq    float64
sd           float64
median       float64
Q25          float64
Q75          float64
IQR          float64
skew         float64
kurt         float64
sp.ent       float64
sfm          float64
mode         float64
centroid     float64
meanfun      float64
minfun       float64
maxfun       float64
meandom      float64
mindom       float64
maxdom       float64
dfrange      float64
modindx      float64
gender        object
dtype: object
```

In [78]:
```
from sklearn.preprocessing import LabelEncoder

le = LabelEncoder()
byu_df.gender = le.fit_transform(byu_df.gender)
```

In [79]:
```
X = byu_df.drop('gender', axis = 1).values
y = byu_df.gender.values
```

In [80]:
```
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.25, random_state=11111)
```

In [81]:
```
sc = StandardScaler()
X_train_norm = sc.fit_transform(X_train)
X_test_norm = sc.fit_transform(X_test)
```

In [84]:
```
model_supp = Sequential([
 Dense(6, input_shape = (20, ), activation = 'relu'),
 Dense(1, activation = 'sigmoid')
])
```

In [105…
```
model_supp.compile(SGD(lr = 0.003), "binary_crossentropy", metrics = ['accuracy'])

run_hist_supp = model_supp.fit(X_train_norm, y_train, validation_data = (X_test_norm, y_test), epochs = 1500)
```

```
WARNING:absl:`lr` is deprecated in Keras optimizer, please use `learning_rate` or use the legacy optimizer, e.g.,tf.keras.optimizers.legacy.SGD.
```

```
Epoch 1/1500
75/75 [==============================] - 1s 5ms/step - loss: 0.7041 - accuracy: 0.6128 - val_loss: 0.5912 - val_accuracy: 0.7462
Epoch 2/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.5180 - accuracy: 0.8169 - val_loss: 0.4707 - val_accuracy: 0.8497
Epoch 3/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.4197 - accuracy: 0.8817 - val_loss: 0.3884 - val_accuracy: 0.8851
Epoch 4/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.3464 - accuracy: 0.9066 - val_loss: 0.3264 - val_accuracy: 0.9015
Epoch 5/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.2921 - accuracy: 0.9221 - val_loss: 0.2798 - val_accuracy: 0.9205
Epoch 6/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.2507 - accuracy: 0.9343 - val_loss: 0.2439 - val_accuracy: 0.9268
Epoch 7/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.2195 - accuracy: 0.9457 - val_loss: 0.2158 - val_accuracy: 0.9318
Epoch 8/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.1958 - accuracy: 0.9516 - val_loss: 0.1947 - val_accuracy: 0.9369
Epoch 9/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.1773 - accuracy: 0.9554 - val_loss: 0.1780 - val_accuracy: 0.9432
Epoch 10/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.1624 - accuracy: 0.9609 - val_loss: 0.1650 - val_accuracy: 0.9508
Epoch 11/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.1504 - accuracy: 0.9646 - val_loss: 0.1540 - val_accuracy: 0.9571
Epoch 12/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.1406 - accuracy: 0.9680 - val_loss: 0.1453 - val_accuracy: 0.9634
Epoch 13/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.1322 - accuracy: 0.9693 - val_loss: 0.1376 - val_accuracy: 0.9634
Epoch 14/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.1253 - accuracy: 0.9705 - val_loss: 0.1310 - val_accuracy: 0.9646
Epoch 15/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.1194 - accuracy: 0.9705 - val_loss: 0.1258 - val_accuracy: 0.9672
Epoch 16/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.1144 - accuracy: 0.9718 - val_loss: 0.1211 - val_accuracy: 0.9672
Epoch 17/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.1101 - accuracy: 0.9722 - val_loss: 0.1170 - val_accuracy: 0.9697
Epoch 18/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.1062 - accuracy: 0.9722 - val_loss: 0.1135 - val_accuracy: 0.9722
Epoch 19/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.1032 - accuracy: 0.9735 - val_loss: 0.1107 - val_accuracy: 0.9710
Epoch 20/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.1003 - accuracy: 0.9735 - val_loss: 0.1084 - val_accuracy: 0.9710
Epoch 21/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0977 - accuracy: 0.9743 - val_loss: 0.1061 - val_accuracy: 0.9722
Epoch 22/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0954 - accuracy: 0.9743 - val_loss: 0.1042 - val_accuracy: 0.9722
Epoch 23/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0935 - accuracy: 0.9743 - val_loss: 0.1025 - val_accuracy: 0.9722
Epoch 24/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0917 - accuracy: 0.9747 - val_loss: 0.1010 - val_accuracy: 0.9722
Epoch 25/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0900 - accuracy: 0.9747 - val_loss: 0.0998 - val_accuracy: 0.9722
Epoch 26/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0885 - accuracy: 0.9752 - val_loss: 0.0987 - val_accuracy: 0.9735
Epoch 27/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0872 - accuracy: 0.9747 - val_loss: 0.0974 - val_accuracy: 0.9735
Epoch 28/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0860 - accuracy: 0.9747 - val_loss: 0.0964 - val_accuracy: 0.9735
Epoch 29/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0849 - accuracy: 0.9760 - val_loss: 0.0954 - val_accuracy: 0.9735
Epoch 30/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0839 - accuracy: 0.9756 - val_loss: 0.0947 - val_accuracy: 0.9735
Epoch 31/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0829 - accuracy: 0.9756 - val_loss: 0.0938 - val_accuracy: 0.9747
Epoch 32/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0820 - accuracy: 0.9764 - val_loss: 0.0935 - val_accuracy: 0.9735
Epoch 33/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0813 - accuracy: 0.9764 - val_loss: 0.0928 - val_accuracy: 0.9735
Epoch 34/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0806 - accuracy: 0.9764 - val_loss: 0.0919 - val_accuracy: 0.9747
Epoch 35/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0799 - accuracy: 0.9769 - val_loss: 0.0913 - val_accuracy: 0.9747
Epoch 36/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0792 - accuracy: 0.9769 - val_loss: 0.0909 - val_accuracy: 0.9747
Epoch 37/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0786 - accuracy: 0.9769 - val_loss: 0.0904 - val_accuracy: 0.9747
Epoch 38/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0781 - accuracy: 0.9764 - val_loss: 0.0902 - val_accuracy: 0.9747
Epoch 39/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0777 - accuracy: 0.9769 - val_loss: 0.0897 - val_accuracy: 0.9747
Epoch 40/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0771 - accuracy: 0.9781 - val_loss: 0.0888 - val_accuracy: 0.9760
Epoch 41/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0767 - accuracy: 0.9764 - val_loss: 0.0886 - val_accuracy: 0.9760
Epoch 42/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0763 - accuracy: 0.9773 - val_loss: 0.0883 - val_accuracy: 0.9760
Epoch 43/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0759 - accuracy: 0.9769 - val_loss: 0.0882 - val_accuracy: 0.9760
Epoch 44/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0755 - accuracy: 0.9777 - val_loss: 0.0877 - val_accuracy: 0.9760
Epoch 45/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0751 - accuracy: 0.9769 - val_loss: 0.0874 - val_accuracy: 0.9760
Epoch 46/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0748 - accuracy: 0.9777 - val_loss: 0.0872 - val_accuracy: 0.9760
Epoch 47/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0745 - accuracy: 0.9785 - val_loss: 0.0868 - val_accuracy: 0.9747
Epoch 48/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0742 - accuracy: 0.9790 - val_loss: 0.0866 - val_accuracy: 0.9747
Epoch 49/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0738 - accuracy: 0.9785 - val_loss: 0.0862 - val_accuracy: 0.9747
Epoch 50/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0736 - accuracy: 0.9773 - val_loss: 0.0861 - val_accuracy: 0.9747
Epoch 51/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0733 - accuracy: 0.9785 - val_loss: 0.0859 - val_accuracy: 0.9747
Epoch 52/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0731 - accuracy: 0.9785 - val_loss: 0.0857 - val_accuracy: 0.9747
Epoch 53/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0728 - accuracy: 0.9785 - val_loss: 0.0853 - val_accuracy: 0.9747
Epoch 54/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0726 - accuracy: 0.9785 - val_loss: 0.0852 - val_accuracy: 0.9747
Epoch 55/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0723 - accuracy: 0.9790 - val_loss: 0.0849 - val_accuracy: 0.9747
Epoch 56/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0722 - accuracy: 0.9785 - val_loss: 0.0847 - val_accuracy: 0.9747
Epoch 57/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0719 - accuracy: 0.9785 - val_loss: 0.0845 - val_accuracy: 0.9747
Epoch 58/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0717 - accuracy: 0.9790 - val_loss: 0.0844 - val_accuracy: 0.9747
Epoch 59/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0715 - accuracy: 0.9794 - val_loss: 0.0842 - val_accuracy: 0.9747
Epoch 60/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0713 - accuracy: 0.9790 - val_loss: 0.0841 - val_accuracy: 0.9747
Epoch 61/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0711 - accuracy: 0.9785 - val_loss: 0.0839 - val_accuracy: 0.9747
Epoch 62/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0710 - accuracy: 0.9790 - val_loss: 0.0837 - val_accuracy: 0.9747
Epoch 63/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0708 - accuracy: 0.9790 - val_loss: 0.0835 - val_accuracy: 0.9747
Epoch 64/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0707 - accuracy: 0.9790 - val_loss: 0.0833 - val_accuracy: 0.9747
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Epoch 65/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0705 - accuracy: 0.9790 - val_loss: 0.0833 - val_accuracy: 0.9747
Epoch 66/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0703 - accuracy: 0.9790 - val_loss: 0.0834 - val_accuracy: 0.9747
Epoch 67/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0703 - accuracy: 0.9790 - val_loss: 0.0832 - val_accuracy: 0.9747
Epoch 68/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0701 - accuracy: 0.9790 - val_loss: 0.0830 - val_accuracy: 0.9747
Epoch 69/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0699 - accuracy: 0.9790 - val_loss: 0.0829 - val_accuracy: 0.9747
Epoch 70/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0698 - accuracy: 0.9790 - val_loss: 0.0827 - val_accuracy: 0.9747
Epoch 71/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0697 - accuracy: 0.9794 - val_loss: 0.0826 - val_accuracy: 0.9747
Epoch 72/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0695 - accuracy: 0.9790 - val_loss: 0.0824 - val_accuracy: 0.9747
Epoch 73/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0695 - accuracy: 0.9790 - val_loss: 0.0824 - val_accuracy: 0.9747
Epoch 74/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0693 - accuracy: 0.9785 - val_loss: 0.0822 - val_accuracy: 0.9747
Epoch 75/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0692 - accuracy: 0.9794 - val_loss: 0.0821 - val_accuracy: 0.9747
Epoch 76/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0691 - accuracy: 0.9790 - val_loss: 0.0821 - val_accuracy: 0.9747
Epoch 77/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0690 - accuracy: 0.9794 - val_loss: 0.0820 - val_accuracy: 0.9747
Epoch 78/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0689 - accuracy: 0.9794 - val_loss: 0.0820 - val_accuracy: 0.9747
Epoch 79/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0688 - accuracy: 0.9794 - val_loss: 0.0820 - val_accuracy: 0.9747
Epoch 80/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0686 - accuracy: 0.9790 - val_loss: 0.0816 - val_accuracy: 0.9747
Epoch 81/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0686 - accuracy: 0.9798 - val_loss: 0.0817 - val_accuracy: 0.9747
Epoch 82/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0685 - accuracy: 0.9790 - val_loss: 0.0816 - val_accuracy: 0.9747
Epoch 83/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0684 - accuracy: 0.9785 - val_loss: 0.0818 - val_accuracy: 0.9747
Epoch 84/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0684 - accuracy: 0.9794 - val_loss: 0.0816 - val_accuracy: 0.9747
Epoch 85/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0682 - accuracy: 0.9794 - val_loss: 0.0814 - val_accuracy: 0.9747
Epoch 86/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0681 - accuracy: 0.9794 - val_loss: 0.0812 - val_accuracy: 0.9747
Epoch 87/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0680 - accuracy: 0.9781 - val_loss: 0.0811 - val_accuracy: 0.9747
Epoch 88/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0680 - accuracy: 0.9790 - val_loss: 0.0810 - val_accuracy: 0.9747
Epoch 89/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0679 - accuracy: 0.9798 - val_loss: 0.0809 - val_accuracy: 0.9747
Epoch 90/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0677 - accuracy: 0.9794 - val_loss: 0.0807 - val_accuracy: 0.9747
Epoch 91/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0677 - accuracy: 0.9794 - val_loss: 0.0805 - val_accuracy: 0.9747
Epoch 92/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0676 - accuracy: 0.9798 - val_loss: 0.0805 - val_accuracy: 0.9747
Epoch 93/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0675 - accuracy: 0.9790 - val_loss: 0.0806 - val_accuracy: 0.9747
Epoch 94/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0674 - accuracy: 0.9794 - val_loss: 0.0804 - val_accuracy: 0.9747
Epoch 95/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0673 - accuracy: 0.9790 - val_loss: 0.0803 - val_accuracy: 0.9747
Epoch 96/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0673 - accuracy: 0.9790 - val_loss: 0.0802 - val_accuracy: 0.9747
Epoch 97/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0672 - accuracy: 0.9802 - val_loss: 0.0802 - val_accuracy: 0.9747
Epoch 98/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0671 - accuracy: 0.9790 - val_loss: 0.0800 - val_accuracy: 0.9747
Epoch 99/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0670 - accuracy: 0.9785 - val_loss: 0.0800 - val_accuracy: 0.9747
Epoch 100/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0669 - accuracy: 0.9794 - val_loss: 0.0799 - val_accuracy: 0.9747
Epoch 101/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0668 - accuracy: 0.9798 - val_loss: 0.0798 - val_accuracy: 0.9747
Epoch 102/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0667 - accuracy: 0.9790 - val_loss: 0.0799 - val_accuracy: 0.9747
Epoch 103/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0667 - accuracy: 0.9794 - val_loss: 0.0798 - val_accuracy: 0.9747
Epoch 104/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0666 - accuracy: 0.9798 - val_loss: 0.0797 - val_accuracy: 0.9747
Epoch 105/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0665 - accuracy: 0.9802 - val_loss: 0.0798 - val_accuracy: 0.9747
Epoch 106/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0664 - accuracy: 0.9798 - val_loss: 0.0796 - val_accuracy: 0.9747
Epoch 107/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0663 - accuracy: 0.9794 - val_loss: 0.0797 - val_accuracy: 0.9747
Epoch 108/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0663 - accuracy: 0.9798 - val_loss: 0.0796 - val_accuracy: 0.9747
Epoch 109/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0662 - accuracy: 0.9802 - val_loss: 0.0797 - val_accuracy: 0.9747
Epoch 110/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0660 - accuracy: 0.9798 - val_loss: 0.0795 - val_accuracy: 0.9747
Epoch 111/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0660 - accuracy: 0.9802 - val_loss: 0.0796 - val_accuracy: 0.9747
Epoch 112/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0660 - accuracy: 0.9798 - val_loss: 0.0796 - val_accuracy: 0.9747
Epoch 113/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0659 - accuracy: 0.9798 - val_loss: 0.0794 - val_accuracy: 0.9747
Epoch 114/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0658 - accuracy: 0.9802 - val_loss: 0.0794 - val_accuracy: 0.9747
Epoch 115/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0657 - accuracy: 0.9798 - val_loss: 0.0797 - val_accuracy: 0.9747
Epoch 116/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0657 - accuracy: 0.9802 - val_loss: 0.0794 - val_accuracy: 0.9747
Epoch 117/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0656 - accuracy: 0.9798 - val_loss: 0.0793 - val_accuracy: 0.9747
Epoch 118/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0655 - accuracy: 0.9798 - val_loss: 0.0792 - val_accuracy: 0.9747
Epoch 119/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0654 - accuracy: 0.9798 - val_loss: 0.0791 - val_accuracy: 0.9747
Epoch 120/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0653 - accuracy: 0.9802 - val_loss: 0.0792 - val_accuracy: 0.9747
Epoch 121/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0652 - accuracy: 0.9798 - val_loss: 0.0790 - val_accuracy: 0.9747
Epoch 122/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0652 - accuracy: 0.9798 - val_loss: 0.0791 - val_accuracy: 0.9747
Epoch 123/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0651 - accuracy: 0.9798 - val_loss: 0.0790 - val_accuracy: 0.9747
Epoch 124/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0651 - accuracy: 0.9794 - val_loss: 0.0790 - val_accuracy: 0.9747
Epoch 125/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0650 - accuracy: 0.9802 - val_loss: 0.0790 - val_accuracy: 0.9747
Epoch 126/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0649 - accuracy: 0.9798 - val_loss: 0.0789 - val_accuracy: 0.9747
Epoch 127/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0648 - accuracy: 0.9798 - val_loss: 0.0788 - val_accuracy: 0.9747
Epoch 128/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0648 - accuracy: 0.9798 - val_loss: 0.0788 - val_accuracy: 0.9747
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Epoch 129/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0647 - accuracy: 0.9802 - val_loss: 0.0787 - val_accuracy: 0.9747
Epoch 130/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0646 - accuracy: 0.9798 - val_loss: 0.0786 - val_accuracy: 0.9747
Epoch 131/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0646 - accuracy: 0.9802 - val_loss: 0.0787 - val_accuracy: 0.9747
Epoch 132/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0645 - accuracy: 0.9798 - val_loss: 0.0787 - val_accuracy: 0.9747
Epoch 133/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0644 - accuracy: 0.9802 - val_loss: 0.0787 - val_accuracy: 0.9747
Epoch 134/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0644 - accuracy: 0.9802 - val_loss: 0.0787 - val_accuracy: 0.9747
Epoch 135/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0643 - accuracy: 0.9802 - val_loss: 0.0787 - val_accuracy: 0.9747
Epoch 136/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0642 - accuracy: 0.9802 - val_loss: 0.0788 - val_accuracy: 0.9747
Epoch 137/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0642 - accuracy: 0.9802 - val_loss: 0.0790 - val_accuracy: 0.9735
Epoch 138/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0641 - accuracy: 0.9798 - val_loss: 0.0789 - val_accuracy: 0.9747
Epoch 139/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0641 - accuracy: 0.9798 - val_loss: 0.0788 - val_accuracy: 0.9747
Epoch 140/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0640 - accuracy: 0.9798 - val_loss: 0.0787 - val_accuracy: 0.9747
Epoch 141/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0640 - accuracy: 0.9798 - val_loss: 0.0786 - val_accuracy: 0.9747
Epoch 142/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0638 - accuracy: 0.9798 - val_loss: 0.0785 - val_accuracy: 0.9747
Epoch 143/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0638 - accuracy: 0.9802 - val_loss: 0.0787 - val_accuracy: 0.9747
Epoch 144/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0637 - accuracy: 0.9798 - val_loss: 0.0786 - val_accuracy: 0.9747
Epoch 145/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0637 - accuracy: 0.9802 - val_loss: 0.0786 - val_accuracy: 0.9747
Epoch 146/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0636 - accuracy: 0.9798 - val_loss: 0.0783 - val_accuracy: 0.9735
Epoch 147/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0636 - accuracy: 0.9802 - val_loss: 0.0784 - val_accuracy: 0.9735
Epoch 148/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0635 - accuracy: 0.9798 - val_loss: 0.0784 - val_accuracy: 0.9735
Epoch 149/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0634 - accuracy: 0.9798 - val_loss: 0.0784 - val_accuracy: 0.9735
Epoch 150/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0634 - accuracy: 0.9802 - val_loss: 0.0784 - val_accuracy: 0.9735
Epoch 151/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0633 - accuracy: 0.9802 - val_loss: 0.0785 - val_accuracy: 0.9735
Epoch 152/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0633 - accuracy: 0.9798 - val_loss: 0.0785 - val_accuracy: 0.9735
Epoch 153/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0632 - accuracy: 0.9798 - val_loss: 0.0784 - val_accuracy: 0.9735
Epoch 154/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0631 - accuracy: 0.9798 - val_loss: 0.0781 - val_accuracy: 0.9735
Epoch 155/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0631 - accuracy: 0.9802 - val_loss: 0.0783 - val_accuracy: 0.9735
Epoch 156/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0630 - accuracy: 0.9798 - val_loss: 0.0782 - val_accuracy: 0.9735
Epoch 157/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0630 - accuracy: 0.9794 - val_loss: 0.0782 - val_accuracy: 0.9735
Epoch 158/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0629 - accuracy: 0.9798 - val_loss: 0.0784 - val_accuracy: 0.9735
Epoch 159/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0629 - accuracy: 0.9798 - val_loss: 0.0785 - val_accuracy: 0.9735
Epoch 160/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0628 - accuracy: 0.9798 - val_loss: 0.0784 - val_accuracy: 0.9735
Epoch 161/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0628 - accuracy: 0.9802 - val_loss: 0.0783 - val_accuracy: 0.9735
Epoch 162/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0627 - accuracy: 0.9798 - val_loss: 0.0784 - val_accuracy: 0.9735
Epoch 163/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0626 - accuracy: 0.9798 - val_loss: 0.0783 - val_accuracy: 0.9735
Epoch 164/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0626 - accuracy: 0.9798 - val_loss: 0.0782 - val_accuracy: 0.9735
Epoch 165/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0626 - accuracy: 0.9798 - val_loss: 0.0783 - val_accuracy: 0.9735
Epoch 166/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0625 - accuracy: 0.9798 - val_loss: 0.0782 - val_accuracy: 0.9722
Epoch 167/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0624 - accuracy: 0.9798 - val_loss: 0.0782 - val_accuracy: 0.9735
Epoch 168/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0624 - accuracy: 0.9802 - val_loss: 0.0781 - val_accuracy: 0.9710
Epoch 169/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0623 - accuracy: 0.9798 - val_loss: 0.0780 - val_accuracy: 0.9710
Epoch 170/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0623 - accuracy: 0.9798 - val_loss: 0.0781 - val_accuracy: 0.9722
Epoch 171/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0622 - accuracy: 0.9802 - val_loss: 0.0782 - val_accuracy: 0.9722
Epoch 172/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0622 - accuracy: 0.9798 - val_loss: 0.0781 - val_accuracy: 0.9710
Epoch 173/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0621 - accuracy: 0.9794 - val_loss: 0.0781 - val_accuracy: 0.9722
Epoch 174/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0620 - accuracy: 0.9802 - val_loss: 0.0780 - val_accuracy: 0.9710
Epoch 175/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0620 - accuracy: 0.9802 - val_loss: 0.0781 - val_accuracy: 0.9710
Epoch 176/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0620 - accuracy: 0.9798 - val_loss: 0.0780 - val_accuracy: 0.9710
Epoch 177/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0619 - accuracy: 0.9802 - val_loss: 0.0780 - val_accuracy: 0.9710
Epoch 178/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0619 - accuracy: 0.9811 - val_loss: 0.0780 - val_accuracy: 0.9710
Epoch 179/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0618 - accuracy: 0.9798 - val_loss: 0.0779 - val_accuracy: 0.9710
Epoch 180/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0618 - accuracy: 0.9802 - val_loss: 0.0778 - val_accuracy: 0.9710
Epoch 181/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0617 - accuracy: 0.9806 - val_loss: 0.0777 - val_accuracy: 0.9710
Epoch 182/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0617 - accuracy: 0.9806 - val_loss: 0.0777 - val_accuracy: 0.9710
Epoch 183/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0616 - accuracy: 0.9806 - val_loss: 0.0776 - val_accuracy: 0.9710
Epoch 184/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0616 - accuracy: 0.9806 - val_loss: 0.0775 - val_accuracy: 0.9722
Epoch 185/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0615 - accuracy: 0.9811 - val_loss: 0.0776 - val_accuracy: 0.9697
Epoch 186/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0615 - accuracy: 0.9806 - val_loss: 0.0776 - val_accuracy: 0.9697
Epoch 187/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0614 - accuracy: 0.9806 - val_loss: 0.0776 - val_accuracy: 0.9697
Epoch 188/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0614 - accuracy: 0.9811 - val_loss: 0.0772 - val_accuracy: 0.9697
Epoch 189/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0614 - accuracy: 0.9806 - val_loss: 0.0772 - val_accuracy: 0.9697
Epoch 190/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0613 - accuracy: 0.9806 - val_loss: 0.0771 - val_accuracy: 0.9697
Epoch 191/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0613 - accuracy: 0.9806 - val_loss: 0.0771 - val_accuracy: 0.9697
Epoch 192/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0613 - accuracy: 0.9802 - val_loss: 0.0771 - val_accuracy: 0.9697
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Epoch 193/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0611 - accuracy: 0.9806 - val_loss: 0.0771 - val_accuracy: 0.9697
Epoch 194/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0612 - accuracy: 0.9806 - val_loss: 0.0770 - val_accuracy: 0.9697
Epoch 195/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0611 - accuracy: 0.9802 - val_loss: 0.0769 - val_accuracy: 0.9710
Epoch 196/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0611 - accuracy: 0.9802 - val_loss: 0.0770 - val_accuracy: 0.9697
Epoch 197/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0610 - accuracy: 0.9802 - val_loss: 0.0769 - val_accuracy: 0.9697
Epoch 198/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0610 - accuracy: 0.9811 - val_loss: 0.0768 - val_accuracy: 0.9710
Epoch 199/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0609 - accuracy: 0.9811 - val_loss: 0.0769 - val_accuracy: 0.9697
Epoch 200/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0609 - accuracy: 0.9811 - val_loss: 0.0770 - val_accuracy: 0.9697
Epoch 201/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0608 - accuracy: 0.9806 - val_loss: 0.0768 - val_accuracy: 0.9697
Epoch 202/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0608 - accuracy: 0.9811 - val_loss: 0.0767 - val_accuracy: 0.9697
Epoch 203/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0607 - accuracy: 0.9811 - val_loss: 0.0767 - val_accuracy: 0.9697
Epoch 204/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0607 - accuracy: 0.9806 - val_loss: 0.0768 - val_accuracy: 0.9697
Epoch 205/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0606 - accuracy: 0.9806 - val_loss: 0.0766 - val_accuracy: 0.9697
Epoch 206/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0606 - accuracy: 0.9806 - val_loss: 0.0767 - val_accuracy: 0.9697
Epoch 207/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0606 - accuracy: 0.9815 - val_loss: 0.0767 - val_accuracy: 0.9697
Epoch 208/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0605 - accuracy: 0.9811 - val_loss: 0.0766 - val_accuracy: 0.9697
Epoch 209/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0605 - accuracy: 0.9815 - val_loss: 0.0766 - val_accuracy: 0.9697
Epoch 210/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0604 - accuracy: 0.9811 - val_loss: 0.0766 - val_accuracy: 0.9710
Epoch 211/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0604 - accuracy: 0.9815 - val_loss: 0.0765 - val_accuracy: 0.9697
Epoch 212/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0603 - accuracy: 0.9815 - val_loss: 0.0764 - val_accuracy: 0.9697
Epoch 213/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0603 - accuracy: 0.9815 - val_loss: 0.0762 - val_accuracy: 0.9710
Epoch 214/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0603 - accuracy: 0.9819 - val_loss: 0.0764 - val_accuracy: 0.9697
Epoch 215/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0602 - accuracy: 0.9815 - val_loss: 0.0764 - val_accuracy: 0.9697
Epoch 216/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0602 - accuracy: 0.9811 - val_loss: 0.0763 - val_accuracy: 0.9697
Epoch 217/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0601 - accuracy: 0.9815 - val_loss: 0.0765 - val_accuracy: 0.9710
Epoch 218/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0601 - accuracy: 0.9806 - val_loss: 0.0763 - val_accuracy: 0.9710
Epoch 219/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0600 - accuracy: 0.9815 - val_loss: 0.0761 - val_accuracy: 0.9710
Epoch 220/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0600 - accuracy: 0.9811 - val_loss: 0.0761 - val_accuracy: 0.9710
Epoch 221/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0600 - accuracy: 0.9815 - val_loss: 0.0760 - val_accuracy: 0.9710
Epoch 222/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0599 - accuracy: 0.9811 - val_loss: 0.0760 - val_accuracy: 0.9710
Epoch 223/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0599 - accuracy: 0.9815 - val_loss: 0.0759 - val_accuracy: 0.9710
Epoch 224/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0598 - accuracy: 0.9815 - val_loss: 0.0759 - val_accuracy: 0.9710
Epoch 225/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0598 - accuracy: 0.9815 - val_loss: 0.0756 - val_accuracy: 0.9710
Epoch 226/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0598 - accuracy: 0.9815 - val_loss: 0.0757 - val_accuracy: 0.9710
Epoch 227/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0597 - accuracy: 0.9815 - val_loss: 0.0757 - val_accuracy: 0.9710
Epoch 228/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0596 - accuracy: 0.9815 - val_loss: 0.0757 - val_accuracy: 0.9710
Epoch 229/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0596 - accuracy: 0.9815 - val_loss: 0.0756 - val_accuracy: 0.9710
Epoch 230/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0596 - accuracy: 0.9815 - val_loss: 0.0756 - val_accuracy: 0.9710
Epoch 231/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0595 - accuracy: 0.9806 - val_loss: 0.0754 - val_accuracy: 0.9710
Epoch 232/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0595 - accuracy: 0.9806 - val_loss: 0.0755 - val_accuracy: 0.9710
Epoch 233/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0595 - accuracy: 0.9815 - val_loss: 0.0754 - val_accuracy: 0.9710
Epoch 234/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0594 - accuracy: 0.9815 - val_loss: 0.0753 - val_accuracy: 0.9710
Epoch 235/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0593 - accuracy: 0.9815 - val_loss: 0.0754 - val_accuracy: 0.9710
Epoch 236/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0593 - accuracy: 0.9815 - val_loss: 0.0753 - val_accuracy: 0.9710
Epoch 237/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0593 - accuracy: 0.9811 - val_loss: 0.0752 - val_accuracy: 0.9710
Epoch 238/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0593 - accuracy: 0.9815 - val_loss: 0.0751 - val_accuracy: 0.9710
Epoch 239/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0592 - accuracy: 0.9811 - val_loss: 0.0750 - val_accuracy: 0.9710
Epoch 240/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0592 - accuracy: 0.9815 - val_loss: 0.0750 - val_accuracy: 0.9710
Epoch 241/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0590 - accuracy: 0.9811 - val_loss: 0.0750 - val_accuracy: 0.9710
Epoch 242/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0591 - accuracy: 0.9815 - val_loss: 0.0749 - val_accuracy: 0.9710
Epoch 243/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0591 - accuracy: 0.9811 - val_loss: 0.0747 - val_accuracy: 0.9710
Epoch 244/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0591 - accuracy: 0.9811 - val_loss: 0.0748 - val_accuracy: 0.9710
Epoch 245/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0590 - accuracy: 0.9811 - val_loss: 0.0749 - val_accuracy: 0.9710
Epoch 246/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0590 - accuracy: 0.9806 - val_loss: 0.0748 - val_accuracy: 0.9710
Epoch 247/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0589 - accuracy: 0.9811 - val_loss: 0.0747 - val_accuracy: 0.9710
Epoch 248/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0589 - accuracy: 0.9811 - val_loss: 0.0747 - val_accuracy: 0.9710
Epoch 249/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0588 - accuracy: 0.9815 - val_loss: 0.0745 - val_accuracy: 0.9710
Epoch 250/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0588 - accuracy: 0.9811 - val_loss: 0.0745 - val_accuracy: 0.9710
Epoch 251/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0587 - accuracy: 0.9811 - val_loss: 0.0743 - val_accuracy: 0.9697
Epoch 252/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0588 - accuracy: 0.9811 - val_loss: 0.0743 - val_accuracy: 0.9697
Epoch 253/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0586 - accuracy: 0.9815 - val_loss: 0.0743 - val_accuracy: 0.9697
Epoch 254/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0587 - accuracy: 0.9811 - val_loss: 0.0742 - val_accuracy: 0.9697
Epoch 255/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0586 - accuracy: 0.9811 - val_loss: 0.0742 - val_accuracy: 0.9697
Epoch 256/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0586 - accuracy: 0.9811 - val_loss: 0.0742 - val_accuracy: 0.9697
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Epoch 257/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0585 - accuracy: 0.9811 - val_loss: 0.0742 - val_accuracy: 0.9697
Epoch 258/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0585 - accuracy: 0.9815 - val_loss: 0.0741 - val_accuracy: 0.9697
Epoch 259/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0585 - accuracy: 0.9811 - val_loss: 0.0741 - val_accuracy: 0.9697
Epoch 260/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0584 - accuracy: 0.9806 - val_loss: 0.0740 - val_accuracy: 0.9697
Epoch 261/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0584 - accuracy: 0.9811 - val_loss: 0.0740 - val_accuracy: 0.9697
Epoch 262/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0584 - accuracy: 0.9811 - val_loss: 0.0740 - val_accuracy: 0.9697
Epoch 263/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0583 - accuracy: 0.9811 - val_loss: 0.0739 - val_accuracy: 0.9697
Epoch 264/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0583 - accuracy: 0.9806 - val_loss: 0.0739 - val_accuracy: 0.9697
Epoch 265/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0583 - accuracy: 0.9802 - val_loss: 0.0738 - val_accuracy: 0.9697
Epoch 266/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0582 - accuracy: 0.9811 - val_loss: 0.0738 - val_accuracy: 0.9697
Epoch 267/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0582 - accuracy: 0.9815 - val_loss: 0.0739 - val_accuracy: 0.9697
Epoch 268/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0582 - accuracy: 0.9815 - val_loss: 0.0738 - val_accuracy: 0.9697
Epoch 269/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0582 - accuracy: 0.9811 - val_loss: 0.0738 - val_accuracy: 0.9697
Epoch 270/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0581 - accuracy: 0.9811 - val_loss: 0.0737 - val_accuracy: 0.9697
Epoch 271/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0581 - accuracy: 0.9819 - val_loss: 0.0736 - val_accuracy: 0.9710
Epoch 272/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0580 - accuracy: 0.9806 - val_loss: 0.0736 - val_accuracy: 0.9710
Epoch 273/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0580 - accuracy: 0.9811 - val_loss: 0.0736 - val_accuracy: 0.9710
Epoch 274/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0580 - accuracy: 0.9811 - val_loss: 0.0736 - val_accuracy: 0.9710
Epoch 275/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0579 - accuracy: 0.9806 - val_loss: 0.0736 - val_accuracy: 0.9710
Epoch 276/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0579 - accuracy: 0.9806 - val_loss: 0.0735 - val_accuracy: 0.9710
Epoch 277/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0579 - accuracy: 0.9815 - val_loss: 0.0736 - val_accuracy: 0.9710
Epoch 278/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0579 - accuracy: 0.9811 - val_loss: 0.0736 - val_accuracy: 0.9710
Epoch 279/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0578 - accuracy: 0.9819 - val_loss: 0.0735 - val_accuracy: 0.9710
Epoch 280/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0578 - accuracy: 0.9806 - val_loss: 0.0735 - val_accuracy: 0.9710
Epoch 281/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0578 - accuracy: 0.9815 - val_loss: 0.0734 - val_accuracy: 0.9710
Epoch 282/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0578 - accuracy: 0.9815 - val_loss: 0.0733 - val_accuracy: 0.9710
Epoch 283/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0577 - accuracy: 0.9811 - val_loss: 0.0733 - val_accuracy: 0.9710
Epoch 284/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0576 - accuracy: 0.9811 - val_loss: 0.0732 - val_accuracy: 0.9697
Epoch 285/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0576 - accuracy: 0.9811 - val_loss: 0.0732 - val_accuracy: 0.9710
Epoch 286/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0576 - accuracy: 0.9815 - val_loss: 0.0731 - val_accuracy: 0.9697
Epoch 287/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0576 - accuracy: 0.9811 - val_loss: 0.0731 - val_accuracy: 0.9710
Epoch 288/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0576 - accuracy: 0.9819 - val_loss: 0.0732 - val_accuracy: 0.9710
Epoch 289/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0575 - accuracy: 0.9806 - val_loss: 0.0731 - val_accuracy: 0.9710
Epoch 290/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0575 - accuracy: 0.9819 - val_loss: 0.0731 - val_accuracy: 0.9710
Epoch 291/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0575 - accuracy: 0.9815 - val_loss: 0.0731 - val_accuracy: 0.9710
Epoch 292/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0575 - accuracy: 0.9815 - val_loss: 0.0731 - val_accuracy: 0.9697
Epoch 293/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0575 - accuracy: 0.9815 - val_loss: 0.0730 - val_accuracy: 0.9697
Epoch 294/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0574 - accuracy: 0.9819 - val_loss: 0.0730 - val_accuracy: 0.9697
Epoch 295/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0574 - accuracy: 0.9811 - val_loss: 0.0728 - val_accuracy: 0.9697
Epoch 296/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0573 - accuracy: 0.9806 - val_loss: 0.0728 - val_accuracy: 0.9697
Epoch 297/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0573 - accuracy: 0.9819 - val_loss: 0.0728 - val_accuracy: 0.9697
Epoch 298/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0573 - accuracy: 0.9819 - val_loss: 0.0728 - val_accuracy: 0.9697
Epoch 299/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0573 - accuracy: 0.9819 - val_loss: 0.0729 - val_accuracy: 0.9697
Epoch 300/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0572 - accuracy: 0.9811 - val_loss: 0.0728 - val_accuracy: 0.9697
Epoch 301/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0572 - accuracy: 0.9815 - val_loss: 0.0728 - val_accuracy: 0.9697
Epoch 302/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0572 - accuracy: 0.9806 - val_loss: 0.0727 - val_accuracy: 0.9697
Epoch 303/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0572 - accuracy: 0.9815 - val_loss: 0.0727 - val_accuracy: 0.9697
Epoch 304/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0571 - accuracy: 0.9806 - val_loss: 0.0728 - val_accuracy: 0.9697
Epoch 305/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0571 - accuracy: 0.9811 - val_loss: 0.0727 - val_accuracy: 0.9697
Epoch 306/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0571 - accuracy: 0.9815 - val_loss: 0.0727 - val_accuracy: 0.9697
Epoch 307/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0570 - accuracy: 0.9806 - val_loss: 0.0726 - val_accuracy: 0.9697
Epoch 308/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0570 - accuracy: 0.9815 - val_loss: 0.0726 - val_accuracy: 0.9697
Epoch 309/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0570 - accuracy: 0.9823 - val_loss: 0.0724 - val_accuracy: 0.9697
Epoch 310/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0569 - accuracy: 0.9798 - val_loss: 0.0723 - val_accuracy: 0.9697
Epoch 311/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0569 - accuracy: 0.9815 - val_loss: 0.0724 - val_accuracy: 0.9710
Epoch 312/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0569 - accuracy: 0.9802 - val_loss: 0.0724 - val_accuracy: 0.9710
Epoch 313/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0568 - accuracy: 0.9811 - val_loss: 0.0724 - val_accuracy: 0.9697
Epoch 314/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0569 - accuracy: 0.9806 - val_loss: 0.0725 - val_accuracy: 0.9697
Epoch 315/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0568 - accuracy: 0.9806 - val_loss: 0.0724 - val_accuracy: 0.9710
Epoch 316/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0568 - accuracy: 0.9815 - val_loss: 0.0724 - val_accuracy: 0.9710
Epoch 317/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0568 - accuracy: 0.9802 - val_loss: 0.0723 - val_accuracy: 0.9710
Epoch 318/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0567 - accuracy: 0.9823 - val_loss: 0.0724 - val_accuracy: 0.9710
Epoch 319/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0567 - accuracy: 0.9806 - val_loss: 0.0723 - val_accuracy: 0.9697
Epoch 320/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0566 - accuracy: 0.9802 - val_loss: 0.0723 - val_accuracy: 0.9697
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Epoch 321/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0566 - accuracy: 0.9802 - val_loss: 0.0722 - val_accuracy: 0.9697
Epoch 322/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0566 - accuracy: 0.9815 - val_loss: 0.0722 - val_accuracy: 0.9697
Epoch 323/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0566 - accuracy: 0.9811 - val_loss: 0.0722 - val_accuracy: 0.9697
Epoch 324/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0565 - accuracy: 0.9815 - val_loss: 0.0722 - val_accuracy: 0.9697
Epoch 325/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0565 - accuracy: 0.9811 - val_loss: 0.0722 - val_accuracy: 0.9710
Epoch 326/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0565 - accuracy: 0.9815 - val_loss: 0.0722 - val_accuracy: 0.9697
Epoch 327/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0564 - accuracy: 0.9819 - val_loss: 0.0722 - val_accuracy: 0.9697
Epoch 328/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0564 - accuracy: 0.9815 - val_loss: 0.0722 - val_accuracy: 0.9697
Epoch 329/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0564 - accuracy: 0.9806 - val_loss: 0.0720 - val_accuracy: 0.9710
Epoch 330/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0564 - accuracy: 0.9815 - val_loss: 0.0721 - val_accuracy: 0.9710
Epoch 331/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0563 - accuracy: 0.9811 - val_loss: 0.0720 - val_accuracy: 0.9710
Epoch 332/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0563 - accuracy: 0.9815 - val_loss: 0.0720 - val_accuracy: 0.9697
Epoch 333/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0562 - accuracy: 0.9815 - val_loss: 0.0720 - val_accuracy: 0.9697
Epoch 334/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0562 - accuracy: 0.9815 - val_loss: 0.0726 - val_accuracy: 0.9722
Epoch 335/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0565 - accuracy: 0.9815 - val_loss: 0.0726 - val_accuracy: 0.9710
Epoch 336/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0563 - accuracy: 0.9811 - val_loss: 0.0724 - val_accuracy: 0.9710
Epoch 337/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0561 - accuracy: 0.9811 - val_loss: 0.0723 - val_accuracy: 0.9722
Epoch 338/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0561 - accuracy: 0.9815 - val_loss: 0.0718 - val_accuracy: 0.9697
Epoch 339/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0560 - accuracy: 0.9806 - val_loss: 0.0717 - val_accuracy: 0.9697
Epoch 340/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0560 - accuracy: 0.9806 - val_loss: 0.0717 - val_accuracy: 0.9710
Epoch 341/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0560 - accuracy: 0.9811 - val_loss: 0.0717 - val_accuracy: 0.9710
Epoch 342/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0559 - accuracy: 0.9815 - val_loss: 0.0717 - val_accuracy: 0.9697
Epoch 343/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0559 - accuracy: 0.9815 - val_loss: 0.0716 - val_accuracy: 0.9697
Epoch 344/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0558 - accuracy: 0.9827 - val_loss: 0.0716 - val_accuracy: 0.9710
Epoch 345/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0559 - accuracy: 0.9811 - val_loss: 0.0715 - val_accuracy: 0.9710
Epoch 346/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0558 - accuracy: 0.9811 - val_loss: 0.0716 - val_accuracy: 0.9710
Epoch 347/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0558 - accuracy: 0.9815 - val_loss: 0.0715 - val_accuracy: 0.9697
Epoch 348/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0557 - accuracy: 0.9815 - val_loss: 0.0715 - val_accuracy: 0.9697
Epoch 349/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0557 - accuracy: 0.9819 - val_loss: 0.0715 - val_accuracy: 0.9697
Epoch 350/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0557 - accuracy: 0.9819 - val_loss: 0.0714 - val_accuracy: 0.9710
Epoch 351/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0557 - accuracy: 0.9815 - val_loss: 0.0715 - val_accuracy: 0.9722
Epoch 352/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0556 - accuracy: 0.9815 - val_loss: 0.0714 - val_accuracy: 0.9722
Epoch 353/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0556 - accuracy: 0.9815 - val_loss: 0.0715 - val_accuracy: 0.9722
Epoch 354/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0556 - accuracy: 0.9806 - val_loss: 0.0715 - val_accuracy: 0.9722
Epoch 355/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0555 - accuracy: 0.9811 - val_loss: 0.0714 - val_accuracy: 0.9710
Epoch 356/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0555 - accuracy: 0.9819 - val_loss: 0.0714 - val_accuracy: 0.9710
Epoch 357/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0555 - accuracy: 0.9811 - val_loss: 0.0715 - val_accuracy: 0.9722
Epoch 358/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0555 - accuracy: 0.9819 - val_loss: 0.0714 - val_accuracy: 0.9722
Epoch 359/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0554 - accuracy: 0.9819 - val_loss: 0.0713 - val_accuracy: 0.9722
Epoch 360/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0554 - accuracy: 0.9815 - val_loss: 0.0714 - val_accuracy: 0.9722
Epoch 361/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0554 - accuracy: 0.9811 - val_loss: 0.0713 - val_accuracy: 0.9735
Epoch 362/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0553 - accuracy: 0.9819 - val_loss: 0.0714 - val_accuracy: 0.9735
Epoch 363/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0553 - accuracy: 0.9815 - val_loss: 0.0713 - val_accuracy: 0.9722
Epoch 364/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0553 - accuracy: 0.9819 - val_loss: 0.0712 - val_accuracy: 0.9735
Epoch 365/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0553 - accuracy: 0.9815 - val_loss: 0.0712 - val_accuracy: 0.9735
Epoch 366/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0552 - accuracy: 0.9815 - val_loss: 0.0710 - val_accuracy: 0.9722
Epoch 367/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0552 - accuracy: 0.9806 - val_loss: 0.0711 - val_accuracy: 0.9735
Epoch 368/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0552 - accuracy: 0.9806 - val_loss: 0.0711 - val_accuracy: 0.9735
Epoch 369/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0552 - accuracy: 0.9811 - val_loss: 0.0711 - val_accuracy: 0.9722
Epoch 370/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0552 - accuracy: 0.9819 - val_loss: 0.0712 - val_accuracy: 0.9722
Epoch 371/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0551 - accuracy: 0.9827 - val_loss: 0.0711 - val_accuracy: 0.9735
Epoch 372/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0551 - accuracy: 0.9815 - val_loss: 0.0710 - val_accuracy: 0.9735
Epoch 373/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0551 - accuracy: 0.9819 - val_loss: 0.0709 - val_accuracy: 0.9735
Epoch 374/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0551 - accuracy: 0.9819 - val_loss: 0.0709 - val_accuracy: 0.9735
Epoch 375/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0550 - accuracy: 0.9815 - val_loss: 0.0709 - val_accuracy: 0.9722
Epoch 376/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0550 - accuracy: 0.9815 - val_loss: 0.0708 - val_accuracy: 0.9722
Epoch 377/1500
75/75 [==============================] - 0s 6ms/step - loss: 0.0550 - accuracy: 0.9823 - val_loss: 0.0709 - val_accuracy: 0.9735
Epoch 378/1500
75/75 [==============================] - 1s 8ms/step - loss: 0.0550 - accuracy: 0.9823 - val_loss: 0.0709 - val_accuracy: 0.9735
Epoch 379/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0549 - accuracy: 0.9819 - val_loss: 0.0708 - val_accuracy: 0.9722
Epoch 380/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0549 - accuracy: 0.9832 - val_loss: 0.0708 - val_accuracy: 0.9722
Epoch 381/1500
75/75 [==============================] - 1s 13ms/step - loss: 0.0549 - accuracy: 0.9823 - val_loss: 0.0708 - val_accuracy: 0.9722
Epoch 382/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0549 - accuracy: 0.9827 - val_loss: 0.0709 - val_accuracy: 0.9722
Epoch 383/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0548 - accuracy: 0.9823 - val_loss: 0.0709 - val_accuracy: 0.9735
Epoch 384/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0548 - accuracy: 0.9832 - val_loss: 0.0708 - val_accuracy: 0.9735
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Epoch 385/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0548 - accuracy: 0.9827 - val_loss: 0.0708 - val_accuracy: 0.9735
Epoch 386/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0548 - accuracy: 0.9819 - val_loss: 0.0708 - val_accuracy: 0.9735
Epoch 387/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0548 - accuracy: 0.9823 - val_loss: 0.0707 - val_accuracy: 0.9722
Epoch 388/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0547 - accuracy: 0.9823 - val_loss: 0.0708 - val_accuracy: 0.9722
Epoch 389/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0547 - accuracy: 0.9815 - val_loss: 0.0708 - val_accuracy: 0.9722
Epoch 390/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0547 - accuracy: 0.9836 - val_loss: 0.0707 - val_accuracy: 0.9722
Epoch 391/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0547 - accuracy: 0.9823 - val_loss: 0.0708 - val_accuracy: 0.9722
Epoch 392/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0547 - accuracy: 0.9823 - val_loss: 0.0708 - val_accuracy: 0.9735
Epoch 393/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0546 - accuracy: 0.9823 - val_loss: 0.0708 - val_accuracy: 0.9735
Epoch 394/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0546 - accuracy: 0.9832 - val_loss: 0.0709 - val_accuracy: 0.9735
Epoch 395/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0546 - accuracy: 0.9827 - val_loss: 0.0709 - val_accuracy: 0.9735
Epoch 396/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0545 - accuracy: 0.9823 - val_loss: 0.0708 - val_accuracy: 0.9735
Epoch 397/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0545 - accuracy: 0.9819 - val_loss: 0.0708 - val_accuracy: 0.9735
Epoch 398/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0545 - accuracy: 0.9823 - val_loss: 0.0708 - val_accuracy: 0.9735
Epoch 399/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0544 - accuracy: 0.9823 - val_loss: 0.0708 - val_accuracy: 0.9735
Epoch 400/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0544 - accuracy: 0.9819 - val_loss: 0.0707 - val_accuracy: 0.9735
Epoch 401/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0544 - accuracy: 0.9823 - val_loss: 0.0707 - val_accuracy: 0.9735
Epoch 402/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0543 - accuracy: 0.9819 - val_loss: 0.0706 - val_accuracy: 0.9735
Epoch 403/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0544 - accuracy: 0.9827 - val_loss: 0.0706 - val_accuracy: 0.9735
Epoch 404/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0543 - accuracy: 0.9827 - val_loss: 0.0707 - val_accuracy: 0.9735
Epoch 405/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0543 - accuracy: 0.9832 - val_loss: 0.0707 - val_accuracy: 0.9735
Epoch 406/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0542 - accuracy: 0.9823 - val_loss: 0.0707 - val_accuracy: 0.9735
Epoch 407/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0543 - accuracy: 0.9827 - val_loss: 0.0707 - val_accuracy: 0.9735
Epoch 408/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0542 - accuracy: 0.9823 - val_loss: 0.0707 - val_accuracy: 0.9735
Epoch 409/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0542 - accuracy: 0.9832 - val_loss: 0.0707 - val_accuracy: 0.9735
Epoch 410/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0542 - accuracy: 0.9832 - val_loss: 0.0707 - val_accuracy: 0.9735
Epoch 411/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0542 - accuracy: 0.9827 - val_loss: 0.0706 - val_accuracy: 0.9735
Epoch 412/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0541 - accuracy: 0.9832 - val_loss: 0.0706 - val_accuracy: 0.9735
Epoch 413/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0541 - accuracy: 0.9827 - val_loss: 0.0706 - val_accuracy: 0.9735
Epoch 414/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0541 - accuracy: 0.9823 - val_loss: 0.0706 - val_accuracy: 0.9735
Epoch 415/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0540 - accuracy: 0.9827 - val_loss: 0.0706 - val_accuracy: 0.9735
Epoch 416/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0540 - accuracy: 0.9827 - val_loss: 0.0705 - val_accuracy: 0.9735
Epoch 417/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0540 - accuracy: 0.9827 - val_loss: 0.0705 - val_accuracy: 0.9735
Epoch 418/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0540 - accuracy: 0.9827 - val_loss: 0.0704 - val_accuracy: 0.9735
Epoch 419/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0540 - accuracy: 0.9827 - val_loss: 0.0704 - val_accuracy: 0.9735
Epoch 420/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0540 - accuracy: 0.9832 - val_loss: 0.0705 - val_accuracy: 0.9735
Epoch 421/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0539 - accuracy: 0.9823 - val_loss: 0.0704 - val_accuracy: 0.9735
Epoch 422/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0539 - accuracy: 0.9823 - val_loss: 0.0704 - val_accuracy: 0.9735
Epoch 423/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0539 - accuracy: 0.9832 - val_loss: 0.0705 - val_accuracy: 0.9735
Epoch 424/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0539 - accuracy: 0.9827 - val_loss: 0.0705 - val_accuracy: 0.9735
Epoch 425/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0538 - accuracy: 0.9832 - val_loss: 0.0705 - val_accuracy: 0.9735
Epoch 426/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0538 - accuracy: 0.9832 - val_loss: 0.0705 - val_accuracy: 0.9735
Epoch 427/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0538 - accuracy: 0.9827 - val_loss: 0.0705 - val_accuracy: 0.9735
Epoch 428/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0538 - accuracy: 0.9827 - val_loss: 0.0704 - val_accuracy: 0.9735
Epoch 429/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0538 - accuracy: 0.9827 - val_loss: 0.0705 - val_accuracy: 0.9735
Epoch 430/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0537 - accuracy: 0.9823 - val_loss: 0.0707 - val_accuracy: 0.9735
Epoch 431/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0537 - accuracy: 0.9832 - val_loss: 0.0705 - val_accuracy: 0.9735
Epoch 432/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0537 - accuracy: 0.9832 - val_loss: 0.0703 - val_accuracy: 0.9722
Epoch 433/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0538 - accuracy: 0.9832 - val_loss: 0.0703 - val_accuracy: 0.9735
Epoch 434/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0537 - accuracy: 0.9836 - val_loss: 0.0704 - val_accuracy: 0.9735
Epoch 435/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0536 - accuracy: 0.9827 - val_loss: 0.0703 - val_accuracy: 0.9735
Epoch 436/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0536 - accuracy: 0.9832 - val_loss: 0.0702 - val_accuracy: 0.9735
Epoch 437/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0535 - accuracy: 0.9832 - val_loss: 0.0703 - val_accuracy: 0.9735
Epoch 438/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0536 - accuracy: 0.9827 - val_loss: 0.0703 - val_accuracy: 0.9735
Epoch 439/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0535 - accuracy: 0.9827 - val_loss: 0.0702 - val_accuracy: 0.9735
Epoch 440/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0535 - accuracy: 0.9827 - val_loss: 0.0702 - val_accuracy: 0.9735
Epoch 441/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0535 - accuracy: 0.9827 - val_loss: 0.0703 - val_accuracy: 0.9735
Epoch 442/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0535 - accuracy: 0.9827 - val_loss: 0.0702 - val_accuracy: 0.9735
Epoch 443/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0534 - accuracy: 0.9823 - val_loss: 0.0702 - val_accuracy: 0.9735
Epoch 444/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0534 - accuracy: 0.9827 - val_loss: 0.0702 - val_accuracy: 0.9735
Epoch 445/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0534 - accuracy: 0.9827 - val_loss: 0.0702 - val_accuracy: 0.9735
Epoch 446/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0533 - accuracy: 0.9827 - val_loss: 0.0701 - val_accuracy: 0.9735
Epoch 447/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0533 - accuracy: 0.9827 - val_loss: 0.0700 - val_accuracy: 0.9735
Epoch 448/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0533 - accuracy: 0.9832 - val_loss: 0.0701 - val_accuracy: 0.9735
```

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Epoch 449/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0532 - accuracy: 0.9832 - val_loss: 0.0701 - val_accuracy: 0.9735
Epoch 450/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0532 - accuracy: 0.9827 - val_loss: 0.0700 - val_accuracy: 0.9735
Epoch 451/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0532 - accuracy: 0.9823 - val_loss: 0.0699 - val_accuracy: 0.9735
Epoch 452/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0532 - accuracy: 0.9832 - val_loss: 0.0699 - val_accuracy: 0.9735
Epoch 453/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0531 - accuracy: 0.9832 - val_loss: 0.0699 - val_accuracy: 0.9735
Epoch 454/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0531 - accuracy: 0.9832 - val_loss: 0.0699 - val_accuracy: 0.9735
Epoch 455/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0531 - accuracy: 0.9832 - val_loss: 0.0698 - val_accuracy: 0.9747
Epoch 456/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0531 - accuracy: 0.9827 - val_loss: 0.0698 - val_accuracy: 0.9747
Epoch 457/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0530 - accuracy: 0.9832 - val_loss: 0.0700 - val_accuracy: 0.9747
Epoch 458/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0531 - accuracy: 0.9832 - val_loss: 0.0701 - val_accuracy: 0.9747
Epoch 459/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0530 - accuracy: 0.9823 - val_loss: 0.0699 - val_accuracy: 0.9747
Epoch 460/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0530 - accuracy: 0.9827 - val_loss: 0.0699 - val_accuracy: 0.9747
Epoch 461/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0530 - accuracy: 0.9827 - val_loss: 0.0699 - val_accuracy: 0.9747
Epoch 462/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0529 - accuracy: 0.9832 - val_loss: 0.0699 - val_accuracy: 0.9747
Epoch 463/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0529 - accuracy: 0.9832 - val_loss: 0.0698 - val_accuracy: 0.9747
Epoch 464/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0529 - accuracy: 0.9832 - val_loss: 0.0698 - val_accuracy: 0.9747
Epoch 465/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0528 - accuracy: 0.9832 - val_loss: 0.0699 - val_accuracy: 0.9747
Epoch 466/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0529 - accuracy: 0.9823 - val_loss: 0.0698 - val_accuracy: 0.9747
Epoch 467/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0528 - accuracy: 0.9832 - val_loss: 0.0698 - val_accuracy: 0.9747
Epoch 468/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0528 - accuracy: 0.9832 - val_loss: 0.0698 - val_accuracy: 0.9747
Epoch 469/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0528 - accuracy: 0.9832 - val_loss: 0.0699 - val_accuracy: 0.9747
Epoch 470/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0528 - accuracy: 0.9823 - val_loss: 0.0698 - val_accuracy: 0.9747
Epoch 471/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0527 - accuracy: 0.9832 - val_loss: 0.0698 - val_accuracy: 0.9747
Epoch 472/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0527 - accuracy: 0.9827 - val_loss: 0.0697 - val_accuracy: 0.9747
Epoch 473/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0527 - accuracy: 0.9832 - val_loss: 0.0697 - val_accuracy: 0.9747
Epoch 474/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0527 - accuracy: 0.9832 - val_loss: 0.0697 - val_accuracy: 0.9747
Epoch 475/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0526 - accuracy: 0.9827 - val_loss: 0.0697 - val_accuracy: 0.9747
Epoch 476/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0526 - accuracy: 0.9827 - val_loss: 0.0696 - val_accuracy: 0.9747
Epoch 477/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0526 - accuracy: 0.9836 - val_loss: 0.0696 - val_accuracy: 0.9747
Epoch 478/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0526 - accuracy: 0.9827 - val_loss: 0.0696 - val_accuracy: 0.9747
Epoch 479/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0526 - accuracy: 0.9827 - val_loss: 0.0695 - val_accuracy: 0.9747
Epoch 480/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0526 - accuracy: 0.9832 - val_loss: 0.0695 - val_accuracy: 0.9747
Epoch 481/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0525 - accuracy: 0.9832 - val_loss: 0.0695 - val_accuracy: 0.9747
Epoch 482/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0524 - accuracy: 0.9827 - val_loss: 0.0695 - val_accuracy: 0.9747
Epoch 483/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0524 - accuracy: 0.9836 - val_loss: 0.0694 - val_accuracy: 0.9747
Epoch 484/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0524 - accuracy: 0.9832 - val_loss: 0.0695 - val_accuracy: 0.9747
Epoch 485/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0524 - accuracy: 0.9836 - val_loss: 0.0695 - val_accuracy: 0.9747
Epoch 486/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0524 - accuracy: 0.9832 - val_loss: 0.0695 - val_accuracy: 0.9760
Epoch 487/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0524 - accuracy: 0.9836 - val_loss: 0.0699 - val_accuracy: 0.9760
Epoch 488/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0524 - accuracy: 0.9832 - val_loss: 0.0697 - val_accuracy: 0.9760
Epoch 489/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0523 - accuracy: 0.9836 - val_loss: 0.0697 - val_accuracy: 0.9760
Epoch 490/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0523 - accuracy: 0.9832 - val_loss: 0.0697 - val_accuracy: 0.9760
Epoch 491/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0523 - accuracy: 0.9827 - val_loss: 0.0696 - val_accuracy: 0.9760
Epoch 492/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0522 - accuracy: 0.9836 - val_loss: 0.0699 - val_accuracy: 0.9760
Epoch 493/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0522 - accuracy: 0.9827 - val_loss: 0.0698 - val_accuracy: 0.9760
Epoch 494/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0522 - accuracy: 0.9832 - val_loss: 0.0697 - val_accuracy: 0.9760
Epoch 495/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0522 - accuracy: 0.9836 - val_loss: 0.0697 - val_accuracy: 0.9760
Epoch 496/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0522 - accuracy: 0.9832 - val_loss: 0.0696 - val_accuracy: 0.9760
Epoch 497/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0521 - accuracy: 0.9832 - val_loss: 0.0695 - val_accuracy: 0.9760
Epoch 498/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0521 - accuracy: 0.9836 - val_loss: 0.0694 - val_accuracy: 0.9760
Epoch 499/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0521 - accuracy: 0.9836 - val_loss: 0.0694 - val_accuracy: 0.9760
Epoch 500/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0520 - accuracy: 0.9836 - val_loss: 0.0694 - val_accuracy: 0.9760
Epoch 501/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0521 - accuracy: 0.9832 - val_loss: 0.0694 - val_accuracy: 0.9760
Epoch 502/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0520 - accuracy: 0.9823 - val_loss: 0.0693 - val_accuracy: 0.9747
Epoch 503/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0520 - accuracy: 0.9836 - val_loss: 0.0693 - val_accuracy: 0.9760
Epoch 504/1500
75/75 [==============================] - 0s 6ms/step - loss: 0.0520 - accuracy: 0.9836 - val_loss: 0.0694 - val_accuracy: 0.9760
Epoch 505/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0519 - accuracy: 0.9836 - val_loss: 0.0692 - val_accuracy: 0.9760
Epoch 506/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0519 - accuracy: 0.9832 - val_loss: 0.0690 - val_accuracy: 0.9747
Epoch 507/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0520 - accuracy: 0.9832 - val_loss: 0.0691 - val_accuracy: 0.9760
Epoch 508/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0519 - accuracy: 0.9827 - val_loss: 0.0692 - val_accuracy: 0.9760
Epoch 509/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0519 - accuracy: 0.9836 - val_loss: 0.0692 - val_accuracy: 0.9760
Epoch 510/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0518 - accuracy: 0.9832 - val_loss: 0.0692 - val_accuracy: 0.9760
Epoch 511/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0518 - accuracy: 0.9832 - val_loss: 0.0692 - val_accuracy: 0.9760
Epoch 512/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0518 - accuracy: 0.9836 - val_loss: 0.0692 - val_accuracy: 0.9760
```

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Epoch 513/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0518 - accuracy: 0.9832 - val_loss: 0.0692 - val_accuracy: 0.9760
Epoch 514/1500
75/75 [==============================] - 0s 6ms/step - loss: 0.0518 - accuracy: 0.9836 - val_loss: 0.0692 - val_accuracy: 0.9760
Epoch 515/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0517 - accuracy: 0.9832 - val_loss: 0.0692 - val_accuracy: 0.9760
Epoch 516/1500
75/75 [==============================] - 0s 6ms/step - loss: 0.0518 - accuracy: 0.9836 - val_loss: 0.0692 - val_accuracy: 0.9760
Epoch 517/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0517 - accuracy: 0.9836 - val_loss: 0.0692 - val_accuracy: 0.9760
Epoch 518/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0517 - accuracy: 0.9832 - val_loss: 0.0693 - val_accuracy: 0.9760
Epoch 519/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0517 - accuracy: 0.9836 - val_loss: 0.0692 - val_accuracy: 0.9760
Epoch 520/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0517 - accuracy: 0.9832 - val_loss: 0.0692 - val_accuracy: 0.9760
Epoch 521/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0516 - accuracy: 0.9836 - val_loss: 0.0692 - val_accuracy: 0.9760
Epoch 522/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0516 - accuracy: 0.9836 - val_loss: 0.0692 - val_accuracy: 0.9760
Epoch 523/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0516 - accuracy: 0.9836 - val_loss: 0.0692 - val_accuracy: 0.9760
Epoch 524/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0516 - accuracy: 0.9836 - val_loss: 0.0692 - val_accuracy: 0.9760
Epoch 525/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0516 - accuracy: 0.9836 - val_loss: 0.0693 - val_accuracy: 0.9760
Epoch 526/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0516 - accuracy: 0.9836 - val_loss: 0.0692 - val_accuracy: 0.9760
Epoch 527/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0515 - accuracy: 0.9836 - val_loss: 0.0692 - val_accuracy: 0.9760
Epoch 528/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0515 - accuracy: 0.9836 - val_loss: 0.0691 - val_accuracy: 0.9760
Epoch 529/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0514 - accuracy: 0.9832 - val_loss: 0.0691 - val_accuracy: 0.9760
Epoch 530/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0514 - accuracy: 0.9836 - val_loss: 0.0692 - val_accuracy: 0.9760
Epoch 531/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0514 - accuracy: 0.9832 - val_loss: 0.0690 - val_accuracy: 0.9760
Epoch 532/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0514 - accuracy: 0.9836 - val_loss: 0.0691 - val_accuracy: 0.9760
Epoch 533/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0513 - accuracy: 0.9827 - val_loss: 0.0692 - val_accuracy: 0.9760
Epoch 534/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0513 - accuracy: 0.9836 - val_loss: 0.0692 - val_accuracy: 0.9760
Epoch 535/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0513 - accuracy: 0.9836 - val_loss: 0.0692 - val_accuracy: 0.9760
Epoch 536/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0513 - accuracy: 0.9836 - val_loss: 0.0692 - val_accuracy: 0.9760
Epoch 537/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0513 - accuracy: 0.9832 - val_loss: 0.0691 - val_accuracy: 0.9760
Epoch 538/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0512 - accuracy: 0.9836 - val_loss: 0.0690 - val_accuracy: 0.9760
Epoch 539/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0512 - accuracy: 0.9836 - val_loss: 0.0691 - val_accuracy: 0.9760
Epoch 540/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0512 - accuracy: 0.9836 - val_loss: 0.0691 - val_accuracy: 0.9760
Epoch 541/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0512 - accuracy: 0.9840 - val_loss: 0.0691 - val_accuracy: 0.9760
Epoch 542/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0512 - accuracy: 0.9836 - val_loss: 0.0691 - val_accuracy: 0.9760
Epoch 543/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0511 - accuracy: 0.9832 - val_loss: 0.0690 - val_accuracy: 0.9760
Epoch 544/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0511 - accuracy: 0.9836 - val_loss: 0.0691 - val_accuracy: 0.9760
Epoch 545/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0511 - accuracy: 0.9836 - val_loss: 0.0691 - val_accuracy: 0.9760
Epoch 546/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0511 - accuracy: 0.9832 - val_loss: 0.0690 - val_accuracy: 0.9760
Epoch 547/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0511 - accuracy: 0.9836 - val_loss: 0.0691 - val_accuracy: 0.9760
Epoch 548/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0510 - accuracy: 0.9836 - val_loss: 0.0690 - val_accuracy: 0.9760
Epoch 549/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0510 - accuracy: 0.9832 - val_loss: 0.0690 - val_accuracy: 0.9760
Epoch 550/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0510 - accuracy: 0.9836 - val_loss: 0.0690 - val_accuracy: 0.9760
Epoch 551/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0510 - accuracy: 0.9832 - val_loss: 0.0690 - val_accuracy: 0.9760
Epoch 552/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0509 - accuracy: 0.9836 - val_loss: 0.0691 - val_accuracy: 0.9760
Epoch 553/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0509 - accuracy: 0.9832 - val_loss: 0.0690 - val_accuracy: 0.9760
Epoch 554/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0509 - accuracy: 0.9836 - val_loss: 0.0690 - val_accuracy: 0.9760
Epoch 555/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0509 - accuracy: 0.9832 - val_loss: 0.0690 - val_accuracy: 0.9760
Epoch 556/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0509 - accuracy: 0.9836 - val_loss: 0.0690 - val_accuracy: 0.9760
Epoch 557/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0509 - accuracy: 0.9832 - val_loss: 0.0689 - val_accuracy: 0.9760
Epoch 558/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0508 - accuracy: 0.9832 - val_loss: 0.0690 - val_accuracy: 0.9760
Epoch 559/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0508 - accuracy: 0.9832 - val_loss: 0.0689 - val_accuracy: 0.9760
Epoch 560/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0508 - accuracy: 0.9836 - val_loss: 0.0689 - val_accuracy: 0.9760
Epoch 561/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0508 - accuracy: 0.9836 - val_loss: 0.0689 - val_accuracy: 0.9760
Epoch 562/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0508 - accuracy: 0.9832 - val_loss: 0.0689 - val_accuracy: 0.9760
Epoch 563/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0507 - accuracy: 0.9836 - val_loss: 0.0689 - val_accuracy: 0.9760
Epoch 564/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0507 - accuracy: 0.9836 - val_loss: 0.0688 - val_accuracy: 0.9760
Epoch 565/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0506 - accuracy: 0.9832 - val_loss: 0.0686 - val_accuracy: 0.9760
Epoch 566/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0506 - accuracy: 0.9836 - val_loss: 0.0687 - val_accuracy: 0.9760
Epoch 567/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0506 - accuracy: 0.9836 - val_loss: 0.0687 - val_accuracy: 0.9760
Epoch 568/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0505 - accuracy: 0.9836 - val_loss: 0.0688 - val_accuracy: 0.9760
Epoch 569/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0505 - accuracy: 0.9832 - val_loss: 0.0689 - val_accuracy: 0.9760
Epoch 570/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0504 - accuracy: 0.9836 - val_loss: 0.0688 - val_accuracy: 0.9760
Epoch 571/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0504 - accuracy: 0.9836 - val_loss: 0.0686 - val_accuracy: 0.9747
Epoch 572/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0504 - accuracy: 0.9827 - val_loss: 0.0687 - val_accuracy: 0.9747
Epoch 573/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0503 - accuracy: 0.9836 - val_loss: 0.0688 - val_accuracy: 0.9747
Epoch 574/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0503 - accuracy: 0.9827 - val_loss: 0.0688 - val_accuracy: 0.9747
Epoch 575/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0502 - accuracy: 0.9840 - val_loss: 0.0688 - val_accuracy: 0.9747
Epoch 576/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0502 - accuracy: 0.9832 - val_loss: 0.0688 - val_accuracy: 0.9747
```

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Epoch 577/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0502 - accuracy: 0.9836 - val_loss: 0.0689 - val_accuracy: 0.9735
Epoch 578/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0502 - accuracy: 0.9836 - val_loss: 0.0689 - val_accuracy: 0.9735
Epoch 579/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0501 - accuracy: 0.9840 - val_loss: 0.0688 - val_accuracy: 0.9735
Epoch 580/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0501 - accuracy: 0.9840 - val_loss: 0.0688 - val_accuracy: 0.9735
Epoch 581/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0501 - accuracy: 0.9832 - val_loss: 0.0688 - val_accuracy: 0.9735
Epoch 582/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0500 - accuracy: 0.9836 - val_loss: 0.0688 - val_accuracy: 0.9735
Epoch 583/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0500 - accuracy: 0.9827 - val_loss: 0.0687 - val_accuracy: 0.9735
Epoch 584/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0500 - accuracy: 0.9832 - val_loss: 0.0687 - val_accuracy: 0.9735
Epoch 585/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0500 - accuracy: 0.9840 - val_loss: 0.0688 - val_accuracy: 0.9735
Epoch 586/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0499 - accuracy: 0.9836 - val_loss: 0.0688 - val_accuracy: 0.9735
Epoch 587/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0499 - accuracy: 0.9832 - val_loss: 0.0687 - val_accuracy: 0.9735
Epoch 588/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0499 - accuracy: 0.9836 - val_loss: 0.0688 - val_accuracy: 0.9735
Epoch 589/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0499 - accuracy: 0.9836 - val_loss: 0.0688 - val_accuracy: 0.9735
Epoch 590/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0499 - accuracy: 0.9832 - val_loss: 0.0688 - val_accuracy: 0.9735
Epoch 591/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0498 - accuracy: 0.9832 - val_loss: 0.0688 - val_accuracy: 0.9735
Epoch 592/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0498 - accuracy: 0.9832 - val_loss: 0.0688 - val_accuracy: 0.9735
Epoch 593/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0498 - accuracy: 0.9836 - val_loss: 0.0688 - val_accuracy: 0.9735
Epoch 594/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0497 - accuracy: 0.9832 - val_loss: 0.0687 - val_accuracy: 0.9735
Epoch 595/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0497 - accuracy: 0.9836 - val_loss: 0.0686 - val_accuracy: 0.9735
Epoch 596/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0497 - accuracy: 0.9836 - val_loss: 0.0687 - val_accuracy: 0.9735
Epoch 597/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0496 - accuracy: 0.9836 - val_loss: 0.0687 - val_accuracy: 0.9735
Epoch 598/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0497 - accuracy: 0.9836 - val_loss: 0.0688 - val_accuracy: 0.9735
Epoch 599/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0496 - accuracy: 0.9832 - val_loss: 0.0688 - val_accuracy: 0.9735
Epoch 600/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0496 - accuracy: 0.9832 - val_loss: 0.0687 - val_accuracy: 0.9735
Epoch 601/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0496 - accuracy: 0.9836 - val_loss: 0.0688 - val_accuracy: 0.9735
Epoch 602/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0495 - accuracy: 0.9836 - val_loss: 0.0687 - val_accuracy: 0.9735
Epoch 603/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0495 - accuracy: 0.9827 - val_loss: 0.0686 - val_accuracy: 0.9747
Epoch 604/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0495 - accuracy: 0.9836 - val_loss: 0.0688 - val_accuracy: 0.9735
Epoch 605/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0495 - accuracy: 0.9832 - val_loss: 0.0687 - val_accuracy: 0.9735
Epoch 606/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0495 - accuracy: 0.9832 - val_loss: 0.0686 - val_accuracy: 0.9747
Epoch 607/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0495 - accuracy: 0.9836 - val_loss: 0.0687 - val_accuracy: 0.9735
Epoch 608/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0495 - accuracy: 0.9832 - val_loss: 0.0687 - val_accuracy: 0.9735
Epoch 609/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0494 - accuracy: 0.9836 - val_loss: 0.0687 - val_accuracy: 0.9747
Epoch 610/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0494 - accuracy: 0.9832 - val_loss: 0.0686 - val_accuracy: 0.9747
Epoch 611/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0493 - accuracy: 0.9832 - val_loss: 0.0688 - val_accuracy: 0.9735
Epoch 612/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0494 - accuracy: 0.9836 - val_loss: 0.0688 - val_accuracy: 0.9735
Epoch 613/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0493 - accuracy: 0.9832 - val_loss: 0.0688 - val_accuracy: 0.9735
Epoch 614/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0493 - accuracy: 0.9836 - val_loss: 0.0687 - val_accuracy: 0.9735
Epoch 615/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0492 - accuracy: 0.9836 - val_loss: 0.0687 - val_accuracy: 0.9747
Epoch 616/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0492 - accuracy: 0.9836 - val_loss: 0.0687 - val_accuracy: 0.9747
Epoch 617/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0492 - accuracy: 0.9836 - val_loss: 0.0687 - val_accuracy: 0.9735
Epoch 618/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0491 - accuracy: 0.9832 - val_loss: 0.0685 - val_accuracy: 0.9747
Epoch 619/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0492 - accuracy: 0.9832 - val_loss: 0.0686 - val_accuracy: 0.9747
Epoch 620/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0491 - accuracy: 0.9832 - val_loss: 0.0685 - val_accuracy: 0.9747
Epoch 621/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0491 - accuracy: 0.9836 - val_loss: 0.0685 - val_accuracy: 0.9747
Epoch 622/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0491 - accuracy: 0.9832 - val_loss: 0.0686 - val_accuracy: 0.9747
Epoch 623/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0491 - accuracy: 0.9832 - val_loss: 0.0686 - val_accuracy: 0.9747
Epoch 624/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0490 - accuracy: 0.9836 - val_loss: 0.0686 - val_accuracy: 0.9747
Epoch 625/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0490 - accuracy: 0.9836 - val_loss: 0.0686 - val_accuracy: 0.9747
Epoch 626/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0490 - accuracy: 0.9832 - val_loss: 0.0686 - val_accuracy: 0.9747
Epoch 627/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0490 - accuracy: 0.9836 - val_loss: 0.0686 - val_accuracy: 0.9747
Epoch 628/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0489 - accuracy: 0.9836 - val_loss: 0.0686 - val_accuracy: 0.9747
Epoch 629/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0489 - accuracy: 0.9832 - val_loss: 0.0686 - val_accuracy: 0.9747
Epoch 630/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0489 - accuracy: 0.9840 - val_loss: 0.0685 - val_accuracy: 0.9747
Epoch 631/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0489 - accuracy: 0.9827 - val_loss: 0.0684 - val_accuracy: 0.9747
Epoch 632/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0489 - accuracy: 0.9827 - val_loss: 0.0684 - val_accuracy: 0.9747
Epoch 633/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0488 - accuracy: 0.9832 - val_loss: 0.0685 - val_accuracy: 0.9747
Epoch 634/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0488 - accuracy: 0.9836 - val_loss: 0.0684 - val_accuracy: 0.9747
Epoch 635/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0487 - accuracy: 0.9827 - val_loss: 0.0684 - val_accuracy: 0.9747
Epoch 636/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0487 - accuracy: 0.9832 - val_loss: 0.0684 - val_accuracy: 0.9747
Epoch 637/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0487 - accuracy: 0.9832 - val_loss: 0.0684 - val_accuracy: 0.9747
Epoch 638/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0488 - accuracy: 0.9836 - val_loss: 0.0684 - val_accuracy: 0.9747
Epoch 639/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0487 - accuracy: 0.9827 - val_loss: 0.0685 - val_accuracy: 0.9747
Epoch 640/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0486 - accuracy: 0.9827 - val_loss: 0.0683 - val_accuracy: 0.9747
```

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Epoch 641/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0487 - accuracy: 0.9836 - val_loss: 0.0683 - val_accuracy: 0.9747
Epoch 642/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0486 - accuracy: 0.9836 - val_loss: 0.0684 - val_accuracy: 0.9747
Epoch 643/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0486 - accuracy: 0.9832 - val_loss: 0.0684 - val_accuracy: 0.9747
Epoch 644/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0486 - accuracy: 0.9827 - val_loss: 0.0683 - val_accuracy: 0.9747
Epoch 645/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0485 - accuracy: 0.9836 - val_loss: 0.0684 - val_accuracy: 0.9747
Epoch 646/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0485 - accuracy: 0.9827 - val_loss: 0.0684 - val_accuracy: 0.9747
Epoch 647/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0485 - accuracy: 0.9840 - val_loss: 0.0684 - val_accuracy: 0.9747
Epoch 648/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0485 - accuracy: 0.9827 - val_loss: 0.0684 - val_accuracy: 0.9747
Epoch 649/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0484 - accuracy: 0.9836 - val_loss: 0.0685 - val_accuracy: 0.9747
Epoch 650/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0484 - accuracy: 0.9832 - val_loss: 0.0683 - val_accuracy: 0.9747
Epoch 651/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0484 - accuracy: 0.9836 - val_loss: 0.0683 - val_accuracy: 0.9747
Epoch 652/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0484 - accuracy: 0.9836 - val_loss: 0.0683 - val_accuracy: 0.9747
Epoch 653/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0484 - accuracy: 0.9836 - val_loss: 0.0683 - val_accuracy: 0.9747
Epoch 654/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0483 - accuracy: 0.9840 - val_loss: 0.0682 - val_accuracy: 0.9747
Epoch 655/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0483 - accuracy: 0.9832 - val_loss: 0.0683 - val_accuracy: 0.9747
Epoch 656/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0483 - accuracy: 0.9832 - val_loss: 0.0683 - val_accuracy: 0.9747
Epoch 657/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0483 - accuracy: 0.9836 - val_loss: 0.0682 - val_accuracy: 0.9747
Epoch 658/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0483 - accuracy: 0.9836 - val_loss: 0.0682 - val_accuracy: 0.9747
Epoch 659/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0482 - accuracy: 0.9836 - val_loss: 0.0681 - val_accuracy: 0.9747
Epoch 660/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0482 - accuracy: 0.9836 - val_loss: 0.0681 - val_accuracy: 0.9747
Epoch 661/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0482 - accuracy: 0.9832 - val_loss: 0.0682 - val_accuracy: 0.9747
Epoch 662/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0481 - accuracy: 0.9836 - val_loss: 0.0683 - val_accuracy: 0.9747
Epoch 663/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0481 - accuracy: 0.9832 - val_loss: 0.0684 - val_accuracy: 0.9735
Epoch 664/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0481 - accuracy: 0.9836 - val_loss: 0.0682 - val_accuracy: 0.9747
Epoch 665/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0481 - accuracy: 0.9836 - val_loss: 0.0683 - val_accuracy: 0.9747
Epoch 666/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0481 - accuracy: 0.9827 - val_loss: 0.0682 - val_accuracy: 0.9747
Epoch 667/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0480 - accuracy: 0.9836 - val_loss: 0.0681 - val_accuracy: 0.9747
Epoch 668/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0480 - accuracy: 0.9832 - val_loss: 0.0681 - val_accuracy: 0.9747
Epoch 669/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0480 - accuracy: 0.9832 - val_loss: 0.0681 - val_accuracy: 0.9747
Epoch 670/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0480 - accuracy: 0.9832 - val_loss: 0.0681 - val_accuracy: 0.9735
Epoch 671/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0480 - accuracy: 0.9832 - val_loss: 0.0680 - val_accuracy: 0.9747
Epoch 672/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0479 - accuracy: 0.9827 - val_loss: 0.0680 - val_accuracy: 0.9747
Epoch 673/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0479 - accuracy: 0.9832 - val_loss: 0.0679 - val_accuracy: 0.9747
Epoch 674/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0478 - accuracy: 0.9840 - val_loss: 0.0680 - val_accuracy: 0.9747
Epoch 675/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0479 - accuracy: 0.9832 - val_loss: 0.0679 - val_accuracy: 0.9747
Epoch 676/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0479 - accuracy: 0.9832 - val_loss: 0.0680 - val_accuracy: 0.9747
Epoch 677/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0478 - accuracy: 0.9832 - val_loss: 0.0680 - val_accuracy: 0.9747
Epoch 678/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0478 - accuracy: 0.9836 - val_loss: 0.0679 - val_accuracy: 0.9747
Epoch 679/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0478 - accuracy: 0.9836 - val_loss: 0.0680 - val_accuracy: 0.9747
Epoch 680/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0478 - accuracy: 0.9836 - val_loss: 0.0680 - val_accuracy: 0.9747
Epoch 681/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0478 - accuracy: 0.9836 - val_loss: 0.0680 - val_accuracy: 0.9747
Epoch 682/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0477 - accuracy: 0.9844 - val_loss: 0.0681 - val_accuracy: 0.9747
Epoch 683/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0477 - accuracy: 0.9848 - val_loss: 0.0680 - val_accuracy: 0.9747
Epoch 684/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0477 - accuracy: 0.9832 - val_loss: 0.0679 - val_accuracy: 0.9747
Epoch 685/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0477 - accuracy: 0.9836 - val_loss: 0.0678 - val_accuracy: 0.9747
Epoch 686/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0476 - accuracy: 0.9840 - val_loss: 0.0678 - val_accuracy: 0.9747
Epoch 687/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0476 - accuracy: 0.9840 - val_loss: 0.0678 - val_accuracy: 0.9747
Epoch 688/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0476 - accuracy: 0.9840 - val_loss: 0.0677 - val_accuracy: 0.9747
Epoch 689/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0476 - accuracy: 0.9844 - val_loss: 0.0677 - val_accuracy: 0.9747
Epoch 690/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0476 - accuracy: 0.9836 - val_loss: 0.0677 - val_accuracy: 0.9747
Epoch 691/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0476 - accuracy: 0.9840 - val_loss: 0.0677 - val_accuracy: 0.9747
Epoch 692/1500
75/75 [==============================] - 1s 7ms/step - loss: 0.0476 - accuracy: 0.9844 - val_loss: 0.0678 - val_accuracy: 0.9747
Epoch 693/1500
75/75 [==============================] - 1s 10ms/step - loss: 0.0475 - accuracy: 0.9840 - val_loss: 0.0678 - val_accuracy: 0.9747
Epoch 694/1500
75/75 [==============================] - 1s 10ms/step - loss: 0.0476 - accuracy: 0.9844 - val_loss: 0.0677 - val_accuracy: 0.9747
Epoch 695/1500
75/75 [==============================] - 1s 10ms/step - loss: 0.0475 - accuracy: 0.9840 - val_loss: 0.0678 - val_accuracy: 0.9747
Epoch 696/1500
75/75 [==============================] - 0s 7ms/step - loss: 0.0475 - accuracy: 0.9844 - val_loss: 0.0677 - val_accuracy: 0.9747
Epoch 697/1500
75/75 [==============================] - 0s 6ms/step - loss: 0.0475 - accuracy: 0.9840 - val_loss: 0.0677 - val_accuracy: 0.9747
Epoch 698/1500
75/75 [==============================] - 1s 8ms/step - loss: 0.0474 - accuracy: 0.9840 - val_loss: 0.0677 - val_accuracy: 0.9747
Epoch 699/1500
75/75 [==============================] - 1s 7ms/step - loss: 0.0475 - accuracy: 0.9844 - val_loss: 0.0677 - val_accuracy: 0.9747
Epoch 700/1500
75/75 [==============================] - 0s 6ms/step - loss: 0.0474 - accuracy: 0.9836 - val_loss: 0.0677 - val_accuracy: 0.9747
Epoch 701/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0474 - accuracy: 0.9844 - val_loss: 0.0677 - val_accuracy: 0.9747
Epoch 702/1500
75/75 [==============================] - 1s 7ms/step - loss: 0.0474 - accuracy: 0.9840 - val_loss: 0.0676 - val_accuracy: 0.9747
Epoch 703/1500
75/75 [==============================] - 0s 6ms/step - loss: 0.0474 - accuracy: 0.9840 - val_loss: 0.0676 - val_accuracy: 0.9747
Epoch 704/1500
75/75 [==============================] - 1s 7ms/step - loss: 0.0474 - accuracy: 0.9844 - val_loss: 0.0676 - val_accuracy: 0.9747
```

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Epoch 705/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0473 - accuracy: 0.9844 - val_loss: 0.0677 - val_accuracy: 0.9747
Epoch 706/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0473 - accuracy: 0.9836 - val_loss: 0.0676 - val_accuracy: 0.9747
Epoch 707/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0473 - accuracy: 0.9844 - val_loss: 0.0676 - val_accuracy: 0.9747
Epoch 708/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0473 - accuracy: 0.9844 - val_loss: 0.0677 - val_accuracy: 0.9747
Epoch 709/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0473 - accuracy: 0.9844 - val_loss: 0.0676 - val_accuracy: 0.9747
Epoch 710/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0473 - accuracy: 0.9844 - val_loss: 0.0675 - val_accuracy: 0.9760
Epoch 711/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0473 - accuracy: 0.9840 - val_loss: 0.0675 - val_accuracy: 0.9747
Epoch 712/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0472 - accuracy: 0.9844 - val_loss: 0.0676 - val_accuracy: 0.9747
Epoch 713/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0472 - accuracy: 0.9844 - val_loss: 0.0676 - val_accuracy: 0.9747
Epoch 714/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0472 - accuracy: 0.9848 - val_loss: 0.0676 - val_accuracy: 0.9760
Epoch 715/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0472 - accuracy: 0.9840 - val_loss: 0.0676 - val_accuracy: 0.9760
Epoch 716/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0472 - accuracy: 0.9836 - val_loss: 0.0675 - val_accuracy: 0.9747
Epoch 717/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0472 - accuracy: 0.9844 - val_loss: 0.0675 - val_accuracy: 0.9747
Epoch 718/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0471 - accuracy: 0.9844 - val_loss: 0.0676 - val_accuracy: 0.9747
Epoch 719/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0471 - accuracy: 0.9840 - val_loss: 0.0676 - val_accuracy: 0.9747
Epoch 720/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0471 - accuracy: 0.9844 - val_loss: 0.0677 - val_accuracy: 0.9747
Epoch 721/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0471 - accuracy: 0.9844 - val_loss: 0.0676 - val_accuracy: 0.9747
Epoch 722/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0471 - accuracy: 0.9844 - val_loss: 0.0676 - val_accuracy: 0.9747
Epoch 723/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0470 - accuracy: 0.9840 - val_loss: 0.0676 - val_accuracy: 0.9747
Epoch 724/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0470 - accuracy: 0.9840 - val_loss: 0.0675 - val_accuracy: 0.9747
Epoch 725/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0470 - accuracy: 0.9848 - val_loss: 0.0675 - val_accuracy: 0.9747
Epoch 726/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0470 - accuracy: 0.9844 - val_loss: 0.0676 - val_accuracy: 0.9747
Epoch 727/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0470 - accuracy: 0.9844 - val_loss: 0.0675 - val_accuracy: 0.9747
Epoch 728/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0470 - accuracy: 0.9844 - val_loss: 0.0675 - val_accuracy: 0.9747
Epoch 729/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0469 - accuracy: 0.9840 - val_loss: 0.0676 - val_accuracy: 0.9747
Epoch 730/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0469 - accuracy: 0.9844 - val_loss: 0.0675 - val_accuracy: 0.9760
Epoch 731/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0469 - accuracy: 0.9844 - val_loss: 0.0676 - val_accuracy: 0.9760
Epoch 732/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0469 - accuracy: 0.9844 - val_loss: 0.0675 - val_accuracy: 0.9760
Epoch 733/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0469 - accuracy: 0.9844 - val_loss: 0.0674 - val_accuracy: 0.9760
Epoch 734/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0469 - accuracy: 0.9848 - val_loss: 0.0674 - val_accuracy: 0.9760
Epoch 735/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0468 - accuracy: 0.9848 - val_loss: 0.0674 - val_accuracy: 0.9760
Epoch 736/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0468 - accuracy: 0.9844 - val_loss: 0.0674 - val_accuracy: 0.9760
Epoch 737/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0468 - accuracy: 0.9848 - val_loss: 0.0674 - val_accuracy: 0.9760
Epoch 738/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0469 - accuracy: 0.9848 - val_loss: 0.0674 - val_accuracy: 0.9760
Epoch 739/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0468 - accuracy: 0.9844 - val_loss: 0.0673 - val_accuracy: 0.9760
Epoch 740/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0468 - accuracy: 0.9844 - val_loss: 0.0673 - val_accuracy: 0.9760
Epoch 741/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0468 - accuracy: 0.9848 - val_loss: 0.0673 - val_accuracy: 0.9760
Epoch 742/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0468 - accuracy: 0.9848 - val_loss: 0.0674 - val_accuracy: 0.9747
Epoch 743/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0468 - accuracy: 0.9840 - val_loss: 0.0674 - val_accuracy: 0.9760
Epoch 744/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0467 - accuracy: 0.9848 - val_loss: 0.0672 - val_accuracy: 0.9760
Epoch 745/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0467 - accuracy: 0.9844 - val_loss: 0.0672 - val_accuracy: 0.9760
Epoch 746/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0467 - accuracy: 0.9844 - val_loss: 0.0674 - val_accuracy: 0.9760
Epoch 747/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0467 - accuracy: 0.9848 - val_loss: 0.0673 - val_accuracy: 0.9760
Epoch 748/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0467 - accuracy: 0.9844 - val_loss: 0.0672 - val_accuracy: 0.9760
Epoch 749/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0467 - accuracy: 0.9848 - val_loss: 0.0673 - val_accuracy: 0.9760
Epoch 750/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0466 - accuracy: 0.9853 - val_loss: 0.0673 - val_accuracy: 0.9760
Epoch 751/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0466 - accuracy: 0.9857 - val_loss: 0.0673 - val_accuracy: 0.9760
Epoch 752/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0467 - accuracy: 0.9853 - val_loss: 0.0673 - val_accuracy: 0.9760
Epoch 753/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0466 - accuracy: 0.9848 - val_loss: 0.0674 - val_accuracy: 0.9760
Epoch 754/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0466 - accuracy: 0.9848 - val_loss: 0.0673 - val_accuracy: 0.9760
Epoch 755/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0465 - accuracy: 0.9844 - val_loss: 0.0673 - val_accuracy: 0.9760
Epoch 756/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0466 - accuracy: 0.9844 - val_loss: 0.0673 - val_accuracy: 0.9760
Epoch 757/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0465 - accuracy: 0.9853 - val_loss: 0.0676 - val_accuracy: 0.9773
Epoch 758/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0466 - accuracy: 0.9840 - val_loss: 0.0675 - val_accuracy: 0.9747
Epoch 759/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0465 - accuracy: 0.9844 - val_loss: 0.0673 - val_accuracy: 0.9760
Epoch 760/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0465 - accuracy: 0.9848 - val_loss: 0.0673 - val_accuracy: 0.9760
Epoch 761/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0465 - accuracy: 0.9844 - val_loss: 0.0672 - val_accuracy: 0.9760
Epoch 762/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0465 - accuracy: 0.9848 - val_loss: 0.0672 - val_accuracy: 0.9760
Epoch 763/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0464 - accuracy: 0.9848 - val_loss: 0.0673 - val_accuracy: 0.9760
Epoch 764/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0465 - accuracy: 0.9844 - val_loss: 0.0673 - val_accuracy: 0.9760
Epoch 765/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0464 - accuracy: 0.9853 - val_loss: 0.0672 - val_accuracy: 0.9760
Epoch 766/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0464 - accuracy: 0.9848 - val_loss: 0.0672 - val_accuracy: 0.9760
Epoch 767/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0464 - accuracy: 0.9844 - val_loss: 0.0672 - val_accuracy: 0.9760
Epoch 768/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0464 - accuracy: 0.9848 - val_loss: 0.0671 - val_accuracy: 0.9760
```

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Epoch 769/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0464 - accuracy: 0.9844 - val_loss: 0.0672 - val_accuracy: 0.9760
Epoch 770/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0463 - accuracy: 0.9844 - val_loss: 0.0672 - val_accuracy: 0.9747
Epoch 771/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0463 - accuracy: 0.9844 - val_loss: 0.0671 - val_accuracy: 0.9760
Epoch 772/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0464 - accuracy: 0.9848 - val_loss: 0.0672 - val_accuracy: 0.9747
Epoch 773/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0463 - accuracy: 0.9844 - val_loss: 0.0671 - val_accuracy: 0.9760
Epoch 774/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0463 - accuracy: 0.9844 - val_loss: 0.0671 - val_accuracy: 0.9760
Epoch 775/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0462 - accuracy: 0.9844 - val_loss: 0.0672 - val_accuracy: 0.9773
Epoch 776/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0463 - accuracy: 0.9844 - val_loss: 0.0671 - val_accuracy: 0.9773
Epoch 777/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0463 - accuracy: 0.9844 - val_loss: 0.0671 - val_accuracy: 0.9773
Epoch 778/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0462 - accuracy: 0.9848 - val_loss: 0.0671 - val_accuracy: 0.9773
Epoch 779/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0462 - accuracy: 0.9853 - val_loss: 0.0670 - val_accuracy: 0.9773
Epoch 780/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0461 - accuracy: 0.9844 - val_loss: 0.0671 - val_accuracy: 0.9773
Epoch 781/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0462 - accuracy: 0.9844 - val_loss: 0.0672 - val_accuracy: 0.9760
Epoch 782/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0462 - accuracy: 0.9844 - val_loss: 0.0672 - val_accuracy: 0.9760
Epoch 783/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0462 - accuracy: 0.9844 - val_loss: 0.0672 - val_accuracy: 0.9760
Epoch 784/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0462 - accuracy: 0.9844 - val_loss: 0.0672 - val_accuracy: 0.9760
Epoch 785/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0462 - accuracy: 0.9844 - val_loss: 0.0671 - val_accuracy: 0.9773
Epoch 786/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0461 - accuracy: 0.9844 - val_loss: 0.0671 - val_accuracy: 0.9773
Epoch 787/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0461 - accuracy: 0.9848 - val_loss: 0.0672 - val_accuracy: 0.9760
Epoch 788/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0461 - accuracy: 0.9844 - val_loss: 0.0678 - val_accuracy: 0.9760
Epoch 789/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0462 - accuracy: 0.9848 - val_loss: 0.0673 - val_accuracy: 0.9760
Epoch 790/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0461 - accuracy: 0.9848 - val_loss: 0.0672 - val_accuracy: 0.9773
Epoch 791/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0461 - accuracy: 0.9844 - val_loss: 0.0672 - val_accuracy: 0.9773
Epoch 792/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0461 - accuracy: 0.9848 - val_loss: 0.0671 - val_accuracy: 0.9773
Epoch 793/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0461 - accuracy: 0.9853 - val_loss: 0.0671 - val_accuracy: 0.9773
Epoch 794/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0460 - accuracy: 0.9844 - val_loss: 0.0671 - val_accuracy: 0.9773
Epoch 795/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0460 - accuracy: 0.9844 - val_loss: 0.0672 - val_accuracy: 0.9773
Epoch 796/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0460 - accuracy: 0.9844 - val_loss: 0.0672 - val_accuracy: 0.9773
Epoch 797/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0460 - accuracy: 0.9848 - val_loss: 0.0671 - val_accuracy: 0.9773
Epoch 798/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0460 - accuracy: 0.9848 - val_loss: 0.0671 - val_accuracy: 0.9773
Epoch 799/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0460 - accuracy: 0.9844 - val_loss: 0.0671 - val_accuracy: 0.9773
Epoch 800/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0460 - accuracy: 0.9848 - val_loss: 0.0671 - val_accuracy: 0.9773
Epoch 801/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0459 - accuracy: 0.9844 - val_loss: 0.0670 - val_accuracy: 0.9773
Epoch 802/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0459 - accuracy: 0.9844 - val_loss: 0.0671 - val_accuracy: 0.9760
Epoch 803/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0459 - accuracy: 0.9844 - val_loss: 0.0672 - val_accuracy: 0.9760
Epoch 804/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0459 - accuracy: 0.9848 - val_loss: 0.0672 - val_accuracy: 0.9760
Epoch 805/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0459 - accuracy: 0.9848 - val_loss: 0.0672 - val_accuracy: 0.9773
Epoch 806/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0460 - accuracy: 0.9844 - val_loss: 0.0669 - val_accuracy: 0.9785
Epoch 807/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0459 - accuracy: 0.9844 - val_loss: 0.0670 - val_accuracy: 0.9773
Epoch 808/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0459 - accuracy: 0.9848 - val_loss: 0.0671 - val_accuracy: 0.9760
Epoch 809/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0458 - accuracy: 0.9848 - val_loss: 0.0671 - val_accuracy: 0.9760
Epoch 810/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0458 - accuracy: 0.9848 - val_loss: 0.0670 - val_accuracy: 0.9773
Epoch 811/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0458 - accuracy: 0.9844 - val_loss: 0.0671 - val_accuracy: 0.9760
Epoch 812/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0458 - accuracy: 0.9848 - val_loss: 0.0670 - val_accuracy: 0.9773
Epoch 813/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0457 - accuracy: 0.9848 - val_loss: 0.0670 - val_accuracy: 0.9773
Epoch 814/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0458 - accuracy: 0.9848 - val_loss: 0.0670 - val_accuracy: 0.9773
Epoch 815/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0458 - accuracy: 0.9848 - val_loss: 0.0670 - val_accuracy: 0.9773
Epoch 816/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0458 - accuracy: 0.9848 - val_loss: 0.0670 - val_accuracy: 0.9760
Epoch 817/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0457 - accuracy: 0.9848 - val_loss: 0.0671 - val_accuracy: 0.9760
Epoch 818/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0457 - accuracy: 0.9844 - val_loss: 0.0671 - val_accuracy: 0.9760
Epoch 819/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0457 - accuracy: 0.9853 - val_loss: 0.0670 - val_accuracy: 0.9760
Epoch 820/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0457 - accuracy: 0.9848 - val_loss: 0.0670 - val_accuracy: 0.9760
Epoch 821/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0457 - accuracy: 0.9848 - val_loss: 0.0671 - val_accuracy: 0.9760
Epoch 822/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0457 - accuracy: 0.9853 - val_loss: 0.0672 - val_accuracy: 0.9760
Epoch 823/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0456 - accuracy: 0.9848 - val_loss: 0.0669 - val_accuracy: 0.9773
Epoch 824/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0456 - accuracy: 0.9848 - val_loss: 0.0670 - val_accuracy: 0.9760
Epoch 825/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0456 - accuracy: 0.9848 - val_loss: 0.0670 - val_accuracy: 0.9760
Epoch 826/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0456 - accuracy: 0.9844 - val_loss: 0.0671 - val_accuracy: 0.9760
Epoch 827/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0456 - accuracy: 0.9848 - val_loss: 0.0671 - val_accuracy: 0.9760
Epoch 828/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0456 - accuracy: 0.9853 - val_loss: 0.0670 - val_accuracy: 0.9760
Epoch 829/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0456 - accuracy: 0.9844 - val_loss: 0.0670 - val_accuracy: 0.9760
Epoch 830/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0455 - accuracy: 0.9848 - val_loss: 0.0671 - val_accuracy: 0.9773
Epoch 831/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0456 - accuracy: 0.9848 - val_loss: 0.0670 - val_accuracy: 0.9773
Epoch 832/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0455 - accuracy: 0.9844 - val_loss: 0.0670 - val_accuracy: 0.9760
```

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Epoch 833/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0456 - accuracy: 0.9848 - val_loss: 0.0670 - val_accuracy: 0.9760
Epoch 834/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0455 - accuracy: 0.9848 - val_loss: 0.0670 - val_accuracy: 0.9773
Epoch 835/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0455 - accuracy: 0.9848 - val_loss: 0.0671 - val_accuracy: 0.9760
Epoch 836/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0455 - accuracy: 0.9853 - val_loss: 0.0671 - val_accuracy: 0.9760
Epoch 837/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0455 - accuracy: 0.9848 - val_loss: 0.0671 - val_accuracy: 0.9773
Epoch 838/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0455 - accuracy: 0.9848 - val_loss: 0.0670 - val_accuracy: 0.9773
Epoch 839/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0455 - accuracy: 0.9848 - val_loss: 0.0670 - val_accuracy: 0.9773
Epoch 840/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0455 - accuracy: 0.9848 - val_loss: 0.0671 - val_accuracy: 0.9760
Epoch 841/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0455 - accuracy: 0.9848 - val_loss: 0.0669 - val_accuracy: 0.9760
Epoch 842/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0454 - accuracy: 0.9848 - val_loss: 0.0669 - val_accuracy: 0.9760
Epoch 843/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0454 - accuracy: 0.9844 - val_loss: 0.0670 - val_accuracy: 0.9760
Epoch 844/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0454 - accuracy: 0.9848 - val_loss: 0.0670 - val_accuracy: 0.9760
Epoch 845/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0454 - accuracy: 0.9848 - val_loss: 0.0669 - val_accuracy: 0.9773
Epoch 846/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0454 - accuracy: 0.9848 - val_loss: 0.0669 - val_accuracy: 0.9773
Epoch 847/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0454 - accuracy: 0.9848 - val_loss: 0.0670 - val_accuracy: 0.9760
Epoch 848/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0453 - accuracy: 0.9853 - val_loss: 0.0671 - val_accuracy: 0.9760
Epoch 849/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0454 - accuracy: 0.9853 - val_loss: 0.0669 - val_accuracy: 0.9773
Epoch 850/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0453 - accuracy: 0.9848 - val_loss: 0.0669 - val_accuracy: 0.9773
Epoch 851/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0453 - accuracy: 0.9844 - val_loss: 0.0669 - val_accuracy: 0.9773
Epoch 852/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0453 - accuracy: 0.9853 - val_loss: 0.0670 - val_accuracy: 0.9760
Epoch 853/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0453 - accuracy: 0.9853 - val_loss: 0.0669 - val_accuracy: 0.9773
Epoch 854/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0453 - accuracy: 0.9844 - val_loss: 0.0669 - val_accuracy: 0.9773
Epoch 855/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0453 - accuracy: 0.9848 - val_loss: 0.0670 - val_accuracy: 0.9773
Epoch 856/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0452 - accuracy: 0.9848 - val_loss: 0.0669 - val_accuracy: 0.9773
Epoch 857/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0453 - accuracy: 0.9848 - val_loss: 0.0669 - val_accuracy: 0.9773
Epoch 858/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0452 - accuracy: 0.9848 - val_loss: 0.0670 - val_accuracy: 0.9773
Epoch 859/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0453 - accuracy: 0.9853 - val_loss: 0.0670 - val_accuracy: 0.9760
Epoch 860/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0452 - accuracy: 0.9848 - val_loss: 0.0669 - val_accuracy: 0.9773
Epoch 861/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0452 - accuracy: 0.9853 - val_loss: 0.0669 - val_accuracy: 0.9760
Epoch 862/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0452 - accuracy: 0.9853 - val_loss: 0.0668 - val_accuracy: 0.9760
Epoch 863/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0452 - accuracy: 0.9848 - val_loss: 0.0668 - val_accuracy: 0.9760
Epoch 864/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0452 - accuracy: 0.9848 - val_loss: 0.0668 - val_accuracy: 0.9760
Epoch 865/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0452 - accuracy: 0.9848 - val_loss: 0.0669 - val_accuracy: 0.9760
Epoch 866/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0451 - accuracy: 0.9844 - val_loss: 0.0668 - val_accuracy: 0.9773
Epoch 867/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0452 - accuracy: 0.9844 - val_loss: 0.0669 - val_accuracy: 0.9760
Epoch 868/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0451 - accuracy: 0.9848 - val_loss: 0.0669 - val_accuracy: 0.9760
Epoch 869/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0451 - accuracy: 0.9848 - val_loss: 0.0668 - val_accuracy: 0.9760
Epoch 870/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0451 - accuracy: 0.9848 - val_loss: 0.0667 - val_accuracy: 0.9760
Epoch 871/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0451 - accuracy: 0.9848 - val_loss: 0.0669 - val_accuracy: 0.9760
Epoch 872/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0451 - accuracy: 0.9848 - val_loss: 0.0669 - val_accuracy: 0.9760
Epoch 873/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0451 - accuracy: 0.9848 - val_loss: 0.0668 - val_accuracy: 0.9760
Epoch 874/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0451 - accuracy: 0.9853 - val_loss: 0.0667 - val_accuracy: 0.9760
Epoch 875/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0451 - accuracy: 0.9848 - val_loss: 0.0668 - val_accuracy: 0.9760
Epoch 876/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0450 - accuracy: 0.9844 - val_loss: 0.0669 - val_accuracy: 0.9760
Epoch 877/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0451 - accuracy: 0.9848 - val_loss: 0.0668 - val_accuracy: 0.9760
Epoch 878/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0450 - accuracy: 0.9848 - val_loss: 0.0667 - val_accuracy: 0.9760
Epoch 879/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0450 - accuracy: 0.9853 - val_loss: 0.0667 - val_accuracy: 0.9760
Epoch 880/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0450 - accuracy: 0.9848 - val_loss: 0.0667 - val_accuracy: 0.9760
Epoch 881/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0450 - accuracy: 0.9848 - val_loss: 0.0668 - val_accuracy: 0.9760
Epoch 882/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0450 - accuracy: 0.9848 - val_loss: 0.0668 - val_accuracy: 0.9760
Epoch 883/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0450 - accuracy: 0.9844 - val_loss: 0.0668 - val_accuracy: 0.9760
Epoch 884/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0450 - accuracy: 0.9844 - val_loss: 0.0669 - val_accuracy: 0.9760
Epoch 885/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0449 - accuracy: 0.9848 - val_loss: 0.0669 - val_accuracy: 0.9760
Epoch 886/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0449 - accuracy: 0.9853 - val_loss: 0.0666 - val_accuracy: 0.9773
Epoch 887/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0449 - accuracy: 0.9848 - val_loss: 0.0667 - val_accuracy: 0.9773
Epoch 888/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0449 - accuracy: 0.9844 - val_loss: 0.0669 - val_accuracy: 0.9760
Epoch 889/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0449 - accuracy: 0.9848 - val_loss: 0.0666 - val_accuracy: 0.9773
Epoch 890/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0449 - accuracy: 0.9853 - val_loss: 0.0668 - val_accuracy: 0.9760
Epoch 891/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0449 - accuracy: 0.9853 - val_loss: 0.0667 - val_accuracy: 0.9773
Epoch 892/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0449 - accuracy: 0.9853 - val_loss: 0.0667 - val_accuracy: 0.9760
Epoch 893/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0448 - accuracy: 0.9848 - val_loss: 0.0667 - val_accuracy: 0.9760
Epoch 894/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0448 - accuracy: 0.9848 - val_loss: 0.0667 - val_accuracy: 0.9760
Epoch 895/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0448 - accuracy: 0.9848 - val_loss: 0.0670 - val_accuracy: 0.9760
Epoch 896/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0449 - accuracy: 0.9857 - val_loss: 0.0667 - val_accuracy: 0.9760
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Epoch 897/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0448 - accuracy: 0.9853 - val_loss: 0.0666 - val_accuracy: 0.9760
Epoch 898/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0447 - accuracy: 0.9848 - val_loss: 0.0668 - val_accuracy: 0.9760
Epoch 899/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0448 - accuracy: 0.9848 - val_loss: 0.0668 - val_accuracy: 0.9760
Epoch 900/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0448 - accuracy: 0.9848 - val_loss: 0.0668 - val_accuracy: 0.9760
Epoch 901/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0448 - accuracy: 0.9857 - val_loss: 0.0667 - val_accuracy: 0.9760
Epoch 902/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0448 - accuracy: 0.9857 - val_loss: 0.0666 - val_accuracy: 0.9760
Epoch 903/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0447 - accuracy: 0.9844 - val_loss: 0.0667 - val_accuracy: 0.9760
Epoch 904/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0447 - accuracy: 0.9857 - val_loss: 0.0668 - val_accuracy: 0.9760
Epoch 905/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0447 - accuracy: 0.9848 - val_loss: 0.0668 - val_accuracy: 0.9760
Epoch 906/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0448 - accuracy: 0.9853 - val_loss: 0.0667 - val_accuracy: 0.9760
Epoch 907/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0447 - accuracy: 0.9848 - val_loss: 0.0667 - val_accuracy: 0.9760
Epoch 908/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0447 - accuracy: 0.9853 - val_loss: 0.0665 - val_accuracy: 0.9760
Epoch 909/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0446 - accuracy: 0.9844 - val_loss: 0.0666 - val_accuracy: 0.9760
Epoch 910/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0446 - accuracy: 0.9853 - val_loss: 0.0666 - val_accuracy: 0.9760
Epoch 911/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0446 - accuracy: 0.9848 - val_loss: 0.0667 - val_accuracy: 0.9760
Epoch 912/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0446 - accuracy: 0.9848 - val_loss: 0.0668 - val_accuracy: 0.9760
Epoch 913/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0446 - accuracy: 0.9853 - val_loss: 0.0666 - val_accuracy: 0.9773
Epoch 914/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0446 - accuracy: 0.9853 - val_loss: 0.0667 - val_accuracy: 0.9760
Epoch 915/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0446 - accuracy: 0.9853 - val_loss: 0.0668 - val_accuracy: 0.9760
Epoch 916/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0446 - accuracy: 0.9857 - val_loss: 0.0668 - val_accuracy: 0.9760
Epoch 917/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0446 - accuracy: 0.9848 - val_loss: 0.0668 - val_accuracy: 0.9760
Epoch 918/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0445 - accuracy: 0.9857 - val_loss: 0.0667 - val_accuracy: 0.9773
Epoch 919/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0446 - accuracy: 0.9848 - val_loss: 0.0668 - val_accuracy: 0.9760
Epoch 920/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0445 - accuracy: 0.9853 - val_loss: 0.0668 - val_accuracy: 0.9760
Epoch 921/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0445 - accuracy: 0.9857 - val_loss: 0.0669 - val_accuracy: 0.9760
Epoch 922/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0445 - accuracy: 0.9853 - val_loss: 0.0669 - val_accuracy: 0.9760
Epoch 923/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0445 - accuracy: 0.9853 - val_loss: 0.0668 - val_accuracy: 0.9760
Epoch 924/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0445 - accuracy: 0.9853 - val_loss: 0.0667 - val_accuracy: 0.9773
Epoch 925/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0445 - accuracy: 0.9853 - val_loss: 0.0668 - val_accuracy: 0.9760
Epoch 926/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0444 - accuracy: 0.9861 - val_loss: 0.0668 - val_accuracy: 0.9760
Epoch 927/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0444 - accuracy: 0.9853 - val_loss: 0.0669 - val_accuracy: 0.9760
Epoch 928/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0444 - accuracy: 0.9853 - val_loss: 0.0667 - val_accuracy: 0.9773
Epoch 929/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0444 - accuracy: 0.9853 - val_loss: 0.0669 - val_accuracy: 0.9760
Epoch 930/1500
75/75 [==============================] - 0s 2ms/step - loss: 0.0444 - accuracy: 0.9853 - val_loss: 0.0669 - val_accuracy: 0.9760
Epoch 931/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0444 - accuracy: 0.9848 - val_loss: 0.0669 - val_accuracy: 0.9760
Epoch 932/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0443 - accuracy: 0.9853 - val_loss: 0.0668 - val_accuracy: 0.9760
Epoch 933/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0444 - accuracy: 0.9857 - val_loss: 0.0669 - val_accuracy: 0.9760
Epoch 934/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0444 - accuracy: 0.9848 - val_loss: 0.0678 - val_accuracy: 0.9760
Epoch 935/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0446 - accuracy: 0.9857 - val_loss: 0.0674 - val_accuracy: 0.9760
Epoch 936/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0444 - accuracy: 0.9857 - val_loss: 0.0670 - val_accuracy: 0.9760
Epoch 937/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0443 - accuracy: 0.9848 - val_loss: 0.0668 - val_accuracy: 0.9760
Epoch 938/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0443 - accuracy: 0.9857 - val_loss: 0.0668 - val_accuracy: 0.9760
Epoch 939/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0443 - accuracy: 0.9848 - val_loss: 0.0668 - val_accuracy: 0.9760
Epoch 940/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0443 - accuracy: 0.9857 - val_loss: 0.0669 - val_accuracy: 0.9760
Epoch 941/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0442 - accuracy: 0.9861 - val_loss: 0.0668 - val_accuracy: 0.9760
Epoch 942/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0442 - accuracy: 0.9853 - val_loss: 0.0668 - val_accuracy: 0.9760
Epoch 943/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0443 - accuracy: 0.9857 - val_loss: 0.0669 - val_accuracy: 0.9760
Epoch 944/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0442 - accuracy: 0.9853 - val_loss: 0.0669 - val_accuracy: 0.9760
Epoch 945/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0442 - accuracy: 0.9857 - val_loss: 0.0668 - val_accuracy: 0.9760
Epoch 946/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0442 - accuracy: 0.9848 - val_loss: 0.0668 - val_accuracy: 0.9760
Epoch 947/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0442 - accuracy: 0.9861 - val_loss: 0.0669 - val_accuracy: 0.9760
Epoch 948/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0442 - accuracy: 0.9857 - val_loss: 0.0669 - val_accuracy: 0.9760
Epoch 949/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0442 - accuracy: 0.9853 - val_loss: 0.0669 - val_accuracy: 0.9760
Epoch 950/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0441 - accuracy: 0.9857 - val_loss: 0.0669 - val_accuracy: 0.9760
Epoch 951/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0441 - accuracy: 0.9857 - val_loss: 0.0669 - val_accuracy: 0.9760
Epoch 952/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0441 - accuracy: 0.9853 - val_loss: 0.0669 - val_accuracy: 0.9760
Epoch 953/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0442 - accuracy: 0.9853 - val_loss: 0.0669 - val_accuracy: 0.9760
Epoch 954/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0441 - accuracy: 0.9857 - val_loss: 0.0668 - val_accuracy: 0.9773
Epoch 955/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0441 - accuracy: 0.9861 - val_loss: 0.0669 - val_accuracy: 0.9760
Epoch 956/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0441 - accuracy: 0.9861 - val_loss: 0.0669 - val_accuracy: 0.9760
Epoch 957/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0441 - accuracy: 0.9857 - val_loss: 0.0669 - val_accuracy: 0.9760
Epoch 958/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0441 - accuracy: 0.9848 - val_loss: 0.0670 - val_accuracy: 0.9760
Epoch 959/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0441 - accuracy: 0.9861 - val_loss: 0.0670 - val_accuracy: 0.9760
Epoch 960/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0440 - accuracy: 0.9857 - val_loss: 0.0670 - val_accuracy: 0.9760
```

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Epoch 961/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0440 - accuracy: 0.9857 - val_loss: 0.0670 - val_accuracy: 0.9760
Epoch 962/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0440 - accuracy: 0.9861 - val_loss: 0.0670 - val_accuracy: 0.9760
Epoch 963/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0440 - accuracy: 0.9861 - val_loss: 0.0670 - val_accuracy: 0.9760
Epoch 964/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0440 - accuracy: 0.9853 - val_loss: 0.0671 - val_accuracy: 0.9760
Epoch 965/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0440 - accuracy: 0.9861 - val_loss: 0.0671 - val_accuracy: 0.9760
Epoch 966/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0440 - accuracy: 0.9857 - val_loss: 0.0670 - val_accuracy: 0.9760
Epoch 967/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0439 - accuracy: 0.9857 - val_loss: 0.0670 - val_accuracy: 0.9760
Epoch 968/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0439 - accuracy: 0.9861 - val_loss: 0.0670 - val_accuracy: 0.9760
Epoch 969/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0439 - accuracy: 0.9857 - val_loss: 0.0669 - val_accuracy: 0.9760
Epoch 970/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0439 - accuracy: 0.9861 - val_loss: 0.0670 - val_accuracy: 0.9760
Epoch 971/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0439 - accuracy: 0.9861 - val_loss: 0.0670 - val_accuracy: 0.9760
Epoch 972/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0438 - accuracy: 0.9857 - val_loss: 0.0670 - val_accuracy: 0.9760
Epoch 973/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0438 - accuracy: 0.9861 - val_loss: 0.0670 - val_accuracy: 0.9760
Epoch 974/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0439 - accuracy: 0.9857 - val_loss: 0.0669 - val_accuracy: 0.9760
Epoch 975/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0438 - accuracy: 0.9857 - val_loss: 0.0671 - val_accuracy: 0.9760
Epoch 976/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0438 - accuracy: 0.9857 - val_loss: 0.0671 - val_accuracy: 0.9760
Epoch 977/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0438 - accuracy: 0.9857 - val_loss: 0.0671 - val_accuracy: 0.9760
Epoch 978/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0438 - accuracy: 0.9861 - val_loss: 0.0670 - val_accuracy: 0.9760
Epoch 979/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0438 - accuracy: 0.9861 - val_loss: 0.0671 - val_accuracy: 0.9760
Epoch 980/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0438 - accuracy: 0.9857 - val_loss: 0.0672 - val_accuracy: 0.9760
Epoch 981/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0438 - accuracy: 0.9853 - val_loss: 0.0672 - val_accuracy: 0.9760
Epoch 982/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0438 - accuracy: 0.9853 - val_loss: 0.0671 - val_accuracy: 0.9760
Epoch 983/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0437 - accuracy: 0.9857 - val_loss: 0.0671 - val_accuracy: 0.9760
Epoch 984/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0437 - accuracy: 0.9853 - val_loss: 0.0670 - val_accuracy: 0.9760
Epoch 985/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0439 - accuracy: 0.9853 - val_loss: 0.0669 - val_accuracy: 0.9760
Epoch 986/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0437 - accuracy: 0.9857 - val_loss: 0.0671 - val_accuracy: 0.9760
Epoch 987/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0438 - accuracy: 0.9853 - val_loss: 0.0670 - val_accuracy: 0.9760
Epoch 988/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0437 - accuracy: 0.9853 - val_loss: 0.0670 - val_accuracy: 0.9760
Epoch 989/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0437 - accuracy: 0.9861 - val_loss: 0.0669 - val_accuracy: 0.9773
Epoch 990/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0437 - accuracy: 0.9861 - val_loss: 0.0670 - val_accuracy: 0.9760
Epoch 991/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0436 - accuracy: 0.9857 - val_loss: 0.0671 - val_accuracy: 0.9760
Epoch 992/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0436 - accuracy: 0.9857 - val_loss: 0.0670 - val_accuracy: 0.9760
Epoch 993/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0437 - accuracy: 0.9857 - val_loss: 0.0669 - val_accuracy: 0.9773
Epoch 994/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0436 - accuracy: 0.9853 - val_loss: 0.0669 - val_accuracy: 0.9773
Epoch 995/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0436 - accuracy: 0.9853 - val_loss: 0.0670 - val_accuracy: 0.9760
Epoch 996/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0436 - accuracy: 0.9853 - val_loss: 0.0670 - val_accuracy: 0.9760
Epoch 997/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0435 - accuracy: 0.9857 - val_loss: 0.0673 - val_accuracy: 0.9760
Epoch 998/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0436 - accuracy: 0.9861 - val_loss: 0.0671 - val_accuracy: 0.9760
Epoch 999/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0435 - accuracy: 0.9861 - val_loss: 0.0672 - val_accuracy: 0.9760
Epoch 1000/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0435 - accuracy: 0.9857 - val_loss: 0.0672 - val_accuracy: 0.9760
Epoch 1001/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0436 - accuracy: 0.9853 - val_loss: 0.0672 - val_accuracy: 0.9760
Epoch 1002/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0435 - accuracy: 0.9857 - val_loss: 0.0671 - val_accuracy: 0.9760
Epoch 1003/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0435 - accuracy: 0.9857 - val_loss: 0.0673 - val_accuracy: 0.9760
Epoch 1004/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0435 - accuracy: 0.9857 - val_loss: 0.0672 - val_accuracy: 0.9760
Epoch 1005/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0435 - accuracy: 0.9857 - val_loss: 0.0672 - val_accuracy: 0.9760
Epoch 1006/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0435 - accuracy: 0.9861 - val_loss: 0.0671 - val_accuracy: 0.9773
Epoch 1007/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0434 - accuracy: 0.9861 - val_loss: 0.0671 - val_accuracy: 0.9773
Epoch 1008/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0435 - accuracy: 0.9857 - val_loss: 0.0670 - val_accuracy: 0.9773
Epoch 1009/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0434 - accuracy: 0.9857 - val_loss: 0.0671 - val_accuracy: 0.9773
Epoch 1010/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0433 - accuracy: 0.9857 - val_loss: 0.0670 - val_accuracy: 0.9773
Epoch 1011/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0434 - accuracy: 0.9857 - val_loss: 0.0672 - val_accuracy: 0.9760
Epoch 1012/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0434 - accuracy: 0.9857 - val_loss: 0.0672 - val_accuracy: 0.9760
Epoch 1013/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0434 - accuracy: 0.9857 - val_loss: 0.0672 - val_accuracy: 0.9760
Epoch 1014/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0434 - accuracy: 0.9857 - val_loss: 0.0672 - val_accuracy: 0.9760
Epoch 1015/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0433 - accuracy: 0.9853 - val_loss: 0.0671 - val_accuracy: 0.9760
Epoch 1016/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0433 - accuracy: 0.9857 - val_loss: 0.0671 - val_accuracy: 0.9773
Epoch 1017/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0433 - accuracy: 0.9857 - val_loss: 0.0672 - val_accuracy: 0.9760
Epoch 1018/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0433 - accuracy: 0.9861 - val_loss: 0.0673 - val_accuracy: 0.9773
Epoch 1019/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0433 - accuracy: 0.9857 - val_loss: 0.0673 - val_accuracy: 0.9760
Epoch 1020/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0433 - accuracy: 0.9861 - val_loss: 0.0672 - val_accuracy: 0.9773
Epoch 1021/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0433 - accuracy: 0.9861 - val_loss: 0.0673 - val_accuracy: 0.9760
Epoch 1022/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0433 - accuracy: 0.9861 - val_loss: 0.0673 - val_accuracy: 0.9760
Epoch 1023/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0433 - accuracy: 0.9857 - val_loss: 0.0673 - val_accuracy: 0.9760
Epoch 1024/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0432 - accuracy: 0.9861 - val_loss: 0.0673 - val_accuracy: 0.9760
```

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Epoch 1025/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0432 - accuracy: 0.9857 - val_loss: 0.0673 - val_accuracy: 0.9773
Epoch 1026/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0432 - accuracy: 0.9857 - val_loss: 0.0674 - val_accuracy: 0.9760
Epoch 1027/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0432 - accuracy: 0.9853 - val_loss: 0.0672 - val_accuracy: 0.9773
Epoch 1028/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0432 - accuracy: 0.9861 - val_loss: 0.0673 - val_accuracy: 0.9760
Epoch 1029/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0432 - accuracy: 0.9861 - val_loss: 0.0673 - val_accuracy: 0.9773
Epoch 1030/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0432 - accuracy: 0.9857 - val_loss: 0.0673 - val_accuracy: 0.9773
Epoch 1031/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0431 - accuracy: 0.9865 - val_loss: 0.0672 - val_accuracy: 0.9773
Epoch 1032/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0432 - accuracy: 0.9857 - val_loss: 0.0673 - val_accuracy: 0.9760
Epoch 1033/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0432 - accuracy: 0.9861 - val_loss: 0.0673 - val_accuracy: 0.9760
Epoch 1034/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0431 - accuracy: 0.9857 - val_loss: 0.0672 - val_accuracy: 0.9773
Epoch 1035/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0431 - accuracy: 0.9857 - val_loss: 0.0674 - val_accuracy: 0.9760
Epoch 1036/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0431 - accuracy: 0.9861 - val_loss: 0.0674 - val_accuracy: 0.9760
Epoch 1037/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0431 - accuracy: 0.9861 - val_loss: 0.0675 - val_accuracy: 0.9760
Epoch 1038/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0431 - accuracy: 0.9861 - val_loss: 0.0675 - val_accuracy: 0.9760
Epoch 1039/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0431 - accuracy: 0.9857 - val_loss: 0.0675 - val_accuracy: 0.9760
Epoch 1040/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0431 - accuracy: 0.9857 - val_loss: 0.0675 - val_accuracy: 0.9760
Epoch 1041/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0430 - accuracy: 0.9861 - val_loss: 0.0670 - val_accuracy: 0.9785
Epoch 1042/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0431 - accuracy: 0.9857 - val_loss: 0.0673 - val_accuracy: 0.9773
Epoch 1043/1500
75/75 [==============================] - 0s 6ms/step - loss: 0.0430 - accuracy: 0.9857 - val_loss: 0.0675 - val_accuracy: 0.9773
Epoch 1044/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0430 - accuracy: 0.9861 - val_loss: 0.0674 - val_accuracy: 0.9773
Epoch 1045/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0430 - accuracy: 0.9861 - val_loss: 0.0674 - val_accuracy: 0.9773
Epoch 1046/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0430 - accuracy: 0.9857 - val_loss: 0.0674 - val_accuracy: 0.9773
Epoch 1047/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0430 - accuracy: 0.9861 - val_loss: 0.0675 - val_accuracy: 0.9760
Epoch 1048/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0429 - accuracy: 0.9857 - val_loss: 0.0674 - val_accuracy: 0.9760
Epoch 1049/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0429 - accuracy: 0.9861 - val_loss: 0.0674 - val_accuracy: 0.9773
Epoch 1050/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0429 - accuracy: 0.9861 - val_loss: 0.0676 - val_accuracy: 0.9760
Epoch 1051/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0430 - accuracy: 0.9857 - val_loss: 0.0675 - val_accuracy: 0.9773
Epoch 1052/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0429 - accuracy: 0.9857 - val_loss: 0.0675 - val_accuracy: 0.9773
Epoch 1053/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0429 - accuracy: 0.9857 - val_loss: 0.0675 - val_accuracy: 0.9760
Epoch 1054/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0429 - accuracy: 0.9861 - val_loss: 0.0675 - val_accuracy: 0.9760
Epoch 1055/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0429 - accuracy: 0.9861 - val_loss: 0.0676 - val_accuracy: 0.9760
Epoch 1056/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0429 - accuracy: 0.9857 - val_loss: 0.0676 - val_accuracy: 0.9760
Epoch 1057/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0429 - accuracy: 0.9861 - val_loss: 0.0676 - val_accuracy: 0.9760
Epoch 1058/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0429 - accuracy: 0.9861 - val_loss: 0.0675 - val_accuracy: 0.9760
Epoch 1059/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0429 - accuracy: 0.9853 - val_loss: 0.0674 - val_accuracy: 0.9773
Epoch 1060/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0428 - accuracy: 0.9861 - val_loss: 0.0676 - val_accuracy: 0.9760
Epoch 1061/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0429 - accuracy: 0.9853 - val_loss: 0.0675 - val_accuracy: 0.9760
Epoch 1062/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0428 - accuracy: 0.9857 - val_loss: 0.0674 - val_accuracy: 0.9773
Epoch 1063/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0428 - accuracy: 0.9857 - val_loss: 0.0674 - val_accuracy: 0.9773
Epoch 1064/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0428 - accuracy: 0.9857 - val_loss: 0.0674 - val_accuracy: 0.9773
Epoch 1065/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0428 - accuracy: 0.9857 - val_loss: 0.0675 - val_accuracy: 0.9760
Epoch 1066/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0428 - accuracy: 0.9853 - val_loss: 0.0675 - val_accuracy: 0.9760
Epoch 1067/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0427 - accuracy: 0.9861 - val_loss: 0.0677 - val_accuracy: 0.9760
Epoch 1068/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0427 - accuracy: 0.9857 - val_loss: 0.0673 - val_accuracy: 0.9773
Epoch 1069/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0428 - accuracy: 0.9861 - val_loss: 0.0675 - val_accuracy: 0.9773
Epoch 1070/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0427 - accuracy: 0.9861 - val_loss: 0.0676 - val_accuracy: 0.9760
Epoch 1071/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0427 - accuracy: 0.9861 - val_loss: 0.0676 - val_accuracy: 0.9760
Epoch 1072/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0427 - accuracy: 0.9861 - val_loss: 0.0676 - val_accuracy: 0.9760
Epoch 1073/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0427 - accuracy: 0.9857 - val_loss: 0.0675 - val_accuracy: 0.9773
Epoch 1074/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0426 - accuracy: 0.9861 - val_loss: 0.0674 - val_accuracy: 0.9773
Epoch 1075/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0427 - accuracy: 0.9861 - val_loss: 0.0675 - val_accuracy: 0.9773
Epoch 1076/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0426 - accuracy: 0.9865 - val_loss: 0.0677 - val_accuracy: 0.9760
Epoch 1077/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0426 - accuracy: 0.9857 - val_loss: 0.0676 - val_accuracy: 0.9773
Epoch 1078/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0426 - accuracy: 0.9861 - val_loss: 0.0675 - val_accuracy: 0.9760
Epoch 1079/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0426 - accuracy: 0.9861 - val_loss: 0.0675 - val_accuracy: 0.9773
Epoch 1080/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0426 - accuracy: 0.9865 - val_loss: 0.0676 - val_accuracy: 0.9773
Epoch 1081/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0427 - accuracy: 0.9861 - val_loss: 0.0677 - val_accuracy: 0.9760
Epoch 1082/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0425 - accuracy: 0.9861 - val_loss: 0.0678 - val_accuracy: 0.9760
Epoch 1083/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0426 - accuracy: 0.9861 - val_loss: 0.0675 - val_accuracy: 0.9773
Epoch 1084/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0426 - accuracy: 0.9861 - val_loss: 0.0675 - val_accuracy: 0.9773
Epoch 1085/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0426 - accuracy: 0.9861 - val_loss: 0.0677 - val_accuracy: 0.9760
Epoch 1086/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0425 - accuracy: 0.9865 - val_loss: 0.0677 - val_accuracy: 0.9760
Epoch 1087/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0425 - accuracy: 0.9865 - val_loss: 0.0677 - val_accuracy: 0.9760
Epoch 1088/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0425 - accuracy: 0.9861 - val_loss: 0.0676 - val_accuracy: 0.9773
```

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Epoch 1089/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0425 - accuracy: 0.9861 - val_loss: 0.0677 - val_accuracy: 0.9760
Epoch 1090/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0425 - accuracy: 0.9857 - val_loss: 0.0677 - val_accuracy: 0.9760
Epoch 1091/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0425 - accuracy: 0.9861 - val_loss: 0.0680 - val_accuracy: 0.9760
Epoch 1092/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0425 - accuracy: 0.9861 - val_loss: 0.0678 - val_accuracy: 0.9760
Epoch 1093/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0425 - accuracy: 0.9861 - val_loss: 0.0676 - val_accuracy: 0.9773
Epoch 1094/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0425 - accuracy: 0.9865 - val_loss: 0.0678 - val_accuracy: 0.9760
Epoch 1095/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0425 - accuracy: 0.9861 - val_loss: 0.0677 - val_accuracy: 0.9760
Epoch 1096/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0424 - accuracy: 0.9853 - val_loss: 0.0678 - val_accuracy: 0.9760
Epoch 1097/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0424 - accuracy: 0.9861 - val_loss: 0.0678 - val_accuracy: 0.9760
Epoch 1098/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0425 - accuracy: 0.9861 - val_loss: 0.0676 - val_accuracy: 0.9773
Epoch 1099/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0423 - accuracy: 0.9857 - val_loss: 0.0679 - val_accuracy: 0.9760
Epoch 1100/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0424 - accuracy: 0.9865 - val_loss: 0.0677 - val_accuracy: 0.9773
Epoch 1101/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0424 - accuracy: 0.9861 - val_loss: 0.0676 - val_accuracy: 0.9773
Epoch 1102/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0423 - accuracy: 0.9861 - val_loss: 0.0677 - val_accuracy: 0.9773
Epoch 1103/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0423 - accuracy: 0.9865 - val_loss: 0.0678 - val_accuracy: 0.9760
Epoch 1104/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0423 - accuracy: 0.9861 - val_loss: 0.0676 - val_accuracy: 0.9773
Epoch 1105/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0423 - accuracy: 0.9861 - val_loss: 0.0677 - val_accuracy: 0.9773
Epoch 1106/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0423 - accuracy: 0.9861 - val_loss: 0.0677 - val_accuracy: 0.9773
Epoch 1107/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0422 - accuracy: 0.9865 - val_loss: 0.0680 - val_accuracy: 0.9760
Epoch 1108/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0423 - accuracy: 0.9865 - val_loss: 0.0679 - val_accuracy: 0.9773
Epoch 1109/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0423 - accuracy: 0.9861 - val_loss: 0.0678 - val_accuracy: 0.9773
Epoch 1110/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0423 - accuracy: 0.9861 - val_loss: 0.0678 - val_accuracy: 0.9773
Epoch 1111/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0422 - accuracy: 0.9857 - val_loss: 0.0677 - val_accuracy: 0.9773
Epoch 1112/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0423 - accuracy: 0.9861 - val_loss: 0.0677 - val_accuracy: 0.9773
Epoch 1113/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0422 - accuracy: 0.9861 - val_loss: 0.0679 - val_accuracy: 0.9760
Epoch 1114/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0422 - accuracy: 0.9861 - val_loss: 0.0677 - val_accuracy: 0.9773
Epoch 1115/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0423 - accuracy: 0.9861 - val_loss: 0.0678 - val_accuracy: 0.9773
Epoch 1116/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0422 - accuracy: 0.9857 - val_loss: 0.0680 - val_accuracy: 0.9773
Epoch 1117/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0422 - accuracy: 0.9857 - val_loss: 0.0678 - val_accuracy: 0.9773
Epoch 1118/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0422 - accuracy: 0.9861 - val_loss: 0.0679 - val_accuracy: 0.9773
Epoch 1119/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0421 - accuracy: 0.9857 - val_loss: 0.0679 - val_accuracy: 0.9773
Epoch 1120/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0422 - accuracy: 0.9861 - val_loss: 0.0679 - val_accuracy: 0.9773
Epoch 1121/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0421 - accuracy: 0.9861 - val_loss: 0.0678 - val_accuracy: 0.9773
Epoch 1122/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0422 - accuracy: 0.9861 - val_loss: 0.0679 - val_accuracy: 0.9773
Epoch 1123/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0421 - accuracy: 0.9857 - val_loss: 0.0681 - val_accuracy: 0.9760
Epoch 1124/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0421 - accuracy: 0.9861 - val_loss: 0.0681 - val_accuracy: 0.9760
Epoch 1125/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0421 - accuracy: 0.9861 - val_loss: 0.0681 - val_accuracy: 0.9760
Epoch 1126/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0421 - accuracy: 0.9857 - val_loss: 0.0679 - val_accuracy: 0.9773
Epoch 1127/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0420 - accuracy: 0.9865 - val_loss: 0.0680 - val_accuracy: 0.9773
Epoch 1128/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0421 - accuracy: 0.9861 - val_loss: 0.0681 - val_accuracy: 0.9760
Epoch 1129/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0421 - accuracy: 0.9865 - val_loss: 0.0681 - val_accuracy: 0.9760
Epoch 1130/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0421 - accuracy: 0.9861 - val_loss: 0.0680 - val_accuracy: 0.9773
Epoch 1131/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0420 - accuracy: 0.9865 - val_loss: 0.0682 - val_accuracy: 0.9760
Epoch 1132/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0420 - accuracy: 0.9861 - val_loss: 0.0680 - val_accuracy: 0.9773
Epoch 1133/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0420 - accuracy: 0.9861 - val_loss: 0.0679 - val_accuracy: 0.9773
Epoch 1134/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0420 - accuracy: 0.9861 - val_loss: 0.0678 - val_accuracy: 0.9773
Epoch 1135/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0420 - accuracy: 0.9865 - val_loss: 0.0679 - val_accuracy: 0.9773
Epoch 1136/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0420 - accuracy: 0.9861 - val_loss: 0.0679 - val_accuracy: 0.9773
Epoch 1137/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0419 - accuracy: 0.9857 - val_loss: 0.0677 - val_accuracy: 0.9773
Epoch 1138/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0420 - accuracy: 0.9861 - val_loss: 0.0678 - val_accuracy: 0.9773
Epoch 1139/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0420 - accuracy: 0.9861 - val_loss: 0.0679 - val_accuracy: 0.9773
Epoch 1140/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0419 - accuracy: 0.9861 - val_loss: 0.0681 - val_accuracy: 0.9760
Epoch 1141/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0420 - accuracy: 0.9861 - val_loss: 0.0680 - val_accuracy: 0.9773
Epoch 1142/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0419 - accuracy: 0.9865 - val_loss: 0.0680 - val_accuracy: 0.9773
Epoch 1143/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0419 - accuracy: 0.9865 - val_loss: 0.0679 - val_accuracy: 0.9773
Epoch 1144/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0419 - accuracy: 0.9857 - val_loss: 0.0679 - val_accuracy: 0.9785
Epoch 1145/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0419 - accuracy: 0.9865 - val_loss: 0.0680 - val_accuracy: 0.9773
Epoch 1146/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0418 - accuracy: 0.9857 - val_loss: 0.0680 - val_accuracy: 0.9773
Epoch 1147/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0418 - accuracy: 0.9865 - val_loss: 0.0682 - val_accuracy: 0.9773
Epoch 1148/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0419 - accuracy: 0.9865 - val_loss: 0.0681 - val_accuracy: 0.9773
Epoch 1149/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0418 - accuracy: 0.9870 - val_loss: 0.0679 - val_accuracy: 0.9785
Epoch 1150/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0418 - accuracy: 0.9857 - val_loss: 0.0681 - val_accuracy: 0.9773
Epoch 1151/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0418 - accuracy: 0.9865 - val_loss: 0.0684 - val_accuracy: 0.9760
Epoch 1152/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0418 - accuracy: 0.9865 - val_loss: 0.0681 - val_accuracy: 0.9773
```

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Epoch 1153/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0418 - accuracy: 0.9861 - val_loss: 0.0682 - val_accuracy: 0.9773
Epoch 1154/1500
75/75 [==============================] - 0s 6ms/step - loss: 0.0418 - accuracy: 0.9861 - val_loss: 0.0687 - val_accuracy: 0.9760
Epoch 1155/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0418 - accuracy: 0.9861 - val_loss: 0.0685 - val_accuracy: 0.9760
Epoch 1156/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0417 - accuracy: 0.9861 - val_loss: 0.0681 - val_accuracy: 0.9773
Epoch 1157/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0417 - accuracy: 0.9865 - val_loss: 0.0690 - val_accuracy: 0.9760
Epoch 1158/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0418 - accuracy: 0.9865 - val_loss: 0.0685 - val_accuracy: 0.9773
Epoch 1159/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0417 - accuracy: 0.9870 - val_loss: 0.0685 - val_accuracy: 0.9760
Epoch 1160/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0417 - accuracy: 0.9861 - val_loss: 0.0684 - val_accuracy: 0.9773
Epoch 1161/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0417 - accuracy: 0.9861 - val_loss: 0.0683 - val_accuracy: 0.9773
Epoch 1162/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0418 - accuracy: 0.9861 - val_loss: 0.0682 - val_accuracy: 0.9773
Epoch 1163/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0417 - accuracy: 0.9857 - val_loss: 0.0682 - val_accuracy: 0.9785
Epoch 1164/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0417 - accuracy: 0.9870 - val_loss: 0.0684 - val_accuracy: 0.9773
Epoch 1165/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0417 - accuracy: 0.9861 - val_loss: 0.0684 - val_accuracy: 0.9773
Epoch 1166/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0416 - accuracy: 0.9865 - val_loss: 0.0684 - val_accuracy: 0.9773
Epoch 1167/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0416 - accuracy: 0.9861 - val_loss: 0.0686 - val_accuracy: 0.9760
Epoch 1168/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0417 - accuracy: 0.9865 - val_loss: 0.0686 - val_accuracy: 0.9773
Epoch 1169/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0416 - accuracy: 0.9870 - val_loss: 0.0696 - val_accuracy: 0.9760
Epoch 1170/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0419 - accuracy: 0.9861 - val_loss: 0.0689 - val_accuracy: 0.9760
Epoch 1171/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0417 - accuracy: 0.9861 - val_loss: 0.0688 - val_accuracy: 0.9760
Epoch 1172/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0416 - accuracy: 0.9861 - val_loss: 0.0684 - val_accuracy: 0.9773
Epoch 1173/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0416 - accuracy: 0.9865 - val_loss: 0.0684 - val_accuracy: 0.9773
Epoch 1174/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0416 - accuracy: 0.9865 - val_loss: 0.0685 - val_accuracy: 0.9773
Epoch 1175/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0416 - accuracy: 0.9870 - val_loss: 0.0685 - val_accuracy: 0.9773
Epoch 1176/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0415 - accuracy: 0.9857 - val_loss: 0.0683 - val_accuracy: 0.9773
Epoch 1177/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0415 - accuracy: 0.9865 - val_loss: 0.0684 - val_accuracy: 0.9773
Epoch 1178/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0415 - accuracy: 0.9865 - val_loss: 0.0685 - val_accuracy: 0.9773
Epoch 1179/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0415 - accuracy: 0.9861 - val_loss: 0.0684 - val_accuracy: 0.9773
Epoch 1180/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0415 - accuracy: 0.9861 - val_loss: 0.0683 - val_accuracy: 0.9773
Epoch 1181/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0415 - accuracy: 0.9861 - val_loss: 0.0684 - val_accuracy: 0.9773
Epoch 1182/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0415 - accuracy: 0.9870 - val_loss: 0.0685 - val_accuracy: 0.9773
Epoch 1183/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0414 - accuracy: 0.9865 - val_loss: 0.0684 - val_accuracy: 0.9773
Epoch 1184/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0414 - accuracy: 0.9865 - val_loss: 0.0685 - val_accuracy: 0.9773
Epoch 1185/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0414 - accuracy: 0.9870 - val_loss: 0.0685 - val_accuracy: 0.9773
Epoch 1186/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0414 - accuracy: 0.9861 - val_loss: 0.0685 - val_accuracy: 0.9773
Epoch 1187/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0414 - accuracy: 0.9865 - val_loss: 0.0685 - val_accuracy: 0.9773
Epoch 1188/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0414 - accuracy: 0.9861 - val_loss: 0.0684 - val_accuracy: 0.9785
Epoch 1189/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0414 - accuracy: 0.9865 - val_loss: 0.0685 - val_accuracy: 0.9773
Epoch 1190/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0414 - accuracy: 0.9865 - val_loss: 0.0686 - val_accuracy: 0.9773
Epoch 1191/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0414 - accuracy: 0.9865 - val_loss: 0.0686 - val_accuracy: 0.9773
Epoch 1192/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0414 - accuracy: 0.9865 - val_loss: 0.0687 - val_accuracy: 0.9773
Epoch 1193/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0413 - accuracy: 0.9870 - val_loss: 0.0687 - val_accuracy: 0.9760
Epoch 1194/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0413 - accuracy: 0.9865 - val_loss: 0.0689 - val_accuracy: 0.9760
Epoch 1195/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0413 - accuracy: 0.9870 - val_loss: 0.0686 - val_accuracy: 0.9773
Epoch 1196/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0414 - accuracy: 0.9865 - val_loss: 0.0686 - val_accuracy: 0.9773
Epoch 1197/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0413 - accuracy: 0.9865 - val_loss: 0.0686 - val_accuracy: 0.9773
Epoch 1198/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0413 - accuracy: 0.9865 - val_loss: 0.0686 - val_accuracy: 0.9773
Epoch 1199/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0412 - accuracy: 0.9861 - val_loss: 0.0685 - val_accuracy: 0.9773
Epoch 1200/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0413 - accuracy: 0.9865 - val_loss: 0.0687 - val_accuracy: 0.9773
Epoch 1201/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0413 - accuracy: 0.9865 - val_loss: 0.0686 - val_accuracy: 0.9773
Epoch 1202/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0413 - accuracy: 0.9865 - val_loss: 0.0686 - val_accuracy: 0.9773
Epoch 1203/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0413 - accuracy: 0.9861 - val_loss: 0.0688 - val_accuracy: 0.9773
Epoch 1204/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0413 - accuracy: 0.9865 - val_loss: 0.0687 - val_accuracy: 0.9773
Epoch 1205/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0412 - accuracy: 0.9865 - val_loss: 0.0688 - val_accuracy: 0.9773
Epoch 1206/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0412 - accuracy: 0.9861 - val_loss: 0.0687 - val_accuracy: 0.9773
Epoch 1207/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0412 - accuracy: 0.9870 - val_loss: 0.0687 - val_accuracy: 0.9773
Epoch 1208/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0412 - accuracy: 0.9865 - val_loss: 0.0687 - val_accuracy: 0.9773
Epoch 1209/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0412 - accuracy: 0.9870 - val_loss: 0.0688 - val_accuracy: 0.9773
Epoch 1210/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0412 - accuracy: 0.9870 - val_loss: 0.0688 - val_accuracy: 0.9773
Epoch 1211/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0412 - accuracy: 0.9865 - val_loss: 0.0684 - val_accuracy: 0.9785
Epoch 1212/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0412 - accuracy: 0.9865 - val_loss: 0.0685 - val_accuracy: 0.9785
Epoch 1213/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0412 - accuracy: 0.9865 - val_loss: 0.0686 - val_accuracy: 0.9773
Epoch 1214/1500
75/75 [==============================] - 0s 6ms/step - loss: 0.0411 - accuracy: 0.9861 - val_loss: 0.0688 - val_accuracy: 0.9773
Epoch 1215/1500
75/75 [==============================] - 0s 6ms/step - loss: 0.0411 - accuracy: 0.9865 - val_loss: 0.0687 - val_accuracy: 0.9773
Epoch 1216/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0411 - accuracy: 0.9865 - val_loss: 0.0688 - val_accuracy: 0.9760
```

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Epoch 1217/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0411 - accuracy: 0.9861 - val_loss: 0.0686 - val_accuracy: 0.9773
Epoch 1218/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0411 - accuracy: 0.9870 - val_loss: 0.0685 - val_accuracy: 0.9773
Epoch 1219/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0411 - accuracy: 0.9865 - val_loss: 0.0686 - val_accuracy: 0.9773
Epoch 1220/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0410 - accuracy: 0.9870 - val_loss: 0.0686 - val_accuracy: 0.9773
Epoch 1221/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0410 - accuracy: 0.9870 - val_loss: 0.0686 - val_accuracy: 0.9773
Epoch 1222/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0410 - accuracy: 0.9870 - val_loss: 0.0686 - val_accuracy: 0.9773
Epoch 1223/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0411 - accuracy: 0.9865 - val_loss: 0.0686 - val_accuracy: 0.9785
Epoch 1224/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0410 - accuracy: 0.9861 - val_loss: 0.0689 - val_accuracy: 0.9773
Epoch 1225/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0410 - accuracy: 0.9865 - val_loss: 0.0687 - val_accuracy: 0.9773
Epoch 1226/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0410 - accuracy: 0.9865 - val_loss: 0.0686 - val_accuracy: 0.9773
Epoch 1227/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0410 - accuracy: 0.9865 - val_loss: 0.0687 - val_accuracy: 0.9773
Epoch 1228/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0410 - accuracy: 0.9865 - val_loss: 0.0687 - val_accuracy: 0.9773
Epoch 1229/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0410 - accuracy: 0.9865 - val_loss: 0.0688 - val_accuracy: 0.9773
Epoch 1230/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0410 - accuracy: 0.9870 - val_loss: 0.0688 - val_accuracy: 0.9773
Epoch 1231/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0410 - accuracy: 0.9870 - val_loss: 0.0688 - val_accuracy: 0.9773
Epoch 1232/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0409 - accuracy: 0.9870 - val_loss: 0.0688 - val_accuracy: 0.9773
Epoch 1233/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0409 - accuracy: 0.9865 - val_loss: 0.0689 - val_accuracy: 0.9760
Epoch 1234/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0409 - accuracy: 0.9861 - val_loss: 0.0690 - val_accuracy: 0.9760
Epoch 1235/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0409 - accuracy: 0.9870 - val_loss: 0.0689 - val_accuracy: 0.9773
Epoch 1236/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0409 - accuracy: 0.9865 - val_loss: 0.0688 - val_accuracy: 0.9773
Epoch 1237/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0409 - accuracy: 0.9870 - val_loss: 0.0688 - val_accuracy: 0.9773
Epoch 1238/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0409 - accuracy: 0.9865 - val_loss: 0.0689 - val_accuracy: 0.9773
Epoch 1239/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0409 - accuracy: 0.9865 - val_loss: 0.0685 - val_accuracy: 0.9785
Epoch 1240/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0409 - accuracy: 0.9865 - val_loss: 0.0686 - val_accuracy: 0.9773
Epoch 1241/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0409 - accuracy: 0.9870 - val_loss: 0.0687 - val_accuracy: 0.9773
Epoch 1242/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0407 - accuracy: 0.9870 - val_loss: 0.0688 - val_accuracy: 0.9773
Epoch 1243/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0408 - accuracy: 0.9870 - val_loss: 0.0689 - val_accuracy: 0.9773
Epoch 1244/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0408 - accuracy: 0.9870 - val_loss: 0.0688 - val_accuracy: 0.9773
Epoch 1245/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0408 - accuracy: 0.9861 - val_loss: 0.0687 - val_accuracy: 0.9785
Epoch 1246/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0408 - accuracy: 0.9870 - val_loss: 0.0686 - val_accuracy: 0.9785
Epoch 1247/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0408 - accuracy: 0.9861 - val_loss: 0.0687 - val_accuracy: 0.9773
Epoch 1248/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0408 - accuracy: 0.9870 - val_loss: 0.0687 - val_accuracy: 0.9785
Epoch 1249/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0407 - accuracy: 0.9861 - val_loss: 0.0689 - val_accuracy: 0.9773
Epoch 1250/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0407 - accuracy: 0.9870 - val_loss: 0.0687 - val_accuracy: 0.9773
Epoch 1251/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0408 - accuracy: 0.9870 - val_loss: 0.0689 - val_accuracy: 0.9773
Epoch 1252/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0407 - accuracy: 0.9870 - val_loss: 0.0687 - val_accuracy: 0.9785
Epoch 1253/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0407 - accuracy: 0.9870 - val_loss: 0.0686 - val_accuracy: 0.9773
Epoch 1254/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0406 - accuracy: 0.9861 - val_loss: 0.0689 - val_accuracy: 0.9760
Epoch 1255/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0407 - accuracy: 0.9870 - val_loss: 0.0688 - val_accuracy: 0.9773
Epoch 1256/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0407 - accuracy: 0.9870 - val_loss: 0.0686 - val_accuracy: 0.9773
Epoch 1257/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0406 - accuracy: 0.9870 - val_loss: 0.0687 - val_accuracy: 0.9773
Epoch 1258/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0407 - accuracy: 0.9865 - val_loss: 0.0686 - val_accuracy: 0.9785
Epoch 1259/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0406 - accuracy: 0.9870 - val_loss: 0.0687 - val_accuracy: 0.9773
Epoch 1260/1500
75/75 [==============================] - 0s 6ms/step - loss: 0.0407 - accuracy: 0.9865 - val_loss: 0.0685 - val_accuracy: 0.9785
Epoch 1261/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0406 - accuracy: 0.9865 - val_loss: 0.0687 - val_accuracy: 0.9773
Epoch 1262/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0406 - accuracy: 0.9870 - val_loss: 0.0687 - val_accuracy: 0.9773
Epoch 1263/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0406 - accuracy: 0.9870 - val_loss: 0.0687 - val_accuracy: 0.9773
Epoch 1264/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0405 - accuracy: 0.9865 - val_loss: 0.0688 - val_accuracy: 0.9773
Epoch 1265/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0406 - accuracy: 0.9870 - val_loss: 0.0686 - val_accuracy: 0.9773
Epoch 1266/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0405 - accuracy: 0.9861 - val_loss: 0.0689 - val_accuracy: 0.9773
Epoch 1267/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0405 - accuracy: 0.9870 - val_loss: 0.0686 - val_accuracy: 0.9773
Epoch 1268/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0406 - accuracy: 0.9870 - val_loss: 0.0687 - val_accuracy: 0.9773
Epoch 1269/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0405 - accuracy: 0.9870 - val_loss: 0.0686 - val_accuracy: 0.9773
Epoch 1270/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0406 - accuracy: 0.9870 - val_loss: 0.0686 - val_accuracy: 0.9773
Epoch 1271/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0405 - accuracy: 0.9870 - val_loss: 0.0686 - val_accuracy: 0.9785
Epoch 1272/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0405 - accuracy: 0.9865 - val_loss: 0.0685 - val_accuracy: 0.9785
Epoch 1273/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0404 - accuracy: 0.9861 - val_loss: 0.0688 - val_accuracy: 0.9773
Epoch 1274/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0404 - accuracy: 0.9865 - val_loss: 0.0685 - val_accuracy: 0.9785
Epoch 1275/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0405 - accuracy: 0.9870 - val_loss: 0.0685 - val_accuracy: 0.9785
Epoch 1276/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0404 - accuracy: 0.9865 - val_loss: 0.0686 - val_accuracy: 0.9773
Epoch 1277/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0404 - accuracy: 0.9870 - val_loss: 0.0685 - val_accuracy: 0.9785
Epoch 1278/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0405 - accuracy: 0.9870 - val_loss: 0.0686 - val_accuracy: 0.9785
Epoch 1279/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0404 - accuracy: 0.9870 - val_loss: 0.0688 - val_accuracy: 0.9773
Epoch 1280/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0404 - accuracy: 0.9870 - val_loss: 0.0686 - val_accuracy: 0.9785
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Epoch 1281/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0404 - accuracy: 0.9870 - val_loss: 0.0686 - val_accuracy: 0.9785
Epoch 1282/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0405 - accuracy: 0.9870 - val_loss: 0.0687 - val_accuracy: 0.9785
Epoch 1283/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0404 - accuracy: 0.9870 - val_loss: 0.0687 - val_accuracy: 0.9785
Epoch 1284/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0404 - accuracy: 0.9865 - val_loss: 0.0689 - val_accuracy: 0.9773
Epoch 1285/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0403 - accuracy: 0.9874 - val_loss: 0.0689 - val_accuracy: 0.9773
Epoch 1286/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0404 - accuracy: 0.9865 - val_loss: 0.0688 - val_accuracy: 0.9773
Epoch 1287/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0403 - accuracy: 0.9874 - val_loss: 0.0686 - val_accuracy: 0.9785
Epoch 1288/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0403 - accuracy: 0.9870 - val_loss: 0.0687 - val_accuracy: 0.9785
Epoch 1289/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0403 - accuracy: 0.9870 - val_loss: 0.0687 - val_accuracy: 0.9773
Epoch 1290/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0403 - accuracy: 0.9874 - val_loss: 0.0687 - val_accuracy: 0.9785
Epoch 1291/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0403 - accuracy: 0.9870 - val_loss: 0.0686 - val_accuracy: 0.9785
Epoch 1292/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0403 - accuracy: 0.9874 - val_loss: 0.0687 - val_accuracy: 0.9773
Epoch 1293/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0402 - accuracy: 0.9870 - val_loss: 0.0688 - val_accuracy: 0.9773
Epoch 1294/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0403 - accuracy: 0.9874 - val_loss: 0.0688 - val_accuracy: 0.9773
Epoch 1295/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0402 - accuracy: 0.9870 - val_loss: 0.0687 - val_accuracy: 0.9785
Epoch 1296/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0402 - accuracy: 0.9870 - val_loss: 0.0687 - val_accuracy: 0.9773
Epoch 1297/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0403 - accuracy: 0.9870 - val_loss: 0.0687 - val_accuracy: 0.9785
Epoch 1298/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0402 - accuracy: 0.9870 - val_loss: 0.0687 - val_accuracy: 0.9785
Epoch 1299/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0402 - accuracy: 0.9874 - val_loss: 0.0687 - val_accuracy: 0.9785
Epoch 1300/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0402 - accuracy: 0.9870 - val_loss: 0.0688 - val_accuracy: 0.9773
Epoch 1301/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0402 - accuracy: 0.9870 - val_loss: 0.0688 - val_accuracy: 0.9785
Epoch 1302/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0401 - accuracy: 0.9865 - val_loss: 0.0689 - val_accuracy: 0.9773
Epoch 1303/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0401 - accuracy: 0.9874 - val_loss: 0.0689 - val_accuracy: 0.9773
Epoch 1304/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0402 - accuracy: 0.9874 - val_loss: 0.0689 - val_accuracy: 0.9773
Epoch 1305/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0401 - accuracy: 0.9874 - val_loss: 0.0690 - val_accuracy: 0.9785
Epoch 1306/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0400 - accuracy: 0.9861 - val_loss: 0.0687 - val_accuracy: 0.9785
Epoch 1307/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0401 - accuracy: 0.9870 - val_loss: 0.0687 - val_accuracy: 0.9785
Epoch 1308/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0400 - accuracy: 0.9865 - val_loss: 0.0691 - val_accuracy: 0.9785
Epoch 1309/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0401 - accuracy: 0.9865 - val_loss: 0.0688 - val_accuracy: 0.9773
Epoch 1310/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0400 - accuracy: 0.9870 - val_loss: 0.0687 - val_accuracy: 0.9785
Epoch 1311/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0400 - accuracy: 0.9870 - val_loss: 0.0687 - val_accuracy: 0.9785
Epoch 1312/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0401 - accuracy: 0.9870 - val_loss: 0.0687 - val_accuracy: 0.9785
Epoch 1313/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0401 - accuracy: 0.9870 - val_loss: 0.0689 - val_accuracy: 0.9785
Epoch 1314/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0400 - accuracy: 0.9861 - val_loss: 0.0689 - val_accuracy: 0.9785
Epoch 1315/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0400 - accuracy: 0.9870 - val_loss: 0.0688 - val_accuracy: 0.9785
Epoch 1316/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0401 - accuracy: 0.9874 - val_loss: 0.0689 - val_accuracy: 0.9785
Epoch 1317/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0400 - accuracy: 0.9874 - val_loss: 0.0688 - val_accuracy: 0.9785
Epoch 1318/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0400 - accuracy: 0.9874 - val_loss: 0.0700 - val_accuracy: 0.9773
Epoch 1319/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0401 - accuracy: 0.9865 - val_loss: 0.0692 - val_accuracy: 0.9785
Epoch 1320/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0400 - accuracy: 0.9874 - val_loss: 0.0690 - val_accuracy: 0.9785
Epoch 1321/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0400 - accuracy: 0.9874 - val_loss: 0.0690 - val_accuracy: 0.9785
Epoch 1322/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0400 - accuracy: 0.9874 - val_loss: 0.0691 - val_accuracy: 0.9785
Epoch 1323/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0399 - accuracy: 0.9874 - val_loss: 0.0690 - val_accuracy: 0.9785
Epoch 1324/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0400 - accuracy: 0.9874 - val_loss: 0.0690 - val_accuracy: 0.9785
Epoch 1325/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0400 - accuracy: 0.9874 - val_loss: 0.0689 - val_accuracy: 0.9785
Epoch 1326/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0399 - accuracy: 0.9874 - val_loss: 0.0690 - val_accuracy: 0.9785
Epoch 1327/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0399 - accuracy: 0.9874 - val_loss: 0.0691 - val_accuracy: 0.9785
Epoch 1328/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0399 - accuracy: 0.9874 - val_loss: 0.0690 - val_accuracy: 0.9785
Epoch 1329/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0398 - accuracy: 0.9874 - val_loss: 0.0692 - val_accuracy: 0.9785
Epoch 1330/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0398 - accuracy: 0.9865 - val_loss: 0.0689 - val_accuracy: 0.9785
Epoch 1331/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0398 - accuracy: 0.9874 - val_loss: 0.0690 - val_accuracy: 0.9798
Epoch 1332/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0398 - accuracy: 0.9874 - val_loss: 0.0691 - val_accuracy: 0.9785
Epoch 1333/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0398 - accuracy: 0.9874 - val_loss: 0.0691 - val_accuracy: 0.9785
Epoch 1334/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0398 - accuracy: 0.9870 - val_loss: 0.0690 - val_accuracy: 0.9798
Epoch 1335/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0397 - accuracy: 0.9874 - val_loss: 0.0690 - val_accuracy: 0.9785
Epoch 1336/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0398 - accuracy: 0.9874 - val_loss: 0.0692 - val_accuracy: 0.9785
Epoch 1337/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0398 - accuracy: 0.9874 - val_loss: 0.0690 - val_accuracy: 0.9798
Epoch 1338/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0398 - accuracy: 0.9874 - val_loss: 0.0691 - val_accuracy: 0.9798
Epoch 1339/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0398 - accuracy: 0.9874 - val_loss: 0.0691 - val_accuracy: 0.9785
Epoch 1340/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0398 - accuracy: 0.9874 - val_loss: 0.0691 - val_accuracy: 0.9785
Epoch 1341/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0397 - accuracy: 0.9874 - val_loss: 0.0690 - val_accuracy: 0.9785
Epoch 1342/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0397 - accuracy: 0.9874 - val_loss: 0.0690 - val_accuracy: 0.9785
Epoch 1343/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0397 - accuracy: 0.9874 - val_loss: 0.0692 - val_accuracy: 0.9785
Epoch 1344/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0397 - accuracy: 0.9870 - val_loss: 0.0690 - val_accuracy: 0.9798
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Epoch 1345/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0397 - accuracy: 0.9874 - val_loss: 0.0686 - val_accuracy: 0.9785
Epoch 1346/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0398 - accuracy: 0.9874 - val_loss: 0.0688 - val_accuracy: 0.9785
Epoch 1347/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0397 - accuracy: 0.9874 - val_loss: 0.0690 - val_accuracy: 0.9798
Epoch 1348/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0397 - accuracy: 0.9874 - val_loss: 0.0689 - val_accuracy: 0.9798
Epoch 1349/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0396 - accuracy: 0.9874 - val_loss: 0.0690 - val_accuracy: 0.9798
Epoch 1350/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0397 - accuracy: 0.9874 - val_loss: 0.0691 - val_accuracy: 0.9798
Epoch 1351/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0397 - accuracy: 0.9874 - val_loss: 0.0691 - val_accuracy: 0.9798
Epoch 1352/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0396 - accuracy: 0.9874 - val_loss: 0.0691 - val_accuracy: 0.9798
Epoch 1353/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0396 - accuracy: 0.9874 - val_loss: 0.0691 - val_accuracy: 0.9798
Epoch 1354/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0396 - accuracy: 0.9874 - val_loss: 0.0691 - val_accuracy: 0.9798
Epoch 1355/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0396 - accuracy: 0.9874 - val_loss: 0.0692 - val_accuracy: 0.9798
Epoch 1356/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0396 - accuracy: 0.9874 - val_loss: 0.0691 - val_accuracy: 0.9798
Epoch 1357/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0394 - accuracy: 0.9874 - val_loss: 0.0692 - val_accuracy: 0.9798
Epoch 1358/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0395 - accuracy: 0.9874 - val_loss: 0.0691 - val_accuracy: 0.9798
Epoch 1359/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0396 - accuracy: 0.9874 - val_loss: 0.0692 - val_accuracy: 0.9798
Epoch 1360/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0395 - accuracy: 0.9874 - val_loss: 0.0691 - val_accuracy: 0.9798
Epoch 1361/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0395 - accuracy: 0.9874 - val_loss: 0.0690 - val_accuracy: 0.9798
Epoch 1362/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0395 - accuracy: 0.9874 - val_loss: 0.0690 - val_accuracy: 0.9798
Epoch 1363/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0395 - accuracy: 0.9874 - val_loss: 0.0691 - val_accuracy: 0.9798
Epoch 1364/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0395 - accuracy: 0.9874 - val_loss: 0.0690 - val_accuracy: 0.9798
Epoch 1365/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0394 - accuracy: 0.9874 - val_loss: 0.0692 - val_accuracy: 0.9798
Epoch 1366/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0395 - accuracy: 0.9874 - val_loss: 0.0694 - val_accuracy: 0.9785
Epoch 1367/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0395 - accuracy: 0.9874 - val_loss: 0.0692 - val_accuracy: 0.9798
Epoch 1368/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0394 - accuracy: 0.9874 - val_loss: 0.0692 - val_accuracy: 0.9798
Epoch 1369/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0395 - accuracy: 0.9874 - val_loss: 0.0692 - val_accuracy: 0.9798
Epoch 1370/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0395 - accuracy: 0.9874 - val_loss: 0.0694 - val_accuracy: 0.9798
Epoch 1371/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0394 - accuracy: 0.9874 - val_loss: 0.0691 - val_accuracy: 0.9798
Epoch 1372/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0393 - accuracy: 0.9874 - val_loss: 0.0690 - val_accuracy: 0.9798
Epoch 1373/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0394 - accuracy: 0.9874 - val_loss: 0.0691 - val_accuracy: 0.9798
Epoch 1374/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0394 - accuracy: 0.9874 - val_loss: 0.0692 - val_accuracy: 0.9798
Epoch 1375/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0395 - accuracy: 0.9874 - val_loss: 0.0692 - val_accuracy: 0.9798
Epoch 1376/1500
75/75 [==============================] - 0s 6ms/step - loss: 0.0394 - accuracy: 0.9874 - val_loss: 0.0691 - val_accuracy: 0.9798
Epoch 1377/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0394 - accuracy: 0.9874 - val_loss: 0.0693 - val_accuracy: 0.9798
Epoch 1378/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0393 - accuracy: 0.9874 - val_loss: 0.0695 - val_accuracy: 0.9798
Epoch 1379/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0393 - accuracy: 0.9874 - val_loss: 0.0693 - val_accuracy: 0.9798
Epoch 1380/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0394 - accuracy: 0.9874 - val_loss: 0.0692 - val_accuracy: 0.9798
Epoch 1381/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0394 - accuracy: 0.9874 - val_loss: 0.0693 - val_accuracy: 0.9798
Epoch 1382/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0393 - accuracy: 0.9874 - val_loss: 0.0692 - val_accuracy: 0.9798
Epoch 1383/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0393 - accuracy: 0.9874 - val_loss: 0.0692 - val_accuracy: 0.9798
Epoch 1384/1500
75/75 [==============================] - 0s 6ms/step - loss: 0.0393 - accuracy: 0.9874 - val_loss: 0.0693 - val_accuracy: 0.9798
Epoch 1385/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0393 - accuracy: 0.9874 - val_loss: 0.0693 - val_accuracy: 0.9798
Epoch 1386/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0393 - accuracy: 0.9874 - val_loss: 0.0693 - val_accuracy: 0.9798
Epoch 1387/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0393 - accuracy: 0.9874 - val_loss: 0.0694 - val_accuracy: 0.9798
Epoch 1388/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0392 - accuracy: 0.9874 - val_loss: 0.0693 - val_accuracy: 0.9798
Epoch 1389/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0393 - accuracy: 0.9874 - val_loss: 0.0694 - val_accuracy: 0.9798
Epoch 1390/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0392 - accuracy: 0.9874 - val_loss: 0.0695 - val_accuracy: 0.9798
Epoch 1391/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0392 - accuracy: 0.9874 - val_loss: 0.0694 - val_accuracy: 0.9798
Epoch 1392/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0392 - accuracy: 0.9874 - val_loss: 0.0694 - val_accuracy: 0.9798
Epoch 1393/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0391 - accuracy: 0.9874 - val_loss: 0.0697 - val_accuracy: 0.9785
Epoch 1394/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0392 - accuracy: 0.9874 - val_loss: 0.0694 - val_accuracy: 0.9798
Epoch 1395/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0392 - accuracy: 0.9874 - val_loss: 0.0693 - val_accuracy: 0.9798
Epoch 1396/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0392 - accuracy: 0.9874 - val_loss: 0.0694 - val_accuracy: 0.9798
Epoch 1397/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0392 - accuracy: 0.9874 - val_loss: 0.0695 - val_accuracy: 0.9798
Epoch 1398/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0391 - accuracy: 0.9874 - val_loss: 0.0695 - val_accuracy: 0.9798
Epoch 1399/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0391 - accuracy: 0.9874 - val_loss: 0.0695 - val_accuracy: 0.9798
Epoch 1400/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0391 - accuracy: 0.9874 - val_loss: 0.0694 - val_accuracy: 0.9798
Epoch 1401/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0391 - accuracy: 0.9874 - val_loss: 0.0694 - val_accuracy: 0.9798
Epoch 1402/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0391 - accuracy: 0.9874 - val_loss: 0.0695 - val_accuracy: 0.9798
Epoch 1403/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0391 - accuracy: 0.9874 - val_loss: 0.0701 - val_accuracy: 0.9785
Epoch 1404/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0392 - accuracy: 0.9874 - val_loss: 0.0697 - val_accuracy: 0.9798
Epoch 1405/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0391 - accuracy: 0.9874 - val_loss: 0.0697 - val_accuracy: 0.9798
Epoch 1406/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0390 - accuracy: 0.9874 - val_loss: 0.0698 - val_accuracy: 0.9798
Epoch 1407/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0391 - accuracy: 0.9874 - val_loss: 0.0695 - val_accuracy: 0.9798
Epoch 1408/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0391 - accuracy: 0.9874 - val_loss: 0.0695 - val_accuracy: 0.9798
```

```
Epoch 1409/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0391 - accuracy: 0.9874 - val_loss: 0.0695 - val_accuracy: 0.9798
Epoch 1410/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0390 - accuracy: 0.9874 - val_loss: 0.0696 - val_accuracy: 0.9798
Epoch 1411/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0390 - accuracy: 0.9874 - val_loss: 0.0696 - val_accuracy: 0.9798
Epoch 1412/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0391 - accuracy: 0.9874 - val_loss: 0.0695 - val_accuracy: 0.9798
Epoch 1413/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0390 - accuracy: 0.9874 - val_loss: 0.0695 - val_accuracy: 0.9798
Epoch 1414/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0390 - accuracy: 0.9874 - val_loss: 0.0696 - val_accuracy: 0.9798
Epoch 1415/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0390 - accuracy: 0.9874 - val_loss: 0.0696 - val_accuracy: 0.9798
Epoch 1416/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0390 - accuracy: 0.9874 - val_loss: 0.0696 - val_accuracy: 0.9798
Epoch 1417/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0390 - accuracy: 0.9874 - val_loss: 0.0696 - val_accuracy: 0.9798
Epoch 1418/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0390 - accuracy: 0.9874 - val_loss: 0.0697 - val_accuracy: 0.9798
Epoch 1419/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0389 - accuracy: 0.9870 - val_loss: 0.0695 - val_accuracy: 0.9798
Epoch 1420/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0389 - accuracy: 0.9874 - val_loss: 0.0696 - val_accuracy: 0.9798
Epoch 1421/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0389 - accuracy: 0.9874 - val_loss: 0.0696 - val_accuracy: 0.9798
Epoch 1422/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0390 - accuracy: 0.9874 - val_loss: 0.0696 - val_accuracy: 0.9798
Epoch 1423/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0389 - accuracy: 0.9874 - val_loss: 0.0696 - val_accuracy: 0.9798
Epoch 1424/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0389 - accuracy: 0.9874 - val_loss: 0.0698 - val_accuracy: 0.9798
Epoch 1425/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0389 - accuracy: 0.9874 - val_loss: 0.0696 - val_accuracy: 0.9798
Epoch 1426/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0389 - accuracy: 0.9874 - val_loss: 0.0697 - val_accuracy: 0.9798
Epoch 1427/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0389 - accuracy: 0.9874 - val_loss: 0.0697 - val_accuracy: 0.9798
Epoch 1428/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0389 - accuracy: 0.9874 - val_loss: 0.0695 - val_accuracy: 0.9798
Epoch 1429/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0389 - accuracy: 0.9874 - val_loss: 0.0696 - val_accuracy: 0.9798
Epoch 1430/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0388 - accuracy: 0.9874 - val_loss: 0.0695 - val_accuracy: 0.9798
Epoch 1431/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0389 - accuracy: 0.9874 - val_loss: 0.0702 - val_accuracy: 0.9785
Epoch 1432/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0390 - accuracy: 0.9874 - val_loss: 0.0701 - val_accuracy: 0.9785
Epoch 1433/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0389 - accuracy: 0.9874 - val_loss: 0.0695 - val_accuracy: 0.9798
Epoch 1434/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0388 - accuracy: 0.9874 - val_loss: 0.0694 - val_accuracy: 0.9798
Epoch 1435/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0388 - accuracy: 0.9874 - val_loss: 0.0695 - val_accuracy: 0.9798
Epoch 1436/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0388 - accuracy: 0.9874 - val_loss: 0.0697 - val_accuracy: 0.9798
Epoch 1437/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0387 - accuracy: 0.9874 - val_loss: 0.0695 - val_accuracy: 0.9798
Epoch 1438/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0387 - accuracy: 0.9874 - val_loss: 0.0697 - val_accuracy: 0.9798
Epoch 1439/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0387 - accuracy: 0.9874 - val_loss: 0.0695 - val_accuracy: 0.9798
Epoch 1440/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0388 - accuracy: 0.9874 - val_loss: 0.0696 - val_accuracy: 0.9798
Epoch 1441/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0387 - accuracy: 0.9874 - val_loss: 0.0699 - val_accuracy: 0.9798
Epoch 1442/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0387 - accuracy: 0.9870 - val_loss: 0.0695 - val_accuracy: 0.9798
Epoch 1443/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0388 - accuracy: 0.9874 - val_loss: 0.0696 - val_accuracy: 0.9798
Epoch 1444/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0388 - accuracy: 0.9874 - val_loss: 0.0695 - val_accuracy: 0.9798
Epoch 1445/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0387 - accuracy: 0.9874 - val_loss: 0.0695 - val_accuracy: 0.9798
Epoch 1446/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0387 - accuracy: 0.9874 - val_loss: 0.0696 - val_accuracy: 0.9798
Epoch 1447/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0386 - accuracy: 0.9874 - val_loss: 0.0703 - val_accuracy: 0.9785
Epoch 1448/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0389 - accuracy: 0.9874 - val_loss: 0.0701 - val_accuracy: 0.9798
Epoch 1449/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0388 - accuracy: 0.9874 - val_loss: 0.0698 - val_accuracy: 0.9798
Epoch 1450/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0386 - accuracy: 0.9874 - val_loss: 0.0696 - val_accuracy: 0.9798
Epoch 1451/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0387 - accuracy: 0.9874 - val_loss: 0.0697 - val_accuracy: 0.9798
Epoch 1452/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0387 - accuracy: 0.9874 - val_loss: 0.0698 - val_accuracy: 0.9798
Epoch 1453/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0387 - accuracy: 0.9874 - val_loss: 0.0694 - val_accuracy: 0.9798
Epoch 1454/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0387 - accuracy: 0.9874 - val_loss: 0.0696 - val_accuracy: 0.9798
Epoch 1455/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0387 - accuracy: 0.9874 - val_loss: 0.0698 - val_accuracy: 0.9798
Epoch 1456/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0387 - accuracy: 0.9874 - val_loss: 0.0697 - val_accuracy: 0.9798
Epoch 1457/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0387 - accuracy: 0.9874 - val_loss: 0.0698 - val_accuracy: 0.9798
Epoch 1458/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0386 - accuracy: 0.9874 - val_loss: 0.0697 - val_accuracy: 0.9798
Epoch 1459/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0386 - accuracy: 0.9874 - val_loss: 0.0697 - val_accuracy: 0.9798
Epoch 1460/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0386 - accuracy: 0.9874 - val_loss: 0.0699 - val_accuracy: 0.9798
Epoch 1461/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0386 - accuracy: 0.9874 - val_loss: 0.0700 - val_accuracy: 0.9798
Epoch 1462/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0386 - accuracy: 0.9870 - val_loss: 0.0698 - val_accuracy: 0.9798
Epoch 1463/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0385 - accuracy: 0.9874 - val_loss: 0.0699 - val_accuracy: 0.9798
Epoch 1464/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0385 - accuracy: 0.9874 - val_loss: 0.0700 - val_accuracy: 0.9798
Epoch 1465/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0386 - accuracy: 0.9874 - val_loss: 0.0700 - val_accuracy: 0.9798
Epoch 1466/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0385 - accuracy: 0.9874 - val_loss: 0.0700 - val_accuracy: 0.9798
Epoch 1467/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0385 - accuracy: 0.9874 - val_loss: 0.0699 - val_accuracy: 0.9798
Epoch 1468/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0385 - accuracy: 0.9870 - val_loss: 0.0698 - val_accuracy: 0.9798
Epoch 1469/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0385 - accuracy: 0.9874 - val_loss: 0.0700 - val_accuracy: 0.9798
Epoch 1470/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0385 - accuracy: 0.9874 - val_loss: 0.0698 - val_accuracy: 0.9798
Epoch 1471/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0385 - accuracy: 0.9874 - val_loss: 0.0698 - val_accuracy: 0.9798
Epoch 1472/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0384 - accuracy: 0.9874 - val_loss: 0.0698 - val_accuracy: 0.9798
```

```
Epoch 1473/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0384 - accuracy: 0.9874 - val_loss: 0.0703 - val_accuracy: 0.9798
Epoch 1474/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0385 - accuracy: 0.9874 - val_loss: 0.0700 - val_accuracy: 0.9798
Epoch 1475/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0384 - accuracy: 0.9870 - val_loss: 0.0700 - val_accuracy: 0.9798
Epoch 1476/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0384 - accuracy: 0.9874 - val_loss: 0.0700 - val_accuracy: 0.9798
Epoch 1477/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0384 - accuracy: 0.9874 - val_loss: 0.0699 - val_accuracy: 0.9798
Epoch 1478/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0384 - accuracy: 0.9874 - val_loss: 0.0701 - val_accuracy: 0.9798
Epoch 1479/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0384 - accuracy: 0.9874 - val_loss: 0.0700 - val_accuracy: 0.9798
Epoch 1480/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0384 - accuracy: 0.9874 - val_loss: 0.0699 - val_accuracy: 0.9798
Epoch 1481/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0383 - accuracy: 0.9874 - val_loss: 0.0703 - val_accuracy: 0.9798
Epoch 1482/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0383 - accuracy: 0.9874 - val_loss: 0.0701 - val_accuracy: 0.9798
Epoch 1483/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0383 - accuracy: 0.9874 - val_loss: 0.0698 - val_accuracy: 0.9798
Epoch 1484/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0385 - accuracy: 0.9874 - val_loss: 0.0699 - val_accuracy: 0.9798
Epoch 1485/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0383 - accuracy: 0.9874 - val_loss: 0.0701 - val_accuracy: 0.9798
Epoch 1486/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0383 - accuracy: 0.9874 - val_loss: 0.0703 - val_accuracy: 0.9798
Epoch 1487/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0383 - accuracy: 0.9874 - val_loss: 0.0701 - val_accuracy: 0.9798
Epoch 1488/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0383 - accuracy: 0.9874 - val_loss: 0.0703 - val_accuracy: 0.9798
Epoch 1489/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0383 - accuracy: 0.9874 - val_loss: 0.0701 - val_accuracy: 0.9798
Epoch 1490/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0383 - accuracy: 0.9874 - val_loss: 0.0700 - val_accuracy: 0.9798
Epoch 1491/1500
75/75 [==============================] - 0s 5ms/step - loss: 0.0383 - accuracy: 0.9874 - val_loss: 0.0701 - val_accuracy: 0.9798
Epoch 1492/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0382 - accuracy: 0.9874 - val_loss: 0.0701 - val_accuracy: 0.9798
Epoch 1493/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0383 - accuracy: 0.9874 - val_loss: 0.0701 - val_accuracy: 0.9798
Epoch 1494/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0383 - accuracy: 0.9874 - val_loss: 0.0700 - val_accuracy: 0.9798
Epoch 1495/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0382 - accuracy: 0.9874 - val_loss: 0.0706 - val_accuracy: 0.9798
Epoch 1496/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0384 - accuracy: 0.9870 - val_loss: 0.0701 - val_accuracy: 0.9798
Epoch 1497/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0383 - accuracy: 0.9870 - val_loss: 0.0700 - val_accuracy: 0.9811
Epoch 1498/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0383 - accuracy: 0.9874 - val_loss: 0.0703 - val_accuracy: 0.9798
Epoch 1499/1500
75/75 [==============================] - 0s 4ms/step - loss: 0.0382 - accuracy: 0.9874 - val_loss: 0.0702 - val_accuracy: 0.9798
Epoch 1500/1500
75/75 [==============================] - 0s 3ms/step - loss: 0.0382 - accuracy: 0.9874 - val_loss: 0.0702 - val_accuracy: 0.9798
```

In [112…
```
y_pred_prob_nn_supp = model_supp.predict(X_test_norm)
y_pred_class_nn_supp = (y_pred_prob_nn_supp > 0.5).astype('int32')
```

```
25/25 [==============================] - 0s 1ms/step
```

In [113…
```
y_pred_class_nn_supp[:10]
```

Out[113]:
```
array([[1],
       [1],
       [1],
       [1],
       [1],
       [1],
       [1],
       [1],
       [0],
       [0]], dtype=int32)
```

In [114…
```
y_pred_prob_nn_supp[:10]
```

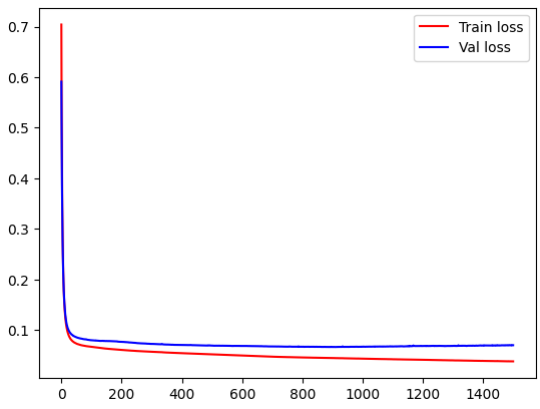
Out[114]:
```
array([[9.9989748e-01],
       [9.9905604e-01],
       [9.9817389e-01],
       [9.9999958e-01],
       [9.9989897e-01],
       [9.9819648e-01],
       [9.9983877e-01],
       [9.8757589e-01],
       [5.3232161e-05],
       [3.3626668e-05]], dtype=float32)
```

In [115…
```
run_hist_supp.history.keys()
```

Out[115]:
```
dict_keys(['loss', 'accuracy', 'val_loss', 'val_accuracy'])
```

In [116…
```
fig, ax = plt.subplots()
ax.plot(run_hist_supp.history['loss'], 'r', label = 'Train loss')
ax.plot(run_hist_supp.history['val_loss'], 'b', label = "Val loss")
ax.legend()
```

Out[116]:
```
<matplotlib.legend.Legend at 0x7b29bddc6a10>
```



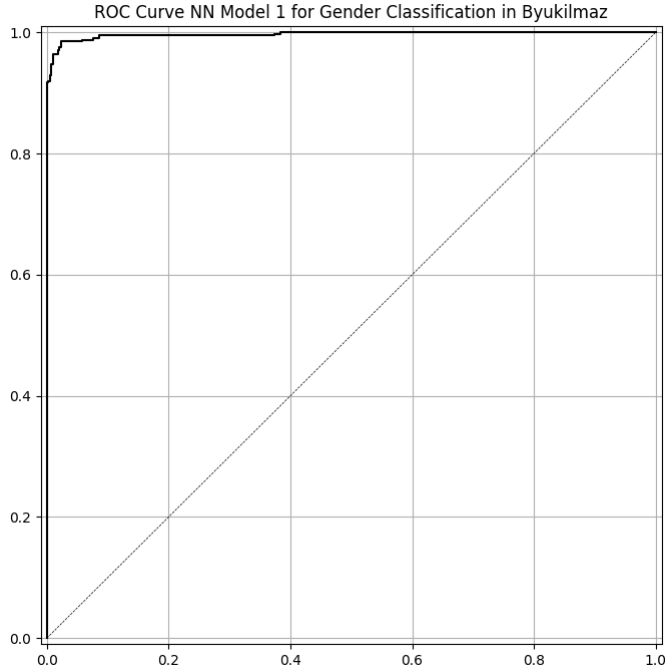
In [117…
```
def plot_roc(y_test, y_pred, model_name):
    fpr, tpr, thr = roc_curve(y_test, y_pred)
    fig, ax = plt.subplots(figsize=(8, 8))
    ax.plot(fpr, tpr, 'k-')
```

```
    ax.plot([0, 1], [0, 1], 'k--', linewidth=.5)  # roc curve for random model
    ax.grid(True)
    ax.set(title='ROC Curve {} for Gender Classification in Byukilmaz'.format(model_name),
           xlim=[-0.01, 1.01], ylim=[-0.01, 1.01])
```

In [118…

```
print('accuracy is {:.3f}'.format(accuracy_score(y_test,y_pred_class_nn_supp)))
print('roc-auc is {:.3f}'.format(roc_auc_score(y_test,y_pred_prob_nn_supp)))
plot_roc(y_test, y_pred_prob_nn_supp, "NN Model 1")
```

```
accuracy is 0.980
roc-auc is 0.997
```



- The model shows above has a great result by having a high accuracy and roc-auc result. After testing it out with 1 hidden layer and 1500 epoch and .003 learning rate.

2hidden layer, 200 epoch, .003 learning rate

In [103…

```
model_supp2 = Sequential([
 Dense(6, input_shape = (20, ), activation = 'relu'),
 Dense(6, input_shape = (20, ), activation = 'relu'),
 Dense(1, activation = 'sigmoid')
])
```

In [104…

```
model_supp2.compile(SGD(lr = 0.003), "binary_crossentropy", metrics = ['accuracy'])

run_hist_supp2 = model_supp2.fit(X_train_norm, y_train, validation_data = (X_test_norm, y_test), epochs = 200)
```

```
WARNING:absl:`lr` is deprecated in Keras optimizer, please use `learning_rate` or use the legacy optimizer, e.g.,tf.keras.optimizers.legacy.SGD.
```

```
Epoch 1/200
75/75 [==============================] - 1s 5ms/step - loss: 0.6613 - accuracy: 0.7189 - val_loss: 0.6347 - val_accuracy: 0.7386
Epoch 2/200
75/75 [==============================] - 0s 2ms/step - loss: 0.6072 - accuracy: 0.7795 - val_loss: 0.5861 - val_accuracy: 0.8005
Epoch 3/200
75/75 [==============================] - 0s 2ms/step - loss: 0.5591 - accuracy: 0.8215 - val_loss: 0.5387 - val_accuracy: 0.8295
Epoch 4/200
75/75 [==============================] - 0s 2ms/step - loss: 0.5108 - accuracy: 0.8413 - val_loss: 0.4904 - val_accuracy: 0.8535
Epoch 5/200
75/75 [==============================] - 0s 3ms/step - loss: 0.4629 - accuracy: 0.8565 - val_loss: 0.4428 - val_accuracy: 0.8674
Epoch 6/200
75/75 [==============================] - 0s 3ms/step - loss: 0.4172 - accuracy: 0.8708 - val_loss: 0.3970 - val_accuracy: 0.8813
Epoch 7/200
75/75 [==============================] - 0s 3ms/step - loss: 0.3743 - accuracy: 0.8796 - val_loss: 0.3544 - val_accuracy: 0.8965
Epoch 8/200
75/75 [==============================] - 0s 3ms/step - loss: 0.3352 - accuracy: 0.8893 - val_loss: 0.3143 - val_accuracy: 0.9028
Epoch 9/200
75/75 [==============================] - 0s 3ms/step - loss: 0.2988 - accuracy: 0.9011 - val_loss: 0.2782 - val_accuracy: 0.9129
Epoch 10/200
75/75 [==============================] - 0s 2ms/step - loss: 0.2657 - accuracy: 0.9137 - val_loss: 0.2464 - val_accuracy: 0.9179
Epoch 11/200
75/75 [==============================] - 0s 3ms/step - loss: 0.2360 - accuracy: 0.9263 - val_loss: 0.2186 - val_accuracy: 0.9293
Epoch 12/200
75/75 [==============================] - 0s 4ms/step - loss: 0.2103 - accuracy: 0.9377 - val_loss: 0.1954 - val_accuracy: 0.9457
Epoch 13/200
75/75 [==============================] - 0s 4ms/step - loss: 0.1883 - accuracy: 0.9461 - val_loss: 0.1763 - val_accuracy: 0.9482
Epoch 14/200
75/75 [==============================] - 0s 5ms/step - loss: 0.1700 - accuracy: 0.9541 - val_loss: 0.1599 - val_accuracy: 0.9520
Epoch 15/200
75/75 [==============================] - 0s 4ms/step - loss: 0.1545 - accuracy: 0.9588 - val_loss: 0.1466 - val_accuracy: 0.9520
Epoch 16/200
75/75 [==============================] - 0s 4ms/step - loss: 0.1416 - accuracy: 0.9613 - val_loss: 0.1357 - val_accuracy: 0.9533
Epoch 17/200
75/75 [==============================] - 0s 4ms/step - loss: 0.1308 - accuracy: 0.9634 - val_loss: 0.1269 - val_accuracy: 0.9520
Epoch 18/200
75/75 [==============================] - 0s 4ms/step - loss: 0.1221 - accuracy: 0.9642 - val_loss: 0.1200 - val_accuracy: 0.9533
Epoch 19/200
75/75 [==============================] - 0s 5ms/step - loss: 0.1149 - accuracy: 0.9672 - val_loss: 0.1141 - val_accuracy: 0.9558
Epoch 20/200
75/75 [==============================] - 0s 4ms/step - loss: 0.1088 - accuracy: 0.9668 - val_loss: 0.1097 - val_accuracy: 0.9558
Epoch 21/200
75/75 [==============================] - 0s 6ms/step - loss: 0.1037 - accuracy: 0.9697 - val_loss: 0.1059 - val_accuracy: 0.9571
Epoch 22/200
75/75 [==============================] - 1s 8ms/step - loss: 0.0996 - accuracy: 0.9697 - val_loss: 0.1030 - val_accuracy: 0.9583
Epoch 23/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0959 - accuracy: 0.9701 - val_loss: 0.1004 - val_accuracy: 0.9596
Epoch 24/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0929 - accuracy: 0.9710 - val_loss: 0.0987 - val_accuracy: 0.9583
Epoch 25/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0902 - accuracy: 0.9693 - val_loss: 0.0969 - val_accuracy: 0.9583
Epoch 26/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0879 - accuracy: 0.9710 - val_loss: 0.0954 - val_accuracy: 0.9596
Epoch 27/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0861 - accuracy: 0.9718 - val_loss: 0.0939 - val_accuracy: 0.9596
Epoch 28/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0844 - accuracy: 0.9718 - val_loss: 0.0929 - val_accuracy: 0.9609
Epoch 29/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0827 - accuracy: 0.9726 - val_loss: 0.0918 - val_accuracy: 0.9609
Epoch 30/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0813 - accuracy: 0.9722 - val_loss: 0.0910 - val_accuracy: 0.9609
Epoch 31/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0801 - accuracy: 0.9726 - val_loss: 0.0903 - val_accuracy: 0.9609
Epoch 32/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0791 - accuracy: 0.9731 - val_loss: 0.0894 - val_accuracy: 0.9609
Epoch 33/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0779 - accuracy: 0.9739 - val_loss: 0.0889 - val_accuracy: 0.9596
Epoch 34/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0769 - accuracy: 0.9743 - val_loss: 0.0883 - val_accuracy: 0.9596
Epoch 35/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0761 - accuracy: 0.9743 - val_loss: 0.0878 - val_accuracy: 0.9609
Epoch 36/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0754 - accuracy: 0.9743 - val_loss: 0.0871 - val_accuracy: 0.9634
Epoch 37/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0748 - accuracy: 0.9739 - val_loss: 0.0868 - val_accuracy: 0.9634
Epoch 38/200
75/75 [==============================] - 0s 4ms/step - loss: 0.0741 - accuracy: 0.9739 - val_loss: 0.0865 - val_accuracy: 0.9634
Epoch 39/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0735 - accuracy: 0.9769 - val_loss: 0.0863 - val_accuracy: 0.9697
Epoch 40/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0729 - accuracy: 0.9760 - val_loss: 0.0859 - val_accuracy: 0.9710
Epoch 41/200
75/75 [==============================] - 0s 4ms/step - loss: 0.0724 - accuracy: 0.9781 - val_loss: 0.0862 - val_accuracy: 0.9710
Epoch 42/200
75/75 [==============================] - 0s 4ms/step - loss: 0.0721 - accuracy: 0.9785 - val_loss: 0.0858 - val_accuracy: 0.9710
Epoch 43/200
75/75 [==============================] - 0s 5ms/step - loss: 0.0716 - accuracy: 0.9785 - val_loss: 0.0855 - val_accuracy: 0.9710
Epoch 44/200
75/75 [==============================] - 1s 8ms/step - loss: 0.0712 - accuracy: 0.9794 - val_loss: 0.0856 - val_accuracy: 0.9710
Epoch 45/200
75/75 [==============================] - 0s 5ms/step - loss: 0.0709 - accuracy: 0.9785 - val_loss: 0.0852 - val_accuracy: 0.9710
Epoch 46/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0705 - accuracy: 0.9798 - val_loss: 0.0850 - val_accuracy: 0.9710
Epoch 47/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0700 - accuracy: 0.9798 - val_loss: 0.0847 - val_accuracy: 0.9710
Epoch 48/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0697 - accuracy: 0.9811 - val_loss: 0.0846 - val_accuracy: 0.9722
Epoch 49/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0694 - accuracy: 0.9806 - val_loss: 0.0843 - val_accuracy: 0.9710
Epoch 50/200
75/75 [==============================] - 0s 4ms/step - loss: 0.0690 - accuracy: 0.9811 - val_loss: 0.0841 - val_accuracy: 0.9710
Epoch 51/200
75/75 [==============================] - 0s 4ms/step - loss: 0.0687 - accuracy: 0.9815 - val_loss: 0.0841 - val_accuracy: 0.9710
Epoch 52/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0685 - accuracy: 0.9811 - val_loss: 0.0837 - val_accuracy: 0.9722
Epoch 53/200
75/75 [==============================] - 0s 6ms/step - loss: 0.0681 - accuracy: 0.9811 - val_loss: 0.0834 - val_accuracy: 0.9710
Epoch 54/200
75/75 [==============================] - 0s 4ms/step - loss: 0.0678 - accuracy: 0.9811 - val_loss: 0.0832 - val_accuracy: 0.9710
Epoch 55/200
75/75 [==============================] - 0s 6ms/step - loss: 0.0675 - accuracy: 0.9811 - val_loss: 0.0829 - val_accuracy: 0.9710
Epoch 56/200
75/75 [==============================] - 1s 7ms/step - loss: 0.0674 - accuracy: 0.9811 - val_loss: 0.0827 - val_accuracy: 0.9722
Epoch 57/200
75/75 [==============================] - 1s 8ms/step - loss: 0.0670 - accuracy: 0.9811 - val_loss: 0.0828 - val_accuracy: 0.9735
Epoch 58/200
75/75 [==============================] - 0s 7ms/step - loss: 0.0669 - accuracy: 0.9815 - val_loss: 0.0825 - val_accuracy: 0.9710
Epoch 59/200
75/75 [==============================] - 1s 8ms/step - loss: 0.0666 - accuracy: 0.9815 - val_loss: 0.0824 - val_accuracy: 0.9722
Epoch 60/200
75/75 [==============================] - 0s 5ms/step - loss: 0.0665 - accuracy: 0.9811 - val_loss: 0.0823 - val_accuracy: 0.9722
Epoch 61/200
75/75 [==============================] - 0s 4ms/step - loss: 0.0660 - accuracy: 0.9823 - val_loss: 0.0820 - val_accuracy: 0.9722
Epoch 62/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0661 - accuracy: 0.9819 - val_loss: 0.0820 - val_accuracy: 0.9722
Epoch 63/200
75/75 [==============================] - 0s 4ms/step - loss: 0.0657 - accuracy: 0.9815 - val_loss: 0.0818 - val_accuracy: 0.9722
Epoch 64/200
75/75 [==============================] - 0s 4ms/step - loss: 0.0656 - accuracy: 0.9819 - val_loss: 0.0818 - val_accuracy: 0.9735
```

```
Epoch 65/200
75/75 [==============================] - 0s 4ms/step - loss: 0.0654 - accuracy: 0.9823 - val_loss: 0.0819 - val_accuracy: 0.9735
Epoch 66/200
75/75 [==============================] - 0s 4ms/step - loss: 0.0655 - accuracy: 0.9811 - val_loss: 0.0813 - val_accuracy: 0.9722
Epoch 67/200
75/75 [==============================] - 0s 5ms/step - loss: 0.0650 - accuracy: 0.9819 - val_loss: 0.0811 - val_accuracy: 0.9722
Epoch 68/200
75/75 [==============================] - 0s 4ms/step - loss: 0.0649 - accuracy: 0.9819 - val_loss: 0.0810 - val_accuracy: 0.9722
Epoch 69/200
75/75 [==============================] - 0s 4ms/step - loss: 0.0647 - accuracy: 0.9815 - val_loss: 0.0810 - val_accuracy: 0.9735
Epoch 70/200
75/75 [==============================] - 0s 4ms/step - loss: 0.0646 - accuracy: 0.9815 - val_loss: 0.0808 - val_accuracy: 0.9735
Epoch 71/200
75/75 [==============================] - 0s 5ms/step - loss: 0.0644 - accuracy: 0.9811 - val_loss: 0.0806 - val_accuracy: 0.9722
Epoch 72/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0641 - accuracy: 0.9823 - val_loss: 0.0803 - val_accuracy: 0.9722
Epoch 73/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0639 - accuracy: 0.9819 - val_loss: 0.0801 - val_accuracy: 0.9722
Epoch 74/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0639 - accuracy: 0.9823 - val_loss: 0.0799 - val_accuracy: 0.9722
Epoch 75/200
75/75 [==============================] - 0s 4ms/step - loss: 0.0637 - accuracy: 0.9823 - val_loss: 0.0796 - val_accuracy: 0.9722
Epoch 76/200
75/75 [==============================] - 0s 4ms/step - loss: 0.0634 - accuracy: 0.9823 - val_loss: 0.0794 - val_accuracy: 0.9722
Epoch 77/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0632 - accuracy: 0.9827 - val_loss: 0.0794 - val_accuracy: 0.9722
Epoch 78/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0632 - accuracy: 0.9819 - val_loss: 0.0793 - val_accuracy: 0.9722
Epoch 79/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0630 - accuracy: 0.9827 - val_loss: 0.0792 - val_accuracy: 0.9722
Epoch 80/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0628 - accuracy: 0.9823 - val_loss: 0.0792 - val_accuracy: 0.9722
Epoch 81/200
75/75 [==============================] - 0s 4ms/step - loss: 0.0627 - accuracy: 0.9823 - val_loss: 0.0792 - val_accuracy: 0.9735
Epoch 82/200
75/75 [==============================] - 0s 4ms/step - loss: 0.0625 - accuracy: 0.9827 - val_loss: 0.0789 - val_accuracy: 0.9722
Epoch 83/200
75/75 [==============================] - 0s 4ms/step - loss: 0.0623 - accuracy: 0.9832 - val_loss: 0.0788 - val_accuracy: 0.9722
Epoch 84/200
75/75 [==============================] - 0s 4ms/step - loss: 0.0622 - accuracy: 0.9819 - val_loss: 0.0786 - val_accuracy: 0.9735
Epoch 85/200
75/75 [==============================] - 0s 4ms/step - loss: 0.0621 - accuracy: 0.9832 - val_loss: 0.0783 - val_accuracy: 0.9735
Epoch 86/200
75/75 [==============================] - 0s 4ms/step - loss: 0.0620 - accuracy: 0.9832 - val_loss: 0.0783 - val_accuracy: 0.9722
Epoch 87/200
75/75 [==============================] - 0s 4ms/step - loss: 0.0617 - accuracy: 0.9836 - val_loss: 0.0783 - val_accuracy: 0.9735
Epoch 88/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0617 - accuracy: 0.9827 - val_loss: 0.0779 - val_accuracy: 0.9722
Epoch 89/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0615 - accuracy: 0.9840 - val_loss: 0.0780 - val_accuracy: 0.9735
Epoch 90/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0615 - accuracy: 0.9827 - val_loss: 0.0774 - val_accuracy: 0.9722
Epoch 91/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0613 - accuracy: 0.9832 - val_loss: 0.0770 - val_accuracy: 0.9722
Epoch 92/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0612 - accuracy: 0.9832 - val_loss: 0.0771 - val_accuracy: 0.9722
Epoch 93/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0611 - accuracy: 0.9832 - val_loss: 0.0771 - val_accuracy: 0.9722
Epoch 94/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0610 - accuracy: 0.9840 - val_loss: 0.0771 - val_accuracy: 0.9735
Epoch 95/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0609 - accuracy: 0.9836 - val_loss: 0.0768 - val_accuracy: 0.9722
Epoch 96/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0609 - accuracy: 0.9832 - val_loss: 0.0766 - val_accuracy: 0.9722
Epoch 97/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0606 - accuracy: 0.9832 - val_loss: 0.0765 - val_accuracy: 0.9722
Epoch 98/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0603 - accuracy: 0.9836 - val_loss: 0.0767 - val_accuracy: 0.9722
Epoch 99/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0603 - accuracy: 0.9836 - val_loss: 0.0764 - val_accuracy: 0.9722
Epoch 100/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0602 - accuracy: 0.9840 - val_loss: 0.0765 - val_accuracy: 0.9722
Epoch 101/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0602 - accuracy: 0.9836 - val_loss: 0.0763 - val_accuracy: 0.9735
Epoch 102/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0600 - accuracy: 0.9840 - val_loss: 0.0760 - val_accuracy: 0.9735
Epoch 103/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0600 - accuracy: 0.9840 - val_loss: 0.0758 - val_accuracy: 0.9722
Epoch 104/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0599 - accuracy: 0.9836 - val_loss: 0.0758 - val_accuracy: 0.9722
Epoch 105/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0597 - accuracy: 0.9840 - val_loss: 0.0754 - val_accuracy: 0.9735
Epoch 106/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0597 - accuracy: 0.9840 - val_loss: 0.0755 - val_accuracy: 0.9722
Epoch 107/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0595 - accuracy: 0.9840 - val_loss: 0.0754 - val_accuracy: 0.9722
Epoch 108/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0593 - accuracy: 0.9840 - val_loss: 0.0753 - val_accuracy: 0.9722
Epoch 109/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0594 - accuracy: 0.9844 - val_loss: 0.0749 - val_accuracy: 0.9735
Epoch 110/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0592 - accuracy: 0.9844 - val_loss: 0.0746 - val_accuracy: 0.9735
Epoch 111/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0591 - accuracy: 0.9840 - val_loss: 0.0747 - val_accuracy: 0.9735
Epoch 112/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0591 - accuracy: 0.9844 - val_loss: 0.0745 - val_accuracy: 0.9735
Epoch 113/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0589 - accuracy: 0.9844 - val_loss: 0.0744 - val_accuracy: 0.9735
Epoch 114/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0588 - accuracy: 0.9836 - val_loss: 0.0744 - val_accuracy: 0.9735
Epoch 115/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0587 - accuracy: 0.9840 - val_loss: 0.0743 - val_accuracy: 0.9735
Epoch 116/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0587 - accuracy: 0.9840 - val_loss: 0.0743 - val_accuracy: 0.9735
Epoch 117/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0585 - accuracy: 0.9844 - val_loss: 0.0742 - val_accuracy: 0.9735
Epoch 118/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0584 - accuracy: 0.9848 - val_loss: 0.0741 - val_accuracy: 0.9747
Epoch 119/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0583 - accuracy: 0.9844 - val_loss: 0.0739 - val_accuracy: 0.9747
Epoch 120/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0581 - accuracy: 0.9848 - val_loss: 0.0734 - val_accuracy: 0.9747
Epoch 121/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0581 - accuracy: 0.9844 - val_loss: 0.0735 - val_accuracy: 0.9735
Epoch 122/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0582 - accuracy: 0.9840 - val_loss: 0.0734 - val_accuracy: 0.9722
Epoch 123/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0581 - accuracy: 0.9844 - val_loss: 0.0733 - val_accuracy: 0.9735
Epoch 124/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0579 - accuracy: 0.9844 - val_loss: 0.0732 - val_accuracy: 0.9722
Epoch 125/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0577 - accuracy: 0.9844 - val_loss: 0.0734 - val_accuracy: 0.9710
Epoch 126/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0577 - accuracy: 0.9840 - val_loss: 0.0735 - val_accuracy: 0.9722
Epoch 127/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0577 - accuracy: 0.9844 - val_loss: 0.0734 - val_accuracy: 0.9722
Epoch 128/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0575 - accuracy: 0.9844 - val_loss: 0.0732 - val_accuracy: 0.9710
```

```
Epoch 129/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0573 - accuracy: 0.9844 - val_loss: 0.0730 - val_accuracy: 0.9722
Epoch 130/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0573 - accuracy: 0.9848 - val_loss: 0.0729 - val_accuracy: 0.9710
Epoch 131/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0572 - accuracy: 0.9840 - val_loss: 0.0730 - val_accuracy: 0.9722
Epoch 132/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0572 - accuracy: 0.9844 - val_loss: 0.0729 - val_accuracy: 0.9710
Epoch 133/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0570 - accuracy: 0.9844 - val_loss: 0.0727 - val_accuracy: 0.9710
Epoch 134/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0570 - accuracy: 0.9848 - val_loss: 0.0731 - val_accuracy: 0.9722
Epoch 135/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0570 - accuracy: 0.9844 - val_loss: 0.0724 - val_accuracy: 0.9710
Epoch 136/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0567 - accuracy: 0.9844 - val_loss: 0.0723 - val_accuracy: 0.9722
Epoch 137/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0568 - accuracy: 0.9853 - val_loss: 0.0721 - val_accuracy: 0.9722
Epoch 138/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0566 - accuracy: 0.9844 - val_loss: 0.0721 - val_accuracy: 0.9722
Epoch 139/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0566 - accuracy: 0.9848 - val_loss: 0.0722 - val_accuracy: 0.9710
Epoch 140/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0564 - accuracy: 0.9848 - val_loss: 0.0721 - val_accuracy: 0.9722
Epoch 141/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0563 - accuracy: 0.9844 - val_loss: 0.0719 - val_accuracy: 0.9710
Epoch 142/200
75/75 [==============================] - 0s 4ms/step - loss: 0.0564 - accuracy: 0.9844 - val_loss: 0.0719 - val_accuracy: 0.9710
Epoch 143/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0562 - accuracy: 0.9848 - val_loss: 0.0718 - val_accuracy: 0.9735
Epoch 144/200
75/75 [==============================] - 0s 4ms/step - loss: 0.0560 - accuracy: 0.9840 - val_loss: 0.0718 - val_accuracy: 0.9722
Epoch 145/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0560 - accuracy: 0.9848 - val_loss: 0.0718 - val_accuracy: 0.9722
Epoch 146/200
75/75 [==============================] - 0s 4ms/step - loss: 0.0559 - accuracy: 0.9853 - val_loss: 0.0714 - val_accuracy: 0.9722
Epoch 147/200
75/75 [==============================] - 0s 4ms/step - loss: 0.0559 - accuracy: 0.9853 - val_loss: 0.0714 - val_accuracy: 0.9722
Epoch 148/200
75/75 [==============================] - 0s 4ms/step - loss: 0.0559 - accuracy: 0.9848 - val_loss: 0.0717 - val_accuracy: 0.9735
Epoch 149/200
75/75 [==============================] - 0s 4ms/step - loss: 0.0559 - accuracy: 0.9844 - val_loss: 0.0712 - val_accuracy: 0.9722
Epoch 150/200
75/75 [==============================] - 0s 4ms/step - loss: 0.0557 - accuracy: 0.9853 - val_loss: 0.0712 - val_accuracy: 0.9722
Epoch 151/200
75/75 [==============================] - 0s 4ms/step - loss: 0.0555 - accuracy: 0.9848 - val_loss: 0.0713 - val_accuracy: 0.9722
Epoch 152/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0554 - accuracy: 0.9848 - val_loss: 0.0714 - val_accuracy: 0.9735
Epoch 153/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0553 - accuracy: 0.9853 - val_loss: 0.0711 - val_accuracy: 0.9722
Epoch 154/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0553 - accuracy: 0.9853 - val_loss: 0.0710 - val_accuracy: 0.9722
Epoch 155/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0551 - accuracy: 0.9848 - val_loss: 0.0710 - val_accuracy: 0.9722
Epoch 156/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0550 - accuracy: 0.9848 - val_loss: 0.0710 - val_accuracy: 0.9722
Epoch 157/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0550 - accuracy: 0.9853 - val_loss: 0.0710 - val_accuracy: 0.9722
Epoch 158/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0550 - accuracy: 0.9844 - val_loss: 0.0709 - val_accuracy: 0.9722
Epoch 159/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0549 - accuracy: 0.9848 - val_loss: 0.0707 - val_accuracy: 0.9722
Epoch 160/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0548 - accuracy: 0.9857 - val_loss: 0.0707 - val_accuracy: 0.9722
Epoch 161/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0547 - accuracy: 0.9853 - val_loss: 0.0708 - val_accuracy: 0.9722
Epoch 162/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0544 - accuracy: 0.9853 - val_loss: 0.0708 - val_accuracy: 0.9722
Epoch 163/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0546 - accuracy: 0.9853 - val_loss: 0.0711 - val_accuracy: 0.9710
Epoch 164/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0545 - accuracy: 0.9848 - val_loss: 0.0708 - val_accuracy: 0.9722
Epoch 165/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0545 - accuracy: 0.9853 - val_loss: 0.0708 - val_accuracy: 0.9722
Epoch 166/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0543 - accuracy: 0.9848 - val_loss: 0.0707 - val_accuracy: 0.9722
Epoch 167/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0542 - accuracy: 0.9853 - val_loss: 0.0704 - val_accuracy: 0.9735
Epoch 168/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0543 - accuracy: 0.9840 - val_loss: 0.0704 - val_accuracy: 0.9735
Epoch 169/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0540 - accuracy: 0.9848 - val_loss: 0.0702 - val_accuracy: 0.9722
Epoch 170/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0540 - accuracy: 0.9857 - val_loss: 0.0712 - val_accuracy: 0.9722
Epoch 171/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0542 - accuracy: 0.9853 - val_loss: 0.0710 - val_accuracy: 0.9710
Epoch 172/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0539 - accuracy: 0.9848 - val_loss: 0.0711 - val_accuracy: 0.9722
Epoch 173/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0538 - accuracy: 0.9861 - val_loss: 0.0707 - val_accuracy: 0.9710
Epoch 174/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0538 - accuracy: 0.9857 - val_loss: 0.0708 - val_accuracy: 0.9722
Epoch 175/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0538 - accuracy: 0.9857 - val_loss: 0.0702 - val_accuracy: 0.9722
Epoch 176/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0536 - accuracy: 0.9861 - val_loss: 0.0701 - val_accuracy: 0.9722
Epoch 177/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0537 - accuracy: 0.9857 - val_loss: 0.0702 - val_accuracy: 0.9722
Epoch 178/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0535 - accuracy: 0.9857 - val_loss: 0.0699 - val_accuracy: 0.9735
Epoch 179/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0534 - accuracy: 0.9853 - val_loss: 0.0700 - val_accuracy: 0.9735
Epoch 180/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0534 - accuracy: 0.9848 - val_loss: 0.0699 - val_accuracy: 0.9722
Epoch 181/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0533 - accuracy: 0.9857 - val_loss: 0.0700 - val_accuracy: 0.9722
Epoch 182/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0532 - accuracy: 0.9848 - val_loss: 0.0698 - val_accuracy: 0.9735
Epoch 183/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0531 - accuracy: 0.9848 - val_loss: 0.0700 - val_accuracy: 0.9722
Epoch 184/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0530 - accuracy: 0.9844 - val_loss: 0.0696 - val_accuracy: 0.9722
Epoch 185/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0529 - accuracy: 0.9857 - val_loss: 0.0694 - val_accuracy: 0.9722
Epoch 186/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0527 - accuracy: 0.9857 - val_loss: 0.0694 - val_accuracy: 0.9735
Epoch 187/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0527 - accuracy: 0.9861 - val_loss: 0.0695 - val_accuracy: 0.9722
Epoch 188/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0526 - accuracy: 0.9857 - val_loss: 0.0694 - val_accuracy: 0.9735
Epoch 189/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0528 - accuracy: 0.9857 - val_loss: 0.0695 - val_accuracy: 0.9735
Epoch 190/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0524 - accuracy: 0.9853 - val_loss: 0.0693 - val_accuracy: 0.9747
Epoch 191/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0525 - accuracy: 0.9848 - val_loss: 0.0695 - val_accuracy: 0.9735
Epoch 192/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0525 - accuracy: 0.9853 - val_loss: 0.0693 - val_accuracy: 0.9735
```

```
Epoch 193/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0520 - accuracy: 0.9857 - val_loss: 0.0689 - val_accuracy: 0.9760
Epoch 194/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0523 - accuracy: 0.9857 - val_loss: 0.0686 - val_accuracy: 0.9747
Epoch 195/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0522 - accuracy: 0.9861 - val_loss: 0.0687 - val_accuracy: 0.9735
Epoch 196/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0521 - accuracy: 0.9853 - val_loss: 0.0687 - val_accuracy: 0.9747
Epoch 197/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0519 - accuracy: 0.9840 - val_loss: 0.0691 - val_accuracy: 0.9747
Epoch 198/200
75/75 [==============================] - 0s 3ms/step - loss: 0.0519 - accuracy: 0.9857 - val_loss: 0.0688 - val_accuracy: 0.9747
Epoch 199/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0520 - accuracy: 0.9853 - val_loss: 0.0688 - val_accuracy: 0.9747
Epoch 200/200
75/75 [==============================] - 0s 2ms/step - loss: 0.0518 - accuracy: 0.9861 - val_loss: 0.0685 - val_accuracy: 0.9747
```

In [106…]
```
y_pred_prob_nn_supp2 = model_supp2.predict(X_test_norm)
y_pred_class_nn_supp2 = (y_pred_prob_nn_supp2 > 0.5).astype('int32')
```

```
25/25 [==============================] - 0s 1ms/step
```

In [107…]
```
y_pred_class_nn_supp2[:10]
```

Out[107]:
```
array([[1],
       [1],
       [1],
       [1],
       [1],
       [1],
       [1],
       [1],
       [0],
       [0]], dtype=int32)
```

In [108…]
```
y_pred_prob_nn_supp2[:10]
```

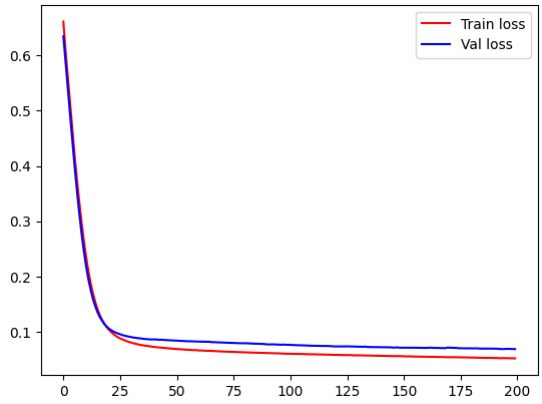
Out[108]:
```
array([[9.9758953e-01],
       [9.9632859e-01],
       [9.9464029e-01],
       [9.9986553e-01],
       [9.9732304e-01],
       [9.5251268e-01],
       [9.9892521e-01],
       [5.4142284e-01],
       [2.0988989e-03],
       [3.9202740e-04]], dtype=float32)
```

In [109…]
```
run_hist_supp2.history.keys()
```

Out[109]:
```
dict_keys(['loss', 'accuracy', 'val_loss', 'val_accuracy'])
```

In [110…]
```
fig, ax = plt.subplots()
ax.plot(run_hist_supp2.history['loss'], 'r', label = 'Train loss')
ax.plot(run_hist_supp2.history['val_loss'], 'b', label = "Val loss")
ax.legend()
```

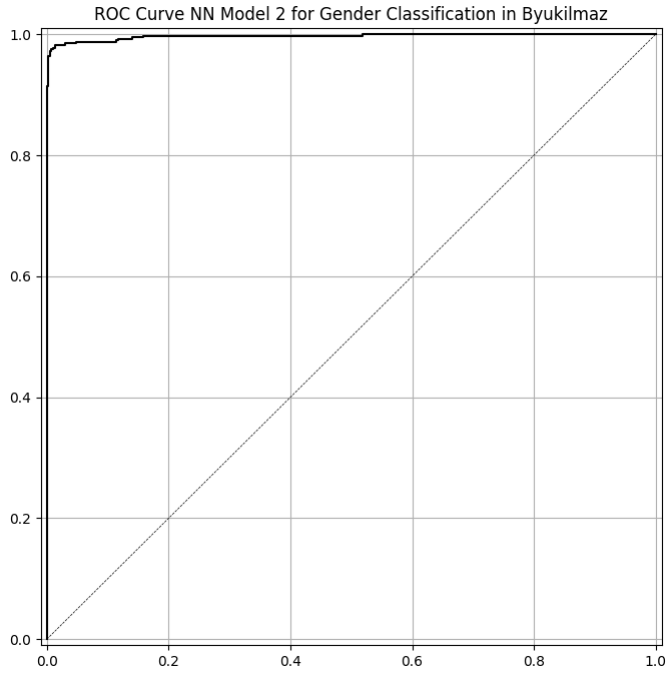
Out[110]:
```
<matplotlib.legend.Legend at 0x7b29b595dd50>
```



In [119…]
```
def plot_roc(y_test, y_pred, model_name):
    fpr, tpr, thr = roc_curve(y_test, y_pred)
    fig, ax = plt.subplots(figsize=(8, 8))
    ax.plot(fpr, tpr, 'k-')
    ax.plot([0, 1], [0, 1], 'k--', linewidth=.5)  # roc curve for random model
    ax.grid(True)
    ax.set(title='ROC Curve {} for Gender Classification in Byukilmaz'.format(model_name),
           xlim=[-0.01, 1.01], ylim=[-0.01, 1.01])
```

In [162…]
```
print('accuracy is {:.3f}'.format(accuracy_score(y_test,y_pred_class_nn_supp2)))
print('roc-auc is {:.3f}'.format(roc_auc_score(y_test,y_pred_prob_nn_supp2)))
plot_roc(y_test, y_pred_prob_nn_supp, "NN Model 2")
```

```
accuracy is 0.975
roc-auc is 0.997
```



-With 2 hidden layers and 800 epoch with the same learning rate, this model shows a impressive result.

2 hidden layer, learning rate of .001, epoch of 800

In [151…
```
model_supp3 = Sequential([
 Dense(6, input_shape = (20, ), activation = 'relu'),
 Dense(6, input_shape = (20, ), activation = 'relu'),
 Dense(1, activation = 'sigmoid')
])
```

In [152…
```
model_supp3.compile(SGD(lr = 0.001), "binary_crossentropy", metrics = ['accuracy'])

run_hist_supp3 = model_supp3.fit(X_train_norm, y_train, validation_data = (X_test_norm, y_test), epochs = 800)
```

```
WARNING:absl:`lr` is deprecated in Keras optimizer, please use `learning_rate` or use the legacy optimizer, e.g.,tf.keras.optimizers.legacy.SGD.
```

```
Epoch 1/800
75/75 [==============================] - 2s 11ms/step - loss: 0.6292 - accuracy: 0.5997 - val_loss: 0.5769 - val_accuracy: 0.6843
Epoch 2/800
75/75 [==============================] - 0s 3ms/step - loss: 0.5529 - accuracy: 0.7210 - val_loss: 0.5185 - val_accuracy: 0.7866
Epoch 3/800
75/75 [==============================] - 0s 3ms/step - loss: 0.5069 - accuracy: 0.7976 - val_loss: 0.4776 - val_accuracy: 0.8295
Epoch 4/800
75/75 [==============================] - 0s 5ms/step - loss: 0.4734 - accuracy: 0.8312 - val_loss: 0.4454 - val_accuracy: 0.8687
Epoch 5/800
75/75 [==============================] - 1s 7ms/step - loss: 0.4460 - accuracy: 0.8497 - val_loss: 0.4178 - val_accuracy: 0.8826
Epoch 6/800
75/75 [==============================] - 0s 3ms/step - loss: 0.4217 - accuracy: 0.8670 - val_loss: 0.3933 - val_accuracy: 0.8965
Epoch 7/800
75/75 [==============================] - 0s 2ms/step - loss: 0.3999 - accuracy: 0.8767 - val_loss: 0.3711 - val_accuracy: 0.9003
Epoch 8/800
75/75 [==============================] - 0s 3ms/step - loss: 0.3798 - accuracy: 0.8809 - val_loss: 0.3502 - val_accuracy: 0.9091
Epoch 9/800
75/75 [==============================] - 0s 2ms/step - loss: 0.3607 - accuracy: 0.8897 - val_loss: 0.3303 - val_accuracy: 0.9129
Epoch 10/800
75/75 [==============================] - 0s 3ms/step - loss: 0.3407 - accuracy: 0.8956 - val_loss: 0.3099 - val_accuracy: 0.9217
Epoch 11/800
75/75 [==============================] - 0s 3ms/step - loss: 0.3187 - accuracy: 0.9053 - val_loss: 0.2887 - val_accuracy: 0.9318
Epoch 12/800
75/75 [==============================] - 0s 2ms/step - loss: 0.2950 - accuracy: 0.9184 - val_loss: 0.2653 - val_accuracy: 0.9407
Epoch 13/800
75/75 [==============================] - 0s 2ms/step - loss: 0.2696 - accuracy: 0.9285 - val_loss: 0.2417 - val_accuracy: 0.9495
Epoch 14/800
75/75 [==============================] - 0s 2ms/step - loss: 0.2450 - accuracy: 0.9377 - val_loss: 0.2190 - val_accuracy: 0.9545
Epoch 15/800
75/75 [==============================] - 0s 2ms/step - loss: 0.2223 - accuracy: 0.9440 - val_loss: 0.1988 - val_accuracy: 0.9609
Epoch 16/800
75/75 [==============================] - 0s 3ms/step - loss: 0.2022 - accuracy: 0.9478 - val_loss: 0.1800 - val_accuracy: 0.9634
Epoch 17/800
75/75 [==============================] - 0s 2ms/step - loss: 0.1843 - accuracy: 0.9524 - val_loss: 0.1642 - val_accuracy: 0.9659
Epoch 18/800
75/75 [==============================] - 0s 4ms/step - loss: 0.1689 - accuracy: 0.9537 - val_loss: 0.1505 - val_accuracy: 0.9672
Epoch 19/800
75/75 [==============================] - 0s 3ms/step - loss: 0.1556 - accuracy: 0.9566 - val_loss: 0.1390 - val_accuracy: 0.9722
Epoch 20/800
75/75 [==============================] - 0s 4ms/step - loss: 0.1446 - accuracy: 0.9588 - val_loss: 0.1294 - val_accuracy: 0.9735
Epoch 21/800
75/75 [==============================] - 0s 3ms/step - loss: 0.1352 - accuracy: 0.9617 - val_loss: 0.1210 - val_accuracy: 0.9760
Epoch 22/800
75/75 [==============================] - 0s 3ms/step - loss: 0.1273 - accuracy: 0.9630 - val_loss: 0.1146 - val_accuracy: 0.9747
Epoch 23/800
75/75 [==============================] - 0s 4ms/step - loss: 0.1204 - accuracy: 0.9638 - val_loss: 0.1094 - val_accuracy: 0.9735
Epoch 24/800
75/75 [==============================] - 0s 4ms/step - loss: 0.1146 - accuracy: 0.9642 - val_loss: 0.1048 - val_accuracy: 0.9722
Epoch 25/800
75/75 [==============================] - 0s 3ms/step - loss: 0.1098 - accuracy: 0.9651 - val_loss: 0.1014 - val_accuracy: 0.9710
Epoch 26/800
75/75 [==============================] - 0s 3ms/step - loss: 0.1059 - accuracy: 0.9668 - val_loss: 0.0980 - val_accuracy: 0.9710
Epoch 27/800
75/75 [==============================] - 0s 4ms/step - loss: 0.1022 - accuracy: 0.9680 - val_loss: 0.0949 - val_accuracy: 0.9710
Epoch 28/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0992 - accuracy: 0.9684 - val_loss: 0.0929 - val_accuracy: 0.9710
Epoch 29/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0966 - accuracy: 0.9697 - val_loss: 0.0906 - val_accuracy: 0.9710
Epoch 30/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0944 - accuracy: 0.9693 - val_loss: 0.0892 - val_accuracy: 0.9684
Epoch 31/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0925 - accuracy: 0.9710 - val_loss: 0.0877 - val_accuracy: 0.9697
Epoch 32/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0906 - accuracy: 0.9718 - val_loss: 0.0865 - val_accuracy: 0.9697
Epoch 33/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0891 - accuracy: 0.9726 - val_loss: 0.0852 - val_accuracy: 0.9710
Epoch 34/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0876 - accuracy: 0.9726 - val_loss: 0.0841 - val_accuracy: 0.9710
Epoch 35/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0865 - accuracy: 0.9722 - val_loss: 0.0830 - val_accuracy: 0.9710
Epoch 36/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0852 - accuracy: 0.9739 - val_loss: 0.0817 - val_accuracy: 0.9710
Epoch 37/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0844 - accuracy: 0.9722 - val_loss: 0.0814 - val_accuracy: 0.9710
Epoch 38/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0834 - accuracy: 0.9731 - val_loss: 0.0805 - val_accuracy: 0.9710
Epoch 39/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0825 - accuracy: 0.9739 - val_loss: 0.0803 - val_accuracy: 0.9710
Epoch 40/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0816 - accuracy: 0.9739 - val_loss: 0.0792 - val_accuracy: 0.9710
Epoch 41/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0810 - accuracy: 0.9739 - val_loss: 0.0790 - val_accuracy: 0.9697
Epoch 42/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0800 - accuracy: 0.9743 - val_loss: 0.0790 - val_accuracy: 0.9697
Epoch 43/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0795 - accuracy: 0.9764 - val_loss: 0.0782 - val_accuracy: 0.9697
Epoch 44/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0788 - accuracy: 0.9760 - val_loss: 0.0780 - val_accuracy: 0.9697
Epoch 45/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0784 - accuracy: 0.9769 - val_loss: 0.0766 - val_accuracy: 0.9722
Epoch 46/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0778 - accuracy: 0.9760 - val_loss: 0.0757 - val_accuracy: 0.9722
Epoch 47/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0772 - accuracy: 0.9764 - val_loss: 0.0752 - val_accuracy: 0.9735
Epoch 48/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0763 - accuracy: 0.9773 - val_loss: 0.0762 - val_accuracy: 0.9722
Epoch 49/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0761 - accuracy: 0.9777 - val_loss: 0.0748 - val_accuracy: 0.9722
Epoch 50/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0756 - accuracy: 0.9785 - val_loss: 0.0746 - val_accuracy: 0.9722
Epoch 51/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0753 - accuracy: 0.9777 - val_loss: 0.0744 - val_accuracy: 0.9722
Epoch 52/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0748 - accuracy: 0.9794 - val_loss: 0.0737 - val_accuracy: 0.9710
Epoch 53/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0744 - accuracy: 0.9777 - val_loss: 0.0733 - val_accuracy: 0.9722
Epoch 54/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0741 - accuracy: 0.9773 - val_loss: 0.0736 - val_accuracy: 0.9722
Epoch 55/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0737 - accuracy: 0.9794 - val_loss: 0.0733 - val_accuracy: 0.9722
Epoch 56/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0732 - accuracy: 0.9790 - val_loss: 0.0737 - val_accuracy: 0.9735
Epoch 57/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0729 - accuracy: 0.9811 - val_loss: 0.0728 - val_accuracy: 0.9722
Epoch 58/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0725 - accuracy: 0.9802 - val_loss: 0.0724 - val_accuracy: 0.9735
Epoch 59/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0722 - accuracy: 0.9798 - val_loss: 0.0727 - val_accuracy: 0.9722
Epoch 60/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0720 - accuracy: 0.9798 - val_loss: 0.0725 - val_accuracy: 0.9722
Epoch 61/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0716 - accuracy: 0.9802 - val_loss: 0.0724 - val_accuracy: 0.9722
Epoch 62/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0714 - accuracy: 0.9802 - val_loss: 0.0722 - val_accuracy: 0.9722
Epoch 63/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0712 - accuracy: 0.9798 - val_loss: 0.0721 - val_accuracy: 0.9722
Epoch 64/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0708 - accuracy: 0.9806 - val_loss: 0.0714 - val_accuracy: 0.9760
```

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Epoch 65/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0706 - accuracy: 0.9823 - val_loss: 0.0705 - val_accuracy: 0.9722
Epoch 66/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0704 - accuracy: 0.9798 - val_loss: 0.0711 - val_accuracy: 0.9747
Epoch 67/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0700 - accuracy: 0.9823 - val_loss: 0.0710 - val_accuracy: 0.9747
Epoch 68/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0696 - accuracy: 0.9806 - val_loss: 0.0714 - val_accuracy: 0.9747
Epoch 69/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0696 - accuracy: 0.9819 - val_loss: 0.0716 - val_accuracy: 0.9735
Epoch 70/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0692 - accuracy: 0.9815 - val_loss: 0.0706 - val_accuracy: 0.9735
Epoch 71/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0691 - accuracy: 0.9815 - val_loss: 0.0705 - val_accuracy: 0.9722
Epoch 72/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0689 - accuracy: 0.9819 - val_loss: 0.0703 - val_accuracy: 0.9735
Epoch 73/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0687 - accuracy: 0.9819 - val_loss: 0.0702 - val_accuracy: 0.9735
Epoch 74/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0684 - accuracy: 0.9832 - val_loss: 0.0701 - val_accuracy: 0.9735
Epoch 75/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0682 - accuracy: 0.9827 - val_loss: 0.0702 - val_accuracy: 0.9735
Epoch 76/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0679 - accuracy: 0.9823 - val_loss: 0.0700 - val_accuracy: 0.9735
Epoch 77/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0676 - accuracy: 0.9815 - val_loss: 0.0698 - val_accuracy: 0.9747
Epoch 78/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0674 - accuracy: 0.9815 - val_loss: 0.0696 - val_accuracy: 0.9747
Epoch 79/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0672 - accuracy: 0.9819 - val_loss: 0.0689 - val_accuracy: 0.9735
Epoch 80/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0670 - accuracy: 0.9815 - val_loss: 0.0691 - val_accuracy: 0.9735
Epoch 81/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0667 - accuracy: 0.9815 - val_loss: 0.0689 - val_accuracy: 0.9735
Epoch 82/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0665 - accuracy: 0.9811 - val_loss: 0.0686 - val_accuracy: 0.9735
Epoch 83/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0661 - accuracy: 0.9815 - val_loss: 0.0682 - val_accuracy: 0.9735
Epoch 84/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0661 - accuracy: 0.9815 - val_loss: 0.0675 - val_accuracy: 0.9747
Epoch 85/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0658 - accuracy: 0.9823 - val_loss: 0.0677 - val_accuracy: 0.9747
Epoch 86/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0656 - accuracy: 0.9815 - val_loss: 0.0669 - val_accuracy: 0.9760
Epoch 87/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0653 - accuracy: 0.9806 - val_loss: 0.0666 - val_accuracy: 0.9735
Epoch 88/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0651 - accuracy: 0.9815 - val_loss: 0.0666 - val_accuracy: 0.9735
Epoch 89/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0649 - accuracy: 0.9819 - val_loss: 0.0664 - val_accuracy: 0.9747
Epoch 90/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0647 - accuracy: 0.9811 - val_loss: 0.0664 - val_accuracy: 0.9747
Epoch 91/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0646 - accuracy: 0.9819 - val_loss: 0.0663 - val_accuracy: 0.9747
Epoch 92/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0643 - accuracy: 0.9819 - val_loss: 0.0663 - val_accuracy: 0.9735
Epoch 93/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0640 - accuracy: 0.9819 - val_loss: 0.0660 - val_accuracy: 0.9735
Epoch 94/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0638 - accuracy: 0.9815 - val_loss: 0.0658 - val_accuracy: 0.9747
Epoch 95/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0636 - accuracy: 0.9815 - val_loss: 0.0654 - val_accuracy: 0.9760
Epoch 96/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0633 - accuracy: 0.9815 - val_loss: 0.0654 - val_accuracy: 0.9735
Epoch 97/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0632 - accuracy: 0.9819 - val_loss: 0.0655 - val_accuracy: 0.9747
Epoch 98/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0630 - accuracy: 0.9819 - val_loss: 0.0655 - val_accuracy: 0.9760
Epoch 99/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0628 - accuracy: 0.9806 - val_loss: 0.0650 - val_accuracy: 0.9747
Epoch 100/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0626 - accuracy: 0.9815 - val_loss: 0.0651 - val_accuracy: 0.9747
Epoch 101/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0625 - accuracy: 0.9819 - val_loss: 0.0650 - val_accuracy: 0.9747
Epoch 102/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0624 - accuracy: 0.9811 - val_loss: 0.0651 - val_accuracy: 0.9760
Epoch 103/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0622 - accuracy: 0.9819 - val_loss: 0.0652 - val_accuracy: 0.9735
Epoch 104/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0621 - accuracy: 0.9819 - val_loss: 0.0650 - val_accuracy: 0.9760
Epoch 105/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0619 - accuracy: 0.9811 - val_loss: 0.0649 - val_accuracy: 0.9747
Epoch 106/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0617 - accuracy: 0.9819 - val_loss: 0.0646 - val_accuracy: 0.9760
Epoch 107/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0616 - accuracy: 0.9819 - val_loss: 0.0647 - val_accuracy: 0.9747
Epoch 108/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0614 - accuracy: 0.9819 - val_loss: 0.0646 - val_accuracy: 0.9760
Epoch 109/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0613 - accuracy: 0.9823 - val_loss: 0.0645 - val_accuracy: 0.9747
Epoch 110/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0612 - accuracy: 0.9815 - val_loss: 0.0645 - val_accuracy: 0.9747
Epoch 111/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0611 - accuracy: 0.9819 - val_loss: 0.0643 - val_accuracy: 0.9747
Epoch 112/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0609 - accuracy: 0.9823 - val_loss: 0.0639 - val_accuracy: 0.9760
Epoch 113/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0608 - accuracy: 0.9819 - val_loss: 0.0638 - val_accuracy: 0.9760
Epoch 114/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0607 - accuracy: 0.9815 - val_loss: 0.0637 - val_accuracy: 0.9735
Epoch 115/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0605 - accuracy: 0.9819 - val_loss: 0.0641 - val_accuracy: 0.9747
Epoch 116/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0604 - accuracy: 0.9832 - val_loss: 0.0640 - val_accuracy: 0.9747
Epoch 117/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0601 - accuracy: 0.9819 - val_loss: 0.0636 - val_accuracy: 0.9747
Epoch 118/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0601 - accuracy: 0.9823 - val_loss: 0.0634 - val_accuracy: 0.9747
Epoch 119/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0599 - accuracy: 0.9832 - val_loss: 0.0635 - val_accuracy: 0.9747
Epoch 120/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0598 - accuracy: 0.9823 - val_loss: 0.0634 - val_accuracy: 0.9735
Epoch 121/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0597 - accuracy: 0.9827 - val_loss: 0.0634 - val_accuracy: 0.9735
Epoch 122/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0595 - accuracy: 0.9823 - val_loss: 0.0633 - val_accuracy: 0.9747
Epoch 123/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0594 - accuracy: 0.9815 - val_loss: 0.0632 - val_accuracy: 0.9735
Epoch 124/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0593 - accuracy: 0.9823 - val_loss: 0.0632 - val_accuracy: 0.9735
Epoch 125/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0593 - accuracy: 0.9827 - val_loss: 0.0632 - val_accuracy: 0.9735
Epoch 126/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0592 - accuracy: 0.9827 - val_loss: 0.0631 - val_accuracy: 0.9747
Epoch 127/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0589 - accuracy: 0.9827 - val_loss: 0.0631 - val_accuracy: 0.9747
Epoch 128/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0589 - accuracy: 0.9827 - val_loss: 0.0630 - val_accuracy: 0.9747
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Epoch 129/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0588 - accuracy: 0.9823 - val_loss: 0.0630 - val_accuracy: 0.9747
Epoch 130/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0587 - accuracy: 0.9827 - val_loss: 0.0630 - val_accuracy: 0.9747
Epoch 131/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0585 - accuracy: 0.9827 - val_loss: 0.0629 - val_accuracy: 0.9747
Epoch 132/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0585 - accuracy: 0.9827 - val_loss: 0.0633 - val_accuracy: 0.9735
Epoch 133/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0584 - accuracy: 0.9823 - val_loss: 0.0630 - val_accuracy: 0.9747
Epoch 134/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0583 - accuracy: 0.9827 - val_loss: 0.0629 - val_accuracy: 0.9735
Epoch 135/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0582 - accuracy: 0.9832 - val_loss: 0.0628 - val_accuracy: 0.9735
Epoch 136/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0580 - accuracy: 0.9832 - val_loss: 0.0627 - val_accuracy: 0.9735
Epoch 137/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0579 - accuracy: 0.9823 - val_loss: 0.0627 - val_accuracy: 0.9735
Epoch 138/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0577 - accuracy: 0.9819 - val_loss: 0.0627 - val_accuracy: 0.9722
Epoch 139/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0578 - accuracy: 0.9827 - val_loss: 0.0625 - val_accuracy: 0.9747
Epoch 140/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0577 - accuracy: 0.9823 - val_loss: 0.0625 - val_accuracy: 0.9735
Epoch 141/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0575 - accuracy: 0.9823 - val_loss: 0.0626 - val_accuracy: 0.9722
Epoch 142/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0575 - accuracy: 0.9827 - val_loss: 0.0624 - val_accuracy: 0.9735
Epoch 143/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0573 - accuracy: 0.9823 - val_loss: 0.0624 - val_accuracy: 0.9735
Epoch 144/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0573 - accuracy: 0.9832 - val_loss: 0.0622 - val_accuracy: 0.9735
Epoch 145/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0573 - accuracy: 0.9819 - val_loss: 0.0623 - val_accuracy: 0.9722
Epoch 146/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0572 - accuracy: 0.9827 - val_loss: 0.0622 - val_accuracy: 0.9722
Epoch 147/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0570 - accuracy: 0.9827 - val_loss: 0.0622 - val_accuracy: 0.9735
Epoch 148/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0571 - accuracy: 0.9823 - val_loss: 0.0621 - val_accuracy: 0.9735
Epoch 149/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0570 - accuracy: 0.9832 - val_loss: 0.0615 - val_accuracy: 0.9747
Epoch 150/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0567 - accuracy: 0.9827 - val_loss: 0.0612 - val_accuracy: 0.9735
Epoch 151/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0568 - accuracy: 0.9823 - val_loss: 0.0614 - val_accuracy: 0.9735
Epoch 152/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0567 - accuracy: 0.9827 - val_loss: 0.0615 - val_accuracy: 0.9722
Epoch 153/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0566 - accuracy: 0.9832 - val_loss: 0.0616 - val_accuracy: 0.9722
Epoch 154/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0565 - accuracy: 0.9832 - val_loss: 0.0615 - val_accuracy: 0.9735
Epoch 155/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0563 - accuracy: 0.9832 - val_loss: 0.0618 - val_accuracy: 0.9735
Epoch 156/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0560 - accuracy: 0.9840 - val_loss: 0.0616 - val_accuracy: 0.9722
Epoch 157/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0560 - accuracy: 0.9832 - val_loss: 0.0617 - val_accuracy: 0.9722
Epoch 158/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0558 - accuracy: 0.9827 - val_loss: 0.0615 - val_accuracy: 0.9735
Epoch 159/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0557 - accuracy: 0.9832 - val_loss: 0.0615 - val_accuracy: 0.9735
Epoch 160/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0556 - accuracy: 0.9832 - val_loss: 0.0616 - val_accuracy: 0.9735
Epoch 161/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0555 - accuracy: 0.9827 - val_loss: 0.0617 - val_accuracy: 0.9735
Epoch 162/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0554 - accuracy: 0.9836 - val_loss: 0.0616 - val_accuracy: 0.9747
Epoch 163/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0553 - accuracy: 0.9832 - val_loss: 0.0614 - val_accuracy: 0.9747
Epoch 164/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0551 - accuracy: 0.9840 - val_loss: 0.0612 - val_accuracy: 0.9747
Epoch 165/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0551 - accuracy: 0.9827 - val_loss: 0.0611 - val_accuracy: 0.9735
Epoch 166/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0549 - accuracy: 0.9836 - val_loss: 0.0610 - val_accuracy: 0.9747
Epoch 167/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0550 - accuracy: 0.9836 - val_loss: 0.0609 - val_accuracy: 0.9747
Epoch 168/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0548 - accuracy: 0.9832 - val_loss: 0.0608 - val_accuracy: 0.9735
Epoch 169/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0547 - accuracy: 0.9832 - val_loss: 0.0609 - val_accuracy: 0.9735
Epoch 170/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0545 - accuracy: 0.9832 - val_loss: 0.0609 - val_accuracy: 0.9735
Epoch 171/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0546 - accuracy: 0.9836 - val_loss: 0.0607 - val_accuracy: 0.9747
Epoch 172/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0544 - accuracy: 0.9836 - val_loss: 0.0604 - val_accuracy: 0.9747
Epoch 173/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0544 - accuracy: 0.9840 - val_loss: 0.0604 - val_accuracy: 0.9747
Epoch 174/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0542 - accuracy: 0.9840 - val_loss: 0.0605 - val_accuracy: 0.9735
Epoch 175/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0542 - accuracy: 0.9848 - val_loss: 0.0605 - val_accuracy: 0.9735
Epoch 176/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0541 - accuracy: 0.9836 - val_loss: 0.0606 - val_accuracy: 0.9747
Epoch 177/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0539 - accuracy: 0.9853 - val_loss: 0.0605 - val_accuracy: 0.9747
Epoch 178/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0537 - accuracy: 0.9844 - val_loss: 0.0604 - val_accuracy: 0.9747
Epoch 179/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0537 - accuracy: 0.9844 - val_loss: 0.0602 - val_accuracy: 0.9735
Epoch 180/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0536 - accuracy: 0.9844 - val_loss: 0.0608 - val_accuracy: 0.9747
Epoch 181/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0537 - accuracy: 0.9848 - val_loss: 0.0604 - val_accuracy: 0.9735
Epoch 182/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0536 - accuracy: 0.9853 - val_loss: 0.0602 - val_accuracy: 0.9735
Epoch 183/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0533 - accuracy: 0.9853 - val_loss: 0.0601 - val_accuracy: 0.9735
Epoch 184/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0531 - accuracy: 0.9861 - val_loss: 0.0598 - val_accuracy: 0.9747
Epoch 185/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0530 - accuracy: 0.9848 - val_loss: 0.0602 - val_accuracy: 0.9747
Epoch 186/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0529 - accuracy: 0.9857 - val_loss: 0.0598 - val_accuracy: 0.9735
Epoch 187/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0529 - accuracy: 0.9857 - val_loss: 0.0592 - val_accuracy: 0.9773
Epoch 188/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0529 - accuracy: 0.9840 - val_loss: 0.0593 - val_accuracy: 0.9773
Epoch 189/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0528 - accuracy: 0.9848 - val_loss: 0.0593 - val_accuracy: 0.9760
Epoch 190/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0526 - accuracy: 0.9853 - val_loss: 0.0594 - val_accuracy: 0.9735
Epoch 191/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0526 - accuracy: 0.9840 - val_loss: 0.0594 - val_accuracy: 0.9747
Epoch 192/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0525 - accuracy: 0.9844 - val_loss: 0.0594 - val_accuracy: 0.9747
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Epoch 193/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0523 - accuracy: 0.9840 - val_loss: 0.0595 - val_accuracy: 0.9735
Epoch 194/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0522 - accuracy: 0.9857 - val_loss: 0.0594 - val_accuracy: 0.9760
Epoch 195/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0523 - accuracy: 0.9844 - val_loss: 0.0594 - val_accuracy: 0.9735
Epoch 196/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0521 - accuracy: 0.9853 - val_loss: 0.0594 - val_accuracy: 0.9747
Epoch 197/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0521 - accuracy: 0.9853 - val_loss: 0.0594 - val_accuracy: 0.9747
Epoch 198/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0519 - accuracy: 0.9848 - val_loss: 0.0593 - val_accuracy: 0.9747
Epoch 199/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0519 - accuracy: 0.9853 - val_loss: 0.0591 - val_accuracy: 0.9747
Epoch 200/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0518 - accuracy: 0.9844 - val_loss: 0.0592 - val_accuracy: 0.9735
Epoch 201/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0516 - accuracy: 0.9848 - val_loss: 0.0595 - val_accuracy: 0.9747
Epoch 202/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0517 - accuracy: 0.9857 - val_loss: 0.0592 - val_accuracy: 0.9747
Epoch 203/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0516 - accuracy: 0.9848 - val_loss: 0.0589 - val_accuracy: 0.9760
Epoch 204/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0513 - accuracy: 0.9853 - val_loss: 0.0590 - val_accuracy: 0.9735
Epoch 205/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0514 - accuracy: 0.9853 - val_loss: 0.0590 - val_accuracy: 0.9760
Epoch 206/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0513 - accuracy: 0.9848 - val_loss: 0.0589 - val_accuracy: 0.9747
Epoch 207/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0513 - accuracy: 0.9844 - val_loss: 0.0588 - val_accuracy: 0.9760
Epoch 208/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0511 - accuracy: 0.9853 - val_loss: 0.0586 - val_accuracy: 0.9760
Epoch 209/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0511 - accuracy: 0.9848 - val_loss: 0.0587 - val_accuracy: 0.9760
Epoch 210/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0510 - accuracy: 0.9861 - val_loss: 0.0585 - val_accuracy: 0.9760
Epoch 211/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0510 - accuracy: 0.9853 - val_loss: 0.0584 - val_accuracy: 0.9760
Epoch 212/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0509 - accuracy: 0.9857 - val_loss: 0.0585 - val_accuracy: 0.9760
Epoch 213/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0509 - accuracy: 0.9844 - val_loss: 0.0586 - val_accuracy: 0.9760
Epoch 214/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0508 - accuracy: 0.9853 - val_loss: 0.0584 - val_accuracy: 0.9773
Epoch 215/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0507 - accuracy: 0.9853 - val_loss: 0.0583 - val_accuracy: 0.9760
Epoch 216/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0505 - accuracy: 0.9844 - val_loss: 0.0582 - val_accuracy: 0.9760
Epoch 217/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0505 - accuracy: 0.9844 - val_loss: 0.0584 - val_accuracy: 0.9760
Epoch 218/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0505 - accuracy: 0.9853 - val_loss: 0.0583 - val_accuracy: 0.9760
Epoch 219/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0503 - accuracy: 0.9848 - val_loss: 0.0586 - val_accuracy: 0.9747
Epoch 220/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0503 - accuracy: 0.9861 - val_loss: 0.0581 - val_accuracy: 0.9760
Epoch 221/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0502 - accuracy: 0.9853 - val_loss: 0.0581 - val_accuracy: 0.9760
Epoch 222/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0500 - accuracy: 0.9853 - val_loss: 0.0582 - val_accuracy: 0.9760
Epoch 223/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0501 - accuracy: 0.9853 - val_loss: 0.0581 - val_accuracy: 0.9785
Epoch 224/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0501 - accuracy: 0.9853 - val_loss: 0.0580 - val_accuracy: 0.9773
Epoch 225/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0499 - accuracy: 0.9857 - val_loss: 0.0579 - val_accuracy: 0.9760
Epoch 226/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0499 - accuracy: 0.9848 - val_loss: 0.0578 - val_accuracy: 0.9773
Epoch 227/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0498 - accuracy: 0.9853 - val_loss: 0.0578 - val_accuracy: 0.9773
Epoch 228/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0498 - accuracy: 0.9840 - val_loss: 0.0577 - val_accuracy: 0.9773
Epoch 229/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0497 - accuracy: 0.9857 - val_loss: 0.0579 - val_accuracy: 0.9773
Epoch 230/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0498 - accuracy: 0.9853 - val_loss: 0.0577 - val_accuracy: 0.9773
Epoch 231/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0496 - accuracy: 0.9857 - val_loss: 0.0576 - val_accuracy: 0.9785
Epoch 232/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0495 - accuracy: 0.9848 - val_loss: 0.0576 - val_accuracy: 0.9798
Epoch 233/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0496 - accuracy: 0.9857 - val_loss: 0.0575 - val_accuracy: 0.9773
Epoch 234/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0494 - accuracy: 0.9848 - val_loss: 0.0576 - val_accuracy: 0.9785
Epoch 235/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0493 - accuracy: 0.9865 - val_loss: 0.0574 - val_accuracy: 0.9773
Epoch 236/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0494 - accuracy: 0.9861 - val_loss: 0.0574 - val_accuracy: 0.9773
Epoch 237/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0492 - accuracy: 0.9861 - val_loss: 0.0575 - val_accuracy: 0.9760
Epoch 238/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0493 - accuracy: 0.9848 - val_loss: 0.0574 - val_accuracy: 0.9773
Epoch 239/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0490 - accuracy: 0.9848 - val_loss: 0.0574 - val_accuracy: 0.9773
Epoch 240/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0491 - accuracy: 0.9857 - val_loss: 0.0594 - val_accuracy: 0.9773
Epoch 241/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0497 - accuracy: 0.9853 - val_loss: 0.0577 - val_accuracy: 0.9773
Epoch 242/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0491 - accuracy: 0.9853 - val_loss: 0.0573 - val_accuracy: 0.9760
Epoch 243/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0490 - accuracy: 0.9848 - val_loss: 0.0572 - val_accuracy: 0.9773
Epoch 244/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0489 - accuracy: 0.9857 - val_loss: 0.0573 - val_accuracy: 0.9773
Epoch 245/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0489 - accuracy: 0.9857 - val_loss: 0.0575 - val_accuracy: 0.9785
Epoch 246/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0489 - accuracy: 0.9857 - val_loss: 0.0573 - val_accuracy: 0.9773
Epoch 247/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0488 - accuracy: 0.9861 - val_loss: 0.0570 - val_accuracy: 0.9785
Epoch 248/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0486 - accuracy: 0.9857 - val_loss: 0.0572 - val_accuracy: 0.9760
Epoch 249/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0487 - accuracy: 0.9853 - val_loss: 0.0571 - val_accuracy: 0.9773
Epoch 250/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0485 - accuracy: 0.9844 - val_loss: 0.0573 - val_accuracy: 0.9773
Epoch 251/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0486 - accuracy: 0.9857 - val_loss: 0.0570 - val_accuracy: 0.9773
Epoch 252/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0485 - accuracy: 0.9848 - val_loss: 0.0572 - val_accuracy: 0.9760
Epoch 253/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0484 - accuracy: 0.9857 - val_loss: 0.0570 - val_accuracy: 0.9773
Epoch 254/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0482 - accuracy: 0.9861 - val_loss: 0.0569 - val_accuracy: 0.9773
Epoch 255/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0481 - accuracy: 0.9857 - val_loss: 0.0573 - val_accuracy: 0.9773
Epoch 256/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0484 - accuracy: 0.9857 - val_loss: 0.0570 - val_accuracy: 0.9773
```

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Epoch 257/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0482 - accuracy: 0.9857 - val_loss: 0.0570 - val_accuracy: 0.9760
Epoch 258/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0483 - accuracy: 0.9853 - val_loss: 0.0570 - val_accuracy: 0.9773
Epoch 259/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0481 - accuracy: 0.9861 - val_loss: 0.0571 - val_accuracy: 0.9773
Epoch 260/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0482 - accuracy: 0.9857 - val_loss: 0.0569 - val_accuracy: 0.9785
Epoch 261/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0480 - accuracy: 0.9853 - val_loss: 0.0572 - val_accuracy: 0.9773
Epoch 262/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0480 - accuracy: 0.9857 - val_loss: 0.0572 - val_accuracy: 0.9773
Epoch 263/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0480 - accuracy: 0.9861 - val_loss: 0.0572 - val_accuracy: 0.9773
Epoch 264/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0479 - accuracy: 0.9857 - val_loss: 0.0571 - val_accuracy: 0.9785
Epoch 265/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0480 - accuracy: 0.9853 - val_loss: 0.0570 - val_accuracy: 0.9760
Epoch 266/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0477 - accuracy: 0.9857 - val_loss: 0.0573 - val_accuracy: 0.9773
Epoch 267/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0477 - accuracy: 0.9857 - val_loss: 0.0570 - val_accuracy: 0.9773
Epoch 268/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0478 - accuracy: 0.9848 - val_loss: 0.0570 - val_accuracy: 0.9773
Epoch 269/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0477 - accuracy: 0.9853 - val_loss: 0.0570 - val_accuracy: 0.9760
Epoch 270/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0476 - accuracy: 0.9857 - val_loss: 0.0571 - val_accuracy: 0.9760
Epoch 271/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0475 - accuracy: 0.9865 - val_loss: 0.0573 - val_accuracy: 0.9760
Epoch 272/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0475 - accuracy: 0.9861 - val_loss: 0.0575 - val_accuracy: 0.9760
Epoch 273/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0476 - accuracy: 0.9861 - val_loss: 0.0567 - val_accuracy: 0.9785
Epoch 274/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0475 - accuracy: 0.9857 - val_loss: 0.0568 - val_accuracy: 0.9773
Epoch 275/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0474 - accuracy: 0.9857 - val_loss: 0.0569 - val_accuracy: 0.9773
Epoch 276/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0475 - accuracy: 0.9853 - val_loss: 0.0570 - val_accuracy: 0.9773
Epoch 277/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0473 - accuracy: 0.9853 - val_loss: 0.0568 - val_accuracy: 0.9773
Epoch 278/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0473 - accuracy: 0.9865 - val_loss: 0.0569 - val_accuracy: 0.9773
Epoch 279/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0473 - accuracy: 0.9857 - val_loss: 0.0570 - val_accuracy: 0.9773
Epoch 280/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0473 - accuracy: 0.9857 - val_loss: 0.0573 - val_accuracy: 0.9785
Epoch 281/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0472 - accuracy: 0.9865 - val_loss: 0.0572 - val_accuracy: 0.9773
Epoch 282/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0471 - accuracy: 0.9857 - val_loss: 0.0572 - val_accuracy: 0.9773
Epoch 283/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0471 - accuracy: 0.9857 - val_loss: 0.0577 - val_accuracy: 0.9773
Epoch 284/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0471 - accuracy: 0.9857 - val_loss: 0.0571 - val_accuracy: 0.9773
Epoch 285/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0469 - accuracy: 0.9853 - val_loss: 0.0572 - val_accuracy: 0.9773
Epoch 286/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0466 - accuracy: 0.9857 - val_loss: 0.0573 - val_accuracy: 0.9798
Epoch 287/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0471 - accuracy: 0.9848 - val_loss: 0.0572 - val_accuracy: 0.9773
Epoch 288/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0469 - accuracy: 0.9853 - val_loss: 0.0573 - val_accuracy: 0.9760
Epoch 289/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0467 - accuracy: 0.9857 - val_loss: 0.0573 - val_accuracy: 0.9773
Epoch 290/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0467 - accuracy: 0.9853 - val_loss: 0.0570 - val_accuracy: 0.9773
Epoch 291/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0468 - accuracy: 0.9853 - val_loss: 0.0573 - val_accuracy: 0.9773
Epoch 292/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0466 - accuracy: 0.9857 - val_loss: 0.0572 - val_accuracy: 0.9773
Epoch 293/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0465 - accuracy: 0.9857 - val_loss: 0.0574 - val_accuracy: 0.9785
Epoch 294/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0465 - accuracy: 0.9865 - val_loss: 0.0575 - val_accuracy: 0.9773
Epoch 295/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0465 - accuracy: 0.9870 - val_loss: 0.0573 - val_accuracy: 0.9773
Epoch 296/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0463 - accuracy: 0.9865 - val_loss: 0.0573 - val_accuracy: 0.9773
Epoch 297/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0463 - accuracy: 0.9865 - val_loss: 0.0571 - val_accuracy: 0.9773
Epoch 298/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0464 - accuracy: 0.9848 - val_loss: 0.0573 - val_accuracy: 0.9773
Epoch 299/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0463 - accuracy: 0.9853 - val_loss: 0.0575 - val_accuracy: 0.9760
Epoch 300/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0462 - accuracy: 0.9857 - val_loss: 0.0574 - val_accuracy: 0.9785
Epoch 301/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0462 - accuracy: 0.9848 - val_loss: 0.0573 - val_accuracy: 0.9785
Epoch 302/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0462 - accuracy: 0.9853 - val_loss: 0.0574 - val_accuracy: 0.9798
Epoch 303/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0461 - accuracy: 0.9853 - val_loss: 0.0574 - val_accuracy: 0.9785
Epoch 304/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0460 - accuracy: 0.9861 - val_loss: 0.0574 - val_accuracy: 0.9773
Epoch 305/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0460 - accuracy: 0.9853 - val_loss: 0.0579 - val_accuracy: 0.9773
Epoch 306/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0460 - accuracy: 0.9857 - val_loss: 0.0579 - val_accuracy: 0.9773
Epoch 307/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0461 - accuracy: 0.9844 - val_loss: 0.0576 - val_accuracy: 0.9773
Epoch 308/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0459 - accuracy: 0.9857 - val_loss: 0.0575 - val_accuracy: 0.9798
Epoch 309/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0459 - accuracy: 0.9857 - val_loss: 0.0575 - val_accuracy: 0.9785
Epoch 310/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0457 - accuracy: 0.9857 - val_loss: 0.0579 - val_accuracy: 0.9798
Epoch 311/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0459 - accuracy: 0.9844 - val_loss: 0.0573 - val_accuracy: 0.9785
Epoch 312/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0458 - accuracy: 0.9857 - val_loss: 0.0577 - val_accuracy: 0.9785
Epoch 313/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0458 - accuracy: 0.9844 - val_loss: 0.0579 - val_accuracy: 0.9785
Epoch 314/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0457 - accuracy: 0.9848 - val_loss: 0.0579 - val_accuracy: 0.9785
Epoch 315/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0454 - accuracy: 0.9853 - val_loss: 0.0577 - val_accuracy: 0.9760
Epoch 316/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0453 - accuracy: 0.9853 - val_loss: 0.0578 - val_accuracy: 0.9785
Epoch 317/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0455 - accuracy: 0.9857 - val_loss: 0.0578 - val_accuracy: 0.9785
Epoch 318/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0455 - accuracy: 0.9848 - val_loss: 0.0578 - val_accuracy: 0.9773
Epoch 319/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0453 - accuracy: 0.9857 - val_loss: 0.0577 - val_accuracy: 0.9785
Epoch 320/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0454 - accuracy: 0.9857 - val_loss: 0.0576 - val_accuracy: 0.9785
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Epoch 321/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0453 - accuracy: 0.9853 - val_loss: 0.0575 - val_accuracy: 0.9785
Epoch 322/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0453 - accuracy: 0.9848 - val_loss: 0.0577 - val_accuracy: 0.9773
Epoch 323/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0453 - accuracy: 0.9848 - val_loss: 0.0577 - val_accuracy: 0.9785
Epoch 324/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0452 - accuracy: 0.9865 - val_loss: 0.0576 - val_accuracy: 0.9785
Epoch 325/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0452 - accuracy: 0.9853 - val_loss: 0.0578 - val_accuracy: 0.9798
Epoch 326/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0452 - accuracy: 0.9848 - val_loss: 0.0578 - val_accuracy: 0.9785
Epoch 327/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0450 - accuracy: 0.9848 - val_loss: 0.0571 - val_accuracy: 0.9798
Epoch 328/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0450 - accuracy: 0.9844 - val_loss: 0.0573 - val_accuracy: 0.9798
Epoch 329/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0448 - accuracy: 0.9853 - val_loss: 0.0575 - val_accuracy: 0.9773
Epoch 330/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0450 - accuracy: 0.9853 - val_loss: 0.0576 - val_accuracy: 0.9785
Epoch 331/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0449 - accuracy: 0.9848 - val_loss: 0.0577 - val_accuracy: 0.9798
Epoch 332/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0448 - accuracy: 0.9848 - val_loss: 0.0578 - val_accuracy: 0.9773
Epoch 333/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0447 - accuracy: 0.9857 - val_loss: 0.0578 - val_accuracy: 0.9785
Epoch 334/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0449 - accuracy: 0.9840 - val_loss: 0.0581 - val_accuracy: 0.9773
Epoch 335/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0450 - accuracy: 0.9861 - val_loss: 0.0616 - val_accuracy: 0.9760
Epoch 336/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0457 - accuracy: 0.9857 - val_loss: 0.0580 - val_accuracy: 0.9773
Epoch 337/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0447 - accuracy: 0.9853 - val_loss: 0.0580 - val_accuracy: 0.9773
Epoch 338/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0447 - accuracy: 0.9857 - val_loss: 0.0581 - val_accuracy: 0.9773
Epoch 339/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0445 - accuracy: 0.9857 - val_loss: 0.0579 - val_accuracy: 0.9773
Epoch 340/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0445 - accuracy: 0.9848 - val_loss: 0.0578 - val_accuracy: 0.9773
Epoch 341/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0445 - accuracy: 0.9857 - val_loss: 0.0578 - val_accuracy: 0.9785
Epoch 342/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0444 - accuracy: 0.9853 - val_loss: 0.0578 - val_accuracy: 0.9785
Epoch 343/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0445 - accuracy: 0.9853 - val_loss: 0.0579 - val_accuracy: 0.9785
Epoch 344/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0445 - accuracy: 0.9853 - val_loss: 0.0580 - val_accuracy: 0.9798
Epoch 345/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0446 - accuracy: 0.9853 - val_loss: 0.0578 - val_accuracy: 0.9811
Epoch 346/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0443 - accuracy: 0.9857 - val_loss: 0.0579 - val_accuracy: 0.9785
Epoch 347/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0444 - accuracy: 0.9857 - val_loss: 0.0573 - val_accuracy: 0.9785
Epoch 348/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0445 - accuracy: 0.9853 - val_loss: 0.0575 - val_accuracy: 0.9798
Epoch 349/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0440 - accuracy: 0.9861 - val_loss: 0.0574 - val_accuracy: 0.9773
Epoch 350/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0441 - accuracy: 0.9861 - val_loss: 0.0575 - val_accuracy: 0.9798
Epoch 351/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0441 - accuracy: 0.9853 - val_loss: 0.0578 - val_accuracy: 0.9773
Epoch 352/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0441 - accuracy: 0.9848 - val_loss: 0.0581 - val_accuracy: 0.9785
Epoch 353/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0441 - accuracy: 0.9853 - val_loss: 0.0577 - val_accuracy: 0.9811
Epoch 354/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0441 - accuracy: 0.9848 - val_loss: 0.0577 - val_accuracy: 0.9798
Epoch 355/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0439 - accuracy: 0.9861 - val_loss: 0.0580 - val_accuracy: 0.9785
Epoch 356/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0439 - accuracy: 0.9857 - val_loss: 0.0581 - val_accuracy: 0.9785
Epoch 357/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0437 - accuracy: 0.9857 - val_loss: 0.0580 - val_accuracy: 0.9760
Epoch 358/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0439 - accuracy: 0.9848 - val_loss: 0.0579 - val_accuracy: 0.9798
Epoch 359/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0437 - accuracy: 0.9853 - val_loss: 0.0580 - val_accuracy: 0.9773
Epoch 360/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0439 - accuracy: 0.9848 - val_loss: 0.0579 - val_accuracy: 0.9785
Epoch 361/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0438 - accuracy: 0.9853 - val_loss: 0.0579 - val_accuracy: 0.9785
Epoch 362/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0435 - accuracy: 0.9861 - val_loss: 0.0581 - val_accuracy: 0.9785
Epoch 363/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0437 - accuracy: 0.9853 - val_loss: 0.0580 - val_accuracy: 0.9798
Epoch 364/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0436 - accuracy: 0.9861 - val_loss: 0.0579 - val_accuracy: 0.9785
Epoch 365/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0435 - accuracy: 0.9865 - val_loss: 0.0580 - val_accuracy: 0.9773
Epoch 366/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0436 - accuracy: 0.9857 - val_loss: 0.0580 - val_accuracy: 0.9785
Epoch 367/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0437 - accuracy: 0.9857 - val_loss: 0.0584 - val_accuracy: 0.9798
Epoch 368/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0434 - accuracy: 0.9857 - val_loss: 0.0579 - val_accuracy: 0.9798
Epoch 369/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0434 - accuracy: 0.9861 - val_loss: 0.0580 - val_accuracy: 0.9773
Epoch 370/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0433 - accuracy: 0.9853 - val_loss: 0.0579 - val_accuracy: 0.9811
Epoch 371/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0434 - accuracy: 0.9865 - val_loss: 0.0577 - val_accuracy: 0.9811
Epoch 372/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0433 - accuracy: 0.9853 - val_loss: 0.0578 - val_accuracy: 0.9798
Epoch 373/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0433 - accuracy: 0.9857 - val_loss: 0.0580 - val_accuracy: 0.9798
Epoch 374/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0432 - accuracy: 0.9861 - val_loss: 0.0581 - val_accuracy: 0.9773
Epoch 375/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0433 - accuracy: 0.9861 - val_loss: 0.0576 - val_accuracy: 0.9811
Epoch 376/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0432 - accuracy: 0.9857 - val_loss: 0.0578 - val_accuracy: 0.9760
Epoch 377/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0431 - accuracy: 0.9857 - val_loss: 0.0578 - val_accuracy: 0.9760
Epoch 378/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0432 - accuracy: 0.9857 - val_loss: 0.0613 - val_accuracy: 0.9747
Epoch 379/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0441 - accuracy: 0.9865 - val_loss: 0.0586 - val_accuracy: 0.9760
Epoch 380/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0430 - accuracy: 0.9861 - val_loss: 0.0580 - val_accuracy: 0.9773
Epoch 381/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0430 - accuracy: 0.9853 - val_loss: 0.0578 - val_accuracy: 0.9798
Epoch 382/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0431 - accuracy: 0.9857 - val_loss: 0.0577 - val_accuracy: 0.9811
Epoch 383/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0429 - accuracy: 0.9861 - val_loss: 0.0580 - val_accuracy: 0.9773
Epoch 384/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0429 - accuracy: 0.9857 - val_loss: 0.0580 - val_accuracy: 0.9798
```

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Epoch 385/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0429 - accuracy: 0.9861 - val_loss: 0.0578 - val_accuracy: 0.9811
Epoch 386/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0428 - accuracy: 0.9861 - val_loss: 0.0578 - val_accuracy: 0.9785
Epoch 387/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0426 - accuracy: 0.9861 - val_loss: 0.0578 - val_accuracy: 0.9785
Epoch 388/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0428 - accuracy: 0.9853 - val_loss: 0.0578 - val_accuracy: 0.9798
Epoch 389/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0425 - accuracy: 0.9874 - val_loss: 0.0586 - val_accuracy: 0.9773
Epoch 390/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0428 - accuracy: 0.9857 - val_loss: 0.0583 - val_accuracy: 0.9773
Epoch 391/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0427 - accuracy: 0.9865 - val_loss: 0.0586 - val_accuracy: 0.9773
Epoch 392/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0427 - accuracy: 0.9857 - val_loss: 0.0579 - val_accuracy: 0.9785
Epoch 393/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0425 - accuracy: 0.9870 - val_loss: 0.0580 - val_accuracy: 0.9811
Epoch 394/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0425 - accuracy: 0.9857 - val_loss: 0.0580 - val_accuracy: 0.9811
Epoch 395/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0424 - accuracy: 0.9857 - val_loss: 0.0580 - val_accuracy: 0.9811
Epoch 396/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0425 - accuracy: 0.9865 - val_loss: 0.0581 - val_accuracy: 0.9798
Epoch 397/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0424 - accuracy: 0.9874 - val_loss: 0.0582 - val_accuracy: 0.9798
Epoch 398/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0425 - accuracy: 0.9865 - val_loss: 0.0581 - val_accuracy: 0.9798
Epoch 399/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0424 - accuracy: 0.9865 - val_loss: 0.0582 - val_accuracy: 0.9798
Epoch 400/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0424 - accuracy: 0.9853 - val_loss: 0.0578 - val_accuracy: 0.9773
Epoch 401/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0423 - accuracy: 0.9861 - val_loss: 0.0579 - val_accuracy: 0.9798
Epoch 402/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0423 - accuracy: 0.9865 - val_loss: 0.0578 - val_accuracy: 0.9785
Epoch 403/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0423 - accuracy: 0.9861 - val_loss: 0.0582 - val_accuracy: 0.9773
Epoch 404/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0421 - accuracy: 0.9857 - val_loss: 0.0579 - val_accuracy: 0.9773
Epoch 405/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0423 - accuracy: 0.9861 - val_loss: 0.0580 - val_accuracy: 0.9798
Epoch 406/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0420 - accuracy: 0.9861 - val_loss: 0.0581 - val_accuracy: 0.9798
Epoch 407/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0421 - accuracy: 0.9870 - val_loss: 0.0580 - val_accuracy: 0.9811
Epoch 408/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0420 - accuracy: 0.9857 - val_loss: 0.0580 - val_accuracy: 0.9773
Epoch 409/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0420 - accuracy: 0.9870 - val_loss: 0.0582 - val_accuracy: 0.9798
Epoch 410/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0420 - accuracy: 0.9857 - val_loss: 0.0577 - val_accuracy: 0.9811
Epoch 411/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0419 - accuracy: 0.9861 - val_loss: 0.0579 - val_accuracy: 0.9760
Epoch 412/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0419 - accuracy: 0.9861 - val_loss: 0.0579 - val_accuracy: 0.9773
Epoch 413/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0420 - accuracy: 0.9865 - val_loss: 0.0583 - val_accuracy: 0.9773
Epoch 414/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0418 - accuracy: 0.9865 - val_loss: 0.0583 - val_accuracy: 0.9760
Epoch 415/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0414 - accuracy: 0.9870 - val_loss: 0.0644 - val_accuracy: 0.9760
Epoch 416/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0436 - accuracy: 0.9857 - val_loss: 0.0586 - val_accuracy: 0.9760
Epoch 417/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0418 - accuracy: 0.9870 - val_loss: 0.0584 - val_accuracy: 0.9785
Epoch 418/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0418 - accuracy: 0.9865 - val_loss: 0.0581 - val_accuracy: 0.9798
Epoch 419/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0416 - accuracy: 0.9874 - val_loss: 0.0583 - val_accuracy: 0.9760
Epoch 420/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0416 - accuracy: 0.9870 - val_loss: 0.0585 - val_accuracy: 0.9773
Epoch 421/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0415 - accuracy: 0.9874 - val_loss: 0.0582 - val_accuracy: 0.9811
Epoch 422/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0416 - accuracy: 0.9865 - val_loss: 0.0583 - val_accuracy: 0.9798
Epoch 423/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0413 - accuracy: 0.9865 - val_loss: 0.0584 - val_accuracy: 0.9773
Epoch 424/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0417 - accuracy: 0.9870 - val_loss: 0.0580 - val_accuracy: 0.9785
Epoch 425/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0415 - accuracy: 0.9861 - val_loss: 0.0586 - val_accuracy: 0.9785
Epoch 426/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0415 - accuracy: 0.9865 - val_loss: 0.0583 - val_accuracy: 0.9773
Epoch 427/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0415 - accuracy: 0.9865 - val_loss: 0.0581 - val_accuracy: 0.9760
Epoch 428/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0414 - accuracy: 0.9861 - val_loss: 0.0579 - val_accuracy: 0.9823
Epoch 429/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0413 - accuracy: 0.9874 - val_loss: 0.0581 - val_accuracy: 0.9823
Epoch 430/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0413 - accuracy: 0.9870 - val_loss: 0.0581 - val_accuracy: 0.9823
Epoch 431/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0412 - accuracy: 0.9865 - val_loss: 0.0577 - val_accuracy: 0.9811
Epoch 432/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0413 - accuracy: 0.9874 - val_loss: 0.0579 - val_accuracy: 0.9811
Epoch 433/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0413 - accuracy: 0.9874 - val_loss: 0.0581 - val_accuracy: 0.9811
Epoch 434/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0411 - accuracy: 0.9861 - val_loss: 0.0580 - val_accuracy: 0.9773
Epoch 435/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0413 - accuracy: 0.9870 - val_loss: 0.0579 - val_accuracy: 0.9811
Epoch 436/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0412 - accuracy: 0.9870 - val_loss: 0.0580 - val_accuracy: 0.9823
Epoch 437/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0411 - accuracy: 0.9865 - val_loss: 0.0583 - val_accuracy: 0.9811
Epoch 438/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0412 - accuracy: 0.9870 - val_loss: 0.0580 - val_accuracy: 0.9785
Epoch 439/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0411 - accuracy: 0.9870 - val_loss: 0.0583 - val_accuracy: 0.9823
Epoch 440/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0410 - accuracy: 0.9874 - val_loss: 0.0583 - val_accuracy: 0.9785
Epoch 441/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0410 - accuracy: 0.9870 - val_loss: 0.0585 - val_accuracy: 0.9773
Epoch 442/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0410 - accuracy: 0.9861 - val_loss: 0.0586 - val_accuracy: 0.9773
Epoch 443/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0412 - accuracy: 0.9870 - val_loss: 0.0584 - val_accuracy: 0.9760
Epoch 444/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0409 - accuracy: 0.9870 - val_loss: 0.0582 - val_accuracy: 0.9823
Epoch 445/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0408 - accuracy: 0.9874 - val_loss: 0.0582 - val_accuracy: 0.9811
Epoch 446/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0409 - accuracy: 0.9878 - val_loss: 0.0582 - val_accuracy: 0.9811
Epoch 447/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0408 - accuracy: 0.9870 - val_loss: 0.0583 - val_accuracy: 0.9773
Epoch 448/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0407 - accuracy: 0.9878 - val_loss: 0.0584 - val_accuracy: 0.9811
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Epoch 449/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0408 - accuracy: 0.9861 - val_loss: 0.0583 - val_accuracy: 0.9811
Epoch 450/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0406 - accuracy: 0.9870 - val_loss: 0.0582 - val_accuracy: 0.9773
Epoch 451/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0408 - accuracy: 0.9865 - val_loss: 0.0584 - val_accuracy: 0.9773
Epoch 452/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0408 - accuracy: 0.9861 - val_loss: 0.0582 - val_accuracy: 0.9773
Epoch 453/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0406 - accuracy: 0.9870 - val_loss: 0.0585 - val_accuracy: 0.9773
Epoch 454/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0405 - accuracy: 0.9870 - val_loss: 0.0582 - val_accuracy: 0.9811
Epoch 455/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0407 - accuracy: 0.9870 - val_loss: 0.0583 - val_accuracy: 0.9811
Epoch 456/800
75/75 [==============================] - 0s 5ms/step - loss: 0.0401 - accuracy: 0.9865 - val_loss: 0.0586 - val_accuracy: 0.9798
Epoch 457/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0406 - accuracy: 0.9865 - val_loss: 0.0584 - val_accuracy: 0.9773
Epoch 458/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0405 - accuracy: 0.9874 - val_loss: 0.0582 - val_accuracy: 0.9785
Epoch 459/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0406 - accuracy: 0.9870 - val_loss: 0.0581 - val_accuracy: 0.9785
Epoch 460/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0405 - accuracy: 0.9870 - val_loss: 0.0583 - val_accuracy: 0.9811
Epoch 461/800
75/75 [==============================] - 0s 6ms/step - loss: 0.0404 - accuracy: 0.9865 - val_loss: 0.0581 - val_accuracy: 0.9773
Epoch 462/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0405 - accuracy: 0.9870 - val_loss: 0.0583 - val_accuracy: 0.9798
Epoch 463/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0405 - accuracy: 0.9865 - val_loss: 0.0583 - val_accuracy: 0.9773
Epoch 464/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0404 - accuracy: 0.9870 - val_loss: 0.0580 - val_accuracy: 0.9798
Epoch 465/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0404 - accuracy: 0.9865 - val_loss: 0.0582 - val_accuracy: 0.9811
Epoch 466/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0402 - accuracy: 0.9870 - val_loss: 0.0586 - val_accuracy: 0.9823
Epoch 467/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0403 - accuracy: 0.9870 - val_loss: 0.0587 - val_accuracy: 0.9798
Epoch 468/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0400 - accuracy: 0.9865 - val_loss: 0.0591 - val_accuracy: 0.9773
Epoch 469/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0401 - accuracy: 0.9865 - val_loss: 0.0585 - val_accuracy: 0.9811
Epoch 470/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0401 - accuracy: 0.9878 - val_loss: 0.0585 - val_accuracy: 0.9773
Epoch 471/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0400 - accuracy: 0.9870 - val_loss: 0.0584 - val_accuracy: 0.9773
Epoch 472/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0402 - accuracy: 0.9865 - val_loss: 0.0588 - val_accuracy: 0.9811
Epoch 473/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0400 - accuracy: 0.9874 - val_loss: 0.0588 - val_accuracy: 0.9811
Epoch 474/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0400 - accuracy: 0.9874 - val_loss: 0.0585 - val_accuracy: 0.9823
Epoch 475/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0399 - accuracy: 0.9874 - val_loss: 0.0585 - val_accuracy: 0.9811
Epoch 476/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0401 - accuracy: 0.9861 - val_loss: 0.0590 - val_accuracy: 0.9811
Epoch 477/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0400 - accuracy: 0.9870 - val_loss: 0.0584 - val_accuracy: 0.9811
Epoch 478/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0396 - accuracy: 0.9870 - val_loss: 0.0592 - val_accuracy: 0.9798
Epoch 479/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0400 - accuracy: 0.9870 - val_loss: 0.0591 - val_accuracy: 0.9785
Epoch 480/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0398 - accuracy: 0.9870 - val_loss: 0.0585 - val_accuracy: 0.9785
Epoch 481/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0399 - accuracy: 0.9870 - val_loss: 0.0589 - val_accuracy: 0.9811
Epoch 482/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0399 - accuracy: 0.9870 - val_loss: 0.0587 - val_accuracy: 0.9811
Epoch 483/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0398 - accuracy: 0.9870 - val_loss: 0.0588 - val_accuracy: 0.9785
Epoch 484/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0396 - accuracy: 0.9865 - val_loss: 0.0591 - val_accuracy: 0.9798
Epoch 485/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0399 - accuracy: 0.9878 - val_loss: 0.0589 - val_accuracy: 0.9798
Epoch 486/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0399 - accuracy: 0.9870 - val_loss: 0.0591 - val_accuracy: 0.9811
Epoch 487/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0398 - accuracy: 0.9861 - val_loss: 0.0589 - val_accuracy: 0.9811
Epoch 488/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0396 - accuracy: 0.9870 - val_loss: 0.0585 - val_accuracy: 0.9785
Epoch 489/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0398 - accuracy: 0.9870 - val_loss: 0.0586 - val_accuracy: 0.9785
Epoch 490/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0393 - accuracy: 0.9865 - val_loss: 0.0591 - val_accuracy: 0.9798
Epoch 491/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0396 - accuracy: 0.9874 - val_loss: 0.0586 - val_accuracy: 0.9785
Epoch 492/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0395 - accuracy: 0.9870 - val_loss: 0.0589 - val_accuracy: 0.9823
Epoch 493/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0396 - accuracy: 0.9870 - val_loss: 0.0587 - val_accuracy: 0.9811
Epoch 494/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0393 - accuracy: 0.9874 - val_loss: 0.0593 - val_accuracy: 0.9823
Epoch 495/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0394 - accuracy: 0.9878 - val_loss: 0.0584 - val_accuracy: 0.9811
Epoch 496/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0394 - accuracy: 0.9870 - val_loss: 0.0586 - val_accuracy: 0.9785
Epoch 497/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0396 - accuracy: 0.9874 - val_loss: 0.0583 - val_accuracy: 0.9798
Epoch 498/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0394 - accuracy: 0.9870 - val_loss: 0.0580 - val_accuracy: 0.9823
Epoch 499/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0394 - accuracy: 0.9865 - val_loss: 0.0584 - val_accuracy: 0.9798
Epoch 500/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0395 - accuracy: 0.9865 - val_loss: 0.0589 - val_accuracy: 0.9785
Epoch 501/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0394 - accuracy: 0.9870 - val_loss: 0.0590 - val_accuracy: 0.9811
Epoch 502/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0393 - accuracy: 0.9874 - val_loss: 0.0585 - val_accuracy: 0.9811
Epoch 503/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0393 - accuracy: 0.9861 - val_loss: 0.0589 - val_accuracy: 0.9811
Epoch 504/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0393 - accuracy: 0.9870 - val_loss: 0.0591 - val_accuracy: 0.9798
Epoch 505/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0392 - accuracy: 0.9874 - val_loss: 0.0591 - val_accuracy: 0.9798
Epoch 506/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0392 - accuracy: 0.9870 - val_loss: 0.0591 - val_accuracy: 0.9785
Epoch 507/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0389 - accuracy: 0.9870 - val_loss: 0.0597 - val_accuracy: 0.9773
Epoch 508/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0394 - accuracy: 0.9870 - val_loss: 0.0593 - val_accuracy: 0.9773
Epoch 509/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0391 - accuracy: 0.9870 - val_loss: 0.0594 - val_accuracy: 0.9785
Epoch 510/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0389 - accuracy: 0.9878 - val_loss: 0.0594 - val_accuracy: 0.9798
Epoch 511/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0391 - accuracy: 0.9870 - val_loss: 0.0590 - val_accuracy: 0.9798
Epoch 512/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0391 - accuracy: 0.9870 - val_loss: 0.0592 - val_accuracy: 0.9811
```

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Epoch 513/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0392 - accuracy: 0.9870 - val_loss: 0.0596 - val_accuracy: 0.9773
Epoch 514/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0391 - accuracy: 0.9874 - val_loss: 0.0598 - val_accuracy: 0.9798
Epoch 515/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0388 - accuracy: 0.9865 - val_loss: 0.0596 - val_accuracy: 0.9785
Epoch 516/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0388 - accuracy: 0.9874 - val_loss: 0.0595 - val_accuracy: 0.9811
Epoch 517/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0390 - accuracy: 0.9870 - val_loss: 0.0587 - val_accuracy: 0.9798
Epoch 518/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0388 - accuracy: 0.9870 - val_loss: 0.0592 - val_accuracy: 0.9811
Epoch 519/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0389 - accuracy: 0.9870 - val_loss: 0.0591 - val_accuracy: 0.9798
Epoch 520/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0389 - accuracy: 0.9870 - val_loss: 0.0592 - val_accuracy: 0.9811
Epoch 521/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0388 - accuracy: 0.9870 - val_loss: 0.0591 - val_accuracy: 0.9811
Epoch 522/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0386 - accuracy: 0.9870 - val_loss: 0.0593 - val_accuracy: 0.9798
Epoch 523/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0387 - accuracy: 0.9878 - val_loss: 0.0592 - val_accuracy: 0.9811
Epoch 524/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0387 - accuracy: 0.9874 - val_loss: 0.0600 - val_accuracy: 0.9811
Epoch 525/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0389 - accuracy: 0.9870 - val_loss: 0.0600 - val_accuracy: 0.9811
Epoch 526/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0386 - accuracy: 0.9874 - val_loss: 0.0597 - val_accuracy: 0.9785
Epoch 527/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0388 - accuracy: 0.9870 - val_loss: 0.0595 - val_accuracy: 0.9785
Epoch 528/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0386 - accuracy: 0.9870 - val_loss: 0.0596 - val_accuracy: 0.9811
Epoch 529/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0385 - accuracy: 0.9874 - val_loss: 0.0594 - val_accuracy: 0.9811
Epoch 530/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0387 - accuracy: 0.9870 - val_loss: 0.0592 - val_accuracy: 0.9785
Epoch 531/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0385 - accuracy: 0.9870 - val_loss: 0.0594 - val_accuracy: 0.9785
Epoch 532/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0384 - accuracy: 0.9870 - val_loss: 0.0598 - val_accuracy: 0.9798
Epoch 533/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0384 - accuracy: 0.9870 - val_loss: 0.0600 - val_accuracy: 0.9798
Epoch 534/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0385 - accuracy: 0.9865 - val_loss: 0.0594 - val_accuracy: 0.9785
Epoch 535/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0383 - accuracy: 0.9874 - val_loss: 0.0596 - val_accuracy: 0.9811
Epoch 536/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0385 - accuracy: 0.9870 - val_loss: 0.0593 - val_accuracy: 0.9811
Epoch 537/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0383 - accuracy: 0.9870 - val_loss: 0.0593 - val_accuracy: 0.9811
Epoch 538/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0386 - accuracy: 0.9870 - val_loss: 0.0592 - val_accuracy: 0.9811
Epoch 539/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0383 - accuracy: 0.9870 - val_loss: 0.0589 - val_accuracy: 0.9785
Epoch 540/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0384 - accuracy: 0.9870 - val_loss: 0.0592 - val_accuracy: 0.9785
Epoch 541/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0382 - accuracy: 0.9878 - val_loss: 0.0595 - val_accuracy: 0.9811
Epoch 542/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0383 - accuracy: 0.9870 - val_loss: 0.0596 - val_accuracy: 0.9798
Epoch 543/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0384 - accuracy: 0.9865 - val_loss: 0.0589 - val_accuracy: 0.9811
Epoch 544/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0381 - accuracy: 0.9870 - val_loss: 0.0592 - val_accuracy: 0.9811
Epoch 545/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0384 - accuracy: 0.9870 - val_loss: 0.0594 - val_accuracy: 0.9785
Epoch 546/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0383 - accuracy: 0.9870 - val_loss: 0.0590 - val_accuracy: 0.9811
Epoch 547/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0380 - accuracy: 0.9874 - val_loss: 0.0594 - val_accuracy: 0.9773
Epoch 548/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0381 - accuracy: 0.9878 - val_loss: 0.0592 - val_accuracy: 0.9811
Epoch 549/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0381 - accuracy: 0.9870 - val_loss: 0.0595 - val_accuracy: 0.9811
Epoch 550/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0380 - accuracy: 0.9870 - val_loss: 0.0597 - val_accuracy: 0.9798
Epoch 551/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0381 - accuracy: 0.9861 - val_loss: 0.0594 - val_accuracy: 0.9798
Epoch 552/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0380 - accuracy: 0.9874 - val_loss: 0.0592 - val_accuracy: 0.9811
Epoch 553/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0379 - accuracy: 0.9874 - val_loss: 0.0592 - val_accuracy: 0.9785
Epoch 554/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0379 - accuracy: 0.9874 - val_loss: 0.0594 - val_accuracy: 0.9785
Epoch 555/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0379 - accuracy: 0.9874 - val_loss: 0.0599 - val_accuracy: 0.9785
Epoch 556/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0380 - accuracy: 0.9878 - val_loss: 0.0595 - val_accuracy: 0.9785
Epoch 557/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0377 - accuracy: 0.9878 - val_loss: 0.0598 - val_accuracy: 0.9811
Epoch 558/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0379 - accuracy: 0.9870 - val_loss: 0.0596 - val_accuracy: 0.9798
Epoch 559/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0378 - accuracy: 0.9870 - val_loss: 0.0594 - val_accuracy: 0.9811
Epoch 560/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0378 - accuracy: 0.9878 - val_loss: 0.0592 - val_accuracy: 0.9798
Epoch 561/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0378 - accuracy: 0.9874 - val_loss: 0.0599 - val_accuracy: 0.9811
Epoch 562/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0378 - accuracy: 0.9874 - val_loss: 0.0597 - val_accuracy: 0.9785
Epoch 563/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0377 - accuracy: 0.9878 - val_loss: 0.0597 - val_accuracy: 0.9811
Epoch 564/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0378 - accuracy: 0.9874 - val_loss: 0.0597 - val_accuracy: 0.9811
Epoch 565/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0377 - accuracy: 0.9878 - val_loss: 0.0599 - val_accuracy: 0.9798
Epoch 566/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0376 - accuracy: 0.9874 - val_loss: 0.0599 - val_accuracy: 0.9773
Epoch 567/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0380 - accuracy: 0.9870 - val_loss: 0.0591 - val_accuracy: 0.9811
Epoch 568/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0377 - accuracy: 0.9874 - val_loss: 0.0589 - val_accuracy: 0.9811
Epoch 569/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0375 - accuracy: 0.9865 - val_loss: 0.0596 - val_accuracy: 0.9811
Epoch 570/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0375 - accuracy: 0.9878 - val_loss: 0.0596 - val_accuracy: 0.9773
Epoch 571/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0375 - accuracy: 0.9878 - val_loss: 0.0598 - val_accuracy: 0.9798
Epoch 572/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0376 - accuracy: 0.9874 - val_loss: 0.0594 - val_accuracy: 0.9811
Epoch 573/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0374 - accuracy: 0.9874 - val_loss: 0.0601 - val_accuracy: 0.9798
Epoch 574/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0375 - accuracy: 0.9874 - val_loss: 0.0601 - val_accuracy: 0.9811
Epoch 575/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0374 - accuracy: 0.9878 - val_loss: 0.0601 - val_accuracy: 0.9798
Epoch 576/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0375 - accuracy: 0.9874 - val_loss: 0.0596 - val_accuracy: 0.9811
```

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Epoch 577/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0371 - accuracy: 0.9870 - val_loss: 0.0602 - val_accuracy: 0.9773
Epoch 578/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0375 - accuracy: 0.9882 - val_loss: 0.0597 - val_accuracy: 0.9798
Epoch 579/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0375 - accuracy: 0.9878 - val_loss: 0.0594 - val_accuracy: 0.9760
Epoch 580/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0373 - accuracy: 0.9874 - val_loss: 0.0597 - val_accuracy: 0.9811
Epoch 581/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0373 - accuracy: 0.9874 - val_loss: 0.0597 - val_accuracy: 0.9811
Epoch 582/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0374 - accuracy: 0.9874 - val_loss: 0.0595 - val_accuracy: 0.9773
Epoch 583/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0371 - accuracy: 0.9878 - val_loss: 0.0599 - val_accuracy: 0.9798
Epoch 584/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0373 - accuracy: 0.9878 - val_loss: 0.0593 - val_accuracy: 0.9811
Epoch 585/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0372 - accuracy: 0.9874 - val_loss: 0.0598 - val_accuracy: 0.9811
Epoch 586/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0373 - accuracy: 0.9874 - val_loss: 0.0596 - val_accuracy: 0.9811
Epoch 587/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0372 - accuracy: 0.9874 - val_loss: 0.0597 - val_accuracy: 0.9811
Epoch 588/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0373 - accuracy: 0.9874 - val_loss: 0.0599 - val_accuracy: 0.9811
Epoch 589/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0373 - accuracy: 0.9874 - val_loss: 0.0596 - val_accuracy: 0.9773
Epoch 590/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0374 - accuracy: 0.9878 - val_loss: 0.0598 - val_accuracy: 0.9773
Epoch 591/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0370 - accuracy: 0.9878 - val_loss: 0.0597 - val_accuracy: 0.9798
Epoch 592/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0366 - accuracy: 0.9878 - val_loss: 0.0604 - val_accuracy: 0.9760
Epoch 593/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0372 - accuracy: 0.9882 - val_loss: 0.0603 - val_accuracy: 0.9798
Epoch 594/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0369 - accuracy: 0.9874 - val_loss: 0.0604 - val_accuracy: 0.9798
Epoch 595/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0369 - accuracy: 0.9878 - val_loss: 0.0599 - val_accuracy: 0.9811
Epoch 596/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0369 - accuracy: 0.9878 - val_loss: 0.0603 - val_accuracy: 0.9785
Epoch 597/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0370 - accuracy: 0.9878 - val_loss: 0.0601 - val_accuracy: 0.9811
Epoch 598/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0368 - accuracy: 0.9878 - val_loss: 0.0604 - val_accuracy: 0.9798
Epoch 599/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0368 - accuracy: 0.9882 - val_loss: 0.0606 - val_accuracy: 0.9798
Epoch 600/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0365 - accuracy: 0.9882 - val_loss: 0.0606 - val_accuracy: 0.9798
Epoch 601/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0370 - accuracy: 0.9874 - val_loss: 0.0604 - val_accuracy: 0.9798
Epoch 602/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0368 - accuracy: 0.9886 - val_loss: 0.0604 - val_accuracy: 0.9785
Epoch 603/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0367 - accuracy: 0.9886 - val_loss: 0.0603 - val_accuracy: 0.9773
Epoch 604/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0367 - accuracy: 0.9882 - val_loss: 0.0605 - val_accuracy: 0.9811
Epoch 605/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0368 - accuracy: 0.9870 - val_loss: 0.0601 - val_accuracy: 0.9798
Epoch 606/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0368 - accuracy: 0.9878 - val_loss: 0.0602 - val_accuracy: 0.9811
Epoch 607/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0365 - accuracy: 0.9874 - val_loss: 0.0610 - val_accuracy: 0.9798
Epoch 608/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0367 - accuracy: 0.9870 - val_loss: 0.0609 - val_accuracy: 0.9798
Epoch 609/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0365 - accuracy: 0.9878 - val_loss: 0.0606 - val_accuracy: 0.9798
Epoch 610/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0365 - accuracy: 0.9870 - val_loss: 0.0606 - val_accuracy: 0.9811
Epoch 611/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0363 - accuracy: 0.9874 - val_loss: 0.0607 - val_accuracy: 0.9811
Epoch 612/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0369 - accuracy: 0.9870 - val_loss: 0.0602 - val_accuracy: 0.9811
Epoch 613/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0364 - accuracy: 0.9874 - val_loss: 0.0638 - val_accuracy: 0.9747
Epoch 614/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0371 - accuracy: 0.9878 - val_loss: 0.0610 - val_accuracy: 0.9811
Epoch 615/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0365 - accuracy: 0.9870 - val_loss: 0.0614 - val_accuracy: 0.9811
Epoch 616/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0365 - accuracy: 0.9870 - val_loss: 0.0611 - val_accuracy: 0.9760
Epoch 617/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0365 - accuracy: 0.9878 - val_loss: 0.0608 - val_accuracy: 0.9811
Epoch 618/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0365 - accuracy: 0.9874 - val_loss: 0.0610 - val_accuracy: 0.9798
Epoch 619/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0363 - accuracy: 0.9878 - val_loss: 0.0608 - val_accuracy: 0.9811
Epoch 620/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0363 - accuracy: 0.9874 - val_loss: 0.0608 - val_accuracy: 0.9798
Epoch 621/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0362 - accuracy: 0.9874 - val_loss: 0.0614 - val_accuracy: 0.9785
Epoch 622/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0364 - accuracy: 0.9870 - val_loss: 0.0607 - val_accuracy: 0.9811
Epoch 623/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0361 - accuracy: 0.9891 - val_loss: 0.0608 - val_accuracy: 0.9811
Epoch 624/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0362 - accuracy: 0.9878 - val_loss: 0.0611 - val_accuracy: 0.9785
Epoch 625/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0361 - accuracy: 0.9870 - val_loss: 0.0608 - val_accuracy: 0.9811
Epoch 626/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0362 - accuracy: 0.9865 - val_loss: 0.0622 - val_accuracy: 0.9811
Epoch 627/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0365 - accuracy: 0.9878 - val_loss: 0.0600 - val_accuracy: 0.9811
Epoch 628/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0363 - accuracy: 0.9865 - val_loss: 0.0606 - val_accuracy: 0.9811
Epoch 629/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0360 - accuracy: 0.9870 - val_loss: 0.0609 - val_accuracy: 0.9811
Epoch 630/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0362 - accuracy: 0.9874 - val_loss: 0.0612 - val_accuracy: 0.9811
Epoch 631/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0362 - accuracy: 0.9882 - val_loss: 0.0609 - val_accuracy: 0.9811
Epoch 632/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0359 - accuracy: 0.9882 - val_loss: 0.0611 - val_accuracy: 0.9811
Epoch 633/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0360 - accuracy: 0.9870 - val_loss: 0.0615 - val_accuracy: 0.9811
Epoch 634/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0359 - accuracy: 0.9878 - val_loss: 0.0614 - val_accuracy: 0.9811
Epoch 635/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0361 - accuracy: 0.9874 - val_loss: 0.0611 - val_accuracy: 0.9811
Epoch 636/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0359 - accuracy: 0.9874 - val_loss: 0.0612 - val_accuracy: 0.9811
Epoch 637/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0361 - accuracy: 0.9874 - val_loss: 0.0604 - val_accuracy: 0.9798
Epoch 638/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0358 - accuracy: 0.9870 - val_loss: 0.0626 - val_accuracy: 0.9798
Epoch 639/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0362 - accuracy: 0.9878 - val_loss: 0.0616 - val_accuracy: 0.9811
Epoch 640/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0357 - accuracy: 0.9874 - val_loss: 0.0618 - val_accuracy: 0.9798
```

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Epoch 641/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0354 - accuracy: 0.9882 - val_loss: 0.0626 - val_accuracy: 0.9773
Epoch 642/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0360 - accuracy: 0.9882 - val_loss: 0.0616 - val_accuracy: 0.9811
Epoch 643/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0357 - accuracy: 0.9891 - val_loss: 0.0613 - val_accuracy: 0.9773
Epoch 644/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0356 - accuracy: 0.9874 - val_loss: 0.0618 - val_accuracy: 0.9811
Epoch 645/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0357 - accuracy: 0.9891 - val_loss: 0.0614 - val_accuracy: 0.9798
Epoch 646/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0358 - accuracy: 0.9878 - val_loss: 0.0611 - val_accuracy: 0.9785
Epoch 647/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0357 - accuracy: 0.9874 - val_loss: 0.0612 - val_accuracy: 0.9798
Epoch 648/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0357 - accuracy: 0.9895 - val_loss: 0.0611 - val_accuracy: 0.9811
Epoch 649/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0356 - accuracy: 0.9882 - val_loss: 0.0612 - val_accuracy: 0.9811
Epoch 650/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0357 - accuracy: 0.9882 - val_loss: 0.0613 - val_accuracy: 0.9811
Epoch 651/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0357 - accuracy: 0.9878 - val_loss: 0.0612 - val_accuracy: 0.9811
Epoch 652/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0355 - accuracy: 0.9882 - val_loss: 0.0618 - val_accuracy: 0.9785
Epoch 653/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0357 - accuracy: 0.9886 - val_loss: 0.0618 - val_accuracy: 0.9798
Epoch 654/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0356 - accuracy: 0.9886 - val_loss: 0.0617 - val_accuracy: 0.9785
Epoch 655/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0352 - accuracy: 0.9886 - val_loss: 0.0615 - val_accuracy: 0.9811
Epoch 656/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0356 - accuracy: 0.9882 - val_loss: 0.0616 - val_accuracy: 0.9811
Epoch 657/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0353 - accuracy: 0.9878 - val_loss: 0.0614 - val_accuracy: 0.9773
Epoch 658/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0355 - accuracy: 0.9891 - val_loss: 0.0613 - val_accuracy: 0.9811
Epoch 659/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0355 - accuracy: 0.9886 - val_loss: 0.0615 - val_accuracy: 0.9811
Epoch 660/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0354 - accuracy: 0.9878 - val_loss: 0.0617 - val_accuracy: 0.9811
Epoch 661/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0354 - accuracy: 0.9886 - val_loss: 0.0616 - val_accuracy: 0.9811
Epoch 662/800
75/75 [==============================] - 0s 2ms/step - loss: 0.0355 - accuracy: 0.9886 - val_loss: 0.0618 - val_accuracy: 0.9811
Epoch 663/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0353 - accuracy: 0.9886 - val_loss: 0.0618 - val_accuracy: 0.9811
Epoch 664/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0353 - accuracy: 0.9878 - val_loss: 0.0631 - val_accuracy: 0.9760
Epoch 665/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0354 - accuracy: 0.9882 - val_loss: 0.0622 - val_accuracy: 0.9811
Epoch 666/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0353 - accuracy: 0.9886 - val_loss: 0.0616 - val_accuracy: 0.9811
Epoch 667/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0353 - accuracy: 0.9878 - val_loss: 0.0618 - val_accuracy: 0.9811
Epoch 668/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0351 - accuracy: 0.9878 - val_loss: 0.0622 - val_accuracy: 0.9785
Epoch 669/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0351 - accuracy: 0.9891 - val_loss: 0.0625 - val_accuracy: 0.9785
Epoch 670/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0351 - accuracy: 0.9882 - val_loss: 0.0619 - val_accuracy: 0.9811
Epoch 671/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0351 - accuracy: 0.9874 - val_loss: 0.0624 - val_accuracy: 0.9785
Epoch 672/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0352 - accuracy: 0.9878 - val_loss: 0.0623 - val_accuracy: 0.9811
Epoch 673/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0352 - accuracy: 0.9882 - val_loss: 0.0617 - val_accuracy: 0.9811
Epoch 674/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0351 - accuracy: 0.9891 - val_loss: 0.0614 - val_accuracy: 0.9811
Epoch 675/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0351 - accuracy: 0.9882 - val_loss: 0.0622 - val_accuracy: 0.9785
Epoch 676/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0349 - accuracy: 0.9882 - val_loss: 0.0619 - val_accuracy: 0.9811
Epoch 677/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0351 - accuracy: 0.9886 - val_loss: 0.0623 - val_accuracy: 0.9811
Epoch 678/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0349 - accuracy: 0.9882 - val_loss: 0.0623 - val_accuracy: 0.9811
Epoch 679/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0351 - accuracy: 0.9882 - val_loss: 0.0617 - val_accuracy: 0.9811
Epoch 680/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0350 - accuracy: 0.9882 - val_loss: 0.0620 - val_accuracy: 0.9811
Epoch 681/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0348 - accuracy: 0.9886 - val_loss: 0.0629 - val_accuracy: 0.9798
Epoch 682/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0352 - accuracy: 0.9874 - val_loss: 0.0625 - val_accuracy: 0.9811
Epoch 683/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0348 - accuracy: 0.9886 - val_loss: 0.0629 - val_accuracy: 0.9785
Epoch 684/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0348 - accuracy: 0.9882 - val_loss: 0.0627 - val_accuracy: 0.9785
Epoch 685/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0349 - accuracy: 0.9895 - val_loss: 0.0622 - val_accuracy: 0.9811
Epoch 686/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0347 - accuracy: 0.9886 - val_loss: 0.0624 - val_accuracy: 0.9811
Epoch 687/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0347 - accuracy: 0.9882 - val_loss: 0.0626 - val_accuracy: 0.9798
Epoch 688/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0349 - accuracy: 0.9882 - val_loss: 0.0626 - val_accuracy: 0.9785
Epoch 689/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0348 - accuracy: 0.9878 - val_loss: 0.0633 - val_accuracy: 0.9785
Epoch 690/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0348 - accuracy: 0.9886 - val_loss: 0.0630 - val_accuracy: 0.9785
Epoch 691/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0346 - accuracy: 0.9882 - val_loss: 0.0629 - val_accuracy: 0.9811
Epoch 692/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0346 - accuracy: 0.9886 - val_loss: 0.0623 - val_accuracy: 0.9811
Epoch 693/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0345 - accuracy: 0.9878 - val_loss: 0.0626 - val_accuracy: 0.9798
Epoch 694/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0346 - accuracy: 0.9882 - val_loss: 0.0622 - val_accuracy: 0.9811
Epoch 695/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0347 - accuracy: 0.9882 - val_loss: 0.0627 - val_accuracy: 0.9811
Epoch 696/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0344 - accuracy: 0.9878 - val_loss: 0.0641 - val_accuracy: 0.9785
Epoch 697/800
75/75 [==============================] - 0s 5ms/step - loss: 0.0346 - accuracy: 0.9891 - val_loss: 0.0634 - val_accuracy: 0.9798
Epoch 698/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0343 - accuracy: 0.9882 - val_loss: 0.0632 - val_accuracy: 0.9773
Epoch 699/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0348 - accuracy: 0.9878 - val_loss: 0.0633 - val_accuracy: 0.9785
Epoch 700/800
75/75 [==============================] - 0s 5ms/step - loss: 0.0343 - accuracy: 0.9882 - val_loss: 0.0630 - val_accuracy: 0.9798
Epoch 701/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0346 - accuracy: 0.9882 - val_loss: 0.0629 - val_accuracy: 0.9798
Epoch 702/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0345 - accuracy: 0.9878 - val_loss: 0.0625 - val_accuracy: 0.9811
Epoch 703/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0344 - accuracy: 0.9886 - val_loss: 0.0621 - val_accuracy: 0.9798
Epoch 704/800
75/75 [==============================] - 0s 5ms/step - loss: 0.0344 - accuracy: 0.9891 - val_loss: 0.0629 - val_accuracy: 0.9773
```

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Epoch 705/800
75/75 [==============================] - 0s 5ms/step - loss: 0.0345 - accuracy: 0.9882 - val_loss: 0.0633 - val_accuracy: 0.9798
Epoch 706/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0344 - accuracy: 0.9886 - val_loss: 0.0625 - val_accuracy: 0.9811
Epoch 707/800
75/75 [==============================] - 0s 5ms/step - loss: 0.0344 - accuracy: 0.9874 - val_loss: 0.0629 - val_accuracy: 0.9811
Epoch 708/800
75/75 [==============================] - 0s 5ms/step - loss: 0.0342 - accuracy: 0.9886 - val_loss: 0.0630 - val_accuracy: 0.9798
Epoch 709/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0344 - accuracy: 0.9878 - val_loss: 0.0631 - val_accuracy: 0.9811
Epoch 710/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0343 - accuracy: 0.9882 - val_loss: 0.0633 - val_accuracy: 0.9811
Epoch 711/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0341 - accuracy: 0.9886 - val_loss: 0.0632 - val_accuracy: 0.9785
Epoch 712/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0343 - accuracy: 0.9895 - val_loss: 0.0635 - val_accuracy: 0.9823
Epoch 713/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0344 - accuracy: 0.9882 - val_loss: 0.0631 - val_accuracy: 0.9811
Epoch 714/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0343 - accuracy: 0.9878 - val_loss: 0.0635 - val_accuracy: 0.9798
Epoch 715/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0341 - accuracy: 0.9878 - val_loss: 0.0640 - val_accuracy: 0.9785
Epoch 716/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0343 - accuracy: 0.9878 - val_loss: 0.0632 - val_accuracy: 0.9811
Epoch 717/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0343 - accuracy: 0.9882 - val_loss: 0.0635 - val_accuracy: 0.9798
Epoch 718/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0342 - accuracy: 0.9891 - val_loss: 0.0634 - val_accuracy: 0.9798
Epoch 719/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0343 - accuracy: 0.9878 - val_loss: 0.0638 - val_accuracy: 0.9811
Epoch 720/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0338 - accuracy: 0.9886 - val_loss: 0.0645 - val_accuracy: 0.9785
Epoch 721/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0341 - accuracy: 0.9882 - val_loss: 0.0635 - val_accuracy: 0.9798
Epoch 722/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0341 - accuracy: 0.9886 - val_loss: 0.0634 - val_accuracy: 0.9798
Epoch 723/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0340 - accuracy: 0.9882 - val_loss: 0.0641 - val_accuracy: 0.9798
Epoch 724/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0344 - accuracy: 0.9886 - val_loss: 0.0641 - val_accuracy: 0.9811
Epoch 725/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0339 - accuracy: 0.9886 - val_loss: 0.0641 - val_accuracy: 0.9823
Epoch 726/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0341 - accuracy: 0.9895 - val_loss: 0.0635 - val_accuracy: 0.9811
Epoch 727/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0339 - accuracy: 0.9882 - val_loss: 0.0642 - val_accuracy: 0.9785
Epoch 728/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0339 - accuracy: 0.9886 - val_loss: 0.0644 - val_accuracy: 0.9811
Epoch 729/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0339 - accuracy: 0.9891 - val_loss: 0.0641 - val_accuracy: 0.9798
Epoch 730/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0335 - accuracy: 0.9891 - val_loss: 0.0641 - val_accuracy: 0.9798
Epoch 731/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0338 - accuracy: 0.9891 - val_loss: 0.0650 - val_accuracy: 0.9785
Epoch 732/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0338 - accuracy: 0.9886 - val_loss: 0.0645 - val_accuracy: 0.9773
Epoch 733/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0340 - accuracy: 0.9886 - val_loss: 0.0662 - val_accuracy: 0.9773
Epoch 734/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0337 - accuracy: 0.9878 - val_loss: 0.0642 - val_accuracy: 0.9798
Epoch 735/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0338 - accuracy: 0.9882 - val_loss: 0.0643 - val_accuracy: 0.9798
Epoch 736/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0338 - accuracy: 0.9891 - val_loss: 0.0643 - val_accuracy: 0.9798
Epoch 737/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0335 - accuracy: 0.9891 - val_loss: 0.0652 - val_accuracy: 0.9773
Epoch 738/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0337 - accuracy: 0.9886 - val_loss: 0.0652 - val_accuracy: 0.9785
Epoch 739/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0334 - accuracy: 0.9882 - val_loss: 0.0649 - val_accuracy: 0.9798
Epoch 740/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0337 - accuracy: 0.9886 - val_loss: 0.0650 - val_accuracy: 0.9785
Epoch 741/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0338 - accuracy: 0.9895 - val_loss: 0.0644 - val_accuracy: 0.9785
Epoch 742/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0337 - accuracy: 0.9886 - val_loss: 0.0646 - val_accuracy: 0.9798
Epoch 743/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0334 - accuracy: 0.9886 - val_loss: 0.0645 - val_accuracy: 0.9798
Epoch 744/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0331 - accuracy: 0.9899 - val_loss: 0.0646 - val_accuracy: 0.9798
Epoch 745/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0333 - accuracy: 0.9882 - val_loss: 0.0646 - val_accuracy: 0.9811
Epoch 746/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0334 - accuracy: 0.9882 - val_loss: 0.0640 - val_accuracy: 0.9811
Epoch 747/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0333 - accuracy: 0.9882 - val_loss: 0.0650 - val_accuracy: 0.9785
Epoch 748/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0335 - accuracy: 0.9891 - val_loss: 0.0649 - val_accuracy: 0.9785
Epoch 749/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0333 - accuracy: 0.9882 - val_loss: 0.0645 - val_accuracy: 0.9785
Epoch 750/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0332 - accuracy: 0.9882 - val_loss: 0.0645 - val_accuracy: 0.9798
Epoch 751/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0335 - accuracy: 0.9882 - val_loss: 0.0645 - val_accuracy: 0.9811
Epoch 752/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0333 - accuracy: 0.9886 - val_loss: 0.0654 - val_accuracy: 0.9785
Epoch 753/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0334 - accuracy: 0.9886 - val_loss: 0.0648 - val_accuracy: 0.9798
Epoch 754/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0334 - accuracy: 0.9895 - val_loss: 0.0650 - val_accuracy: 0.9798
Epoch 755/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0333 - accuracy: 0.9891 - val_loss: 0.0649 - val_accuracy: 0.9798
Epoch 756/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0332 - accuracy: 0.9891 - val_loss: 0.0641 - val_accuracy: 0.9798
Epoch 757/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0331 - accuracy: 0.9895 - val_loss: 0.0649 - val_accuracy: 0.9798
Epoch 758/800
75/75 [==============================] - 0s 5ms/step - loss: 0.0332 - accuracy: 0.9891 - val_loss: 0.0654 - val_accuracy: 0.9811
Epoch 759/800
75/75 [==============================] - 0s 5ms/step - loss: 0.0329 - accuracy: 0.9891 - val_loss: 0.0688 - val_accuracy: 0.9747
Epoch 760/800
75/75 [==============================] - 0s 5ms/step - loss: 0.0338 - accuracy: 0.9886 - val_loss: 0.0663 - val_accuracy: 0.9773
Epoch 761/800
75/75 [==============================] - 0s 5ms/step - loss: 0.0334 - accuracy: 0.9886 - val_loss: 0.0653 - val_accuracy: 0.9798
Epoch 762/800
75/75 [==============================] - 0s 5ms/step - loss: 0.0330 - accuracy: 0.9895 - val_loss: 0.0649 - val_accuracy: 0.9798
Epoch 763/800
75/75 [==============================] - 0s 6ms/step - loss: 0.0332 - accuracy: 0.9886 - val_loss: 0.0654 - val_accuracy: 0.9785
Epoch 764/800
75/75 [==============================] - 0s 5ms/step - loss: 0.0331 - accuracy: 0.9891 - val_loss: 0.0658 - val_accuracy: 0.9785
Epoch 765/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0331 - accuracy: 0.9891 - val_loss: 0.0655 - val_accuracy: 0.9785
Epoch 766/800
75/75 [==============================] - 0s 5ms/step - loss: 0.0331 - accuracy: 0.9891 - val_loss: 0.0656 - val_accuracy: 0.9785
Epoch 767/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0324 - accuracy: 0.9878 - val_loss: 0.0659 - val_accuracy: 0.9798
Epoch 768/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0331 - accuracy: 0.9886 - val_loss: 0.0655 - val_accuracy: 0.9798
```

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Epoch 769/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0332 - accuracy: 0.9891 - val_loss: 0.0653 - val_accuracy: 0.9811
Epoch 770/800
75/75 [==============================] - 0s 4ms/step - loss: 0.0328 - accuracy: 0.9886 - val_loss: 0.0665 - val_accuracy: 0.9785
Epoch 771/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0331 - accuracy: 0.9891 - val_loss: 0.0661 - val_accuracy: 0.9773
Epoch 772/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0327 - accuracy: 0.9891 - val_loss: 0.0659 - val_accuracy: 0.9773
Epoch 773/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0330 - accuracy: 0.9878 - val_loss: 0.0659 - val_accuracy: 0.9798
Epoch 774/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0326 - accuracy: 0.9886 - val_loss: 0.0657 - val_accuracy: 0.9798
Epoch 775/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0328 - accuracy: 0.9891 - val_loss: 0.0658 - val_accuracy: 0.9811
Epoch 776/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0328 - accuracy: 0.9882 - val_loss: 0.0662 - val_accuracy: 0.9785
Epoch 777/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0328 - accuracy: 0.9886 - val_loss: 0.0663 - val_accuracy: 0.9798
Epoch 778/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0325 - accuracy: 0.9895 - val_loss: 0.0658 - val_accuracy: 0.9798
Epoch 779/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0328 - accuracy: 0.9886 - val_loss: 0.0661 - val_accuracy: 0.9811
Epoch 780/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0326 - accuracy: 0.9886 - val_loss: 0.0665 - val_accuracy: 0.9785
Epoch 781/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0319 - accuracy: 0.9891 - val_loss: 0.0662 - val_accuracy: 0.9798
Epoch 782/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0328 - accuracy: 0.9886 - val_loss: 0.0658 - val_accuracy: 0.9798
Epoch 783/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0328 - accuracy: 0.9882 - val_loss: 0.0661 - val_accuracy: 0.9798
Epoch 784/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0326 - accuracy: 0.9891 - val_loss: 0.0665 - val_accuracy: 0.9785
Epoch 785/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0326 - accuracy: 0.9895 - val_loss: 0.0663 - val_accuracy: 0.9798
Epoch 786/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0325 - accuracy: 0.9891 - val_loss: 0.0665 - val_accuracy: 0.9798
Epoch 787/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0327 - accuracy: 0.9891 - val_loss: 0.0657 - val_accuracy: 0.9811
Epoch 788/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0325 - accuracy: 0.9886 - val_loss: 0.0659 - val_accuracy: 0.9811
Epoch 789/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0325 - accuracy: 0.9886 - val_loss: 0.0656 - val_accuracy: 0.9798
Epoch 790/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0326 - accuracy: 0.9886 - val_loss: 0.0658 - val_accuracy: 0.9798
Epoch 791/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0322 - accuracy: 0.9886 - val_loss: 0.0672 - val_accuracy: 0.9773
Epoch 792/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0324 - accuracy: 0.9886 - val_loss: 0.0670 - val_accuracy: 0.9773
Epoch 793/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0322 - accuracy: 0.9874 - val_loss: 0.0667 - val_accuracy: 0.9811
Epoch 794/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0325 - accuracy: 0.9891 - val_loss: 0.0666 - val_accuracy: 0.9798
Epoch 795/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0325 - accuracy: 0.9886 - val_loss: 0.0665 - val_accuracy: 0.9811
Epoch 796/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0320 - accuracy: 0.9895 - val_loss: 0.0678 - val_accuracy: 0.9785
Epoch 797/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0325 - accuracy: 0.9882 - val_loss: 0.0673 - val_accuracy: 0.9798
Epoch 798/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0323 - accuracy: 0.9882 - val_loss: 0.0670 - val_accuracy: 0.9811
Epoch 799/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0323 - accuracy: 0.9891 - val_loss: 0.0666 - val_accuracy: 0.9798
Epoch 800/800
75/75 [==============================] - 0s 3ms/step - loss: 0.0324 - accuracy: 0.9886 - val_loss: 0.0667 - val_accuracy: 0.9798
```

In [153…
```
y_pred_prob_nn_supp3 = model_supp3.predict(X_test_norm)
y_pred_class_nn_supp3 = (y_pred_prob_nn_supp3 > 0.5).astype('int32')
```

```
25/25 [==============================] - 0s 1ms/step
```

In [154…
```
y_pred_class_nn_supp3[:10]
```

Out[154]:
```
array([[1],
       [1],
       [1],
       [1],
       [1],
       [1],
       [1],
       [1],
       [0],
       [0]], dtype=int32)
```

In [155…
```
y_pred_prob_nn_supp3[:10]
```

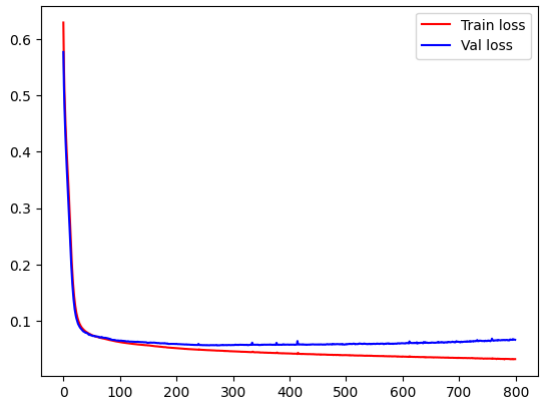
Out[155]:
```
array([[9.9999905e-01],
       [9.9905705e-01],
       [9.9691033e-01],
       [9.9999899e-01],
       [9.9986291e-01],
       [9.9948049e-01],
       [9.9999982e-01],
       [9.9930364e-01],
       [2.1352344e-03],
       [3.7764621e-06]], dtype=float32)
```

In [156…
```
run_hist_supp3.history.keys()
```

Out[156]:
```
dict_keys(['loss', 'accuracy', 'val_loss', 'val_accuracy'])
```

In [157…
```
fig, ax = plt.subplots()
ax.plot(run_hist_supp3.history['loss'], 'r', label = 'Train loss')
ax.plot(run_hist_supp3.history['val_loss'], 'b', label = "Val loss")
ax.legend()
```

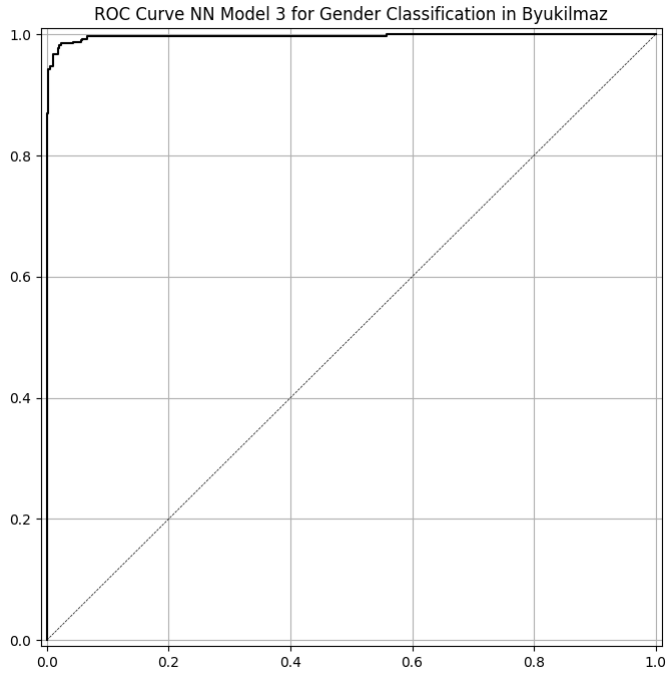
Out[157]:
```
<matplotlib.legend.Legend at 0x7b29a2eee680>
```



In [158…
```
def plot_roc(y_test, y_pred, model_name):
    fpr, tpr, thr = roc_curve(y_test, y_pred)
    fig, ax = plt.subplots(figsize=(8, 8))
    ax.plot(fpr, tpr, 'k-')
    ax.plot([0, 1], [0, 1], 'k--', linewidth=.5)
    ax.grid(True)
    ax.set(title='ROC Curve {} for Gender Classification in Byukilmaz'.format(model_name),
           xlim=[-0.01, 1.01], ylim=[-0.01, 1.01])
```

In [161…
```
print('accuracy is {:.3f}'.format(accuracy_score(y_test,y_pred_class_nn_supp3)))
print('roc-auc is {:.3f}'.format(roc_auc_score(y_test,y_pred_prob_nn_supp3)))
plot_roc(y_test, y_pred_prob_nn_supp3, "NN Model 3")
```

```
accuracy is 0.980
roc-auc is 0.997
```



- This model shows a

Conclusion

This activity demonstrates how does building and training the neural network underscore the importance of meticulous data preprocessing. And, Understanding the nature of the data, handling non-numeric values, and adapting code to different data structures in ensuring a smooth and error-free machine learning workflow.

Google Colab link

Colab Link:

https://colab.research.google.com/drive/1Sg9sGnBQyJAroSFE4ev3ObrURD91yTRZ?usp=sharing

In [160…
```
#!jupyter-nbconvert --to html '/content/drive/MyDrive/Colab Notebooks/Hands-on Activity 1.2 - Training Neural Networks (Figueroa).ipynb'
```