

```
import pandas as pd
import matplotlib.pyplot as plt
import matplotlib.dates as mdates
import datetime as dt
```

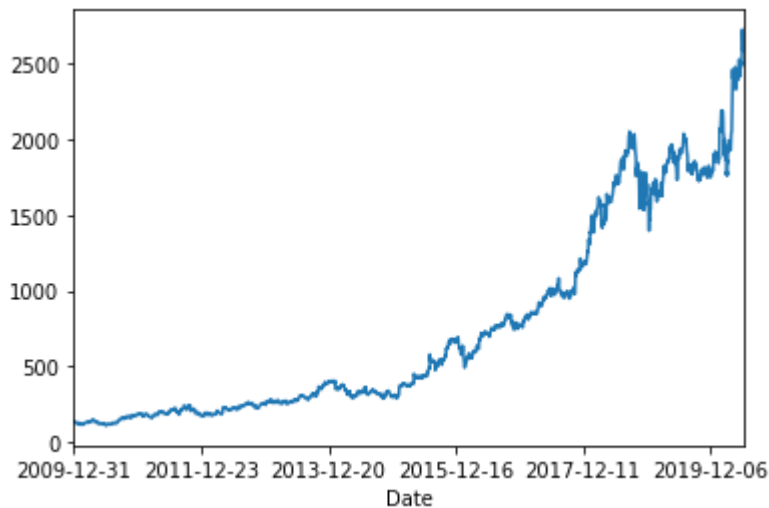
```
df=pd.read_csv('dataset_target.csv',index_col=0)
```

```
df.columns
```

```
Index(['High', 'Low', 'Open', 'Close', 'Volume', 'Adj Close'], dtype='object')
```

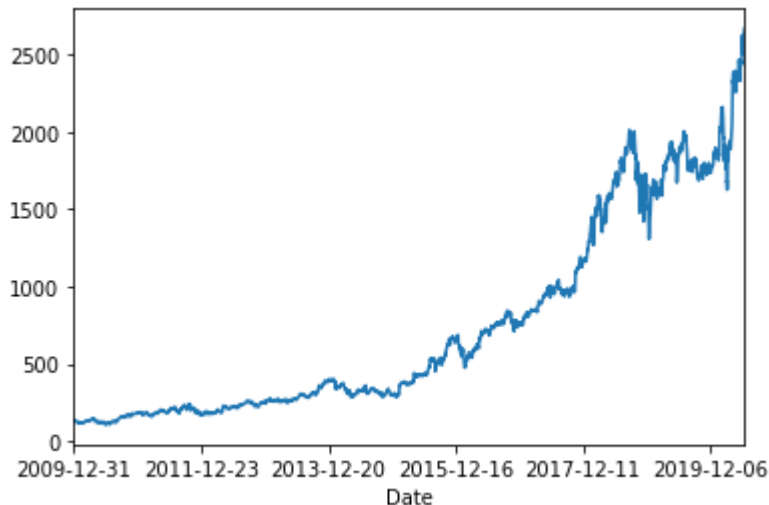
```
df['High'].plot()
```

```
<matplotlib.axes._subplots.AxesSubplot at 0x7fa8010e6b70>
```



```
df['Low'].plot()
```

```
<matplotlib.axes._subplots.AxesSubplot at 0x7fa800a03978>
```

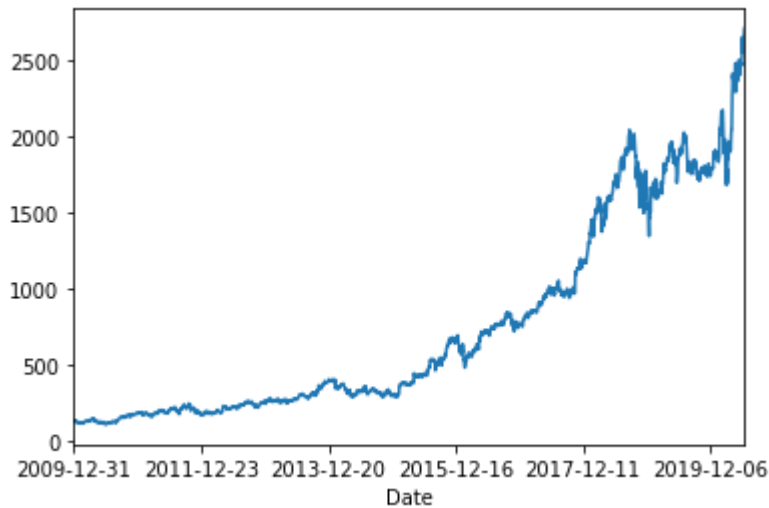


```
df['Adj Close'].plot()
```

```
df['Adj Close'].plot()
```



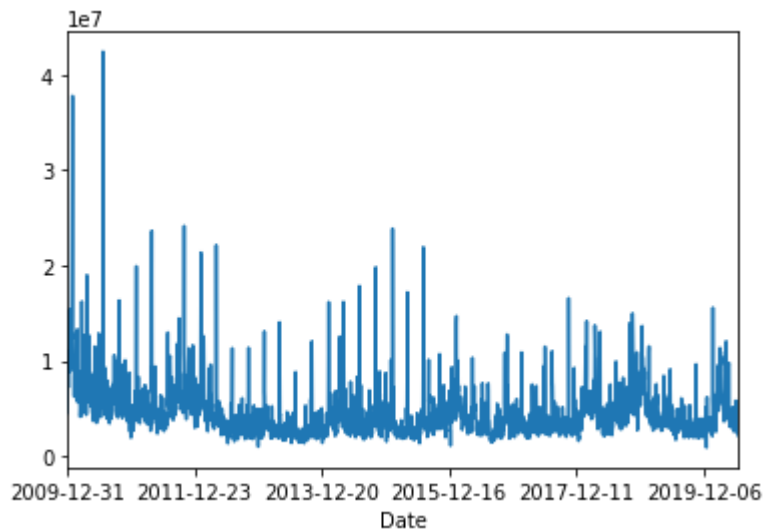
<matplotlib.axes.\_subplots.AxesSubplot at 0x7fa8009109b0>



```
df['Volume'].plot()
```



<matplotlib.axes.\_subplots.AxesSubplot at 0x7fa8008ff0f0>



## ▼ Entering moving Average

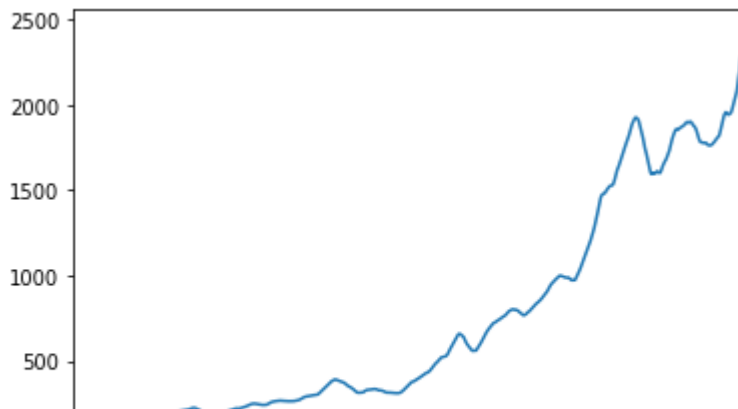
```
## We are taking 50 moving average  
## That is a total of 50 days data
```

```
df['Moving_av']= df['Adj Close'].rolling(window=50,min_periods=0).mean()
```

```
df['Moving_av'].plot()
```



<matplotlib.axes.\_subplots.AxesSubplot at 0x7fa80085ec50>



```
i=1
rate_increase_in_vol=[0]
rate_increase_in_adj_close=[0]

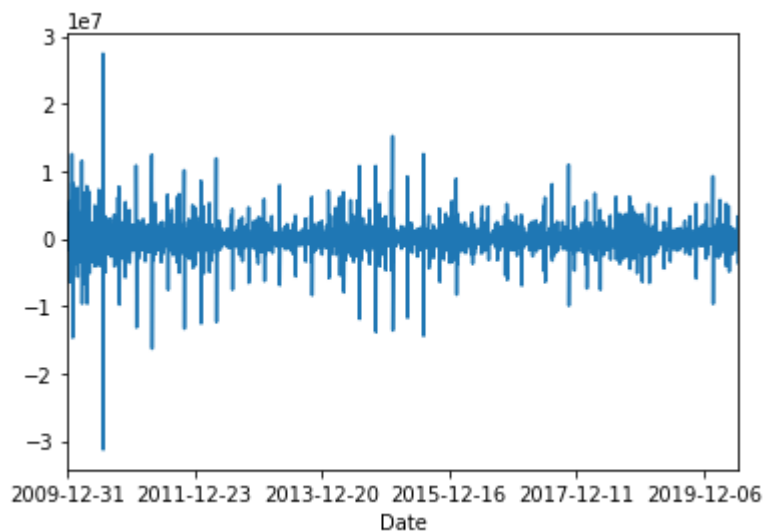
while i<len(df):
    rate_increase_in_vol.append(df.iloc[i]['Volume']-df.iloc[i-1]['Volume'])
    rate_increase_in_adj_close.append(df.iloc[i]['Adj Close']-df.iloc[i-1]['Adj Close'])
    i+=1

df['Increase_in_vol']=rate_increase_in_vol
df['Increase_in_adj_close']=rate_increase_in_adj_close
```

```
df['Increase_in_vol'].plot()
```



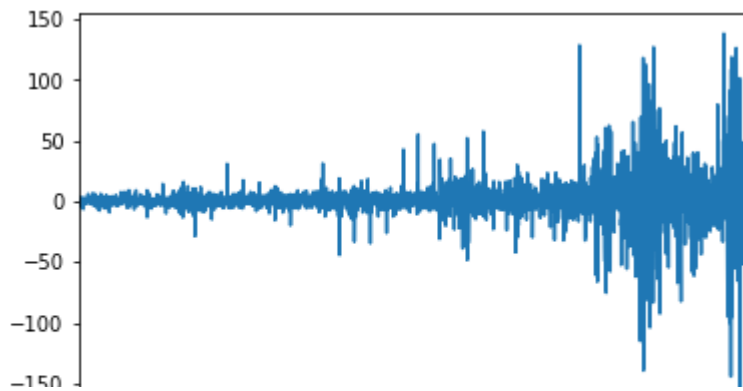
<matplotlib.axes.\_subplots.AxesSubplot at 0x7fa8008410f0>



```
df['Increase_in_adj_close'].plot()
```



<matplotlib.axes.\_subplots.AxesSubplot at 0x7fa8007ccfd0>



```
df.to_csv("dataset_target_2.csv",index=False)
2009-12-31 2011-12-23 2013-12-20 2015-12-16 2017-12-11 2019-12-06

df.columns
```

```
Index(['High', 'Low', 'Open', 'Close', 'Volume', 'Adj Close', 'Moving_av',
      'Increase_in_vol', 'Increase_in_adj_close'],
      dtype='object')
```

```
df=pd.read_csv('stock_details/AMZN.csv')
```

```
df.columns
```

```
Index(['Date', 'High', 'Low', 'Open', 'Close', 'Volume', 'Adj Close'], dtype='object')
```

```
Dates=[]
i=0
while i<len(df):
    Dates.append(df.iloc[i]['Date'])
    i+=1
```

```
df2=pd.read_csv('dataset_target_2.csv')
df2['Date']=Dates
df2.to_csv("dataset_target_2.csv",index=False)
```

```
df=pd.read_csv('Dataset_main.csv')
```

```
df.columns
```

```
Index(['High', 'Low', 'Open', 'Close', 'Volume', 'Adj Close', 'Moving_av',
      'Increase_in_vol', 'Increase_in_adj_close', 'MMM',
      ...,
      'FITB', 'FE', 'FRC', 'FISV', 'FLT', 'FLIR', 'FLS', 'FMC', 'F', 'Date'],
      dtype='object', length=207)
```

```
import datetime as dt
import matplotlib.pyplot as plt
from matplotlib import style
from mpl_finance import candlestick_ohlc
import matplotlib.dates as mdates
import pandas as pd
df=pd.read_csv('stock_details/AMZN.csv',index_col=0,parse_dates=True)
```

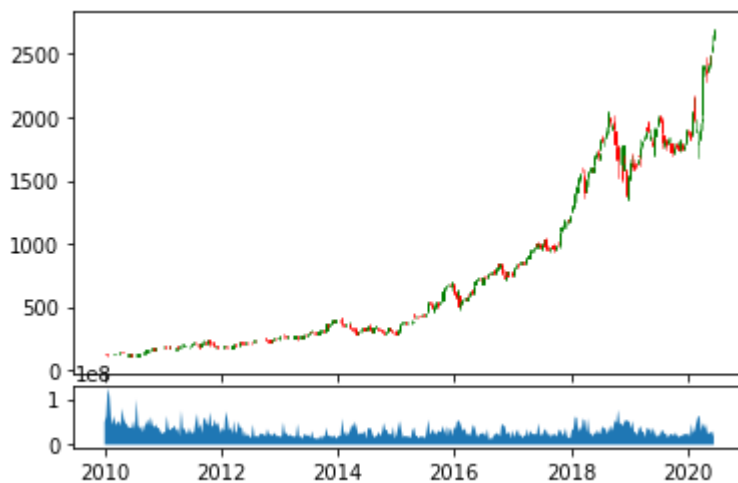
```
df_ohlc= df['Adj Close'].resample('10D').ohlc()
df_volume=df['Volume'].resample('10D').sum()
df_ohlc.reset_index(inplace=True)
df_ohlc['Date']=df_ohlc['Date'].map(mdates.date2num)
```

```
ax1=plt.subplot2grid((6,1), (0,0), rowspan=5, colspan=1)
ax2=plt.subplot2grid((6,1), (5,0), rowspan=1, colspan=1 , sharex=ax1)
ax1.xaxis_date()
```

```
candlestick_ohlc(ax1,df_ohlc.values, width=2, colorup='g')
ax2.fill_between(df_volume.index.map(mdates.date2num),df_volume.values,0)
```



<matplotlib.collections.PolyCollection at 0x7fa8005dd7f0>



## ▼ Dataset Preprocessing

```
df1=pd.read_csv('dataset_target.csv')
col1=df1.columns
print(col1)
```



Index(['Date', 'High', 'Low', 'Open', 'Close', 'Volume', 'Adj Close'], dtype='object')

```
df2=pd.read_csv('dataset_target_2.csv')
col2=df2.columns
print(col2)
```

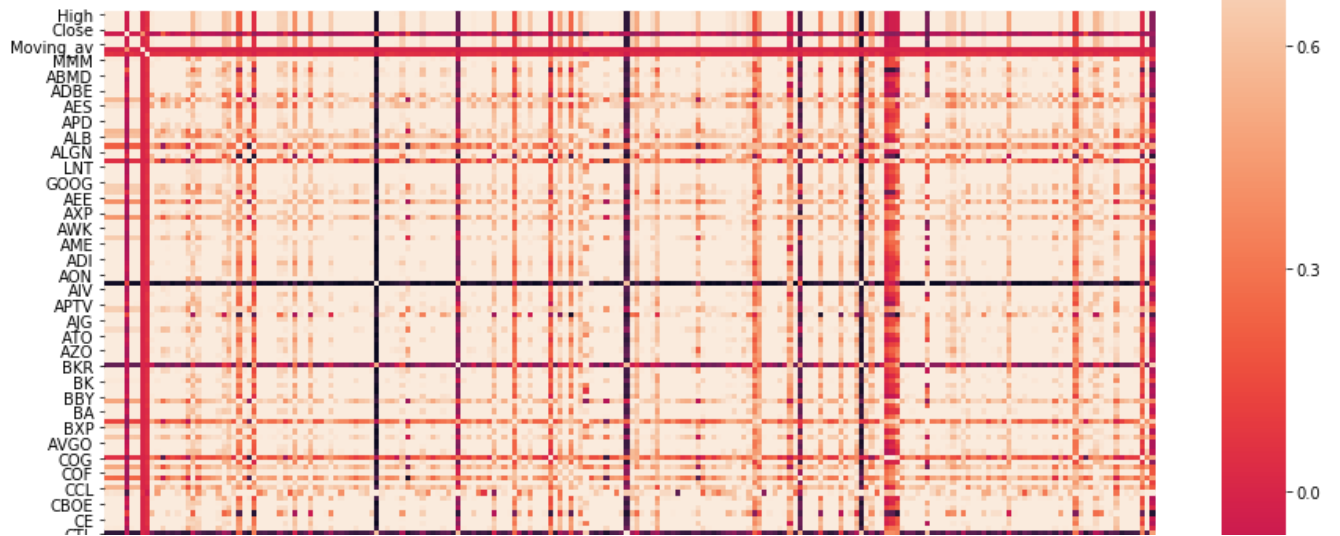
```
Index(['High', 'Low', 'Open', 'Close', 'Volume', 'Adj Close', 'Moving_av',  
      'Increase_in_vol', 'Increase_in_adj_close', 'Date'],  
      dtype='object')
```

```
df3=pd.read_csv('Dataset_main.csv')  
col3=df3.columns  
print(col3)
```

```
Index(['High', 'Low', 'Open', 'Close', 'Volume', 'Adj Close', 'Moving_av',  
      'Increase_in_vol', 'Increase_in_adj_close', 'MMM',  
      ...  
      'FITB', 'FE', 'FRC', 'FISV', 'FLT', 'FLIR', 'FLS', 'FMC', 'F', 'Date'],  
      dtype='object', length=207)
```

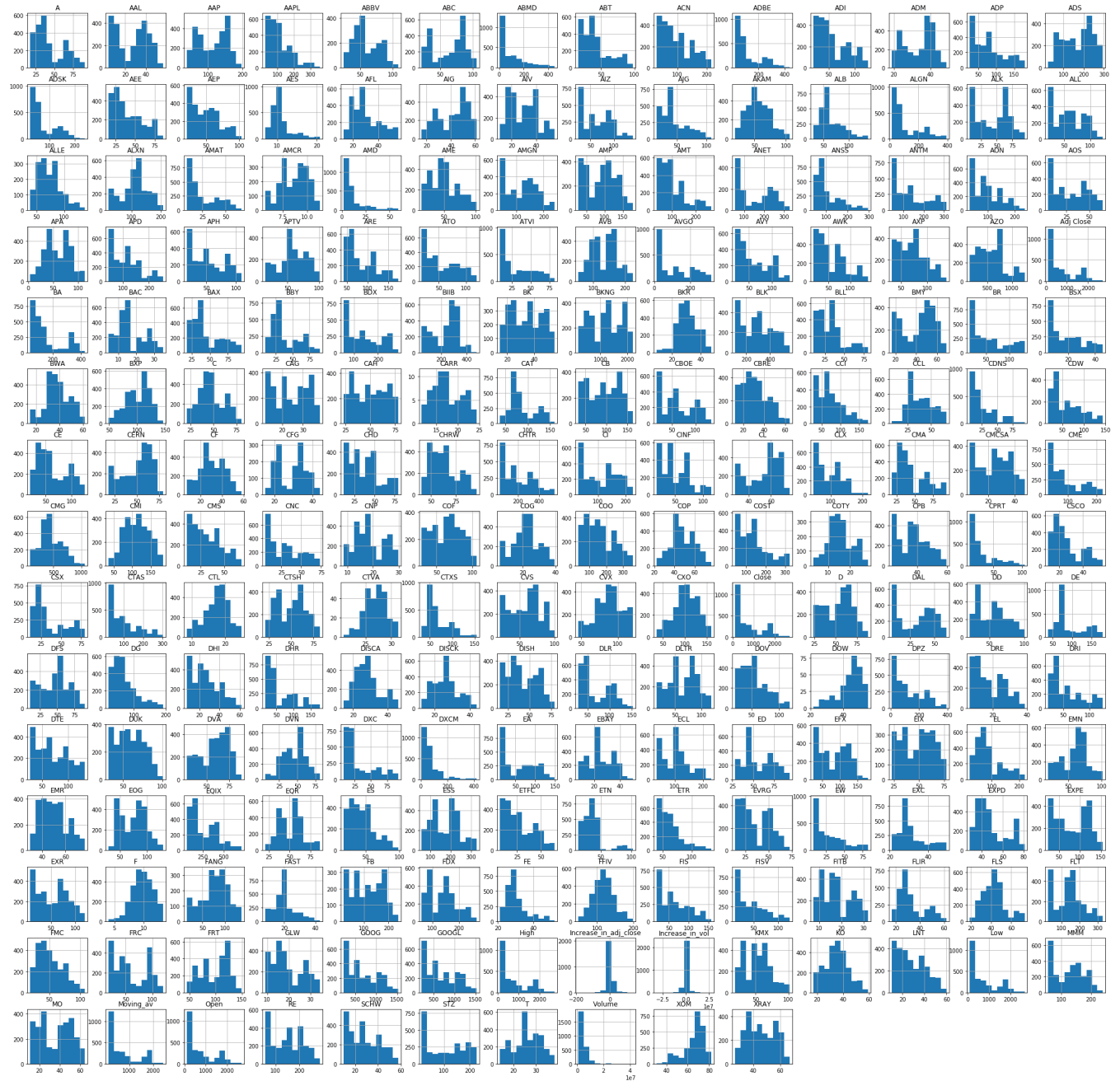
```
import seaborn as sb  
C_mat = df3.corr()  
fig = plt.figure(figsize = (15,15))  
  
sb.heatmap(C_mat, vmax = .8, square = True)  
plt.show()
```





```
df3.hist(figsize = (35,35))  
plt.show()
```







```
df3.fillna(0, inplace=True)
```

```
y_df=df3[['High', 'Low', 'Open', 'Close', 'Volume', 'Adj Close']]
```

```
col_y=y_df.columns
print(col_y)
```

```
Index(['High', 'Low', 'Open', 'Close', 'Volume', 'Adj Close'], dtype='object')
```

```
y_df_mod=y_df.drop(['Adj Close','Volume'],axis=1)
```

```
y_df_mod.columns
```

```
Index(['High', 'Low', 'Open', 'Close'], dtype='object')
```

```
Drop_cols=col_y
```

```
Drop_cols=Drop_cols.tolist()
```

```
Drop_cols.append('Date')
```

```
X_df=df3.drop(Drop_cols,axis=1)
```

```
X_df.columns
```

```
Index(['Moving_av', 'Increase_in_vol', 'Increase_in_adj_close', 'MMM', 'ABT',
      'ABBV', 'ABMD', 'ACN', 'ATVI', 'ADBE',
      ...,
      'FIS', 'FITB', 'FE', 'FRC', 'FISV', 'FLT', 'FLIR', 'FLS', 'FMC', 'F'],
      dtype='object', length=200)
```

```
X=X_df.values
```

```
from sklearn.model_selection import train_test_split
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.3)


from tensorflow.keras.callbacks import ModelCheckpoint
from tensorflow.keras.models import Sequential
from tensorflow.keras.layers import Dense, Activation, Flatten
from sklearn.model_selection import train_test_split
from sklearn.ensemble import RandomForestRegressor
from sklearn.metrics import mean_absolute_error
from sklearn.metrics import accuracy_score


def model():
    mod=Sequential()
    mod.add(Dense(32, kernel_initializer='normal',input_dim = 200, activation='relu'))
    mod.add(Dense(64, kernel_initializer='normal',activation='relu'))
    mod.add(Dense(128, kernel_initializer='normal',activation='relu'))
    mod.add(Dense(256, kernel_initializer='normal',activation='relu'))
    mod.add(Dense(4, kernel_initializer='normal',activation='linear'))

    mod.compile(loss='mean_absolute_error', optimizer='adam', metrics=['accuracy','mean_absol
    mod.summary()

    return mod


from tensorflow.keras.wrappers.scikit_learn import KerasRegressor
regressor = KerasRegressor(build_fn=model, batch_size=16,epochs=2000)


import tensorflow as tf
callback=tf.keras.callbacks.ModelCheckpoint(filepath='Regressor_model.h5',
                                            monitor='mean_absolute_error',
                                            verbose=0,
                                            save_best_only=True,
                                            save_weights_only=False,
                                            mode='auto')
results=regressor.fit(X_train,y_train,callbacks=[callback])
```



Model: "sequential\_14"

Layer (type)	Output Shape	Param #
dense_40 (Dense)	(None, 32)	6432
dense_41 (Dense)	(None, 64)	2112
dense_42 (Dense)	(None, 128)	8320
dense_43 (Dense)	(None, 256)	33024
dense_44 (Dense)	(None, 4)	1028

Total params: 50,916

Trainable params: 50,916

Non-trainable params: 0

Train on 1845 samples

Epoch 1/2000

1845/1845 [=====] - 1s 419us/sample - loss: 664.2635 - accuracy

Epoch 2/2000

1845/1845 [=====] - 0s 177us/sample - loss: 380.4560 - accuracy

Epoch 3/2000

1845/1845 [=====] - 1s 302us/sample - loss: 279.3073 - accuracy

Epoch 4/2000

1845/1845 [=====] - 0s 194us/sample - loss: 253.8993 - accuracy

Epoch 5/2000

1845/1845 [=====] - 0s 128us/sample - loss: 230.2393 - accuracy

Epoch 6/2000

1845/1845 [=====] - 0s 107us/sample - loss: 177.1194 - accuracy

Epoch 7/2000

1845/1845 [=====] - 0s 127us/sample - loss: 184.0765 - accuracy

Epoch 8/2000

1845/1845 [=====] - 0s 112us/sample - loss: 141.0303 - accuracy

Epoch 9/2000

1845/1845 [=====] - 0s 144us/sample - loss: 137.3914 - accuracy

Epoch 10/2000

1845/1845 [=====] - 0s 118us/sample - loss: 151.3450 - accuracy

Epoch 11/2000

1845/1845 [=====] - 1s 273us/sample - loss: 122.8247 - accuracy

Epoch 12/2000

1845/1845 [=====] - 0s 171us/sample - loss: 108.3147 - accuracy

Epoch 13/2000

1845/1845 [=====] - 0s 140us/sample - loss: 132.9112 - accuracy

Epoch 14/2000

1845/1845 [=====] - 0s 161us/sample - loss: 104.6540 - accuracy

Epoch 15/2000

1845/1845 [=====] - 0s 148us/sample - loss: 95.6864 - accuracy

Epoch 16/2000

1845/1845 [=====] - 0s 185us/sample - loss: 97.0706 - accuracy

Epoch 17/2000

1845/1845 [=====] - 0s 162us/sample - loss: 81.5802 - accuracy

Epoch 18/2000

1845/1845 [=====] - 0s 127us/sample - loss: 99.8481 - accuracy

Epoch 19/2000

1845/1845 [=====] - 0s 145us/sample - loss: 85.3882 - accuracy

```
Epoch 20/2000
1845/1845 [=====] - 0s 123us/sample - loss: 89.7880 - accuracy
Epoch 21/2000
1845/1845 [=====] - 0s 130us/sample - loss: 89.8775 - accuracy
Epoch 22/2000
1845/1845 [=====] - 0s 110us/sample - loss: 88.1659 - accuracy
Epoch 23/2000
1845/1845 [=====] - 0s 130us/sample - loss: 82.6997 - accuracy
Epoch 24/2000
1845/1845 [=====] - 0s 129us/sample - loss: 73.5301 - accuracy
Epoch 25/2000
1845/1845 [=====] - 0s 98us/sample - loss: 80.2827 - accuracy:
Epoch 26/2000
1845/1845 [=====] - 0s 143us/sample - loss: 69.9629 - accuracy
Epoch 27/2000
1845/1845 [=====] - 0s 110us/sample - loss: 98.9401 - accuracy
Epoch 28/2000
1845/1845 [=====] - 0s 120us/sample - loss: 69.4197 - accuracy
Epoch 29/2000
1845/1845 [=====] - 0s 95us/sample - loss: 75.4263 - accuracy:
Epoch 30/2000
1845/1845 [=====] - 0s 92us/sample - loss: 80.1138 - accuracy:
Epoch 31/2000
1845/1845 [=====] - 0s 100us/sample - loss: 78.7521 - accuracy
Epoch 32/2000
1845/1845 [=====] - 0s 102us/sample - loss: 91.8455 - accuracy
Epoch 33/2000
1845/1845 [=====] - 0s 100us/sample - loss: 73.6887 - accuracy
Epoch 34/2000
1845/1845 [=====] - 0s 95us/sample - loss: 72.4100 - accuracy:
Epoch 35/2000
1845/1845 [=====] - 0s 101us/sample - loss: 58.2616 - accuracy
Epoch 36/2000
1845/1845 [=====] - 0s 87us/sample - loss: 62.6573 - accuracy:
Epoch 37/2000
1845/1845 [=====] - 0s 96us/sample - loss: 79.5018 - accuracy:
Epoch 38/2000
1845/1845 [=====] - 0s 93us/sample - loss: 63.8494 - accuracy:
Epoch 39/2000
1845/1845 [=====] - 0s 89us/sample - loss: 77.1781 - accuracy:
Epoch 40/2000
1845/1845 [=====] - 0s 93us/sample - loss: 77.5900 - accuracy:
Epoch 41/2000
1845/1845 [=====] - 0s 95us/sample - loss: 71.6377 - accuracy:
Epoch 42/2000
1845/1845 [=====] - 0s 93us/sample - loss: 60.0765 - accuracy:
Epoch 43/2000
1845/1845 [=====] - 0s 114us/sample - loss: 59.5285 - accuracy
Epoch 44/2000
1845/1845 [=====] - 0s 112us/sample - loss: 63.4027 - accuracy
Epoch 45/2000
1845/1845 [=====] - 0s 112us/sample - loss: 63.3320 - accuracy
Epoch 46/2000
1845/1845 [=====] - 0s 114us/sample - loss: 52.4374 - accuracy
Epoch 47/2000
1845/1845 [=====] - 0s 99us/sample - loss: 75.7590 - accuracy:
Epoch 48/2000
1845/1845 [=====] - 0s 94us/sample - loss: 57.8109 - accuracy:
```

```
Epoch 49/2000
1845/1845 [=====] - 0s 107us/sample - loss: 57.9321 - accuracy
Epoch 50/2000
1845/1845 [=====] - 0s 104us/sample - loss: 54.7196 - accuracy
Epoch 51/2000
1845/1845 [=====] - 0s 108us/sample - loss: 63.4576 - accuracy
Epoch 52/2000
1845/1845 [=====] - 0s 114us/sample - loss: 76.8582 - accuracy
Epoch 53/2000
1845/1845 [=====] - 0s 149us/sample - loss: 69.2701 - accuracy
Epoch 54/2000
1845/1845 [=====] - 0s 114us/sample - loss: 60.7526 - accuracy
Epoch 55/2000
1845/1845 [=====] - 0s 112us/sample - loss: 51.1798 - accuracy
Epoch 56/2000
1845/1845 [=====] - 0s 78us/sample - loss: 62.8372 - accuracy:
Epoch 57/2000
1845/1845 [=====] - 0s 110us/sample - loss: 54.7218 - accuracy
Epoch 58/2000
1845/1845 [=====] - 0s 132us/sample - loss: 53.6008 - accuracy
Epoch 59/2000
1845/1845 [=====] - 0s 121us/sample - loss: 59.4610 - accuracy
Epoch 60/2000
1845/1845 [=====] - 0s 100us/sample - loss: 61.1632 - accuracy
Epoch 61/2000
1845/1845 [=====] - 0s 90us/sample - loss: 77.5940 - accuracy:
Epoch 62/2000
1845/1845 [=====] - 0s 113us/sample - loss: 60.4103 - accuracy
Epoch 63/2000
1845/1845 [=====] - 0s 125us/sample - loss: 55.4283 - accuracy
Epoch 64/2000
1845/1845 [=====] - 0s 101us/sample - loss: 53.5092 - accuracy
Epoch 65/2000
1845/1845 [=====] - 0s 112us/sample - loss: 51.4510 - accuracy
Epoch 66/2000
1845/1845 [=====] - 0s 105us/sample - loss: 52.5597 - accuracy
Epoch 67/2000
1845/1845 [=====] - 0s 95us/sample - loss: 57.4971 - accuracy:
Epoch 68/2000
1845/1845 [=====] - 0s 88us/sample - loss: 60.2343 - accuracy:
Epoch 69/2000
1845/1845 [=====] - 0s 94us/sample - loss: 61.3989 - accuracy:
Epoch 70/2000
1845/1845 [=====] - 0s 84us/sample - loss: 61.3382 - accuracy:
Epoch 71/2000
1845/1845 [=====] - 0s 94us/sample - loss: 53.4795 - accuracy:
Epoch 72/2000
1845/1845 [=====] - 0s 96us/sample - loss: 48.9610 - accuracy:
Epoch 73/2000
1845/1845 [=====] - 0s 94us/sample - loss: 53.1772 - accuracy:
Epoch 74/2000
1845/1845 [=====] - 0s 94us/sample - loss: 54.2878 - accuracy:
Epoch 75/2000
1845/1845 [=====] - 0s 104us/sample - loss: 57.5719 - accuracy
Epoch 76/2000
1845/1845 [=====] - 0s 97us/sample - loss: 51.7935 - accuracy:
Epoch 77/2000
1845/1845 [=====] - 0s 101us/sample - loss: 52.2523 - accuracy:
```

```
1845/1845 [=====] - 0s 101us/sample - loss: 52.2525 - accuracy
Epoch 78/2000
1845/1845 [=====] - 0s 104us/sample - loss: 55.3458 - accuracy
Epoch 79/2000
1845/1845 [=====] - 0s 101us/sample - loss: 56.9423 - accuracy
Epoch 80/2000
1845/1845 [=====] - 0s 90us/sample - loss: 54.5925 - accuracy:
Epoch 81/2000
1845/1845 [=====] - 0s 99us/sample - loss: 52.8066 - accuracy:
Epoch 82/2000
1845/1845 [=====] - 0s 94us/sample - loss: 49.8518 - accuracy:
Epoch 83/2000
1845/1845 [=====] - 0s 89us/sample - loss: 55.2882 - accuracy:
Epoch 84/2000
1845/1845 [=====] - 0s 88us/sample - loss: 57.1971 - accuracy:
Epoch 85/2000
1845/1845 [=====] - 0s 91us/sample - loss: 54.4910 - accuracy:
Epoch 86/2000
1845/1845 [=====] - 0s 101us/sample - loss: 52.1306 - accuracy
Epoch 87/2000
1845/1845 [=====] - 0s 103us/sample - loss: 51.7037 - accuracy
Epoch 88/2000
1845/1845 [=====] - 0s 111us/sample - loss: 61.0378 - accuracy
Epoch 89/2000
1845/1845 [=====] - 0s 146us/sample - loss: 46.4784 - accuracy
Epoch 90/2000
1845/1845 [=====] - 0s 198us/sample - loss: 46.8829 - accuracy
Epoch 91/2000
1845/1845 [=====] - 0s 161us/sample - loss: 50.1640 - accuracy
Epoch 92/2000
1845/1845 [=====] - 0s 149us/sample - loss: 50.3636 - accuracy
Epoch 93/2000
1845/1845 [=====] - 0s 172us/sample - loss: 57.0202 - accuracy
Epoch 94/2000
1845/1845 [=====] - 0s 103us/sample - loss: 53.1472 - accuracy
Epoch 95/2000
1845/1845 [=====] - 0s 107us/sample - loss: 52.2870 - accuracy
Epoch 96/2000
1845/1845 [=====] - 0s 129us/sample - loss: 53.4694 - accuracy
Epoch 97/2000
1845/1845 [=====] - 0s 117us/sample - loss: 52.6671 - accuracy
Epoch 98/2000
1845/1845 [=====] - 0s 112us/sample - loss: 60.9187 - accuracy
Epoch 99/2000
1845/1845 [=====] - 0s 104us/sample - loss: 50.4027 - accuracy
Epoch 100/2000
1845/1845 [=====] - 0s 115us/sample - loss: 45.9744 - accuracy
Epoch 101/2000
1845/1845 [=====] - 0s 134us/sample - loss: 48.7746 - accuracy
Epoch 102/2000
1845/1845 [=====] - 0s 171us/sample - loss: 45.4372 - accuracy
Epoch 103/2000
1845/1845 [=====] - 0s 86us/sample - loss: 50.6945 - accuracy:
Epoch 104/2000
1845/1845 [=====] - 0s 127us/sample - loss: 50.7302 - accuracy
Epoch 105/2000
1845/1845 [=====] - 0s 139us/sample - loss: 45.1837 - accuracy
Epoch 106/2000
```

```
1845/1845 [=====] - 0s 135us/sample - loss: 54.1863 - accuracy
Epoch 107/2000
1845/1845 [=====] - 0s 110us/sample - loss: 46.0969 - accuracy
Epoch 108/2000
1845/1845 [=====] - 0s 108us/sample - loss: 59.2196 - accuracy
Epoch 109/2000
1845/1845 [=====] - 0s 118us/sample - loss: 43.1783 - accuracy
Epoch 110/2000
1845/1845 [=====] - 0s 91us/sample - loss: 54.0656 - accuracy:
Epoch 111/2000
1845/1845 [=====] - 0s 100us/sample - loss: 41.8567 - accuracy
Epoch 112/2000
1845/1845 [=====] - 0s 83us/sample - loss: 47.2486 - accuracy:
Epoch 113/2000
1845/1845 [=====] - 0s 81us/sample - loss: 44.5709 - accuracy:
Epoch 114/2000
1845/1845 [=====] - 0s 90us/sample - loss: 44.1978 - accuracy:
Epoch 115/2000
1845/1845 [=====] - 0s 134us/sample - loss: 49.1970 - accuracy
Epoch 116/2000
1845/1845 [=====] - 0s 115us/sample - loss: 50.2146 - accuracy
Epoch 117/2000
1845/1845 [=====] - 0s 128us/sample - loss: 58.6147 - accuracy
Epoch 118/2000
1845/1845 [=====] - 0s 130us/sample - loss: 58.3039 - accuracy
Epoch 119/2000
1845/1845 [=====] - 0s 99us/sample - loss: 44.5488 - accuracy:
Epoch 120/2000
1845/1845 [=====] - 0s 93us/sample - loss: 46.2031 - accuracy:
Epoch 121/2000
1845/1845 [=====] - 0s 102us/sample - loss: 42.3585 - accuracy
Epoch 122/2000
1845/1845 [=====] - 0s 114us/sample - loss: 48.8023 - accuracy
Epoch 123/2000
1845/1845 [=====] - 0s 103us/sample - loss: 48.4430 - accuracy
Epoch 124/2000
1845/1845 [=====] - 0s 93us/sample - loss: 42.5420 - accuracy:
Epoch 125/2000
1845/1845 [=====] - 0s 97us/sample - loss: 45.4161 - accuracy:
Epoch 126/2000
1845/1845 [=====] - 0s 95us/sample - loss: 42.8477 - accuracy:
Epoch 127/2000
1845/1845 [=====] - 0s 100us/sample - loss: 46.2433 - accuracy
Epoch 128/2000
1845/1845 [=====] - 0s 99us/sample - loss: 46.8833 - accuracy:
Epoch 129/2000
1845/1845 [=====] - 0s 91us/sample - loss: 48.2834 - accuracy:
Epoch 130/2000
1845/1845 [=====] - 0s 91us/sample - loss: 46.9025 - accuracy:
Epoch 131/2000
1845/1845 [=====] - 0s 101us/sample - loss: 44.1638 - accuracy
Epoch 132/2000
1845/1845 [=====] - 0s 103us/sample - loss: 48.6222 - accuracy
Epoch 133/2000
1845/1845 [=====] - 0s 101us/sample - loss: 47.4607 - accuracy
Epoch 134/2000
1845/1845 [=====] - 0s 104us/sample - loss: 47.5262 - accuracy
Epoch 135/2000
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1845/1845 [=====] - 0s 85us/sample - loss: 53.5615 - accuracy:  
Epoch 136/2000  
1845/1845 [=====] - 0s 101us/sample - loss: 45.1957 - accuracy  
Epoch 137/2000  
1845/1845 [=====] - 0s 114us/sample - loss: 41.6981 - accuracy  
Epoch 138/2000  
1845/1845 [=====] - 0s 97us/sample - loss: 50.0222 - accuracy:  
Epoch 139/2000  
1845/1845 [=====] - 0s 97us/sample - loss: 45.4437 - accuracy:  
Epoch 140/2000  
1845/1845 [=====] - 0s 108us/sample - loss: 43.6939 - accuracy  
Epoch 141/2000  
1845/1845 [=====] - 0s 116us/sample - loss: 45.2811 - accuracy  
Epoch 142/2000  
1845/1845 [=====] - 0s 87us/sample - loss: 46.7006 - accuracy:  
Epoch 143/2000  
1845/1845 [=====] - 0s 90us/sample - loss: 47.7865 - accuracy:  
Epoch 144/2000  
1845/1845 [=====] - 0s 109us/sample - loss: 43.0249 - accuracy  
Epoch 145/2000  
1845/1845 [=====] - 0s 105us/sample - loss: 49.2672 - accuracy  
Epoch 146/2000  
1845/1845 [=====] - 0s 97us/sample - loss: 45.2807 - accuracy:  
Epoch 147/2000  
1845/1845 [=====] - 0s 118us/sample - loss: 44.5575 - accuracy  
Epoch 148/2000  
1845/1845 [=====] - 0s 104us/sample - loss: 47.1813 - accuracy  
Epoch 149/2000  
1845/1845 [=====] - 0s 118us/sample - loss: 38.5979 - accuracy  
Epoch 150/2000  
1845/1845 [=====] - 0s 92us/sample - loss: 46.9962 - accuracy:  
Epoch 151/2000  
1845/1845 [=====] - 0s 84us/sample - loss: 39.1154 - accuracy:  
Epoch 152/2000  
1845/1845 [=====] - 0s 85us/sample - loss: 41.7240 - accuracy:  
Epoch 153/2000  
1845/1845 [=====] - 0s 95us/sample - loss: 44.4255 - accuracy:  
Epoch 154/2000  
1845/1845 [=====] - 0s 127us/sample - loss: 41.8820 - accuracy  
Epoch 155/2000  
1845/1845 [=====] - 0s 106us/sample - loss: 46.6647 - accuracy  
Epoch 156/2000  
1845/1845 [=====] - 0s 133us/sample - loss: 38.7526 - accuracy  
Epoch 157/2000  
1845/1845 [=====] - 0s 100us/sample - loss: 44.9864 - accuracy  
Epoch 158/2000  
1845/1845 [=====] - 0s 101us/sample - loss: 45.7846 - accuracy  
Epoch 159/2000  
1845/1845 [=====] - 0s 90us/sample - loss: 47.2416 - accuracy:  
Epoch 160/2000  
1845/1845 [=====] - 0s 102us/sample - loss: 40.0504 - accuracy  
Epoch 161/2000  
1845/1845 [=====] - 0s 123us/sample - loss: 48.6672 - accuracy  
Epoch 162/2000  
1845/1845 [=====] - 0s 101us/sample - loss: 40.2581 - accuracy  
Epoch 163/2000  
1845/1845 [=====] - 0s 110us/sample - loss: 39.4342 - accuracy  
Epoch 164/2000



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Epoch 104/2000
1845/1845 [=====] - 0s 105us/sample - loss: 41.0911 - accuracy
Epoch 165/2000
1845/1845 [=====] - 0s 102us/sample - loss: 48.7447 - accuracy
Epoch 166/2000
1845/1845 [=====] - 0s 103us/sample - loss: 42.9880 - accuracy
Epoch 167/2000
1845/1845 [=====] - 0s 142us/sample - loss: 37.8407 - accuracy
Epoch 168/2000
1845/1845 [=====] - 0s 122us/sample - loss: 44.7491 - accuracy
Epoch 169/2000
1845/1845 [=====] - 0s 108us/sample - loss: 43.6922 - accuracy
Epoch 170/2000
1845/1845 [=====] - 0s 103us/sample - loss: 46.8467 - accuracy
Epoch 171/2000
1845/1845 [=====] - 0s 104us/sample - loss: 41.1788 - accuracy
Epoch 172/2000
1845/1845 [=====] - 0s 126us/sample - loss: 46.0267 - accuracy
Epoch 173/2000
1845/1845 [=====] - 0s 106us/sample - loss: 47.6635 - accuracy
Epoch 174/2000
1845/1845 [=====] - 0s 139us/sample - loss: 42.6734 - accuracy
Epoch 175/2000
1845/1845 [=====] - 0s 131us/sample - loss: 46.9443 - accuracy
Epoch 176/2000
1845/1845 [=====] - 0s 119us/sample - loss: 37.0964 - accuracy
Epoch 177/2000
1845/1845 [=====] - 0s 100us/sample - loss: 39.9265 - accuracy
Epoch 178/2000
1845/1845 [=====] - 0s 97us/sample - loss: 38.4754 - accuracy:
Epoch 179/2000
1845/1845 [=====] - 0s 91us/sample - loss: 51.0863 - accuracy:
Epoch 180/2000
1845/1845 [=====] - 0s 94us/sample - loss: 44.1698 - accuracy:
Epoch 181/2000
1845/1845 [=====] - 0s 89us/sample - loss: 44.9145 - accuracy:
Epoch 182/2000
1845/1845 [=====] - 0s 96us/sample - loss: 42.3222 - accuracy:
Epoch 183/2000
1845/1845 [=====] - 0s 96us/sample - loss: 44.6724 - accuracy:
Epoch 184/2000
1845/1845 [=====] - 0s 90us/sample - loss: 40.0667 - accuracy:
Epoch 185/2000
1845/1845 [=====] - 0s 102us/sample - loss: 47.9256 - accuracy
Epoch 186/2000
1845/1845 [=====] - 0s 94us/sample - loss: 39.5222 - accuracy:
Epoch 187/2000
1845/1845 [=====] - 0s 93us/sample - loss: 45.5772 - accuracy:
Epoch 188/2000
1845/1845 [=====] - 0s 101us/sample - loss: 40.0711 - accuracy
Epoch 189/2000
1845/1845 [=====] - 0s 96us/sample - loss: 46.7153 - accuracy:
Epoch 190/2000
1845/1845 [=====] - 0s 88us/sample - loss: 40.0733 - accuracy:
Epoch 191/2000
1845/1845 [=====] - 0s 87us/sample - loss: 47.2579 - accuracy:
Epoch 192/2000
1845/1845 [=====] - 0s 92us/sample - loss: 40.2370 - accuracy:
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Epoch 193/2000  
1845/1845 [=====] - 0s 89us/sample - loss: 41.0533 - accuracy:  
Epoch 194/2000  
1845/1845 [=====] - 0s 88us/sample - loss: 45.7036 - accuracy:  
Epoch 195/2000  
1845/1845 [=====] - 0s 89us/sample - loss: 44.1195 - accuracy:  
Epoch 196/2000  
1845/1845 [=====] - 0s 96us/sample - loss: 38.9193 - accuracy:  
Epoch 197/2000  
1845/1845 [=====] - 0s 92us/sample - loss: 42.6847 - accuracy:  
Epoch 198/2000  
1845/1845 [=====] - 0s 94us/sample - loss: 39.0337 - accuracy:  
Epoch 199/2000  
1845/1845 [=====] - 0s 89us/sample - loss: 47.1796 - accuracy:  
Epoch 200/2000  
1845/1845 [=====] - 0s 88us/sample - loss: 38.0962 - accuracy:  
Epoch 201/2000  
1845/1845 [=====] - 0s 98us/sample - loss: 45.3603 - accuracy:  
Epoch 202/2000  
1845/1845 [=====] - 0s 96us/sample - loss: 40.8963 - accuracy:  
Epoch 203/2000  
1845/1845 [=====] - 0s 104us/sample - loss: 43.2272 - accuracy:  
Epoch 204/2000  
1845/1845 [=====] - 0s 96us/sample - loss: 43.6424 - accuracy:  
Epoch 205/2000  
1845/1845 [=====] - 0s 99us/sample - loss: 41.5987 - accuracy:  
Epoch 206/2000  
1845/1845 [=====] - 0s 92us/sample - loss: 44.6138 - accuracy:  
Epoch 207/2000  
1845/1845 [=====] - 0s 108us/sample - loss: 36.2004 - accuracy:  
Epoch 208/2000  
1845/1845 [=====] - 0s 89us/sample - loss: 42.3155 - accuracy:  
Epoch 209/2000  
1845/1845 [=====] - 0s 97us/sample - loss: 42.0064 - accuracy:  
Epoch 210/2000  
1845/1845 [=====] - 0s 99us/sample - loss: 40.6168 - accuracy:  
Epoch 211/2000  
1845/1845 [=====] - 0s 93us/sample - loss: 41.9280 - accuracy:  
Epoch 212/2000  
1845/1845 [=====] - 0s 85us/sample - loss: 48.2058 - accuracy:  
Epoch 213/2000  
1845/1845 [=====] - 0s 88us/sample - loss: 42.9245 - accuracy:  
Epoch 214/2000  
1845/1845 [=====] - 0s 93us/sample - loss: 38.1830 - accuracy:  
Epoch 215/2000  
1845/1845 [=====] - 0s 89us/sample - loss: 40.3912 - accuracy:  
Epoch 216/2000  
1845/1845 [=====] - 0s 98us/sample - loss: 42.3347 - accuracy:  
Epoch 217/2000  
1845/1845 [=====] - 0s 96us/sample - loss: 40.1527 - accuracy:  
Epoch 218/2000  
1845/1845 [=====] - 0s 98us/sample - loss: 45.0013 - accuracy:  
Epoch 219/2000  
1845/1845 [=====] - 0s 95us/sample - loss: 50.6147 - accuracy:  
Epoch 220/2000  
1845/1845 [=====] - 0s 95us/sample - loss: 40.3088 - accuracy:  
Epoch 221/2000  
1845/1845 [=====] - 0s 95us/sample - loss: 40.6746 - accuracy:

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Epoch 222/2000
1845/1845 [=====] - 0s 91us/sample - loss: 47.0000 - accuracy:
Epoch 223/2000
1845/1845 [=====] - 0s 94us/sample - loss: 45.8651 - accuracy:
Epoch 224/2000
1845/1845 [=====] - 0s 105us/sample - loss: 45.0843 - accuracy
Epoch 225/2000
1845/1845 [=====] - 0s 110us/sample - loss: 40.6620 - accuracy
Epoch 226/2000
1845/1845 [=====] - 0s 95us/sample - loss: 37.4143 - accuracy:
Epoch 227/2000
1845/1845 [=====] - 0s 95us/sample - loss: 40.8752 - accuracy:
Epoch 228/2000
1845/1845 [=====] - 0s 87us/sample - loss: 41.0227 - accuracy:
Epoch 229/2000
1845/1845 [=====] - 0s 82us/sample - loss: 41.3833 - accuracy:
Epoch 230/2000
1845/1845 [=====] - 0s 87us/sample - loss: 47.5812 - accuracy:
Epoch 231/2000
1845/1845 [=====] - 0s 83us/sample - loss: 39.5811 - accuracy:
Epoch 232/2000
1845/1845 [=====] - 0s 85us/sample - loss: 36.7896 - accuracy:
Epoch 233/2000
1845/1845 [=====] - 0s 97us/sample - loss: 47.5493 - accuracy:
Epoch 234/2000
1845/1845 [=====] - 0s 86us/sample - loss: 39.8091 - accuracy:
Epoch 235/2000
1845/1845 [=====] - 0s 86us/sample - loss: 44.4437 - accuracy:
Epoch 236/2000
1845/1845 [=====] - 0s 89us/sample - loss: 44.1741 - accuracy:
Epoch 237/2000
1845/1845 [=====] - 0s 88us/sample - loss: 41.9606 - accuracy:
Epoch 238/2000
1845/1845 [=====] - 0s 90us/sample - loss: 39.6640 - accuracy:
Epoch 239/2000
1845/1845 [=====] - 0s 98us/sample - loss: 40.1481 - accuracy:
Epoch 240/2000
1845/1845 [=====] - 0s 184us/sample - loss: 34.8827 - accuracy
Epoch 241/2000
1845/1845 [=====] - 0s 141us/sample - loss: 41.1087 - accuracy
Epoch 242/2000
1845/1845 [=====] - 0s 118us/sample - loss: 38.3787 - accuracy
Epoch 243/2000
1845/1845 [=====] - 0s 145us/sample - loss: 36.4490 - accuracy
Epoch 244/2000
1845/1845 [=====] - 0s 146us/sample - loss: 38.7783 - accuracy
Epoch 245/2000
1845/1845 [=====] - 0s 112us/sample - loss: 47.2065 - accuracy
Epoch 246/2000
1845/1845 [=====] - 0s 148us/sample - loss: 39.9216 - accuracy
Epoch 247/2000
1845/1845 [=====] - 0s 152us/sample - loss: 38.1059 - accuracy
Epoch 248/2000
1845/1845 [=====] - 0s 131us/sample - loss: 38.5733 - accuracy
Epoch 249/2000
1845/1845 [=====] - 0s 112us/sample - loss: 41.6559 - accuracy
Epoch 250/2000
1845/1845 [=====] - 0s 111us/sample - loss: 45.1734 - accuracy
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1845/1845 [=====] - 0s 111us/sample - loss: 45.1724 - accuracy
Epoch 251/2000
1845/1845 [=====] - 0s 106us/sample - loss: 39.3564 - accuracy
Epoch 252/2000
1845/1845 [=====] - 0s 139us/sample - loss: 35.4169 - accuracy
Epoch 253/2000
1845/1845 [=====] - 0s 103us/sample - loss: 42.8508 - accuracy
Epoch 254/2000
1845/1845 [=====] - 0s 129us/sample - loss: 41.3997 - accuracy
Epoch 255/2000
1845/1845 [=====] - 0s 105us/sample - loss: 44.2599 - accuracy
Epoch 256/2000
1845/1845 [=====] - 0s 104us/sample - loss: 46.6963 - accuracy
Epoch 257/2000
1845/1845 [=====] - 0s 138us/sample - loss: 43.1613 - accuracy
Epoch 258/2000
1845/1845 [=====] - 0s 104us/sample - loss: 40.4038 - accuracy
Epoch 259/2000
1845/1845 [=====] - 0s 137us/sample - loss: 46.4926 - accuracy
Epoch 260/2000
1845/1845 [=====] - 0s 99us/sample - loss: 36.6510 - accuracy:
Epoch 261/2000
1845/1845 [=====] - 0s 103us/sample - loss: 36.7865 - accuracy
Epoch 262/2000
1845/1845 [=====] - 0s 102us/sample - loss: 37.2088 - accuracy
Epoch 263/2000
1845/1845 [=====] - 0s 114us/sample - loss: 38.5418 - accuracy
Epoch 264/2000
1845/1845 [=====] - 0s 112us/sample - loss: 35.3892 - accuracy
Epoch 265/2000
1845/1845 [=====] - 0s 102us/sample - loss: 39.6272 - accuracy
Epoch 266/2000
1845/1845 [=====] - 0s 153us/sample - loss: 37.4512 - accuracy
Epoch 267/2000
1845/1845 [=====] - 0s 139us/sample - loss: 44.1825 - accuracy
Epoch 268/2000
1845/1845 [=====] - 0s 130us/sample - loss: 39.5775 - accuracy
Epoch 269/2000
1845/1845 [=====] - 0s 117us/sample - loss: 33.1991 - accuracy
Epoch 270/2000
1845/1845 [=====] - 0s 87us/sample - loss: 45.3334 - accuracy:
Epoch 271/2000
1845/1845 [=====] - 0s 123us/sample - loss: 42.5799 - accuracy
Epoch 272/2000
1845/1845 [=====] - 0s 111us/sample - loss: 39.3645 - accuracy
Epoch 273/2000
1845/1845 [=====] - 0s 105us/sample - loss: 47.6431 - accuracy
Epoch 274/2000
1845/1845 [=====] - 0s 127us/sample - loss: 46.7907 - accuracy
Epoch 275/2000
1845/1845 [=====] - 0s 102us/sample - loss: 42.0672 - accuracy
Epoch 276/2000
1845/1845 [=====] - 0s 147us/sample - loss: 43.4556 - accuracy
Epoch 277/2000
1845/1845 [=====] - 0s 117us/sample - loss: 40.4723 - accuracy
Epoch 278/2000
1845/1845 [=====] - 0s 103us/sample - loss: 42.4909 - accuracy
Epoch 279/2000
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1845/1845 [=====] - 0s 100us/sample - loss: 41.1013 - accuracy
Epoch 280/2000
1845/1845 [=====] - 0s 131us/sample - loss: 42.3366 - accuracy
Epoch 281/2000
1845/1845 [=====] - 0s 108us/sample - loss: 43.8751 - accuracy
Epoch 282/2000
1845/1845 [=====] - 0s 106us/sample - loss: 37.9276 - accuracy
Epoch 283/2000
1845/1845 [=====] - 0s 150us/sample - loss: 43.8026 - accuracy
Epoch 284/2000
1845/1845 [=====] - 0s 105us/sample - loss: 38.8150 - accuracy
Epoch 285/2000
1845/1845 [=====] - 0s 99us/sample - loss: 40.3617 - accuracy:
Epoch 286/2000
1845/1845 [=====] - 0s 109us/sample - loss: 40.9693 - accuracy
Epoch 287/2000
1845/1845 [=====] - 0s 119us/sample - loss: 36.5388 - accuracy
Epoch 288/2000
1845/1845 [=====] - 0s 120us/sample - loss: 37.3145 - accuracy
Epoch 289/2000
1845/1845 [=====] - 0s 111us/sample - loss: 37.3669 - accuracy
Epoch 290/2000
1845/1845 [=====] - 0s 127us/sample - loss: 41.0995 - accuracy
Epoch 291/2000
1845/1845 [=====] - 0s 106us/sample - loss: 42.2772 - accuracy
Epoch 292/2000
1845/1845 [=====] - 0s 114us/sample - loss: 44.1887 - accuracy
Epoch 293/2000
1845/1845 [=====] - 0s 107us/sample - loss: 37.0404 - accuracy
Epoch 294/2000
1845/1845 [=====] - 0s 116us/sample - loss: 42.9761 - accuracy
Epoch 295/2000
1845/1845 [=====] - 0s 112us/sample - loss: 41.0125 - accuracy
Epoch 296/2000
1845/1845 [=====] - 0s 96us/sample - loss: 44.9426 - accuracy:
Epoch 297/2000
1845/1845 [=====] - 0s 88us/sample - loss: 41.4342 - accuracy:
Epoch 298/2000
1845/1845 [=====] - 0s 119us/sample - loss: 37.7342 - accuracy
Epoch 299/2000
1845/1845 [=====] - 0s 148us/sample - loss: 39.2204 - accuracy
Epoch 300/2000
1845/1845 [=====] - 0s 144us/sample - loss: 44.8162 - accuracy
Epoch 301/2000
1845/1845 [=====] - 0s 137us/sample - loss: 42.1119 - accuracy
Epoch 302/2000
1845/1845 [=====] - 0s 128us/sample - loss: 39.5875 - accuracy
Epoch 303/2000
1845/1845 [=====] - 0s 135us/sample - loss: 41.7576 - accuracy
Epoch 304/2000
1845/1845 [=====] - 0s 126us/sample - loss: 35.3223 - accuracy
Epoch 305/2000
1845/1845 [=====] - 0s 139us/sample - loss: 36.6777 - accuracy
Epoch 306/2000
1845/1845 [=====] - 0s 121us/sample - loss: 53.6050 - accuracy
Epoch 307/2000
1845/1845 [=====] - 0s 145us/sample - loss: 36.5746 - accuracy
Epoch 308/2000
```

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1845/1845 [=====] - 0s 137us/sample - loss: 42.4895 - accuracy
Epoch 309/2000
1845/1845 [=====] - 0s 132us/sample - loss: 39.3599 - accuracy
Epoch 310/2000
1845/1845 [=====] - 0s 118us/sample - loss: 36.9758 - accuracy
Epoch 311/2000
1845/1845 [=====] - 0s 128us/sample - loss: 35.2945 - accuracy
Epoch 312/2000
1845/1845 [=====] - 0s 124us/sample - loss: 46.4367 - accuracy
Epoch 313/2000
1845/1845 [=====] - 0s 137us/sample - loss: 38.1662 - accuracy
Epoch 314/2000
1845/1845 [=====] - 0s 147us/sample - loss: 38.4710 - accuracy
Epoch 315/2000
1845/1845 [=====] - 0s 127us/sample - loss: 43.1498 - accuracy
Epoch 316/2000
1845/1845 [=====] - 0s 124us/sample - loss: 38.3919 - accuracy
Epoch 317/2000
1845/1845 [=====] - 0s 134us/sample - loss: 39.1900 - accuracy
Epoch 318/2000
1845/1845 [=====] - 0s 127us/sample - loss: 40.8181 - accuracy
Epoch 319/2000
1845/1845 [=====] - 0s 167us/sample - loss: 39.2742 - accuracy
Epoch 320/2000
1845/1845 [=====] - 0s 153us/sample - loss: 46.1545 - accuracy
Epoch 321/2000
1845/1845 [=====] - 0s 139us/sample - loss: 38.3442 - accuracy
Epoch 322/2000
1845/1845 [=====] - 0s 135us/sample - loss: 35.4366 - accuracy
Epoch 323/2000
1845/1845 [=====] - 0s 141us/sample - loss: 37.4727 - accuracy
Epoch 324/2000
1845/1845 [=====] - 0s 150us/sample - loss: 41.3438 - accuracy
Epoch 325/2000
1845/1845 [=====] - 0s 126us/sample - loss: 37.5929 - accuracy
Epoch 326/2000
1845/1845 [=====] - 0s 137us/sample - loss: 37.7863 - accuracy
Epoch 327/2000
1845/1845 [=====] - 0s 145us/sample - loss: 37.4146 - accuracy
Epoch 328/2000
1845/1845 [=====] - 0s 120us/sample - loss: 36.3303 - accuracy
Epoch 329/2000
1845/1845 [=====] - 0s 132us/sample - loss: 35.0969 - accuracy
Epoch 330/2000
1845/1845 [=====] - 0s 138us/sample - loss: 35.5726 - accuracy
Epoch 331/2000
1845/1845 [=====] - 0s 138us/sample - loss: 41.9382 - accuracy
Epoch 332/2000
1845/1845 [=====] - 0s 131us/sample - loss: 42.3956 - accuracy
Epoch 333/2000
1845/1845 [=====] - 0s 141us/sample - loss: 32.4523 - accuracy
Epoch 334/2000
1845/1845 [=====] - 0s 111us/sample - loss: 38.8268 - accuracy
Epoch 335/2000
1845/1845 [=====] - 0s 109us/sample - loss: 37.7486 - accuracy
Epoch 336/2000
1845/1845 [=====] - 0s 109us/sample - loss: 37.9701 - accuracy
Epoch 337/2000
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Epoch 337/2000
1845/1845 [=====] - 0s 110us/sample - loss: 40.1924 - accuracy:
Epoch 338/2000
1845/1845 [=====] - 0s 94us/sample - loss: 35.6461 - accuracy:
Epoch 339/2000
1845/1845 [=====] - 0s 95us/sample - loss: 34.2397 - accuracy:
Epoch 340/2000
1845/1845 [=====] - 0s 88us/sample - loss: 41.1814 - accuracy:
Epoch 341/2000
1845/1845 [=====] - 0s 92us/sample - loss: 37.2578 - accuracy:
Epoch 342/2000
1845/1845 [=====] - 0s 86us/sample - loss: 45.5180 - accuracy:
Epoch 343/2000
1845/1845 [=====] - 0s 90us/sample - loss: 50.2806 - accuracy:
Epoch 344/2000
1845/1845 [=====] - 0s 83us/sample - loss: 36.3403 - accuracy:
Epoch 345/2000
1845/1845 [=====] - 0s 83us/sample - loss: 43.7752 - accuracy:
Epoch 346/2000
1845/1845 [=====] - 0s 86us/sample - loss: 36.4361 - accuracy:
Epoch 347/2000
1845/1845 [=====] - 0s 89us/sample - loss: 35.8909 - accuracy:
Epoch 348/2000
1845/1845 [=====] - 0s 84us/sample - loss: 37.9660 - accuracy:
Epoch 349/2000
1845/1845 [=====] - 0s 86us/sample - loss: 35.5725 - accuracy:
Epoch 350/2000
1845/1845 [=====] - 0s 95us/sample - loss: 37.5508 - accuracy:
Epoch 351/2000
1845/1845 [=====] - 0s 90us/sample - loss: 34.0917 - accuracy:
Epoch 352/2000
1845/1845 [=====] - 0s 91us/sample - loss: 35.8032 - accuracy:
Epoch 353/2000
1845/1845 [=====] - 0s 85us/sample - loss: 41.6233 - accuracy:
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1845/1845 [=====] - 0s 90us/sample - loss: 38.9356 - accuracy:
Epoch 355/2000
1845/1845 [=====] - 0s 89us/sample - loss: 35.8134 - accuracy:
Epoch 356/2000
1845/1845 [=====] - 0s 82us/sample - loss: 39.8026 - accuracy:
Epoch 357/2000
1845/1845 [=====] - 0s 83us/sample - loss: 37.2292 - accuracy:
Epoch 358/2000
1845/1845 [=====] - 0s 81us/sample - loss: 36.2112 - accuracy:
Epoch 359/2000
1845/1845 [=====] - 0s 87us/sample - loss: 45.3128 - accuracy:
Epoch 360/2000
1845/1845 [=====] - 0s 89us/sample - loss: 39.3209 - accuracy:
Epoch 361/2000
1845/1845 [=====] - 0s 86us/sample - loss: 39.7459 - accuracy:
Epoch 362/2000
1845/1845 [=====] - 0s 84us/sample - loss: 36.8624 - accuracy:
Epoch 363/2000
1845/1845 [=====] - 0s 87us/sample - loss: 36.0065 - accuracy:
Epoch 364/2000
1845/1845 [=====] - 0s 86us/sample - loss: 37.1636 - accuracy:
Epoch 365/2000
1845/1845 [=====] - 0s 87us/sample - loss: 40.3968 - accuracy:
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Epoch 366/2000
1845/1845 [=====] - 0s 83us/sample - loss: 38.2428 - accuracy:
Epoch 367/2000
1845/1845 [=====] - 0s 83us/sample - loss: 36.7469 - accuracy:
Epoch 368/2000
1845/1845 [=====] - 0s 80us/sample - loss: 37.3927 - accuracy:
Epoch 369/2000
1845/1845 [=====] - 0s 81us/sample - loss: 38.8138 - accuracy:
Epoch 370/2000
1845/1845 [=====] - 0s 80us/sample - loss: 33.5868 - accuracy:
Epoch 371/2000
1845/1845 [=====] - 0s 81us/sample - loss: 34.0631 - accuracy:
Epoch 372/2000
1845/1845 [=====] - 0s 81us/sample - loss: 36.0385 - accuracy:
Epoch 373/2000
1845/1845 [=====] - 0s 80us/sample - loss: 41.2439 - accuracy:
Epoch 374/2000
1845/1845 [=====] - 0s 86us/sample - loss: 38.0480 - accuracy:
Epoch 375/2000
1845/1845 [=====] - 0s 87us/sample - loss: 38.1600 - accuracy:
Epoch 376/2000
1845/1845 [=====] - 0s 93us/sample - loss: 40.7793 - accuracy:
Epoch 377/2000
1845/1845 [=====] - 0s 84us/sample - loss: 39.4689 - accuracy:
Epoch 378/2000
1845/1845 [=====] - 0s 81us/sample - loss: 37.4225 - accuracy:
Epoch 379/2000
1845/1845 [=====] - 0s 80us/sample - loss: 40.4009 - accuracy:
Epoch 380/2000
1845/1845 [=====] - 0s 87us/sample - loss: 39.9551 - accuracy:
Epoch 381/2000
1845/1845 [=====] - 0s 85us/sample - loss: 37.5379 - accuracy:
Epoch 382/2000
1845/1845 [=====] - 0s 104us/sample - loss: 38.2843 - accuracy:
Epoch 383/2000
1845/1845 [=====] - 0s 91us/sample - loss: 41.2618 - accuracy:
Epoch 384/2000
1845/1845 [=====] - 0s 90us/sample - loss: 38.3050 - accuracy:
Epoch 385/2000
1845/1845 [=====] - 0s 84us/sample - loss: 36.4925 - accuracy:
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1845/1845 [=====] - 0s 92us/sample - loss: 35.4172 - accuracy:
Epoch 387/2000
1845/1845 [=====] - 0s 86us/sample - loss: 34.9293 - accuracy:
Epoch 388/2000
1845/1845 [=====] - 0s 86us/sample - loss: 33.5746 - accuracy:
Epoch 389/2000
1845/1845 [=====] - 0s 82us/sample - loss: 34.6279 - accuracy:
Epoch 390/2000
1845/1845 [=====] - 0s 85us/sample - loss: 33.5043 - accuracy:
Epoch 391/2000
1845/1845 [=====] - 0s 85us/sample - loss: 37.7832 - accuracy:
Epoch 392/2000
1845/1845 [=====] - 0s 92us/sample - loss: 34.0801 - accuracy:
Epoch 393/2000
1845/1845 [=====] - 0s 92us/sample - loss: 41.3525 - accuracy:
Epoch 394/2000
1845/1845 [=====] - 0s 86us/sample - loss: 35.7825 - accuracy:
```



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Epoch 395/2000
1845/1845 [=====] - 0s 85us/sample - loss: 40.5862 - accuracy:
Epoch 396/2000
1845/1845 [=====] - 0s 88us/sample - loss: 36.9818 - accuracy:
Epoch 397/2000
1845/1845 [=====] - 0s 86us/sample - loss: 37.0670 - accuracy:
Epoch 398/2000
1845/1845 [=====] - 0s 86us/sample - loss: 35.2191 - accuracy:
Epoch 399/2000
1845/1845 [=====] - 0s 90us/sample - loss: 45.5662 - accuracy:
Epoch 400/2000
1845/1845 [=====] - 0s 86us/sample - loss: 37.2022 - accuracy:
Epoch 401/2000
1845/1845 [=====] - 0s 83us/sample - loss: 37.6260 - accuracy:
Epoch 402/2000
1845/1845 [=====] - 0s 86us/sample - loss: 38.1209 - accuracy:
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1845/1845 [=====] - 0s 82us/sample - loss: 43.3334 - accuracy:
Epoch 404/2000
1845/1845 [=====] - 0s 83us/sample - loss: 35.7661 - accuracy:
Epoch 405/2000
1845/1845 [=====] - 0s 87us/sample - loss: 45.8335 - accuracy:
Epoch 406/2000
1845/1845 [=====] - 0s 87us/sample - loss: 32.8511 - accuracy:
Epoch 407/2000
1845/1845 [=====] - 0s 86us/sample - loss: 38.8024 - accuracy:
Epoch 408/2000
1845/1845 [=====] - 0s 83us/sample - loss: 39.4180 - accuracy:
Epoch 409/2000
1845/1845 [=====] - 0s 86us/sample - loss: 33.6067 - accuracy:
Epoch 410/2000
1845/1845 [=====] - 0s 83us/sample - loss: 34.2366 - accuracy:
Epoch 411/2000
1845/1845 [=====] - 0s 90us/sample - loss: 43.1769 - accuracy:
Epoch 412/2000
1845/1845 [=====] - 0s 107us/sample - loss: 32.2323 - accuracy:
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1845/1845 [=====] - 0s 100us/sample - loss: 38.2692 - accuracy:
Epoch 414/2000
1845/1845 [=====] - 0s 98us/sample - loss: 42.3419 - accuracy:
Epoch 415/2000
1845/1845 [=====] - 0s 95us/sample - loss: 32.7001 - accuracy:
Epoch 416/2000
1845/1845 [=====] - 0s 90us/sample - loss: 36.7091 - accuracy:
Epoch 417/2000
1845/1845 [=====] - 0s 95us/sample - loss: 33.8981 - accuracy:
Epoch 418/2000
1845/1845 [=====] - 0s 97us/sample - loss: 35.2223 - accuracy:
Epoch 419/2000
1845/1845 [=====] - 0s 89us/sample - loss: 41.2931 - accuracy:
Epoch 420/2000
1845/1845 [=====] - 0s 92us/sample - loss: 35.2244 - accuracy:
Epoch 421/2000
1845/1845 [=====] - 0s 93us/sample - loss: 35.1584 - accuracy:
Epoch 422/2000
1845/1845 [=====] - 0s 91us/sample - loss: 31.6639 - accuracy:
Epoch 423/2000
```

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1845/1845 [=====] - 0s 84us/sample - loss: 33.7790 - accuracy:
Epoch 424/2000
1845/1845 [=====] - 0s 94us/sample - loss: 30.6365 - accuracy:
Epoch 425/2000
1845/1845 [=====] - 0s 88us/sample - loss: 42.9825 - accuracy:
Epoch 426/2000
1845/1845 [=====] - 0s 86us/sample - loss: 42.8798 - accuracy:
Epoch 427/2000
1845/1845 [=====] - 0s 87us/sample - loss: 32.1081 - accuracy:
Epoch 428/2000
1845/1845 [=====] - 0s 87us/sample - loss: 36.6343 - accuracy:
Epoch 429/2000
1845/1845 [=====] - 0s 88us/sample - loss: 34.2394 - accuracy:
Epoch 430/2000
1845/1845 [=====] - 0s 84us/sample - loss: 33.0301 - accuracy:
Epoch 431/2000
1845/1845 [=====] - 0s 88us/sample - loss: 33.4850 - accuracy:
Epoch 432/2000
1845/1845 [=====] - 0s 90us/sample - loss: 30.7451 - accuracy:
Epoch 433/2000
1845/1845 [=====] - 0s 90us/sample - loss: 42.0349 - accuracy:
Epoch 434/2000
1845/1845 [=====] - 0s 91us/sample - loss: 35.1400 - accuracy:
Epoch 435/2000
1845/1845 [=====] - 0s 91us/sample - loss: 33.0136 - accuracy:
Epoch 436/2000
1845/1845 [=====] - 0s 82us/sample - loss: 47.9163 - accuracy:
Epoch 437/2000
1845/1845 [=====] - 0s 83us/sample - loss: 44.1427 - accuracy:
Epoch 438/2000
1845/1845 [=====] - 0s 80us/sample - loss: 36.0364 - accuracy:
Epoch 439/2000
1845/1845 [=====] - 0s 79us/sample - loss: 37.5349 - accuracy:
Epoch 440/2000
1845/1845 [=====] - 0s 79us/sample - loss: 36.0301 - accuracy:
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1845/1845 [=====] - 0s 82us/sample - loss: 35.5899 - accuracy:
Epoch 442/2000
1845/1845 [=====] - 0s 85us/sample - loss: 44.6439 - accuracy:
Epoch 443/2000
1845/1845 [=====] - 0s 83us/sample - loss: 34.4341 - accuracy:
Epoch 444/2000
1845/1845 [=====] - 0s 86us/sample - loss: 31.9402 - accuracy:
Epoch 445/2000
1845/1845 [=====] - 0s 107us/sample - loss: 32.3197 - accuracy:
Epoch 446/2000
1845/1845 [=====] - 0s 99us/sample - loss: 33.2353 - accuracy:
Epoch 447/2000
1845/1845 [=====] - 0s 88us/sample - loss: 39.2381 - accuracy:
Epoch 448/2000
1845/1845 [=====] - 0s 87us/sample - loss: 37.2941 - accuracy:
Epoch 449/2000
1845/1845 [=====] - 0s 88us/sample - loss: 31.2447 - accuracy:
Epoch 450/2000
1845/1845 [=====] - 0s 87us/sample - loss: 34.1632 - accuracy:
Epoch 451/2000
1845/1845 [=====] - 0s 84us/sample - loss: 37.5723 - accuracy:
Epoch 452/2000
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1845/1845 [=====] - 0s 80us/sample - loss: 39.4020 - accuracy:  
Epoch 453/2000  
1845/1845 [=====] - 0s 86us/sample - loss: 33.8091 - accuracy:  
Epoch 454/2000  
1845/1845 [=====] - 0s 88us/sample - loss: 34.6702 - accuracy:  
Epoch 455/2000  
1845/1845 [=====] - 0s 88us/sample - loss: 32.3477 - accuracy:  
Epoch 456/2000  
1845/1845 [=====] - 0s 84us/sample - loss: 36.9758 - accuracy:  
Epoch 457/2000  
1845/1845 [=====] - 0s 82us/sample - loss: 34.3048 - accuracy:  
Epoch 458/2000  
1845/1845 [=====] - 0s 86us/sample - loss: 33.3439 - accuracy:  
Epoch 459/2000  
1845/1845 [=====] - 0s 85us/sample - loss: 33.7676 - accuracy:  
Epoch 460/2000  
1845/1845 [=====] - 0s 86us/sample - loss: 36.8119 - accuracy:  
Epoch 461/2000  
1845/1845 [=====] - 0s 85us/sample - loss: 35.6558 - accuracy:  
Epoch 462/2000  
1845/1845 [=====] - 0s 83us/sample - loss: 35.7501 - accuracy:  
Epoch 463/2000  
1845/1845 [=====] - 0s 80us/sample - loss: 32.4689 - accuracy:  
Epoch 464/2000  
1845/1845 [=====] - 0s 79us/sample - loss: 36.5412 - accuracy:  
Epoch 465/2000  
1845/1845 [=====] - 0s 80us/sample - loss: 38.3616 - accuracy:  
Epoch 466/2000  
1845/1845 [=====] - 0s 85us/sample - loss: 31.5289 - accuracy:  
Epoch 467/2000  
1845/1845 [=====] - 0s 91us/sample - loss: 33.9322 - accuracy:  
Epoch 468/2000  
1845/1845 [=====] - 0s 83us/sample - loss: 32.0608 - accuracy:  
Epoch 469/2000  
1845/1845 [=====] - 0s 84us/sample - loss: 33.9850 - accuracy:  
Epoch 470/2000  
1845/1845 [=====] - 0s 84us/sample - loss: 41.8831 - accuracy:  
Epoch 471/2000  
1845/1845 [=====] - 0s 80us/sample - loss: 35.4553 - accuracy:  
Epoch 472/2000  
1845/1845 [=====] - 0s 83us/sample - loss: 35.1919 - accuracy:  
Epoch 473/2000  
1845/1845 [=====] - 0s 82us/sample - loss: 35.9393 - accuracy:  
Epoch 474/2000  
1845/1845 [=====] - 0s 86us/sample - loss: 40.4134 - accuracy:  
Epoch 475/2000  
1845/1845 [=====] - 0s 87us/sample - loss: 32.3084 - accuracy:  
Epoch 476/2000  
1845/1845 [=====] - 0s 83us/sample - loss: 34.5620 - accuracy:  
Epoch 477/2000  
1845/1845 [=====] - 0s 100us/sample - loss: 35.1953 - accuracy:  
Epoch 478/2000  
1845/1845 [=====] - 0s 86us/sample - loss: 37.7743 - accuracy:  
Epoch 479/2000  
1845/1845 [=====] - 0s 92us/sample - loss: 37.1081 - accuracy:  
Epoch 480/2000  
1845/1845 [=====] - 0s 85us/sample - loss: 33.0214 - accuracy:  
Epoch 481/2000

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Epoch 481/2000
1845/1845 [=====] - 0s 84us/sample - loss: 34.6676 - accuracy:
Epoch 482/2000
1845/1845 [=====] - 0s 84us/sample - loss: 35.7850 - accuracy:
Epoch 483/2000
1845/1845 [=====] - 0s 83us/sample - loss: 38.2818 - accuracy:
Epoch 484/2000
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Epoch 485/2000
1845/1845 [=====] - 0s 88us/sample - loss: 32.8898 - accuracy:
Epoch 486/2000
1845/1845 [=====] - 0s 88us/sample - loss: 34.6581 - accuracy:
Epoch 487/2000
1845/1845 [=====] - 0s 107us/sample - loss: 33.3543 - accuracy:
Epoch 488/2000
1845/1845 [=====] - 0s 94us/sample - loss: 31.1040 - accuracy:
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1845/1845 [=====] - 0s 89us/sample - loss: 36.8601 - accuracy:
Epoch 490/2000
1845/1845 [=====] - 0s 90us/sample - loss: 32.9390 - accuracy:
Epoch 491/2000
1845/1845 [=====] - 0s 90us/sample - loss: 38.6599 - accuracy:
Epoch 492/2000
1845/1845 [=====] - 0s 83us/sample - loss: 31.9335 - accuracy:
Epoch 493/2000
1845/1845 [=====] - 0s 85us/sample - loss: 34.4960 - accuracy:
Epoch 494/2000
1845/1845 [=====] - 0s 87us/sample - loss: 32.5907 - accuracy:
Epoch 495/2000
1845/1845 [=====] - 0s 84us/sample - loss: 35.1761 - accuracy:
Epoch 496/2000
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Epoch 497/2000
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1845/1845 [=====] - 0s 112us/sample - loss: 40.6398 - accuracy:
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Epoch 500/2000
1845/1845 [=====] - 0s 81us/sample - loss: 32.7663 - accuracy:
Epoch 501/2000
1845/1845 [=====] - 0s 82us/sample - loss: 33.8965 - accuracy:
Epoch 502/2000
1845/1845 [=====] - 0s 83us/sample - loss: 32.9527 - accuracy:
Epoch 503/2000
1845/1845 [=====] - 0s 78us/sample - loss: 33.5414 - accuracy:
Epoch 504/2000
1845/1845 [=====] - 0s 81us/sample - loss: 34.7602 - accuracy:
Epoch 505/2000
1845/1845 [=====] - 0s 82us/sample - loss: 32.5925 - accuracy:
Epoch 506/2000
1845/1845 [=====] - 0s 85us/sample - loss: 38.3765 - accuracy:
Epoch 507/2000
1845/1845 [=====] - 0s 83us/sample - loss: 34.9943 - accuracy:
Epoch 508/2000
1845/1845 [=====] - 0s 86us/sample - loss: 42.4685 - accuracy:
Epoch 509/2000
1845/1845 [=====] - 0s 94us/sample - loss: 33.0645 - accuracy:
```

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Epoch 511/2000  
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Epoch 512/2000  
1845/1845 [=====] - 0s 92us/sample - loss: 35.2500 - accuracy:  
Epoch 513/2000  
1845/1845 [=====] - 0s 88us/sample - loss: 35.4845 - accuracy:  
Epoch 514/2000  
1845/1845 [=====] - 0s 84us/sample - loss: 44.6609 - accuracy:  
Epoch 515/2000  
1845/1845 [=====] - 0s 79us/sample - loss: 32.6055 - accuracy:  
Epoch 516/2000  
1845/1845 [=====] - 0s 89us/sample - loss: 36.3949 - accuracy:  
Epoch 517/2000  
1845/1845 [=====] - 0s 83us/sample - loss: 33.8050 - accuracy:  
Epoch 518/2000  
1845/1845 [=====] - 0s 83us/sample - loss: 33.0468 - accuracy:  
Epoch 519/2000  
1845/1845 [=====] - 0s 78us/sample - loss: 32.8727 - accuracy:  
Epoch 520/2000  
1845/1845 [=====] - 0s 84us/sample - loss: 40.4820 - accuracy:  
Epoch 521/2000  
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Epoch 523/2000  
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Epoch 524/2000  
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Epoch 525/2000  
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Epoch 526/2000  
1845/1845 [=====] - 0s 87us/sample - loss: 34.0029 - accuracy:  
Epoch 527/2000  
1845/1845 [=====] - 0s 82us/sample - loss: 41.5307 - accuracy:  
Epoch 528/2000  
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Epoch 529/2000  
1845/1845 [=====] - 0s 83us/sample - loss: 33.3434 - accuracy:  
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1845/1845 [=====] - 0s 86us/sample - loss: 31.7026 - accuracy:  
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Epoch 532/2000  
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Epoch 533/2000  
1845/1845 [=====] - 0s 82us/sample - loss: 33.0143 - accuracy:  
Epoch 534/2000  
1845/1845 [=====] - 0s 84us/sample - loss: 32.1166 - accuracy:  
Epoch 535/2000  
1845/1845 [=====] - 0s 86us/sample - loss: 34.0864 - accuracy:  
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1845/1845 [=====] - 0s 86us/sample - loss: 34.4515 - accuracy:  
Epoch 537/2000  
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Epoch 538/2000  
1845/1845 [=====] - 0s 80us/sample - loss: 32.4907 - accuracy:

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Epoch 539/2000
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1845/1845 [=====] - 0s 92us/sample - loss: 31.4693 - accuracy:
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Epoch 543/2000
1845/1845 [=====] - 0s 87us/sample - loss: 33.4297 - accuracy:
Epoch 544/2000
1845/1845 [=====] - 0s 87us/sample - loss: 34.1005 - accuracy:
Epoch 545/2000
1845/1845 [=====] - 0s 83us/sample - loss: 32.0894 - accuracy:
Epoch 546/2000
1845/1845 [=====] - 0s 82us/sample - loss: 35.9236 - accuracy:
Epoch 547/2000
1845/1845 [=====] - 0s 80us/sample - loss: 33.9967 - accuracy:
Epoch 548/2000
1845/1845 [=====] - 0s 85us/sample - loss: 33.4466 - accuracy:
Epoch 549/2000
1845/1845 [=====] - 0s 120us/sample - loss: 33.5157 - accuracy:
Epoch 550/2000
1845/1845 [=====] - 0s 105us/sample - loss: 41.1718 - accuracy:
Epoch 551/2000
1845/1845 [=====] - 0s 100us/sample - loss: 33.2308 - accuracy:
Epoch 552/2000
1845/1845 [=====] - 0s 129us/sample - loss: 35.1472 - accuracy:
Epoch 553/2000
1845/1845 [=====] - 0s 145us/sample - loss: 33.1701 - accuracy:
Epoch 554/2000
1845/1845 [=====] - 0s 117us/sample - loss: 35.5309 - accuracy:
Epoch 555/2000
1845/1845 [=====] - 0s 109us/sample - loss: 38.1921 - accuracy:
Epoch 556/2000
1845/1845 [=====] - 0s 122us/sample - loss: 35.1833 - accuracy:
Epoch 557/2000
1845/1845 [=====] - 0s 108us/sample - loss: 35.7882 - accuracy:
Epoch 558/2000
1845/1845 [=====] - 0s 114us/sample - loss: 38.7413 - accuracy:
Epoch 559/2000
1845/1845 [=====] - 0s 106us/sample - loss: 37.5069 - accuracy:
Epoch 560/2000
1845/1845 [=====] - 0s 108us/sample - loss: 32.6865 - accuracy:
Epoch 561/2000
1845/1845 [=====] - 0s 110us/sample - loss: 31.5496 - accuracy:
Epoch 562/2000
1845/1845 [=====] - 0s 115us/sample - loss: 32.6154 - accuracy:
Epoch 563/2000
1845/1845 [=====] - 0s 128us/sample - loss: 30.3827 - accuracy:
Epoch 564/2000
1845/1845 [=====] - 0s 89us/sample - loss: 34.5954 - accuracy:
Epoch 565/2000
1845/1845 [=====] - 0s 89us/sample - loss: 33.0950 - accuracy:
Epoch 566/2000
1845/1845 [=====] - 0s 91us/sample - loss: 35.1910 - accuracy:
Epoch 567/2000
1845/1845 [=====] - 0s 98us/sample - loss: 38.9029 - accuracy:
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1845/1845 [-----] - 0s 90us/sample - loss: 30.9029 - accuracy:
Epoch 568/2000
1845/1845 [=====] - 0s 106us/sample - loss: 34.1683 - accuracy
Epoch 569/2000
1845/1845 [=====] - 0s 88us/sample - loss: 30.5820 - accuracy:
Epoch 570/2000
1845/1845 [=====] - 0s 98us/sample - loss: 30.6742 - accuracy:
Epoch 571/2000
1845/1845 [=====] - 0s 89us/sample - loss: 32.8806 - accuracy:
Epoch 572/2000
1845/1845 [=====] - 0s 91us/sample - loss: 33.7252 - accuracy:
Epoch 573/2000
1845/1845 [=====] - 0s 93us/sample - loss: 33.4814 - accuracy:
Epoch 574/2000
1845/1845 [=====] - 0s 98us/sample - loss: 32.0330 - accuracy:
Epoch 575/2000
1845/1845 [=====] - 0s 85us/sample - loss: 30.6675 - accuracy:
Epoch 576/2000
1845/1845 [=====] - 0s 97us/sample - loss: 34.9363 - accuracy:
Epoch 577/2000
1845/1845 [=====] - 0s 86us/sample - loss: 37.8931 - accuracy:
Epoch 578/2000
1845/1845 [=====] - 0s 87us/sample - loss: 34.0485 - accuracy:
Epoch 579/2000
1845/1845 [=====] - 0s 95us/sample - loss: 34.3214 - accuracy:
Epoch 580/2000
1845/1845 [=====] - 0s 88us/sample - loss: 35.7412 - accuracy:
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1845/1845 [=====] - 0s 84us/sample - loss: 31.7578 - accuracy:
Epoch 582/2000
1845/1845 [=====] - 0s 89us/sample - loss: 38.5063 - accuracy:
Epoch 583/2000
1845/1845 [=====] - 0s 91us/sample - loss: 38.1675 - accuracy:
Epoch 584/2000
1845/1845 [=====] - 0s 91us/sample - loss: 35.2672 - accuracy:
Epoch 585/2000
1845/1845 [=====] - 0s 101us/sample - loss: 35.6497 - accuracy
Epoch 586/2000
1845/1845 [=====] - 0s 96us/sample - loss: 43.9541 - accuracy:
Epoch 587/2000
1845/1845 [=====] - 0s 83us/sample - loss: 32.3660 - accuracy:
Epoch 588/2000
1845/1845 [=====] - 0s 88us/sample - loss: 33.7116 - accuracy:
Epoch 589/2000
1845/1845 [=====] - 0s 89us/sample - loss: 36.1450 - accuracy:
Epoch 590/2000
1845/1845 [=====] - 0s 85us/sample - loss: 36.1809 - accuracy:
Epoch 591/2000
1845/1845 [=====] - 0s 101us/sample - loss: 32.6516 - accuracy
Epoch 592/2000
1845/1845 [=====] - 0s 100us/sample - loss: 33.1819 - accuracy
Epoch 593/2000
1845/1845 [=====] - 0s 98us/sample - loss: 39.1705 - accuracy:
Epoch 594/2000
1845/1845 [=====] - 0s 83us/sample - loss: 32.6747 - accuracy:
Epoch 595/2000
1845/1845 [=====] - 0s 91us/sample - loss: 38.0162 - accuracy:
Epoch 596/2000
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Epoch 597/2000  
1845/1845 [=====] - 0s 92us/sample - loss: 30.7463 - accuracy:  
Epoch 598/2000  
1845/1845 [=====] - 0s 137us/sample - loss: 33.3373 - accuracy  
Epoch 599/2000  
1845/1845 [=====] - 0s 119us/sample - loss: 29.8135 - accuracy  
Epoch 600/2000  
1845/1845 [=====] - 0s 110us/sample - loss: 32.7858 - accuracy  
Epoch 601/2000  
1845/1845 [=====] - 0s 132us/sample - loss: 34.0172 - accuracy  
Epoch 602/2000  
1845/1845 [=====] - 0s 110us/sample - loss: 32.0327 - accuracy  
Epoch 603/2000  
1845/1845 [=====] - 0s 112us/sample - loss: 28.0360 - accuracy  
Epoch 604/2000  
1845/1845 [=====] - 0s 89us/sample - loss: 36.0958 - accuracy:  
Epoch 605/2000  
1845/1845 [=====] - 0s 132us/sample - loss: 31.0378 - accuracy  
Epoch 606/2000  
1845/1845 [=====] - 0s 117us/sample - loss: 39.3939 - accuracy  
Epoch 607/2000  
1845/1845 [=====] - 0s 115us/sample - loss: 31.3004 - accuracy  
Epoch 608/2000  
1845/1845 [=====] - 0s 119us/sample - loss: 32.7370 - accuracy  
Epoch 609/2000  
1845/1845 [=====] - 0s 197us/sample - loss: 33.7798 - accuracy  
Epoch 610/2000  
1845/1845 [=====] - 0s 142us/sample - loss: 36.7884 - accuracy  
Epoch 611/2000  
1845/1845 [=====] - 0s 139us/sample - loss: 34.7681 - accuracy  
Epoch 612/2000  
1845/1845 [=====] - 0s 145us/sample - loss: 37.3746 - accuracy  
Epoch 613/2000  
1845/1845 [=====] - 0s 220us/sample - loss: 35.5380 - accuracy  
Epoch 614/2000  
1845/1845 [=====] - 0s 206us/sample - loss: 31.4293 - accuracy  
Epoch 615/2000  
1845/1845 [=====] - 0s 175us/sample - loss: 35.3627 - accuracy  
Epoch 616/2000  
1845/1845 [=====] - 0s 207us/sample - loss: 35.0267 - accuracy  
Epoch 617/2000  
1845/1845 [=====] - 0s 169us/sample - loss: 37.6019 - accuracy  
Epoch 618/2000  
1845/1845 [=====] - 0s 185us/sample - loss: 43.9837 - accuracy  
Epoch 619/2000  
1845/1845 [=====] - 0s 187us/sample - loss: 43.3729 - accuracy  
Epoch 620/2000  
1845/1845 [=====] - 0s 140us/sample - loss: 41.9116 - accuracy  
Epoch 621/2000  
1845/1845 [=====] - 0s 180us/sample - loss: 30.7770 - accuracy  
Epoch 622/2000  
1845/1845 [=====] - 0s 166us/sample - loss: 31.7547 - accuracy  
Epoch 623/2000  
1845/1845 [=====] - 0s 148us/sample - loss: 38.4567 - accuracy  
Epoch 624/2000  
1845/1845 [=====] - 0s 160us/sample - loss: 30.8125 - accuracy  
Epoch 625/2000



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1845/1845 [=====] - 0s 174us/sample - loss: 33.9824 - accuracy
Epoch 626/2000
1845/1845 [=====] - 0s 217us/sample - loss: 33.8381 - accuracy
Epoch 627/2000
1845/1845 [=====] - 0s 224us/sample - loss: 31.2321 - accuracy
Epoch 628/2000
1845/1845 [=====] - 0s 191us/sample - loss: 31.9001 - accuracy
Epoch 629/2000
1845/1845 [=====] - 0s 254us/sample - loss: 33.5952 - accuracy
Epoch 630/2000
1845/1845 [=====] - 0s 180us/sample - loss: 33.5644 - accuracy
Epoch 631/2000
1845/1845 [=====] - 0s 191us/sample - loss: 30.2695 - accuracy
Epoch 632/2000
1845/1845 [=====] - 0s 191us/sample - loss: 29.2487 - accuracy
Epoch 633/2000
1845/1845 [=====] - 0s 183us/sample - loss: 32.0764 - accuracy
Epoch 634/2000
1845/1845 [=====] - 0s 211us/sample - loss: 33.7416 - accuracy
Epoch 635/2000
1845/1845 [=====] - 0s 243us/sample - loss: 34.5892 - accuracy
Epoch 636/2000
1845/1845 [=====] - 0s 193us/sample - loss: 42.3242 - accuracy
Epoch 637/2000
1845/1845 [=====] - 0s 114us/sample - loss: 32.5773 - accuracy
Epoch 638/2000
1845/1845 [=====] - 0s 103us/sample - loss: 40.9043 - accuracy
Epoch 639/2000
1845/1845 [=====] - 0s 73us/sample - loss: 35.8787 - accuracy:
Epoch 640/2000
1845/1845 [=====] - 0s 129us/sample - loss: 30.1527 - accuracy
Epoch 641/2000
1845/1845 [=====] - 0s 123us/sample - loss: 36.7999 - accuracy
Epoch 642/2000
1845/1845 [=====] - 0s 109us/sample - loss: 34.0593 - accuracy
Epoch 643/2000
1845/1845 [=====] - 0s 85us/sample - loss: 34.3894 - accuracy:
Epoch 644/2000
1845/1845 [=====] - 0s 83us/sample - loss: 34.3195 - accuracy:
Epoch 645/2000
1845/1845 [=====] - 0s 82us/sample - loss: 32.8742 - accuracy:
Epoch 646/2000
1845/1845 [=====] - 0s 80us/sample - loss: 37.3080 - accuracy:
Epoch 647/2000
1845/1845 [=====] - 0s 79us/sample - loss: 32.3253 - accuracy:
Epoch 648/2000
1845/1845 [=====] - 0s 101us/sample - loss: 36.1255 - accuracy
Epoch 649/2000
1845/1845 [=====] - 0s 85us/sample - loss: 31.7244 - accuracy:
Epoch 650/2000
1845/1845 [=====] - 0s 80us/sample - loss: 37.7257 - accuracy:
Epoch 651/2000
1845/1845 [=====] - 0s 81us/sample - loss: 34.6452 - accuracy:
Epoch 652/2000
1845/1845 [=====] - 0s 102us/sample - loss: 37.3568 - accuracy
Epoch 653/2000
1845/1845 [=====] - 0s 104us/sample - loss: 33.6400 - accuracy
Epoch 654/2000
```

Epoch 654/2000

1845/1845 [=====] - 0s 81us/sample - loss: 31.1903 - accuracy:

Epoch 655/2000

1845/1845 [=====] - 0s 70us/sample - loss: 31.6531 - accuracy:

Epoch 656/2000

1845/1845 [=====] - 0s 74us/sample - loss: 30.9227 - accuracy:

Epoch 657/2000

1845/1845 [=====] - 0s 89us/sample - loss: 30.7176 - accuracy:

Epoch 658/2000

1845/1845 [=====] - 0s 84us/sample - loss: 32.7930 - accuracy:

Epoch 659/2000

1845/1845 [=====] - 0s 104us/sample - loss: 33.4342 - accuracy

Epoch 660/2000

1845/1845 [=====] - 0s 93us/sample - loss: 33.6750 - accuracy:

Epoch 661/2000

1845/1845 [=====] - 0s 83us/sample - loss: 38.5624 - accuracy:

Epoch 662/2000

1845/1845 [=====] - 0s 72us/sample - loss: 38.3135 - accuracy:

Epoch 663/2000

1845/1845 [=====] - 0s 68us/sample - loss: 30.6067 - accuracy:

Epoch 664/2000

1845/1845 [=====] - 0s 87us/sample - loss: 31.3139 - accuracy:

Epoch 665/2000

1845/1845 [=====] - 0s 96us/sample - loss: 31.6761 - accuracy:

Epoch 666/2000

1845/1845 [=====] - 0s 151us/sample - loss: 32.2121 - accuracy

Epoch 667/2000

1845/1845 [=====] - 0s 111us/sample - loss: 33.6726 - accuracy

Epoch 668/2000

1845/1845 [=====] - 0s 98us/sample - loss: 31.0418 - accuracy:

Epoch 669/2000

1845/1845 [=====] - 0s 87us/sample - loss: 31.7887 - accuracy:

Epoch 670/2000

1845/1845 [=====] - 0s 123us/sample - loss: 32.8516 - accuracy

Epoch 671/2000

1845/1845 [=====] - 0s 113us/sample - loss: 33.0809 - accuracy

Epoch 672/2000

1845/1845 [=====] - 0s 131us/sample - loss: 33.6396 - accuracy

Epoch 673/2000

1845/1845 [=====] - 0s 116us/sample - loss: 33.4507 - accuracy

Epoch 674/2000

1845/1845 [=====] - 0s 129us/sample - loss: 32.8414 - accuracy

Epoch 675/2000

1845/1845 [=====] - 0s 110us/sample - loss: 38.6159 - accuracy

Epoch 676/2000

1845/1845 [=====] - 0s 98us/sample - loss: 29.1965 - accuracy:

Epoch 677/2000

1845/1845 [=====] - 0s 97us/sample - loss: 44.0158 - accuracy:

Epoch 678/2000

1845/1845 [=====] - 0s 102us/sample - loss: 32.0930 - accuracy

Epoch 679/2000

1845/1845 [=====] - 0s 103us/sample - loss: 31.4182 - accuracy

Epoch 680/2000

1845/1845 [=====] - 0s 101us/sample - loss: 29.6757 - accuracy

Epoch 681/2000

1845/1845 [=====] - 0s 99us/sample - loss: 34.6490 - accuracy:

Epoch 682/2000

1845/1845 [=====] - 0s 98us/sample - loss: 33.7994 - accuracy:

Epoch 683/2000  
1845/1845 [=====] - 0s 97us/sample - loss: 35.4926 - accuracy:  
Epoch 684/2000  
1845/1845 [=====] - 0s 103us/sample - loss: 37.1448 - accuracy  
Epoch 685/2000  
1845/1845 [=====] - 0s 107us/sample - loss: 33.5396 - accuracy  
Epoch 686/2000  
1845/1845 [=====] - 0s 109us/sample - loss: 38.3469 - accuracy  
Epoch 687/2000  
1845/1845 [=====] - 0s 117us/sample - loss: 31.0360 - accuracy  
Epoch 688/2000  
1845/1845 [=====] - 0s 147us/sample - loss: 30.9300 - accuracy  
Epoch 689/2000  
1845/1845 [=====] - 0s 129us/sample - loss: 32.0956 - accuracy  
Epoch 690/2000  
1845/1845 [=====] - 0s 108us/sample - loss: 32.2876 - accuracy  
Epoch 691/2000  
1845/1845 [=====] - 0s 119us/sample - loss: 31.4324 - accuracy  
Epoch 692/2000  
1845/1845 [=====] - 0s 104us/sample - loss: 32.8714 - accuracy  
Epoch 693/2000  
1845/1845 [=====] - 0s 103us/sample - loss: 31.4241 - accuracy  
Epoch 694/2000  
1845/1845 [=====] - 0s 102us/sample - loss: 30.8574 - accuracy  
Epoch 695/2000  
1845/1845 [=====] - 0s 95us/sample - loss: 33.0593 - accuracy:  
Epoch 696/2000  
1845/1845 [=====] - 0s 138us/sample - loss: 30.4331 - accuracy  
Epoch 697/2000  
1845/1845 [=====] - 0s 142us/sample - loss: 30.6684 - accuracy  
Epoch 698/2000  
1845/1845 [=====] - 0s 126us/sample - loss: 33.7120 - accuracy  
Epoch 699/2000  
1845/1845 [=====] - 0s 129us/sample - loss: 30.9831 - accuracy  
Epoch 700/2000  
1845/1845 [=====] - 0s 135us/sample - loss: 30.0424 - accuracy  
Epoch 701/2000  
1845/1845 [=====] - 0s 158us/sample - loss: 32.4664 - accuracy  
Epoch 702/2000  
1845/1845 [=====] - 0s 149us/sample - loss: 30.7262 - accuracy  
Epoch 703/2000  
1845/1845 [=====] - 0s 89us/sample - loss: 34.7301 - accuracy:  
Epoch 704/2000  
1845/1845 [=====] - 0s 166us/sample - loss: 32.3187 - accuracy  
Epoch 705/2000  
1845/1845 [=====] - 0s 167us/sample - loss: 33.5402 - accuracy  
Epoch 706/2000  
1845/1845 [=====] - 0s 152us/sample - loss: 32.4734 - accuracy  
Epoch 707/2000  
1845/1845 [=====] - 0s 135us/sample - loss: 37.5328 - accuracy  
Epoch 708/2000  
1845/1845 [=====] - 0s 150us/sample - loss: 29.7822 - accuracy  
Epoch 709/2000  
1845/1845 [=====] - 0s 92us/sample - loss: 31.5115 - accuracy:  
Epoch 710/2000  
1845/1845 [=====] - 0s 127us/sample - loss: 39.8811 - accuracy  
Epoch 711/2000  
1845/1845 [=====] - 0s 103us/sample - loss: 31.3727 - accuracy

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Epoch 712/2000
1845/1845 [=====] - 0s 112us/sample - loss: 37.2889 - accuracy:
Epoch 713/2000
1845/1845 [=====] - 0s 98us/sample - loss: 32.3661 - accuracy:
Epoch 714/2000
1845/1845 [=====] - 0s 79us/sample - loss: 34.7699 - accuracy:
Epoch 715/2000
1845/1845 [=====] - 0s 73us/sample - loss: 29.9546 - accuracy:
Epoch 716/2000
1845/1845 [=====] - 0s 91us/sample - loss: 30.9662 - accuracy:
Epoch 717/2000
1845/1845 [=====] - 0s 77us/sample - loss: 30.1281 - accuracy:
Epoch 718/2000
1845/1845 [=====] - 0s 82us/sample - loss: 31.7219 - accuracy:
Epoch 719/2000
1845/1845 [=====] - 0s 96us/sample - loss: 28.3997 - accuracy:
Epoch 720/2000
1845/1845 [=====] - 0s 117us/sample - loss: 35.1374 - accuracy:
Epoch 721/2000
1845/1845 [=====] - 0s 125us/sample - loss: 30.1280 - accuracy:
Epoch 722/2000
1845/1845 [=====] - 0s 141us/sample - loss: 36.7651 - accuracy:
Epoch 723/2000
1845/1845 [=====] - 0s 97us/sample - loss: 31.0009 - accuracy:
Epoch 724/2000
1845/1845 [=====] - 0s 94us/sample - loss: 32.1606 - accuracy:
Epoch 725/2000
1845/1845 [=====] - 0s 64us/sample - loss: 30.5470 - accuracy:
Epoch 726/2000
1845/1845 [=====] - 0s 68us/sample - loss: 36.0724 - accuracy:
Epoch 727/2000
1845/1845 [=====] - 0s 64us/sample - loss: 31.5649 - accuracy:
Epoch 728/2000
1845/1845 [=====] - 0s 64us/sample - loss: 30.9531 - accuracy:
Epoch 729/2000
1845/1845 [=====] - 0s 68us/sample - loss: 34.7322 - accuracy:
Epoch 730/2000
1845/1845 [=====] - 0s 69us/sample - loss: 34.0205 - accuracy:
Epoch 731/2000
1845/1845 [=====] - 0s 66us/sample - loss: 33.2821 - accuracy:
Epoch 732/2000
1845/1845 [=====] - 0s 77us/sample - loss: 36.0841 - accuracy:
Epoch 733/2000
1845/1845 [=====] - 0s 81us/sample - loss: 28.1722 - accuracy:
Epoch 734/2000
1845/1845 [=====] - 0s 103us/sample - loss: 32.0774 - accuracy:
Epoch 735/2000
1845/1845 [=====] - 0s 153us/sample - loss: 35.9214 - accuracy:
Epoch 736/2000
1845/1845 [=====] - 0s 122us/sample - loss: 32.3169 - accuracy:
Epoch 737/2000
1845/1845 [=====] - 0s 96us/sample - loss: 29.8783 - accuracy:
Epoch 738/2000
1845/1845 [=====] - 0s 86us/sample - loss: 32.3376 - accuracy:
Epoch 739/2000
1845/1845 [=====] - 0s 96us/sample - loss: 32.6479 - accuracy:
Epoch 740/2000
1845/1845 [=====] - 0s 105us/sample - loss: 30.6106 - accuracy:
```

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1845/1845 [=====] - 0s 105us/sample - loss: 40.6196 - accuracy:
Epoch 741/2000
1845/1845 [=====] - 0s 85us/sample - loss: 37.5126 - accuracy:
Epoch 742/2000
1845/1845 [=====] - 0s 83us/sample - loss: 35.7895 - accuracy:
Epoch 743/2000
1845/1845 [=====] - 0s 120us/sample - loss: 31.6592 - accuracy:
Epoch 744/2000
1845/1845 [=====] - 0s 100us/sample - loss: 35.2379 - accuracy:
Epoch 745/2000
1845/1845 [=====] - 0s 138us/sample - loss: 33.3786 - accuracy:
Epoch 746/2000
1845/1845 [=====] - 0s 132us/sample - loss: 37.9085 - accuracy:
Epoch 747/2000
1845/1845 [=====] - 0s 101us/sample - loss: 39.4253 - accuracy:
Epoch 748/2000
1845/1845 [=====] - 0s 85us/sample - loss: 31.5887 - accuracy:
Epoch 749/2000
1845/1845 [=====] - 0s 65us/sample - loss: 32.5988 - accuracy:
Epoch 750/2000
1845/1845 [=====] - 0s 64us/sample - loss: 38.0862 - accuracy:
Epoch 751/2000
1845/1845 [=====] - 0s 66us/sample - loss: 35.6946 - accuracy:
Epoch 752/2000
1845/1845 [=====] - 0s 73us/sample - loss: 32.5629 - accuracy:
Epoch 753/2000
1845/1845 [=====] - 0s 102us/sample - loss: 39.2314 - accuracy:
Epoch 754/2000
1845/1845 [=====] - 0s 79us/sample - loss: 31.6319 - accuracy:
Epoch 755/2000
1845/1845 [=====] - 0s 78us/sample - loss: 35.8199 - accuracy:
Epoch 756/2000
1845/1845 [=====] - 0s 91us/sample - loss: 34.5501 - accuracy:
Epoch 757/2000
1845/1845 [=====] - 0s 68us/sample - loss: 30.6047 - accuracy:
Epoch 758/2000
1845/1845 [=====] - 0s 78us/sample - loss: 31.5448 - accuracy:
Epoch 759/2000
1845/1845 [=====] - 0s 97us/sample - loss: 33.1562 - accuracy:
Epoch 760/2000
1845/1845 [=====] - 0s 80us/sample - loss: 32.1181 - accuracy:
Epoch 761/2000
1845/1845 [=====] - 0s 85us/sample - loss: 31.7563 - accuracy:
Epoch 762/2000
1845/1845 [=====] - 0s 77us/sample - loss: 33.3468 - accuracy:
Epoch 763/2000
1845/1845 [=====] - 0s 88us/sample - loss: 33.3416 - accuracy:
Epoch 764/2000
1845/1845 [=====] - 0s 93us/sample - loss: 34.0766 - accuracy:
Epoch 765/2000
1845/1845 [=====] - 0s 86us/sample - loss: 30.9588 - accuracy:
Epoch 766/2000
1845/1845 [=====] - 0s 100us/sample - loss: 35.6939 - accuracy:
Epoch 767/2000
1845/1845 [=====] - 0s 102us/sample - loss: 31.3863 - accuracy:
Epoch 768/2000
1845/1845 [=====] - 0s 95us/sample - loss: 33.2640 - accuracy:
Epoch 769/2000
```

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1845/1845 [=====] - 0s 76us/sample - loss: 34.5250 - accuracy:
Epoch 770/2000
1845/1845 [=====] - 0s 95us/sample - loss: 31.5204 - accuracy:
Epoch 771/2000
1845/1845 [=====] - 0s 82us/sample - loss: 33.3904 - accuracy:
Epoch 772/2000
1845/1845 [=====] - 0s 79us/sample - loss: 31.2825 - accuracy:
Epoch 773/2000
1845/1845 [=====] - 0s 78us/sample - loss: 30.4278 - accuracy:
Epoch 774/2000
1845/1845 [=====] - 0s 72us/sample - loss: 32.1762 - accuracy:
Epoch 775/2000
1845/1845 [=====] - 0s 75us/sample - loss: 30.7994 - accuracy:
Epoch 776/2000
1845/1845 [=====] - 0s 87us/sample - loss: 35.6097 - accuracy:
Epoch 777/2000
1845/1845 [=====] - 0s 79us/sample - loss: 34.0845 - accuracy:
Epoch 778/2000
1845/1845 [=====] - 0s 80us/sample - loss: 33.9864 - accuracy:
Epoch 779/2000
1845/1845 [=====] - 0s 68us/sample - loss: 30.1829 - accuracy:
Epoch 780/2000
1845/1845 [=====] - 0s 62us/sample - loss: 30.8065 - accuracy:
Epoch 781/2000
1845/1845 [=====] - 0s 86us/sample - loss: 35.3898 - accuracy:
Epoch 782/2000
1845/1845 [=====] - 0s 74us/sample - loss: 31.4577 - accuracy:
Epoch 783/2000
1845/1845 [=====] - 0s 81us/sample - loss: 31.2606 - accuracy:
Epoch 784/2000
1845/1845 [=====] - 0s 152us/sample - loss: 29.8704 - accuracy:
Epoch 785/2000
1845/1845 [=====] - 0s 188us/sample - loss: 30.9816 - accuracy:
Epoch 786/2000
1845/1845 [=====] - 0s 169us/sample - loss: 35.6361 - accuracy:
Epoch 787/2000
1845/1845 [=====] - 0s 138us/sample - loss: 32.9454 - accuracy:
Epoch 788/2000
1845/1845 [=====] - 0s 106us/sample - loss: 32.1304 - accuracy:
Epoch 789/2000
1845/1845 [=====] - 0s 122us/sample - loss: 32.6725 - accuracy:
Epoch 790/2000
1845/1845 [=====] - 0s 121us/sample - loss: 31.8688 - accuracy:
Epoch 791/2000
1845/1845 [=====] - 0s 112us/sample - loss: 33.2737 - accuracy:
Epoch 792/2000
1845/1845 [=====] - 0s 148us/sample - loss: 29.5662 - accuracy:
Epoch 793/2000
1845/1845 [=====] - 0s 130us/sample - loss: 30.3031 - accuracy:
Epoch 794/2000
1845/1845 [=====] - 0s 101us/sample - loss: 30.1232 - accuracy:
Epoch 795/2000
1845/1845 [=====] - 0s 93us/sample - loss: 34.1864 - accuracy:
Epoch 796/2000
1845/1845 [=====] - 0s 122us/sample - loss: 31.6314 - accuracy:
Epoch 797/2000
1845/1845 [=====] - 0s 97us/sample - loss: 28.7314 - accuracy:
Epoch 798/2000
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1845/1845 [=====] - 0s 110us/sample - loss: 32.4309 - accuracy
Epoch 799/2000
1845/1845 [=====] - 0s 111us/sample - loss: 33.1062 - accuracy
Epoch 800/2000
1845/1845 [=====] - 0s 131us/sample - loss: 40.7160 - accuracy
Epoch 801/2000
1845/1845 [=====] - 0s 137us/sample - loss: 31.0099 - accuracy
Epoch 802/2000
1845/1845 [=====] - 0s 107us/sample - loss: 32.1701 - accuracy
Epoch 803/2000
1845/1845 [=====] - 0s 143us/sample - loss: 36.9532 - accuracy
Epoch 804/2000
1845/1845 [=====] - 0s 187us/sample - loss: 35.9517 - accuracy
Epoch 805/2000
1845/1845 [=====] - 0s 143us/sample - loss: 33.0548 - accuracy
Epoch 806/2000
1845/1845 [=====] - 0s 111us/sample - loss: 31.8419 - accuracy
Epoch 807/2000
1845/1845 [=====] - 0s 129us/sample - loss: 31.2454 - accuracy
Epoch 808/2000
1845/1845 [=====] - 0s 131us/sample - loss: 30.3979 - accuracy
Epoch 809/2000
1845/1845 [=====] - 0s 154us/sample - loss: 33.4303 - accuracy
Epoch 810/2000
1845/1845 [=====] - 0s 131us/sample - loss: 34.7882 - accuracy
Epoch 811/2000
1845/1845 [=====] - 0s 183us/sample - loss: 27.8950 - accuracy
Epoch 812/2000
1845/1845 [=====] - 0s 189us/sample - loss: 34.3961 - accuracy
Epoch 813/2000
1845/1845 [=====] - 0s 177us/sample - loss: 36.0684 - accuracy
Epoch 814/2000
1845/1845 [=====] - 0s 152us/sample - loss: 30.2521 - accuracy
Epoch 815/2000
1845/1845 [=====] - 0s 111us/sample - loss: 31.6002 - accuracy
Epoch 816/2000
1845/1845 [=====] - 0s 116us/sample - loss: 31.2594 - accuracy
Epoch 817/2000
1845/1845 [=====] - 0s 117us/sample - loss: 38.2378 - accuracy
Epoch 818/2000
1845/1845 [=====] - 0s 115us/sample - loss: 29.9975 - accuracy
Epoch 819/2000
1845/1845 [=====] - 0s 114us/sample - loss: 31.1247 - accuracy
Epoch 820/2000
1845/1845 [=====] - 0s 107us/sample - loss: 32.1080 - accuracy
Epoch 821/2000
1845/1845 [=====] - 0s 116us/sample - loss: 33.6987 - accuracy
Epoch 822/2000
1845/1845 [=====] - 0s 151us/sample - loss: 33.8709 - accuracy
Epoch 823/2000
1845/1845 [=====] - 0s 130us/sample - loss: 37.3933 - accuracy
Epoch 824/2000
1845/1845 [=====] - 0s 125us/sample - loss: 32.7100 - accuracy
Epoch 825/2000
1845/1845 [=====] - 0s 124us/sample - loss: 31.2524 - accuracy
Epoch 826/2000
1845/1845 [=====] - 0s 130us/sample - loss: 32.0591 - accuracy
Epoch 827/2000
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Epoch 827/2000
1845/1845 [=====] - 0s 168us/sample - loss: 32.0350 - accuracy
Epoch 828/2000
1845/1845 [=====] - 0s 130us/sample - loss: 29.7643 - accuracy
Epoch 829/2000
1845/1845 [=====] - 0s 119us/sample - loss: 32.2069 - accuracy
Epoch 830/2000
1845/1845 [=====] - 0s 106us/sample - loss: 31.5888 - accuracy
Epoch 831/2000
1845/1845 [=====] - 0s 133us/sample - loss: 29.5639 - accuracy
Epoch 832/2000
1845/1845 [=====] - 0s 119us/sample - loss: 34.2369 - accuracy
Epoch 833/2000
1845/1845 [=====] - 0s 125us/sample - loss: 28.4069 - accuracy
Epoch 834/2000
1845/1845 [=====] - 0s 109us/sample - loss: 28.2860 - accuracy
Epoch 835/2000
1845/1845 [=====] - 0s 102us/sample - loss: 36.1947 - accuracy
Epoch 836/2000
1845/1845 [=====] - 0s 94us/sample - loss: 29.7669 - accuracy:
Epoch 837/2000
1845/1845 [=====] - 0s 93us/sample - loss: 31.4811 - accuracy:
Epoch 838/2000
1845/1845 [=====] - 0s 90us/sample - loss: 29.5632 - accuracy:
Epoch 839/2000
1845/1845 [=====] - 0s 126us/sample - loss: 32.6600 - accuracy
Epoch 840/2000
1845/1845 [=====] - 0s 130us/sample - loss: 30.3732 - accuracy
Epoch 841/2000
1845/1845 [=====] - 0s 150us/sample - loss: 30.3791 - accuracy
Epoch 842/2000
1845/1845 [=====] - 0s 140us/sample - loss: 27.9639 - accuracy
Epoch 843/2000
1845/1845 [=====] - 0s 145us/sample - loss: 34.5174 - accuracy
Epoch 844/2000
1845/1845 [=====] - 0s 124us/sample - loss: 38.5268 - accuracy
Epoch 845/2000
1845/1845 [=====] - 0s 111us/sample - loss: 31.6667 - accuracy
Epoch 846/2000
1845/1845 [=====] - 0s 97us/sample - loss: 30.7180 - accuracy:
Epoch 847/2000
1845/1845 [=====] - 0s 100us/sample - loss: 31.1640 - accuracy
Epoch 848/2000
1845/1845 [=====] - 0s 104us/sample - loss: 31.3279 - accuracy
Epoch 849/2000
1845/1845 [=====] - 0s 94us/sample - loss: 29.8833 - accuracy:
Epoch 850/2000
1845/1845 [=====] - 0s 96us/sample - loss: 27.9061 - accuracy:
Epoch 851/2000
1845/1845 [=====] - 0s 108us/sample - loss: 26.3742 - accuracy
Epoch 852/2000
1845/1845 [=====] - 0s 98us/sample - loss: 47.4867 - accuracy:
Epoch 853/2000
1845/1845 [=====] - 0s 103us/sample - loss: 29.0143 - accuracy
Epoch 854/2000
1845/1845 [=====] - 0s 96us/sample - loss: 34.1689 - accuracy:
Epoch 855/2000
1845/1845 [=====] - 0s 145us/sample - loss: 34.6772 - accuracy
```



Epoch 856/2000  
1845/1845 [=====] - 0s 155us/sample - loss: 29.2825 - accuracy  
Epoch 857/2000  
1845/1845 [=====] - 0s 129us/sample - loss: 33.5154 - accuracy  
Epoch 858/2000  
1845/1845 [=====] - 0s 113us/sample - loss: 32.2705 - accuracy  
Epoch 859/2000  
1845/1845 [=====] - 0s 131us/sample - loss: 33.5469 - accuracy  
Epoch 860/2000  
1845/1845 [=====] - 0s 116us/sample - loss: 31.5159 - accuracy  
Epoch 861/2000  
1845/1845 [=====] - 0s 119us/sample - loss: 33.1968 - accuracy  
Epoch 862/2000  
1845/1845 [=====] - 0s 119us/sample - loss: 30.2363 - accuracy  
Epoch 863/2000  
1845/1845 [=====] - 0s 143us/sample - loss: 30.4229 - accuracy  
Epoch 864/2000  
1845/1845 [=====] - 0s 132us/sample - loss: 36.1779 - accuracy  
Epoch 865/2000  
1845/1845 [=====] - 0s 181us/sample - loss: 30.3685 - accuracy  
Epoch 866/2000  
1845/1845 [=====] - 0s 161us/sample - loss: 34.4703 - accuracy  
Epoch 867/2000  
1845/1845 [=====] - 0s 153us/sample - loss: 31.6095 - accuracy  
Epoch 868/2000  
1845/1845 [=====] - 0s 164us/sample - loss: 30.8430 - accuracy  
Epoch 869/2000  
1845/1845 [=====] - 0s 187us/sample - loss: 33.0584 - accuracy  
Epoch 870/2000  
1845/1845 [=====] - 0s 173us/sample - loss: 32.2387 - accuracy  
Epoch 871/2000  
1845/1845 [=====] - 0s 193us/sample - loss: 30.6966 - accuracy  
Epoch 872/2000  
1845/1845 [=====] - 0s 120us/sample - loss: 38.5083 - accuracy  
Epoch 873/2000  
1845/1845 [=====] - 0s 167us/sample - loss: 31.7486 - accuracy  
Epoch 874/2000  
1845/1845 [=====] - 0s 120us/sample - loss: 30.7521 - accuracy  
Epoch 875/2000  
1845/1845 [=====] - 0s 101us/sample - loss: 37.2942 - accuracy  
Epoch 876/2000  
1845/1845 [=====] - 0s 108us/sample - loss: 31.2437 - accuracy  
Epoch 877/2000  
1845/1845 [=====] - 0s 161us/sample - loss: 34.2540 - accuracy  
Epoch 878/2000  
1845/1845 [=====] - 0s 169us/sample - loss: 31.2826 - accuracy  
Epoch 879/2000  
1845/1845 [=====] - 0s 175us/sample - loss: 26.7928 - accuracy  
Epoch 880/2000  
1845/1845 [=====] - 0s 147us/sample - loss: 33.4644 - accuracy  
Epoch 881/2000  
1845/1845 [=====] - 0s 149us/sample - loss: 32.1104 - accuracy  
Epoch 882/2000  
1845/1845 [=====] - 0s 125us/sample - loss: 29.5875 - accuracy  
Epoch 883/2000  
1845/1845 [=====] - 0s 120us/sample - loss: 29.3689 - accuracy  
Epoch 884/2000  
1845/1845 [=====] - 0s 109us/sample - loss: 30.8610 - accuracy

```
Epoch 885/2000
1845/1845 [=====] - 0s 101us/sample - loss: 29.0637 - accuracy
Epoch 886/2000
1845/1845 [=====] - 0s 110us/sample - loss: 36.2648 - accuracy
Epoch 887/2000
1845/1845 [=====] - 0s 110us/sample - loss: 30.8807 - accuracy
Epoch 888/2000
1845/1845 [=====] - 0s 124us/sample - loss: 29.2945 - accuracy
Epoch 889/2000
1845/1845 [=====] - 0s 145us/sample - loss: 30.4252 - accuracy
Epoch 890/2000
1845/1845 [=====] - 0s 191us/sample - loss: 29.2953 - accuracy
Epoch 891/2000
1845/1845 [=====] - 0s 208us/sample - loss: 33.1210 - accuracy
Epoch 892/2000
1845/1845 [=====] - 0s 166us/sample - loss: 28.2898 - accuracy
Epoch 893/2000
1845/1845 [=====] - 0s 133us/sample - loss: 31.9471 - accuracy
Epoch 894/2000
1845/1845 [=====] - 0s 138us/sample - loss: 32.3149 - accuracy
Epoch 895/2000
1845/1845 [=====] - 0s 137us/sample - loss: 29.7052 - accuracy
Epoch 896/2000
1845/1845 [=====] - 0s 123us/sample - loss: 30.6013 - accuracy
Epoch 897/2000
1845/1845 [=====] - 0s 138us/sample - loss: 32.2835 - accuracy
Epoch 898/2000
1845/1845 [=====] - 0s 134us/sample - loss: 33.0652 - accuracy
Epoch 899/2000
1845/1845 [=====] - 0s 118us/sample - loss: 28.1159 - accuracy
Epoch 900/2000
1845/1845 [=====] - 0s 133us/sample - loss: 34.6261 - accuracy
Epoch 901/2000
1845/1845 [=====] - 0s 110us/sample - loss: 34.8182 - accuracy
Epoch 902/2000
1845/1845 [=====] - 0s 128us/sample - loss: 34.1494 - accuracy
Epoch 903/2000
1845/1845 [=====] - 0s 139us/sample - loss: 35.5155 - accuracy
Epoch 904/2000
1845/1845 [=====] - 0s 77us/sample - loss: 30.5862 - accuracy:
Epoch 905/2000
1845/1845 [=====] - 0s 99us/sample - loss: 31.5022 - accuracy:
Epoch 906/2000
1845/1845 [=====] - 0s 132us/sample - loss: 36.4664 - accuracy
Epoch 907/2000
1845/1845 [=====] - 0s 134us/sample - loss: 30.6865 - accuracy
Epoch 908/2000
1845/1845 [=====] - 0s 138us/sample - loss: 32.6724 - accuracy
Epoch 909/2000
1845/1845 [=====] - 0s 155us/sample - loss: 38.3062 - accuracy
Epoch 910/2000
1845/1845 [=====] - 0s 164us/sample - loss: 35.2311 - accuracy
Epoch 911/2000
1845/1845 [=====] - 0s 142us/sample - loss: 29.0388 - accuracy
Epoch 912/2000
1845/1845 [=====] - 0s 139us/sample - loss: 30.1113 - accuracy
Epoch 913/2000
```

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1845/1845 [=====] - 0s 136us/sample - loss: 30.4156 - accuracy
Epoch 914/2000
1845/1845 [=====] - 0s 135us/sample - loss: 38.2095 - accuracy
Epoch 915/2000
1845/1845 [=====] - 0s 136us/sample - loss: 31.0591 - accuracy
Epoch 916/2000
1845/1845 [=====] - 0s 136us/sample - loss: 28.1888 - accuracy
Epoch 917/2000
1845/1845 [=====] - 0s 133us/sample - loss: 27.1411 - accuracy
Epoch 918/2000
1845/1845 [=====] - 0s 131us/sample - loss: 28.0799 - accuracy
Epoch 919/2000
1845/1845 [=====] - 0s 134us/sample - loss: 29.9771 - accuracy
Epoch 920/2000
1845/1845 [=====] - 0s 132us/sample - loss: 29.6420 - accuracy
Epoch 921/2000
1845/1845 [=====] - 0s 130us/sample - loss: 32.5354 - accuracy
Epoch 922/2000
1845/1845 [=====] - 0s 130us/sample - loss: 35.0537 - accuracy
Epoch 923/2000
1845/1845 [=====] - 0s 152us/sample - loss: 36.2951 - accuracy
Epoch 924/2000
1845/1845 [=====] - 0s 146us/sample - loss: 33.0577 - accuracy
Epoch 925/2000
1845/1845 [=====] - 0s 117us/sample - loss: 32.7916 - accuracy
Epoch 926/2000
1845/1845 [=====] - 0s 121us/sample - loss: 30.1236 - accuracy
Epoch 927/2000
1845/1845 [=====] - 0s 126us/sample - loss: 35.3876 - accuracy
Epoch 928/2000
1845/1845 [=====] - 0s 133us/sample - loss: 32.0043 - accuracy
Epoch 929/2000
1845/1845 [=====] - 0s 145us/sample - loss: 31.5831 - accuracy
Epoch 930/2000
1845/1845 [=====] - 0s 171us/sample - loss: 35.6437 - accuracy
Epoch 931/2000
1845/1845 [=====] - 0s 150us/sample - loss: 30.7674 - accuracy
Epoch 932/2000
1845/1845 [=====] - 0s 119us/sample - loss: 35.8651 - accuracy
Epoch 933/2000
1845/1845 [=====] - 0s 120us/sample - loss: 32.3244 - accuracy
Epoch 934/2000
1845/1845 [=====] - 0s 122us/sample - loss: 30.1096 - accuracy
Epoch 935/2000
1845/1845 [=====] - 0s 121us/sample - loss: 34.4952 - accuracy
Epoch 936/2000
1845/1845 [=====] - 0s 122us/sample - loss: 34.3550 - accuracy
Epoch 937/2000
1845/1845 [=====] - 0s 115us/sample - loss: 29.7531 - accuracy
Epoch 938/2000
1845/1845 [=====] - 0s 111us/sample - loss: 31.5598 - accuracy
Epoch 939/2000
1845/1845 [=====] - 0s 103us/sample - loss: 32.7847 - accuracy
Epoch 940/2000
1845/1845 [=====] - 0s 113us/sample - loss: 30.0805 - accuracy
Epoch 941/2000
1845/1845 [=====] - 0s 116us/sample - loss: 28.4158 - accuracy
Epoch 942/2000
```

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1845/1845 [=====] - 0s 118us/sample - loss: 29.9288 - accuracy
Epoch 943/2000
1845/1845 [=====] - 0s 115us/sample - loss: 30.7094 - accuracy
Epoch 944/2000
1845/1845 [=====] - 0s 106us/sample - loss: 31.5375 - accuracy
Epoch 945/2000
1845/1845 [=====] - 0s 95us/sample - loss: 31.9315 - accuracy:
Epoch 946/2000
1845/1845 [=====] - 0s 90us/sample - loss: 34.1495 - accuracy:
Epoch 947/2000
1845/1845 [=====] - 0s 105us/sample - loss: 33.7458 - accuracy
Epoch 948/2000
1845/1845 [=====] - 0s 95us/sample - loss: 37.2481 - accuracy:
Epoch 949/2000
1845/1845 [=====] - 0s 97us/sample - loss: 34.4049 - accuracy:
Epoch 950/2000
1845/1845 [=====] - 0s 94us/sample - loss: 30.0264 - accuracy:
Epoch 951/2000
1845/1845 [=====] - 0s 103us/sample - loss: 32.8921 - accuracy
Epoch 952/2000
1845/1845 [=====] - 0s 91us/sample - loss: 31.3437 - accuracy:
Epoch 953/2000
1845/1845 [=====] - 0s 88us/sample - loss: 32.9304 - accuracy:
Epoch 954/2000
1845/1845 [=====] - 0s 88us/sample - loss: 32.5203 - accuracy:
Epoch 955/2000
1845/1845 [=====] - 0s 91us/sample - loss: 29.6276 - accuracy:
Epoch 956/2000
1845/1845 [=====] - 0s 93us/sample - loss: 31.0992 - accuracy:
Epoch 957/2000
1845/1845 [=====] - 0s 96us/sample - loss: 29.8226 - accuracy:
Epoch 958/2000
1845/1845 [=====] - 0s 89us/sample - loss: 34.1587 - accuracy:
Epoch 959/2000
1845/1845 [=====] - 0s 90us/sample - loss: 33.2987 - accuracy:
Epoch 960/2000
1845/1845 [=====] - 0s 94us/sample - loss: 30.3881 - accuracy:
Epoch 961/2000
1845/1845 [=====] - 0s 88us/sample - loss: 32.9322 - accuracy:
Epoch 962/2000
1845/1845 [=====] - 0s 92us/sample - loss: 34.9617 - accuracy:
Epoch 963/2000
1845/1845 [=====] - 0s 99us/sample - loss: 33.2091 - accuracy:
Epoch 964/2000
1845/1845 [=====] - 0s 96us/sample - loss: 27.1567 - accuracy:
Epoch 965/2000
1845/1845 [=====] - 0s 91us/sample - loss: 33.5726 - accuracy:
Epoch 966/2000
1845/1845 [=====] - 0s 93us/sample - loss: 31.9799 - accuracy:
Epoch 967/2000
1845/1845 [=====] - 0s 93us/sample - loss: 33.6385 - accuracy:
Epoch 968/2000
1845/1845 [=====] - 0s 92us/sample - loss: 34.0619 - accuracy:
Epoch 969/2000
1845/1845 [=====] - 0s 89us/sample - loss: 27.7147 - accuracy:
Epoch 970/2000
1845/1845 [=====] - 0s 92us/sample - loss: 32.3977 - accuracy:
Epoch 971/2000
```

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Epoch 971/2000
1845/1845 [=====] - 0s 95us/sample - loss: 28.7828 - accuracy:
Epoch 972/2000
1845/1845 [=====] - 0s 98us/sample - loss: 33.6092 - accuracy:
Epoch 973/2000
1845/1845 [=====] - 0s 89us/sample - loss: 32.7811 - accuracy:
Epoch 974/2000
1845/1845 [=====] - 0s 90us/sample - loss: 32.9740 - accuracy:
Epoch 975/2000
1845/1845 [=====] - 0s 90us/sample - loss: 30.9841 - accuracy:
Epoch 976/2000
1845/1845 [=====] - 0s 89us/sample - loss: 30.9220 - accuracy:
Epoch 977/2000
1845/1845 [=====] - 0s 99us/sample - loss: 28.6354 - accuracy:
Epoch 978/2000
1845/1845 [=====] - 0s 108us/sample - loss: 29.4758 - accuracy:
Epoch 979/2000
1845/1845 [=====] - 0s 97us/sample - loss: 29.9809 - accuracy:
Epoch 980/2000
1845/1845 [=====] - 0s 89us/sample - loss: 31.8038 - accuracy:
Epoch 981/2000
1845/1845 [=====] - 0s 89us/sample - loss: 30.8076 - accuracy:
Epoch 982/2000
1845/1845 [=====] - 0s 88us/sample - loss: 30.1552 - accuracy:
Epoch 983/2000
1845/1845 [=====] - 0s 89us/sample - loss: 29.0972 - accuracy:
Epoch 984/2000
1845/1845 [=====] - 0s 107us/sample - loss: 34.2551 - accuracy:
Epoch 985/2000
1845/1845 [=====] - 0s 88us/sample - loss: 32.8660 - accuracy:
Epoch 986/2000
1845/1845 [=====] - 0s 92us/sample - loss: 32.7768 - accuracy:
Epoch 987/2000
1845/1845 [=====] - 0s 89us/sample - loss: 30.0866 - accuracy:
Epoch 988/2000
1845/1845 [=====] - 0s 90us/sample - loss: 28.7409 - accuracy:
Epoch 989/2000
1845/1845 [=====] - 0s 87us/sample - loss: 27.7988 - accuracy:
Epoch 990/2000
1845/1845 [=====] - 0s 86us/sample - loss: 29.0391 - accuracy:
Epoch 991/2000
1845/1845 [=====] - 0s 87us/sample - loss: 31.2626 - accuracy:
Epoch 992/2000
1845/1845 [=====] - 0s 95us/sample - loss: 28.1793 - accuracy:
Epoch 993/2000
1845/1845 [=====] - 0s 95us/sample - loss: 30.2211 - accuracy:
Epoch 994/2000
1845/1845 [=====] - 0s 93us/sample - loss: 34.2132 - accuracy:
Epoch 995/2000
1845/1845 [=====] - 0s 95us/sample - loss: 30.2959 - accuracy:
Epoch 996/2000
1845/1845 [=====] - 0s 98us/sample - loss: 27.3828 - accuracy:
Epoch 997/2000
1845/1845 [=====] - 0s 99us/sample - loss: 27.7563 - accuracy:
Epoch 998/2000
1845/1845 [=====] - 0s 112us/sample - loss: 35.9795 - accuracy:
Epoch 999/2000
1845/1845 [=====] - 0s 101us/sample - loss: 36.6067 - accuracy
```

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Epoch 1000/2000
1845/1845 [=====] - 0s 90us/sample - loss: 30.4379 - accuracy:
Epoch 1001/2000
1845/1845 [=====] - 0s 93us/sample - loss: 27.5630 - accuracy:
Epoch 1002/2000
1845/1845 [=====] - 0s 99us/sample - loss: 30.6831 - accuracy:
Epoch 1003/2000
1845/1845 [=====] - 0s 111us/sample - loss: 29.2681 - accuracy
Epoch 1004/2000
1845/1845 [=====] - 0s 110us/sample - loss: 28.4917 - accuracy
Epoch 1005/2000
1845/1845 [=====] - 0s 120us/sample - loss: 31.2639 - accuracy
Epoch 1006/2000
1845/1845 [=====] - 0s 118us/sample - loss: 34.1483 - accuracy
Epoch 1007/2000
1845/1845 [=====] - 0s 108us/sample - loss: 31.4399 - accuracy
Epoch 1008/2000
1845/1845 [=====] - 0s 118us/sample - loss: 35.5396 - accuracy
Epoch 1009/2000
1845/1845 [=====] - 0s 128us/sample - loss: 32.4666 - accuracy
Epoch 1010/2000
1845/1845 [=====] - 0s 106us/sample - loss: 35.9800 - accuracy
Epoch 1011/2000
1845/1845 [=====] - 0s 94us/sample - loss: 27.6684 - accuracy:
Epoch 1012/2000
1845/1845 [=====] - 0s 87us/sample - loss: 31.3463 - accuracy:
Epoch 1013/2000
1845/1845 [=====] - 0s 95us/sample - loss: 28.8395 - accuracy:
Epoch 1014/2000
1845/1845 [=====] - 0s 157us/sample - loss: 32.7768 - accuracy
Epoch 1015/2000
1845/1845 [=====] - 0s 130us/sample - loss: 40.9167 - accuracy
Epoch 1016/2000
1845/1845 [=====] - 0s 113us/sample - loss: 34.1874 - accuracy
Epoch 1017/2000
1845/1845 [=====] - 0s 115us/sample - loss: 29.8784 - accuracy
Epoch 1018/2000
1845/1845 [=====] - 0s 99us/sample - loss: 34.8252 - accuracy:
Epoch 1019/2000
1845/1845 [=====] - 0s 90us/sample - loss: 32.3629 - accuracy:
Epoch 1020/2000
1845/1845 [=====] - 0s 94us/sample - loss: 32.5653 - accuracy:
Epoch 1021/2000
1845/1845 [=====] - 0s 97us/sample - loss: 30.4602 - accuracy:
Epoch 1022/2000
1845/1845 [=====] - 0s 106us/sample - loss: 37.3657 - accuracy
Epoch 1023/2000
1845/1845 [=====] - 0s 102us/sample - loss: 35.0114 - accuracy
Epoch 1024/2000
1845/1845 [=====] - 0s 93us/sample - loss: 30.4864 - accuracy:
Epoch 1025/2000
1845/1845 [=====] - 0s 91us/sample - loss: 27.2568 - accuracy:
Epoch 1026/2000
1845/1845 [=====] - 0s 89us/sample - loss: 27.6535 - accuracy:
Epoch 1027/2000
1845/1845 [=====] - 0s 113us/sample - loss: 28.0255 - accuracy
Epoch 1028/2000
1845/1845 [=====] - 0s 109us/sample - loss: 30.2219 - accuracy
```

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Epoch 1029/2000
1845/1845 [=====] - 0s 108us/sample - loss: 30.1980 - accuracy
Epoch 1030/2000
1845/1845 [=====] - 0s 130us/sample - loss: 29.0125 - accuracy
Epoch 1031/2000
1845/1845 [=====] - 0s 130us/sample - loss: 29.8435 - accuracy
Epoch 1032/2000
1845/1845 [=====] - 0s 106us/sample - loss: 31.7327 - accuracy
Epoch 1033/2000
1845/1845 [=====] - 0s 103us/sample - loss: 28.1321 - accuracy
Epoch 1034/2000
1845/1845 [=====] - 0s 88us/sample - loss: 30.0910 - accuracy:
Epoch 1035/2000
1845/1845 [=====] - 0s 89us/sample - loss: 30.1441 - accuracy:
Epoch 1036/2000
1845/1845 [=====] - 0s 88us/sample - loss: 29.1291 - accuracy:
Epoch 1037/2000
1845/1845 [=====] - 0s 89us/sample - loss: 28.4146 - accuracy:
Epoch 1038/2000
1845/1845 [=====] - 0s 94us/sample - loss: 32.5183 - accuracy:
Epoch 1039/2000
1845/1845 [=====] - 0s 96us/sample - loss: 33.7805 - accuracy:
Epoch 1040/2000
1845/1845 [=====] - 0s 93us/sample - loss: 29.8496 - accuracy:
Epoch 1041/2000
1845/1845 [=====] - 0s 87us/sample - loss: 29.8244 - accuracy:
Epoch 1042/2000
1845/1845 [=====] - 0s 86us/sample - loss: 29.4153 - accuracy:
Epoch 1043/2000
1845/1845 [=====] - 0s 99us/sample - loss: 29.6478 - accuracy:
Epoch 1044/2000
1845/1845 [=====] - 0s 98us/sample - loss: 36.2624 - accuracy:
Epoch 1045/2000
1845/1845 [=====] - 0s 90us/sample - loss: 40.4818 - accuracy:
Epoch 1046/2000
1845/1845 [=====] - 0s 98us/sample - loss: 33.5424 - accuracy:
Epoch 1047/2000
1845/1845 [=====] - 0s 90us/sample - loss: 35.7694 - accuracy:
Epoch 1048/2000
1845/1845 [=====] - 0s 104us/sample - loss: 31.6931 - accuracy
Epoch 1049/2000
1845/1845 [=====] - 0s 168us/sample - loss: 29.4848 - accuracy
Epoch 1050/2000
1845/1845 [=====] - 0s 99us/sample - loss: 29.8928 - accuracy:
Epoch 1051/2000
1845/1845 [=====] - 0s 121us/sample - loss: 29.1749 - accuracy
Epoch 1052/2000
1845/1845 [=====] - 0s 100us/sample - loss: 31.2248 - accuracy
Epoch 1053/2000
1845/1845 [=====] - 0s 103us/sample - loss: 30.9332 - accuracy
Epoch 1054/2000
1845/1845 [=====] - 0s 96us/sample - loss: 29.1671 - accuracy:
Epoch 1055/2000
1845/1845 [=====] - 0s 116us/sample - loss: 30.9585 - accuracy
Epoch 1056/2000
1845/1845 [=====] - 0s 138us/sample - loss: 28.0396 - accuracy
Epoch 1057/2000
1845/1845 [=====] - 0s 123us/sample - loss: 31.6770 - accuracy
```

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Epoch 1048/2000 [-] - 0s 125us/sample - loss: 31.0770 - accuracy
Epoch 1058/2000
1845/1845 [=====] - 0s 150us/sample - loss: 27.8575 - accuracy
Epoch 1059/2000
1845/1845 [=====] - 0s 101us/sample - loss: 31.9071 - accuracy
Epoch 1060/2000
1845/1845 [=====] - 0s 120us/sample - loss: 28.9273 - accuracy
Epoch 1061/2000
1845/1845 [=====] - 0s 119us/sample - loss: 29.7232 - accuracy
Epoch 1062/2000
1845/1845 [=====] - 0s 143us/sample - loss: 32.2844 - accuracy
Epoch 1063/2000
1845/1845 [=====] - 0s 136us/sample - loss: 29.0738 - accuracy
Epoch 1064/2000
1845/1845 [=====] - 0s 132us/sample - loss: 31.8749 - accuracy
Epoch 1065/2000
1845/1845 [=====] - 0s 119us/sample - loss: 35.1394 - accuracy
Epoch 1066/2000
1845/1845 [=====] - 0s 128us/sample - loss: 28.5699 - accuracy
Epoch 1067/2000
1845/1845 [=====] - 0s 118us/sample - loss: 32.9383 - accuracy
Epoch 1068/2000
1845/1845 [=====] - 0s 121us/sample - loss: 27.7309 - accuracy
Epoch 1069/2000
1845/1845 [=====] - 0s 137us/sample - loss: 29.3348 - accuracy
Epoch 1070/2000
1845/1845 [=====] - 0s 126us/sample - loss: 28.9183 - accuracy
Epoch 1071/2000
1845/1845 [=====] - 0s 118us/sample - loss: 31.9427 - accuracy
Epoch 1072/2000
1845/1845 [=====] - 0s 111us/sample - loss: 31.4469 - accuracy
Epoch 1073/2000
1845/1845 [=====] - 0s 105us/sample - loss: 31.6399 - accuracy
Epoch 1074/2000
1845/1845 [=====] - 0s 99us/sample - loss: 33.4466 - accuracy:
Epoch 1075/2000
1845/1845 [=====] - 0s 90us/sample - loss: 30.9893 - accuracy:
Epoch 1076/2000
1845/1845 [=====] - 0s 97us/sample - loss: 32.7039 - accuracy:
Epoch 1077/2000
1845/1845 [=====] - 0s 113us/sample - loss: 30.5083 - accuracy
Epoch 1078/2000
1845/1845 [=====] - 0s 101us/sample - loss: 33.2851 - accuracy
Epoch 1079/2000
1845/1845 [=====] - 0s 91us/sample - loss: 28.2139 - accuracy:
Epoch 1080/2000
1845/1845 [=====] - 0s 94us/sample - loss: 31.1598 - accuracy:
Epoch 1081/2000
1845/1845 [=====] - 0s 128us/sample - loss: 27.9355 - accuracy
Epoch 1082/2000
1845/1845 [=====] - 0s 119us/sample - loss: 28.3865 - accuracy
Epoch 1083/2000
1845/1845 [=====] - 0s 99us/sample - loss: 32.4021 - accuracy:
Epoch 1084/2000
1845/1845 [=====] - 0s 90us/sample - loss: 27.9177 - accuracy:
Epoch 1085/2000
1845/1845 [=====] - 0s 85us/sample - loss: 32.2401 - accuracy:
Epoch 1086/2000
```



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1845/1845 [=====] - 0s 88us/sample - loss: 29.7991 - accuracy:
Epoch 1087/2000
1845/1845 [=====] - 0s 89us/sample - loss: 32.5712 - accuracy:
Epoch 1088/2000
1845/1845 [=====] - 0s 97us/sample - loss: 33.7318 - accuracy:
Epoch 1089/2000
1845/1845 [=====] - 0s 93us/sample - loss: 30.9751 - accuracy:
Epoch 1090/2000
1845/1845 [=====] - 0s 96us/sample - loss: 31.3679 - accuracy:
Epoch 1091/2000
1845/1845 [=====] - 0s 91us/sample - loss: 30.6802 - accuracy:
Epoch 1092/2000
1845/1845 [=====] - 0s 95us/sample - loss: 29.6519 - accuracy:
Epoch 1093/2000
1845/1845 [=====] - 0s 91us/sample - loss: 30.4616 - accuracy:
Epoch 1094/2000
1845/1845 [=====] - 0s 93us/sample - loss: 29.4528 - accuracy:
Epoch 1095/2000
1845/1845 [=====] - 0s 89us/sample - loss: 29.9734 - accuracy:
Epoch 1096/2000
1845/1845 [=====] - 0s 106us/sample - loss: 25.7933 - accuracy:
Epoch 1097/2000
1845/1845 [=====] - 0s 87us/sample - loss: 31.6781 - accuracy:
Epoch 1098/2000
1845/1845 [=====] - 0s 89us/sample - loss: 29.5402 - accuracy:
Epoch 1099/2000
1845/1845 [=====] - 0s 103us/sample - loss: 34.3832 - accuracy:
Epoch 1100/2000
1845/1845 [=====] - 0s 97us/sample - loss: 28.4151 - accuracy:
Epoch 1101/2000
1845/1845 [=====] - 0s 178us/sample - loss: 30.2549 - accuracy:
Epoch 1102/2000
1845/1845 [=====] - 0s 141us/sample - loss: 30.0525 - accuracy:
Epoch 1103/2000
1845/1845 [=====] - 0s 126us/sample - loss: 28.1247 - accuracy:
Epoch 1104/2000
1845/1845 [=====] - 0s 123us/sample - loss: 33.0661 - accuracy:
Epoch 1105/2000
1845/1845 [=====] - 0s 116us/sample - loss: 28.3182 - accuracy:
Epoch 1106/2000
1845/1845 [=====] - 0s 94us/sample - loss: 27.9351 - accuracy:
Epoch 1107/2000
1845/1845 [=====] - 0s 115us/sample - loss: 34.6019 - accuracy:
Epoch 1108/2000
1845/1845 [=====] - 0s 169us/sample - loss: 33.4671 - accuracy:
Epoch 1109/2000
1845/1845 [=====] - 0s 147us/sample - loss: 28.2513 - accuracy:
Epoch 1110/2000
1845/1845 [=====] - 0s 130us/sample - loss: 27.4052 - accuracy:
Epoch 1111/2000
1845/1845 [=====] - 0s 130us/sample - loss: 32.3179 - accuracy:
Epoch 1112/2000
1845/1845 [=====] - 0s 118us/sample - loss: 31.6104 - accuracy:
Epoch 1113/2000
1845/1845 [=====] - 0s 115us/sample - loss: 28.7376 - accuracy:
Epoch 1114/2000
1845/1845 [=====] - 0s 139us/sample - loss: 33.6800 - accuracy:
Epoch 1115/2000
```

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1845/1845 [=====] - 0s 103us/sample - loss: 30.1707 - accuracy
Epoch 1116/2000
1845/1845 [=====] - 0s 108us/sample - loss: 30.1865 - accuracy
Epoch 1117/2000
1845/1845 [=====] - 0s 101us/sample - loss: 27.2437 - accuracy
Epoch 1118/2000
1845/1845 [=====] - 0s 100us/sample - loss: 28.2527 - accuracy
Epoch 1119/2000
1845/1845 [=====] - 0s 95us/sample - loss: 30.4090 - accuracy:
Epoch 1120/2000
1845/1845 [=====] - 0s 97us/sample - loss: 30.2061 - accuracy:
Epoch 1121/2000
1845/1845 [=====] - 0s 96us/sample - loss: 31.3363 - accuracy:
Epoch 1122/2000
1845/1845 [=====] - 0s 105us/sample - loss: 30.1656 - accuracy
Epoch 1123/2000
1845/1845 [=====] - 0s 93us/sample - loss: 31.4958 - accuracy:
Epoch 1124/2000
1845/1845 [=====] - 0s 103us/sample - loss: 30.6054 - accuracy
Epoch 1125/2000
1845/1845 [=====] - 0s 100us/sample - loss: 31.1672 - accuracy
Epoch 1126/2000
1845/1845 [=====] - 0s 93us/sample - loss: 33.7523 - accuracy:
Epoch 1127/2000
1845/1845 [=====] - 0s 95us/sample - loss: 29.3598 - accuracy:
Epoch 1128/2000
1845/1845 [=====] - 0s 96us/sample - loss: 29.5401 - accuracy:
Epoch 1129/2000
1845/1845 [=====] - 0s 96us/sample - loss: 30.3758 - accuracy:
Epoch 1130/2000
1845/1845 [=====] - 0s 144us/sample - loss: 31.5475 - accuracy
Epoch 1131/2000
1845/1845 [=====] - 0s 107us/sample - loss: 29.7410 - accuracy
Epoch 1132/2000
1845/1845 [=====] - 0s 107us/sample - loss: 28.7907 - accuracy
Epoch 1133/2000
1845/1845 [=====] - 0s 95us/sample - loss: 33.2579 - accuracy:
Epoch 1134/2000
1845/1845 [=====] - 0s 98us/sample - loss: 28.9122 - accuracy:
Epoch 1135/2000
1845/1845 [=====] - 0s 99us/sample - loss: 31.7619 - accuracy:
Epoch 1136/2000
1845/1845 [=====] - 0s 93us/sample - loss: 28.3056 - accuracy:
Epoch 1137/2000
1845/1845 [=====] - 0s 97us/sample - loss: 32.3141 - accuracy:
Epoch 1138/2000
1845/1845 [=====] - 0s 96us/sample - loss: 30.7264 - accuracy:
Epoch 1139/2000
1845/1845 [=====] - 0s 95us/sample - loss: 32.5540 - accuracy:
Epoch 1140/2000
1845/1845 [=====] - 0s 83us/sample - loss: 27.1505 - accuracy:
Epoch 1141/2000
1845/1845 [=====] - 0s 99us/sample - loss: 31.0403 - accuracy:
Epoch 1142/2000
1845/1845 [=====] - 0s 91us/sample - loss: 33.4628 - accuracy:
Epoch 1143/2000
1845/1845 [=====] - 0s 159us/sample - loss: 30.0192 - accuracy
Epoch 1144/2000
```

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Epoch 1144/2000
1845/1845 [=====] - 0s 128us/sample - loss: 30.5414 - accuracy
Epoch 1145/2000
1845/1845 [=====] - 0s 114us/sample - loss: 29.0165 - accuracy
Epoch 1146/2000
1845/1845 [=====] - 0s 100us/sample - loss: 28.6935 - accuracy
Epoch 1147/2000
1845/1845 [=====] - 0s 122us/sample - loss: 31.6500 - accuracy
Epoch 1148/2000
1845/1845 [=====] - 0s 99us/sample - loss: 29.7650 - accuracy:
Epoch 1149/2000
1845/1845 [=====] - 0s 112us/sample - loss: 28.7061 - accuracy
Epoch 1150/2000
1845/1845 [=====] - 0s 112us/sample - loss: 29.2334 - accuracy
Epoch 1151/2000
1845/1845 [=====] - 0s 103us/sample - loss: 27.6305 - accuracy
Epoch 1152/2000
1845/1845 [=====] - 0s 99us/sample - loss: 28.2081 - accuracy:
Epoch 1153/2000
1845/1845 [=====] - 0s 121us/sample - loss: 27.2922 - accuracy
Epoch 1154/2000
1845/1845 [=====] - 0s 107us/sample - loss: 30.8860 - accuracy
Epoch 1155/2000
1845/1845 [=====] - 0s 103us/sample - loss: 27.5037 - accuracy
Epoch 1156/2000
1845/1845 [=====] - 0s 96us/sample - loss: 30.9852 - accuracy:
Epoch 1157/2000
1845/1845 [=====] - 0s 98us/sample - loss: 30.9310 - accuracy:
Epoch 1158/2000
1845/1845 [=====] - 0s 102us/sample - loss: 32.7326 - accuracy
Epoch 1159/2000
1845/1845 [=====] - 0s 96us/sample - loss: 39.4610 - accuracy:
Epoch 1160/2000
1845/1845 [=====] - 0s 103us/sample - loss: 27.7698 - accuracy
Epoch 1161/2000
1845/1845 [=====] - 0s 132us/sample - loss: 28.9049 - accuracy
Epoch 1162/2000
1845/1845 [=====] - 0s 115us/sample - loss: 28.8939 - accuracy
Epoch 1163/2000
1845/1845 [=====] - 0s 103us/sample - loss: 30.9890 - accuracy
Epoch 1164/2000
1845/1845 [=====] - 0s 117us/sample - loss: 29.6568 - accuracy
Epoch 1165/2000
1845/1845 [=====] - 0s 97us/sample - loss: 31.1511 - accuracy:
Epoch 1166/2000
1845/1845 [=====] - 0s 115us/sample - loss: 34.7249 - accuracy
Epoch 1167/2000
1845/1845 [=====] - 0s 101us/sample - loss: 30.1013 - accuracy
Epoch 1168/2000
1845/1845 [=====] - 0s 102us/sample - loss: 27.1562 - accuracy
Epoch 1169/2000
1845/1845 [=====] - 0s 94us/sample - loss: 27.2713 - accuracy:
Epoch 1170/2000
1845/1845 [=====] - 0s 100us/sample - loss: 27.6660 - accuracy
Epoch 1171/2000
1845/1845 [=====] - 0s 129us/sample - loss: 28.0693 - accuracy
Epoch 1172/2000
1845/1845 [=====] - 0s 106us/sample - loss: 27.8598 - accuracy
```

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Epoch 1173/2000
1845/1845 [=====] - 0s 110us/sample - loss: 31.3615 - accuracy
Epoch 1174/2000
1845/1845 [=====] - 0s 98us/sample - loss: 28.4721 - accuracy:
Epoch 1175/2000
1845/1845 [=====] - 0s 115us/sample - loss: 30.9344 - accuracy
Epoch 1176/2000
1845/1845 [=====] - 0s 103us/sample - loss: 29.5020 - accuracy
Epoch 1177/2000
1845/1845 [=====] - 0s 102us/sample - loss: 30.3543 - accuracy
Epoch 1178/2000
1845/1845 [=====] - 0s 96us/sample - loss: 33.8616 - accuracy:
Epoch 1179/2000
1845/1845 [=====] - 0s 128us/sample - loss: 30.5809 - accuracy
Epoch 1180/2000
1845/1845 [=====] - 0s 123us/sample - loss: 28.2664 - accuracy
Epoch 1181/2000
1845/1845 [=====] - 0s 106us/sample - loss: 31.2154 - accuracy
Epoch 1182/2000
1845/1845 [=====] - 0s 108us/sample - loss: 29.8148 - accuracy
Epoch 1183/2000
1845/1845 [=====] - 0s 115us/sample - loss: 33.1341 - accuracy
Epoch 1184/2000
1845/1845 [=====] - 0s 123us/sample - loss: 30.3529 - accuracy
Epoch 1185/2000
1845/1845 [=====] - 0s 121us/sample - loss: 32.2316 - accuracy
Epoch 1186/2000
1845/1845 [=====] - 0s 112us/sample - loss: 29.4761 - accuracy
Epoch 1187/2000
1845/1845 [=====] - 0s 131us/sample - loss: 29.3437 - accuracy
Epoch 1188/2000
1845/1845 [=====] - 0s 110us/sample - loss: 31.4161 - accuracy
Epoch 1189/2000
1845/1845 [=====] - 0s 103us/sample - loss: 29.7419 - accuracy
Epoch 1190/2000
1845/1845 [=====] - 0s 92us/sample - loss: 26.9266 - accuracy:
Epoch 1191/2000
1845/1845 [=====] - 0s 90us/sample - loss: 30.1119 - accuracy:
Epoch 1192/2000
1845/1845 [=====] - 0s 95us/sample - loss: 27.1761 - accuracy:
Epoch 1193/2000
1845/1845 [=====] - 0s 100us/sample - loss: 27.8253 - accuracy
Epoch 1194/2000
1845/1845 [=====] - 0s 107us/sample - loss: 30.1845 - accuracy
Epoch 1195/2000
1845/1845 [=====] - 0s 126us/sample - loss: 30.7624 - accuracy
Epoch 1196/2000
1845/1845 [=====] - 0s 101us/sample - loss: 27.8962 - accuracy
Epoch 1197/2000
1845/1845 [=====] - 0s 96us/sample - loss: 29.7474 - accuracy:
Epoch 1198/2000
1845/1845 [=====] - 0s 105us/sample - loss: 29.2871 - accuracy
Epoch 1199/2000
1845/1845 [=====] - 0s 106us/sample - loss: 35.5878 - accuracy
Epoch 1200/2000
1845/1845 [=====] - 0s 101us/sample - loss: 32.7265 - accuracy
Epoch 1201/2000
1845/1845 [=====] - 0s 100us/sample - loss: 27.6961 - accuracy
```

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Epoch 1202/2000
1845/1845 [=====] - 0s 104us/sample - loss: 32.4617 - accuracy
Epoch 1203/2000
1845/1845 [=====] - 0s 109us/sample - loss: 28.4803 - accuracy
Epoch 1204/2000
1845/1845 [=====] - 0s 100us/sample - loss: 34.0620 - accuracy
Epoch 1205/2000
1845/1845 [=====] - 0s 94us/sample - loss: 28.1309 - accuracy:
Epoch 1206/2000
1845/1845 [=====] - 0s 91us/sample - loss: 29.5103 - accuracy:
Epoch 1207/2000
1845/1845 [=====] - 0s 88us/sample - loss: 28.2876 - accuracy:
Epoch 1208/2000
1845/1845 [=====] - 0s 89us/sample - loss: 29.6168 - accuracy:
Epoch 1209/2000
1845/1845 [=====] - 0s 101us/sample - loss: 30.4773 - accuracy
Epoch 1210/2000
1845/1845 [=====] - 0s 94us/sample - loss: 26.0207 - accuracy:
Epoch 1211/2000
1845/1845 [=====] - 0s 87us/sample - loss: 28.9565 - accuracy:
Epoch 1212/2000
1845/1845 [=====] - 0s 96us/sample - loss: 30.6431 - accuracy:
Epoch 1213/2000
1845/1845 [=====] - 0s 89us/sample - loss: 29.1523 - accuracy:
Epoch 1214/2000
1845/1845 [=====] - 0s 86us/sample - loss: 30.8549 - accuracy:
Epoch 1215/2000
1845/1845 [=====] - 0s 88us/sample - loss: 27.0890 - accuracy:
Epoch 1216/2000
1845/1845 [=====] - 0s 88us/sample - loss: 31.8295 - accuracy:
Epoch 1217/2000
1845/1845 [=====] - 0s 95us/sample - loss: 30.4813 - accuracy:
Epoch 1218/2000
1845/1845 [=====] - 0s 106us/sample - loss: 33.4993 - accuracy
Epoch 1219/2000
1845/1845 [=====] - 0s 132us/sample - loss: 29.3249 - accuracy
Epoch 1220/2000
1845/1845 [=====] - 0s 98us/sample - loss: 31.1933 - accuracy:
Epoch 1221/2000
1845/1845 [=====] - 0s 101us/sample - loss: 26.8097 - accuracy
Epoch 1222/2000
1845/1845 [=====] - 0s 90us/sample - loss: 27.7016 - accuracy:
Epoch 1223/2000
1845/1845 [=====] - 0s 93us/sample - loss: 27.7915 - accuracy:
Epoch 1224/2000
1845/1845 [=====] - 0s 91us/sample - loss: 29.1025 - accuracy:
Epoch 1225/2000
1845/1845 [=====] - 0s 95us/sample - loss: 29.5551 - accuracy:
Epoch 1226/2000
1845/1845 [=====] - 0s 103us/sample - loss: 27.7330 - accuracy
Epoch 1227/2000
1845/1845 [=====] - 0s 93us/sample - loss: 28.0261 - accuracy:
Epoch 1228/2000
1845/1845 [=====] - 0s 91us/sample - loss: 29.5251 - accuracy:
Epoch 1229/2000
1845/1845 [=====] - 0s 87us/sample - loss: 31.3290 - accuracy:
Epoch 1230/2000
1845/1845 [=====] - 0s 86us/sample - loss: 31.3285 - accuracy:
```

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Epoch 1231/2000
1845/1845 [=====] - 0s 103us/sample - loss: 31.0122 - accuracy
Epoch 1232/2000
1845/1845 [=====] - 0s 91us/sample - loss: 27.7894 - accuracy:
Epoch 1233/2000
1845/1845 [=====] - 0s 88us/sample - loss: 32.3656 - accuracy:
Epoch 1234/2000
1845/1845 [=====] - 0s 90us/sample - loss: 28.4993 - accuracy:
Epoch 1235/2000
1845/1845 [=====] - 0s 117us/sample - loss: 29.5484 - accuracy
Epoch 1236/2000
1845/1845 [=====] - 0s 148us/sample - loss: 27.6343 - accuracy
Epoch 1237/2000
1845/1845 [=====] - 0s 115us/sample - loss: 29.7714 - accuracy
Epoch 1238/2000
1845/1845 [=====] - 0s 104us/sample - loss: 28.4182 - accuracy
Epoch 1239/2000
1845/1845 [=====] - 0s 110us/sample - loss: 28.8640 - accuracy
Epoch 1240/2000
1845/1845 [=====] - 0s 101us/sample - loss: 30.2389 - accuracy
Epoch 1241/2000
1845/1845 [=====] - 0s 110us/sample - loss: 34.7515 - accuracy
Epoch 1242/2000
1845/1845 [=====] - 0s 106us/sample - loss: 32.1666 - accuracy
Epoch 1243/2000
1845/1845 [=====] - 0s 107us/sample - loss: 28.4249 - accuracy
Epoch 1244/2000
1845/1845 [=====] - 0s 88us/sample - loss: 31.7172 - accuracy:
Epoch 1245/2000
1845/1845 [=====] - 0s 98us/sample - loss: 28.3770 - accuracy:
Epoch 1246/2000
1845/1845 [=====] - 0s 99us/sample - loss: 29.9661 - accuracy:
Epoch 1247/2000
1845/1845 [=====] - 0s 95us/sample - loss: 30.6938 - accuracy:
Epoch 1248/2000
1845/1845 [=====] - 0s 100us/sample - loss: 28.0554 - accuracy
Epoch 1249/2000
1845/1845 [=====] - 0s 95us/sample - loss: 29.3167 - accuracy:
Epoch 1250/2000
1845/1845 [=====] - 0s 89us/sample - loss: 27.7208 - accuracy:
Epoch 1251/2000
1845/1845 [=====] - 0s 99us/sample - loss: 28.0137 - accuracy:
Epoch 1252/2000
1845/1845 [=====] - 0s 101us/sample - loss: 28.9579 - accuracy
Epoch 1253/2000
1845/1845 [=====] - 0s 100us/sample - loss: 29.9259 - accuracy
Epoch 1254/2000
1845/1845 [=====] - 0s 100us/sample - loss: 27.3608 - accuracy
Epoch 1255/2000
1845/1845 [=====] - 0s 99us/sample - loss: 29.6342 - accuracy:
Epoch 1256/2000
1845/1845 [=====] - 0s 98us/sample - loss: 26.9571 - accuracy:
Epoch 1257/2000
1845/1845 [=====] - 0s 101us/sample - loss: 28.1627 - accuracy
Epoch 1258/2000
1845/1845 [=====] - 0s 96us/sample - loss: 29.1284 - accuracy:
Epoch 1259/2000
```

1845/1845 [=====] - 0s 98us/sample - loss: 30.9394 - accuracy:  
Epoch 1260/2000  
1845/1845 [=====] - 0s 130us/sample - loss: 31.8123 - accuracy  
Epoch 1261/2000  
1845/1845 [=====] - 0s 108us/sample - loss: 32.4794 - accuracy  
Epoch 1262/2000  
1845/1845 [=====] - 0s 100us/sample - loss: 28.0737 - accuracy  
Epoch 1263/2000  
1845/1845 [=====] - 0s 113us/sample - loss: 27.6354 - accuracy  
Epoch 1264/2000  
1845/1845 [=====] - 0s 116us/sample - loss: 29.8414 - accuracy  
Epoch 1265/2000  
1845/1845 [=====] - 0s 109us/sample - loss: 27.3359 - accuracy  
Epoch 1266/2000  
1845/1845 [=====] - 0s 109us/sample - loss: 29.1518 - accuracy  
Epoch 1267/2000  
1845/1845 [=====] - 0s 122us/sample - loss: 30.1958 - accuracy  
Epoch 1268/2000  
1845/1845 [=====] - 0s 107us/sample - loss: 29.5733 - accuracy  
Epoch 1269/2000  
1845/1845 [=====] - 0s 93us/sample - loss: 37.0094 - accuracy:  
Epoch 1270/2000  
1845/1845 [=====] - 0s 96us/sample - loss: 30.6927 - accuracy:  
Epoch 1271/2000  
1845/1845 [=====] - 0s 90us/sample - loss: 29.2532 - accuracy:  
Epoch 1272/2000  
1845/1845 [=====] - 0s 92us/sample - loss: 28.6136 - accuracy:  
Epoch 1273/2000  
1845/1845 [=====] - 0s 93us/sample - loss: 26.8385 - accuracy:  
Epoch 1274/2000  
1845/1845 [=====] - 0s 89us/sample - loss: 29.3783 - accuracy:  
Epoch 1275/2000  
1845/1845 [=====] - 0s 95us/sample - loss: 32.0726 - accuracy:  
Epoch 1276/2000  
1845/1845 [=====] - 0s 95us/sample - loss: 32.0075 - accuracy:  
Epoch 1277/2000  
1845/1845 [=====] - 0s 90us/sample - loss: 29.2037 - accuracy:  
Epoch 1278/2000  
1845/1845 [=====] - 0s 90us/sample - loss: 30.3350 - accuracy:  
Epoch 1279/2000  
1845/1845 [=====] - 0s 148us/sample - loss: 28.4673 - accuracy  
Epoch 1280/2000  
1845/1845 [=====] - 0s 135us/sample - loss: 29.7189 - accuracy  
Epoch 1281/2000  
1845/1845 [=====] - 0s 116us/sample - loss: 27.1110 - accuracy  
Epoch 1282/2000  
1845/1845 [=====] - 0s 107us/sample - loss: 27.9333 - accuracy  
Epoch 1283/2000  
1845/1845 [=====] - 0s 119us/sample - loss: 27.9058 - accuracy  
Epoch 1284/2000  
1845/1845 [=====] - 0s 115us/sample - loss: 30.3589 - accuracy  
Epoch 1285/2000  
1845/1845 [=====] - 0s 131us/sample - loss: 27.0094 - accuracy  
Epoch 1286/2000  
1845/1845 [=====] - 0s 99us/sample - loss: 27.7015 - accuracy:  
Epoch 1287/2000  
1845/1845 [=====] - 0s 121us/sample - loss: 26.4667 - accuracy  
Epoch 1288/2000

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1845/1845 [=====] - 0s 118us/sample - loss: 27.9936 - accuracy
Epoch 1289/2000
1845/1845 [=====] - 0s 130us/sample - loss: 25.6807 - accuracy
Epoch 1290/2000
1845/1845 [=====] - 0s 114us/sample - loss: 32.4299 - accuracy
Epoch 1291/2000
1845/1845 [=====] - 0s 135us/sample - loss: 32.4119 - accuracy
Epoch 1292/2000
1845/1845 [=====] - 0s 131us/sample - loss: 28.0661 - accuracy
Epoch 1293/2000
1845/1845 [=====] - 0s 178us/sample - loss: 25.3326 - accuracy
Epoch 1294/2000
1845/1845 [=====] - 0s 135us/sample - loss: 27.0877 - accuracy
Epoch 1295/2000
1845/1845 [=====] - 0s 111us/sample - loss: 27.9231 - accuracy
Epoch 1296/2000
1845/1845 [=====] - 0s 185us/sample - loss: 31.1942 - accuracy
Epoch 1297/2000
1845/1845 [=====] - 0s 157us/sample - loss: 28.4730 - accuracy
Epoch 1298/2000
1845/1845 [=====] - 0s 166us/sample - loss: 29.1692 - accuracy
Epoch 1299/2000
1845/1845 [=====] - 0s 130us/sample - loss: 29.0702 - accuracy
Epoch 1300/2000
1845/1845 [=====] - 0s 127us/sample - loss: 28.8280 - accuracy
Epoch 1301/2000
1845/1845 [=====] - 0s 131us/sample - loss: 31.9944 - accuracy
Epoch 1302/2000
1845/1845 [=====] - 0s 149us/sample - loss: 27.8905 - accuracy
Epoch 1303/2000
1845/1845 [=====] - 0s 165us/sample - loss: 26.7645 - accuracy
Epoch 1304/2000
1845/1845 [=====] - 0s 126us/sample - loss: 29.4734 - accuracy
Epoch 1305/2000
1845/1845 [=====] - 0s 164us/sample - loss: 26.3565 - accuracy
Epoch 1306/2000
1845/1845 [=====] - 0s 140us/sample - loss: 31.3281 - accuracy
Epoch 1307/2000
1845/1845 [=====] - 0s 133us/sample - loss: 29.0186 - accuracy
Epoch 1308/2000
1845/1845 [=====] - 0s 131us/sample - loss: 28.9956 - accuracy
Epoch 1309/2000
1845/1845 [=====] - 0s 136us/sample - loss: 26.5998 - accuracy
Epoch 1310/2000
1845/1845 [=====] - 0s 123us/sample - loss: 29.8539 - accuracy
Epoch 1311/2000
1845/1845 [=====] - 0s 119us/sample - loss: 29.5288 - accuracy
Epoch 1312/2000
1845/1845 [=====] - 0s 113us/sample - loss: 26.9379 - accuracy
Epoch 1313/2000
1845/1845 [=====] - 0s 102us/sample - loss: 32.3689 - accuracy
Epoch 1314/2000
1845/1845 [=====] - 0s 103us/sample - loss: 25.7328 - accuracy
Epoch 1315/2000
1845/1845 [=====] - 0s 103us/sample - loss: 30.7046 - accuracy
Epoch 1316/2000
1845/1845 [=====] - 0s 101us/sample - loss: 29.6216 - accuracy
Epoch 1317/2000
```



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Epoch 1311/2000
1845/1845 [=====] - 0s 97us/sample - loss: 28.8237 - accuracy:
Epoch 1318/2000
1845/1845 [=====] - 0s 99us/sample - loss: 28.8016 - accuracy:
Epoch 1319/2000
1845/1845 [=====] - 0s 151us/sample - loss: 31.5925 - accuracy
Epoch 1320/2000
1845/1845 [=====] - 0s 177us/sample - loss: 29.6729 - accuracy
Epoch 1321/2000
1845/1845 [=====] - 0s 133us/sample - loss: 29.9279 - accuracy
Epoch 1322/2000
1845/1845 [=====] - 0s 136us/sample - loss: 33.0375 - accuracy
Epoch 1323/2000
1845/1845 [=====] - 0s 118us/sample - loss: 26.6866 - accuracy
Epoch 1324/2000
1845/1845 [=====] - 0s 129us/sample - loss: 26.7235 - accuracy
Epoch 1325/2000
1845/1845 [=====] - 0s 129us/sample - loss: 27.9300 - accuracy
Epoch 1326/2000
1845/1845 [=====] - 0s 134us/sample - loss: 26.8609 - accuracy
Epoch 1327/2000
1845/1845 [=====] - 0s 169us/sample - loss: 30.2762 - accuracy
Epoch 1328/2000
1845/1845 [=====] - 0s 133us/sample - loss: 26.1768 - accuracy
Epoch 1329/2000
1845/1845 [=====] - 0s 116us/sample - loss: 32.3400 - accuracy
Epoch 1330/2000
1845/1845 [=====] - 0s 119us/sample - loss: 30.0515 - accuracy
Epoch 1331/2000
1845/1845 [=====] - 0s 113us/sample - loss: 29.2077 - accuracy
Epoch 1332/2000
1845/1845 [=====] - 0s 112us/sample - loss: 29.1192 - accuracy
Epoch 1333/2000
1845/1845 [=====] - 0s 116us/sample - loss: 31.6671 - accuracy
Epoch 1334/2000
1845/1845 [=====] - 0s 127us/sample - loss: 28.5331 - accuracy
Epoch 1335/2000
1845/1845 [=====] - 0s 126us/sample - loss: 27.7122 - accuracy
Epoch 1336/2000
1845/1845 [=====] - 0s 147us/sample - loss: 31.3278 - accuracy
Epoch 1337/2000
1845/1845 [=====] - 0s 125us/sample - loss: 28.4460 - accuracy
Epoch 1338/2000
1845/1845 [=====] - 0s 93us/sample - loss: 29.3375 - accuracy:
Epoch 1339/2000
1845/1845 [=====] - 0s 98us/sample - loss: 30.8606 - accuracy:
Epoch 1340/2000
1845/1845 [=====] - 0s 144us/sample - loss: 27.7494 - accuracy
Epoch 1341/2000
1845/1845 [=====] - 0s 137us/sample - loss: 27.7986 - accuracy
Epoch 1342/2000
1845/1845 [=====] - 0s 144us/sample - loss: 28.8386 - accuracy
Epoch 1343/2000
1845/1845 [=====] - 0s 136us/sample - loss: 28.0984 - accuracy
Epoch 1344/2000
1845/1845 [=====] - 0s 122us/sample - loss: 29.1586 - accuracy
Epoch 1345/2000
1845/1845 [=====] - 0s 114us/sample - loss: 29.8489 - accuracy
```

Epoch 1346/2000  
1845/1845 [=====] - 0s 138us/sample - loss: 29.9718 - accuracy  
Epoch 1347/2000  
1845/1845 [=====] - 0s 151us/sample - loss: 29.3922 - accuracy  
Epoch 1348/2000  
1845/1845 [=====] - 0s 139us/sample - loss: 28.5267 - accuracy  
Epoch 1349/2000  
1845/1845 [=====] - 0s 142us/sample - loss: 30.5073 - accuracy  
Epoch 1350/2000  
1845/1845 [=====] - 0s 121us/sample - loss: 27.3651 - accuracy  
Epoch 1351/2000  
1845/1845 [=====] - 0s 116us/sample - loss: 27.0964 - accuracy  
Epoch 1352/2000  
1845/1845 [=====] - 0s 122us/sample - loss: 39.9616 - accuracy  
Epoch 1353/2000  
1845/1845 [=====] - 0s 136us/sample - loss: 29.7154 - accuracy  
Epoch 1354/2000  
1845/1845 [=====] - 0s 188us/sample - loss: 32.5256 - accuracy  
Epoch 1355/2000  
1845/1845 [=====] - 0s 167us/sample - loss: 28.4363 - accuracy  
Epoch 1356/2000  
1845/1845 [=====] - 0s 145us/sample - loss: 29.4368 - accuracy  
Epoch 1357/2000  
1845/1845 [=====] - 0s 158us/sample - loss: 31.2597 - accuracy  
Epoch 1358/2000  
1845/1845 [=====] - 0s 138us/sample - loss: 29.4330 - accuracy  
Epoch 1359/2000  
1845/1845 [=====] - 0s 169us/sample - loss: 26.8194 - accuracy  
Epoch 1360/2000  
1845/1845 [=====] - 0s 152us/sample - loss: 28.1215 - accuracy  
Epoch 1361/2000  
1845/1845 [=====] - 0s 201us/sample - loss: 28.7012 - accuracy  
Epoch 1362/2000  
1845/1845 [=====] - 0s 168us/sample - loss: 29.1986 - accuracy  
Epoch 1363/2000  
1845/1845 [=====] - 0s 146us/sample - loss: 29.5830 - accuracy  
Epoch 1364/2000  
1845/1845 [=====] - 0s 134us/sample - loss: 27.2810 - accuracy  
Epoch 1365/2000  
1845/1845 [=====] - 0s 125us/sample - loss: 31.3169 - accuracy  
Epoch 1366/2000  
1845/1845 [=====] - 0s 148us/sample - loss: 29.7804 - accuracy  
Epoch 1367/2000  
1845/1845 [=====] - 0s 117us/sample - loss: 30.2286 - accuracy  
Epoch 1368/2000  
1845/1845 [=====] - 0s 135us/sample - loss: 28.4701 - accuracy  
Epoch 1369/2000  
1845/1845 [=====] - 0s 125us/sample - loss: 28.8414 - accuracy  
Epoch 1370/2000  
1845/1845 [=====] - 0s 116us/sample - loss: 25.3887 - accuracy  
Epoch 1371/2000  
1845/1845 [=====] - 0s 117us/sample - loss: 28.4837 - accuracy  
Epoch 1372/2000  
1845/1845 [=====] - 0s 129us/sample - loss: 29.7934 - accuracy  
Epoch 1373/2000  
1845/1845 [=====] - 0s 129us/sample - loss: 29.4410 - accuracy  
Epoch 1374/2000  
1845/1845 [=====] - 0s 125us/sample - loss: 26.2302 - accuracy

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Epoch 1375/2000
1845/1845 [=====] - 0s 106us/sample - loss: 31.7467 - accuracy
Epoch 1376/2000
1845/1845 [=====] - 0s 103us/sample - loss: 28.7153 - accuracy
Epoch 1377/2000
1845/1845 [=====] - 0s 97us/sample - loss: 28.5981 - accuracy:
Epoch 1378/2000
1845/1845 [=====] - 0s 94us/sample - loss: 30.0539 - accuracy:
Epoch 1379/2000
1845/1845 [=====] - 0s 98us/sample - loss: 26.4587 - accuracy:
Epoch 1380/2000
1845/1845 [=====] - 0s 102us/sample - loss: 26.1419 - accuracy
Epoch 1381/2000
1845/1845 [=====] - 0s 96us/sample - loss: 29.2873 - accuracy:
Epoch 1382/2000
1845/1845 [=====] - 0s 127us/sample - loss: 31.4815 - accuracy
Epoch 1383/2000
1845/1845 [=====] - 0s 106us/sample - loss: 27.8088 - accuracy
Epoch 1384/2000
1845/1845 [=====] - 0s 94us/sample - loss: 31.1862 - accuracy:
Epoch 1385/2000
1845/1845 [=====] - 0s 88us/sample - loss: 30.3613 - accuracy:
Epoch 1386/2000
1845/1845 [=====] - 0s 95us/sample - loss: 26.1373 - accuracy:
Epoch 1387/2000
1845/1845 [=====] - 0s 90us/sample - loss: 29.4638 - accuracy:
Epoch 1388/2000
1845/1845 [=====] - 0s 93us/sample - loss: 30.4115 - accuracy:
Epoch 1389/2000
1845/1845 [=====] - 0s 93us/sample - loss: 27.6919 - accuracy:
Epoch 1390/2000
1845/1845 [=====] - 0s 91us/sample - loss: 28.8399 - accuracy:
Epoch 1391/2000
1845/1845 [=====] - 0s 91us/sample - loss: 32.5632 - accuracy:
Epoch 1392/2000
1845/1845 [=====] - 0s 91us/sample - loss: 32.4300 - accuracy:
Epoch 1393/2000
1845/1845 [=====] - 0s 94us/sample - loss: 28.8525 - accuracy:
Epoch 1394/2000
1845/1845 [=====] - 0s 101us/sample - loss: 26.1615 - accuracy
Epoch 1395/2000
1845/1845 [=====] - 0s 87us/sample - loss: 26.1603 - accuracy:
Epoch 1396/2000
1845/1845 [=====] - 0s 92us/sample - loss: 25.6365 - accuracy:
Epoch 1397/2000
1845/1845 [=====] - 0s 89us/sample - loss: 33.4916 - accuracy:
Epoch 1398/2000
1845/1845 [=====] - 0s 114us/sample - loss: 28.6753 - accuracy
Epoch 1399/2000
1845/1845 [=====] - 0s 136us/sample - loss: 28.6286 - accuracy
Epoch 1400/2000
1845/1845 [=====] - 0s 117us/sample - loss: 29.5802 - accuracy
Epoch 1401/2000
1845/1845 [=====] - 0s 118us/sample - loss: 33.4992 - accuracy
Epoch 1402/2000
1845/1845 [=====] - 0s 125us/sample - loss: 27.1719 - accuracy
Epoch 1403/2000
```

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1845/1845 [=====] - 0s 128us/sample - loss: 32.3596 - accuracy
Epoch 1404/2000
1845/1845 [=====] - 0s 144us/sample - loss: 29.5017 - accuracy
Epoch 1405/2000
1845/1845 [=====] - 0s 136us/sample - loss: 36.6855 - accuracy
Epoch 1406/2000
1845/1845 [=====] - 0s 131us/sample - loss: 29.7687 - accuracy
Epoch 1407/2000
1845/1845 [=====] - 0s 124us/sample - loss: 27.4011 - accuracy
Epoch 1408/2000
1845/1845 [=====] - 0s 115us/sample - loss: 31.2275 - accuracy
Epoch 1409/2000
1845/1845 [=====] - 0s 153us/sample - loss: 28.8927 - accuracy
Epoch 1410/2000
1845/1845 [=====] - 0s 157us/sample - loss: 27.8280 - accuracy
Epoch 1411/2000
1845/1845 [=====] - 0s 155us/sample - loss: 28.5353 - accuracy
Epoch 1412/2000
1845/1845 [=====] - 0s 109us/sample - loss: 29.8121 - accuracy
Epoch 1413/2000
1845/1845 [=====] - 0s 110us/sample - loss: 28.7579 - accuracy
Epoch 1414/2000
1845/1845 [=====] - 0s 155us/sample - loss: 28.2185 - accuracy
Epoch 1415/2000
1845/1845 [=====] - 0s 132us/sample - loss: 32.4283 - accuracy
Epoch 1416/2000
1845/1845 [=====] - 0s 118us/sample - loss: 28.9371 - accuracy
Epoch 1417/2000
1845/1845 [=====] - 0s 110us/sample - loss: 30.9145 - accuracy
Epoch 1418/2000
1845/1845 [=====] - 0s 94us/sample - loss: 28.3736 - accuracy:
Epoch 1419/2000
1845/1845 [=====] - 0s 94us/sample - loss: 28.9557 - accuracy:
Epoch 1420/2000
1845/1845 [=====] - 0s 101us/sample - loss: 31.3335 - accuracy
Epoch 1421/2000
1845/1845 [=====] - 0s 104us/sample - loss: 30.4117 - accuracy
Epoch 1422/2000
1845/1845 [=====] - 0s 95us/sample - loss: 29.0610 - accuracy:
Epoch 1423/2000
1845/1845 [=====] - 0s 102us/sample - loss: 28.2817 - accuracy
Epoch 1424/2000
1845/1845 [=====] - 0s 101us/sample - loss: 28.5731 - accuracy
Epoch 1425/2000
1845/1845 [=====] - 0s 109us/sample - loss: 28.5996 - accuracy
Epoch 1426/2000
1845/1845 [=====] - 0s 114us/sample - loss: 31.2872 - accuracy
Epoch 1427/2000
1845/1845 [=====] - 0s 106us/sample - loss: 30.6847 - accuracy
Epoch 1428/2000
1845/1845 [=====] - 0s 97us/sample - loss: 27.8942 - accuracy:
Epoch 1429/2000
1845/1845 [=====] - 0s 95us/sample - loss: 38.0848 - accuracy:
Epoch 1430/2000
1845/1845 [=====] - 0s 104us/sample - loss: 34.0679 - accuracy
Epoch 1431/2000
1845/1845 [=====] - 0s 131us/sample - loss: 29.1819 - accuracy
Epoch 1432/2000
```

1845/1845 [=====] - 0s 106us/sample - loss: 29.2139 - accuracy:  
Epoch 1433/2000  
1845/1845 [=====] - 0s 94us/sample - loss: 30.6559 - accuracy:  
Epoch 1434/2000  
1845/1845 [=====] - 0s 95us/sample - loss: 26.8270 - accuracy:  
Epoch 1435/2000  
1845/1845 [=====] - 0s 91us/sample - loss: 43.6178 - accuracy:  
Epoch 1436/2000  
1845/1845 [=====] - 0s 94us/sample - loss: 33.8181 - accuracy:  
Epoch 1437/2000  
1845/1845 [=====] - 0s 92us/sample - loss: 28.7648 - accuracy:  
Epoch 1438/2000  
1845/1845 [=====] - 0s 94us/sample - loss: 29.6263 - accuracy:  
Epoch 1439/2000  
1845/1845 [=====] - 0s 93us/sample - loss: 27.5275 - accuracy:  
Epoch 1440/2000  
1845/1845 [=====] - 0s 92us/sample - loss: 36.4493 - accuracy:  
Epoch 1441/2000  
1845/1845 [=====] - 0s 95us/sample - loss: 30.1701 - accuracy:  
Epoch 1442/2000  
1845/1845 [=====] - 0s 95us/sample - loss: 29.4278 - accuracy:  
Epoch 1443/2000  
1845/1845 [=====] - 0s 95us/sample - loss: 27.4204 - accuracy:  
Epoch 1444/2000  
1845/1845 [=====] - 0s 90us/sample - loss: 35.4070 - accuracy:  
Epoch 1445/2000  
1845/1845 [=====] - 0s 90us/sample - loss: 32.3777 - accuracy:  
Epoch 1446/2000  
1845/1845 [=====] - 0s 100us/sample - loss: 32.7354 - accuracy:  
Epoch 1447/2000  
1845/1845 [=====] - 0s 109us/sample - loss: 31.9414 - accuracy:  
Epoch 1448/2000  
1845/1845 [=====] - 0s 116us/sample - loss: 30.6927 - accuracy:  
Epoch 1449/2000  
1845/1845 [=====] - 0s 109us/sample - loss: 32.4375 - accuracy:  
Epoch 1450/2000  
1845/1845 [=====] - 0s 98us/sample - loss: 31.1059 - accuracy:  
Epoch 1451/2000  
1845/1845 [=====] - 0s 97us/sample - loss: 38.4690 - accuracy:  
Epoch 1452/2000  
1845/1845 [=====] - 0s 93us/sample - loss: 32.5964 - accuracy:  
Epoch 1453/2000  
1845/1845 [=====] - 0s 106us/sample - loss: 32.4916 - accuracy:  
Epoch 1454/2000  
1845/1845 [=====] - 0s 102us/sample - loss: 29.0562 - accuracy:  
Epoch 1455/2000  
1845/1845 [=====] - 0s 115us/sample - loss: 31.6530 - accuracy:  
Epoch 1456/2000  
1845/1845 [=====] - 0s 97us/sample - loss: 28.1518 - accuracy:  
Epoch 1457/2000  
1845/1845 [=====] - 0s 95us/sample - loss: 28.4698 - accuracy:  
Epoch 1458/2000  
1845/1845 [=====] - 0s 100us/sample - loss: 34.2870 - accuracy:  
Epoch 1459/2000  
1845/1845 [=====] - 0s 94us/sample - loss: 32.2929 - accuracy:  
Epoch 1460/2000  
1845/1845 [=====] - 0s 91us/sample - loss: 28.6874 - accuracy:  
Epoch 1461/2000

Epoch 1401/2000

1845/1845 [=====] - 0s 95us/sample - loss: 29.7966 - accuracy:

Epoch 1462/2000

1845/1845 [=====] - 0s 92us/sample - loss: 26.2613 - accuracy:

Epoch 1463/2000

1845/1845 [=====] - 0s 89us/sample - loss: 29.0730 - accuracy:

Epoch 1464/2000

1845/1845 [=====] - 0s 95us/sample - loss: 33.8406 - accuracy:

Epoch 1465/2000

1845/1845 [=====] - 0s 92us/sample - loss: 30.3378 - accuracy:

Epoch 1466/2000

1845/1845 [=====] - 0s 88us/sample - loss: 27.5084 - accuracy:

Epoch 1467/2000

1845/1845 [=====] - 0s 94us/sample - loss: 27.6225 - accuracy:

Epoch 1468/2000

1845/1845 [=====] - 0s 92us/sample - loss: 31.8455 - accuracy:

Epoch 1469/2000

1845/1845 [=====] - 0s 92us/sample - loss: 32.5403 - accuracy:

Epoch 1470/2000

1845/1845 [=====] - 0s 135us/sample - loss: 30.4121 - accuracy

Epoch 1471/2000

1845/1845 [=====] - 0s 142us/sample - loss: 27.9046 - accuracy

Epoch 1472/2000

1845/1845 [=====] - 0s 124us/sample - loss: 27.4976 - accuracy

Epoch 1473/2000

1845/1845 [=====] - 0s 103us/sample - loss: 27.2263 - accuracy

Epoch 1474/2000

1845/1845 [=====] - 0s 102us/sample - loss: 32.4370 - accuracy

Epoch 1475/2000

1845/1845 [=====] - 0s 106us/sample - loss: 33.1572 - accuracy

Epoch 1476/2000

1845/1845 [=====] - 0s 94us/sample - loss: 30.3259 - accuracy:

Epoch 1477/2000

1845/1845 [=====] - 0s 94us/sample - loss: 27.8257 - accuracy:

Epoch 1478/2000

1845/1845 [=====] - 0s 106us/sample - loss: 30.7383 - accuracy

Epoch 1479/2000

1845/1845 [=====] - 0s 108us/sample - loss: 29.7618 - accuracy

Epoch 1480/2000

1845/1845 [=====] - 0s 139us/sample - loss: 26.8729 - accuracy

Epoch 1481/2000

1845/1845 [=====] - 0s 115us/sample - loss: 31.3173 - accuracy

Epoch 1482/2000

1845/1845 [=====] - 0s 122us/sample - loss: 29.1925 - accuracy

Epoch 1483/2000

1845/1845 [=====] - 0s 122us/sample - loss: 35.5743 - accuracy

Epoch 1484/2000

1845/1845 [=====] - 0s 132us/sample - loss: 30.8884 - accuracy

Epoch 1485/2000

1845/1845 [=====] - 0s 126us/sample - loss: 39.7484 - accuracy

Epoch 1486/2000

1845/1845 [=====] - 0s 113us/sample - loss: 28.5240 - accuracy

Epoch 1487/2000

1845/1845 [=====] - 0s 118us/sample - loss: 27.2988 - accuracy

Epoch 1488/2000

1845/1845 [=====] - 0s 122us/sample - loss: 28.6700 - accuracy

Epoch 1489/2000

1845/1845 [=====] - 0s 122us/sample - loss: 30.3324 - accuracy

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Epoch 1490/2000
1845/1845 [=====] - 0s 104us/sample - loss: 42.4520 - accuracy
Epoch 1491/2000
1845/1845 [=====] - 0s 127us/sample - loss: 28.7470 - accuracy
Epoch 1492/2000
1845/1845 [=====] - 0s 107us/sample - loss: 28.2350 - accuracy
Epoch 1493/2000
1845/1845 [=====] - 0s 102us/sample - loss: 30.3448 - accuracy
Epoch 1494/2000
1845/1845 [=====] - 0s 94us/sample - loss: 35.4289 - accuracy:
Epoch 1495/2000
1845/1845 [=====] - 0s 88us/sample - loss: 32.6199 - accuracy:
Epoch 1496/2000
1845/1845 [=====] - 0s 108us/sample - loss: 29.1472 - accuracy
Epoch 1497/2000
1845/1845 [=====] - 0s 91us/sample - loss: 28.8927 - accuracy:
Epoch 1498/2000
1845/1845 [=====] - 0s 90us/sample - loss: 34.7811 - accuracy:
Epoch 1499/2000
1845/1845 [=====] - 0s 112us/sample - loss: 28.6900 - accuracy
Epoch 1500/2000
1845/1845 [=====] - 0s 98us/sample - loss: 27.4329 - accuracy:
Epoch 1501/2000
1845/1845 [=====] - 0s 93us/sample - loss: 28.3048 - accuracy:
Epoch 1502/2000
1845/1845 [=====] - 0s 91us/sample - loss: 28.3068 - accuracy:
Epoch 1503/2000
1845/1845 [=====] - 0s 97us/sample - loss: 30.7464 - accuracy:
Epoch 1504/2000
1845/1845 [=====] - 0s 96us/sample - loss: 38.2196 - accuracy:
Epoch 1505/2000
1845/1845 [=====] - 0s 96us/sample - loss: 28.2756 - accuracy:
Epoch 1506/2000
1845/1845 [=====] - 0s 99us/sample - loss: 27.8967 - accuracy:
Epoch 1507/2000
1845/1845 [=====] - 0s 93us/sample - loss: 30.0726 - accuracy:
Epoch 1508/2000
1845/1845 [=====] - 0s 94us/sample - loss: 26.8830 - accuracy:
Epoch 1509/2000
1845/1845 [=====] - 0s 94us/sample - loss: 28.8975 - accuracy:
Epoch 1510/2000
1845/1845 [=====] - 0s 94us/sample - loss: 31.5219 - accuracy:
Epoch 1511/2000
1845/1845 [=====] - 0s 91us/sample - loss: 27.2948 - accuracy:
Epoch 1512/2000
1845/1845 [=====] - 0s 90us/sample - loss: 28.3086 - accuracy:
Epoch 1513/2000
1845/1845 [=====] - 0s 88us/sample - loss: 31.1488 - accuracy:
Epoch 1514/2000
1845/1845 [=====] - 0s 94us/sample - loss: 29.7366 - accuracy:
Epoch 1515/2000
1845/1845 [=====] - 0s 92us/sample - loss: 37.9089 - accuracy:
Epoch 1516/2000
1845/1845 [=====] - 0s 109us/sample - loss: 33.1327 - accuracy
Epoch 1517/2000
1845/1845 [=====] - 0s 88us/sample - loss: 28.4788 - accuracy:
Epoch 1518/2000
1845/1845 [=====] - 0s 90us/sample - loss: 27.7973 - accuracy:
```

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Epoch 1519/2000
1845/1845 [=====] - 0s 88us/sample - loss: 35.9833 - accuracy:
Epoch 1520/2000
1845/1845 [=====] - 0s 87us/sample - loss: 34.4333 - accuracy:
Epoch 1521/2000
1845/1845 [=====] - 0s 91us/sample - loss: 28.8928 - accuracy:
Epoch 1522/2000
1845/1845 [=====] - 0s 90us/sample - loss: 30.1230 - accuracy:
Epoch 1523/2000
1845/1845 [=====] - 0s 84us/sample - loss: 25.4556 - accuracy:
Epoch 1524/2000
1845/1845 [=====] - 0s 94us/sample - loss: 30.2206 - accuracy:
Epoch 1525/2000
1845/1845 [=====] - 0s 88us/sample - loss: 28.5110 - accuracy:
Epoch 1526/2000
1845/1845 [=====] - 0s 89us/sample - loss: 30.9742 - accuracy:
Epoch 1527/2000
1845/1845 [=====] - 0s 97us/sample - loss: 28.1641 - accuracy:
Epoch 1528/2000
1845/1845 [=====] - 0s 95us/sample - loss: 30.0083 - accuracy:
Epoch 1529/2000
1845/1845 [=====] - 0s 91us/sample - loss: 27.9771 - accuracy:
Epoch 1530/2000
1845/1845 [=====] - 0s 89us/sample - loss: 28.7737 - accuracy:
Epoch 1531/2000
1845/1845 [=====] - 0s 92us/sample - loss: 30.5674 - accuracy:
Epoch 1532/2000
1845/1845 [=====] - 0s 91us/sample - loss: 27.3848 - accuracy:
Epoch 1533/2000
1845/1845 [=====] - 0s 87us/sample - loss: 27.1523 - accuracy:
Epoch 1534/2000
1845/1845 [=====] - 0s 95us/sample - loss: 29.1578 - accuracy:
Epoch 1535/2000
1845/1845 [=====] - 0s 97us/sample - loss: 29.5291 - accuracy:
Epoch 1536/2000
1845/1845 [=====] - 0s 105us/sample - loss: 25.4399 - accuracy:
Epoch 1537/2000
1845/1845 [=====] - 0s 102us/sample - loss: 30.8536 - accuracy:
Epoch 1538/2000
1845/1845 [=====] - 0s 98us/sample - loss: 37.1785 - accuracy:
Epoch 1539/2000
1845/1845 [=====] - 0s 94us/sample - loss: 26.7130 - accuracy:
Epoch 1540/2000
1845/1845 [=====] - 0s 92us/sample - loss: 33.4478 - accuracy:
Epoch 1541/2000
1845/1845 [=====] - 0s 94us/sample - loss: 30.3467 - accuracy:
Epoch 1542/2000
1845/1845 [=====] - 0s 90us/sample - loss: 29.8547 - accuracy:
Epoch 1543/2000
1845/1845 [=====] - 0s 96us/sample - loss: 34.6825 - accuracy:
Epoch 1544/2000
1845/1845 [=====] - 0s 103us/sample - loss: 30.7476 - accuracy:
Epoch 1545/2000
1845/1845 [=====] - 0s 110us/sample - loss: 27.7677 - accuracy:
Epoch 1546/2000
1845/1845 [=====] - 0s 107us/sample - loss: 37.1862 - accuracy:
Epoch 1547/2000
1845/1845 [=====] - 0s 106us/sample - loss: 28.6088 - accuracy:
```



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1845/1845 [-----] - 0s 100us/sample - loss: 28.0000 - accuracy
Epoch 1548/2000
1845/1845 [=====] - 0s 103us/sample - loss: 29.4048 - accuracy
Epoch 1549/2000
1845/1845 [=====] - 0s 101us/sample - loss: 27.4738 - accuracy
Epoch 1550/2000
1845/1845 [=====] - 0s 100us/sample - loss: 30.8186 - accuracy
Epoch 1551/2000
1845/1845 [=====] - 0s 90us/sample - loss: 30.8421 - accuracy:
Epoch 1552/2000
1845/1845 [=====] - 0s 98us/sample - loss: 25.8584 - accuracy:
Epoch 1553/2000
1845/1845 [=====] - 0s 96us/sample - loss: 26.4843 - accuracy:
Epoch 1554/2000
1845/1845 [=====] - 0s 90us/sample - loss: 33.4873 - accuracy:
Epoch 1555/2000
1845/1845 [=====] - 0s 95us/sample - loss: 26.1557 - accuracy:
Epoch 1556/2000
1845/1845 [=====] - 0s 97us/sample - loss: 32.0001 - accuracy:
Epoch 1557/2000
1845/1845 [=====] - 0s 92us/sample - loss: 34.9383 - accuracy:
Epoch 1558/2000
1845/1845 [=====] - 0s 96us/sample - loss: 29.0680 - accuracy:
Epoch 1559/2000
1845/1845 [=====] - 0s 91us/sample - loss: 27.9115 - accuracy:
Epoch 1560/2000
1845/1845 [=====] - 0s 92us/sample - loss: 28.9691 - accuracy:
Epoch 1561/2000
1845/1845 [=====] - 0s 101us/sample - loss: 31.5618 - accuracy
Epoch 1562/2000
1845/1845 [=====] - 0s 89us/sample - loss: 32.8702 - accuracy:
Epoch 1563/2000
1845/1845 [=====] - 0s 94us/sample - loss: 30.5024 - accuracy:
Epoch 1564/2000
1845/1845 [=====] - 0s 109us/sample - loss: 30.0198 - accuracy
Epoch 1565/2000
1845/1845 [=====] - 0s 104us/sample - loss: 27.0447 - accuracy
Epoch 1566/2000
1845/1845 [=====] - 0s 90us/sample - loss: 27.9318 - accuracy:
Epoch 1567/2000
1845/1845 [=====] - 0s 95us/sample - loss: 29.7084 - accuracy:
Epoch 1568/2000
1845/1845 [=====] - 0s 92us/sample - loss: 26.1525 - accuracy:
Epoch 1569/2000
1845/1845 [=====] - 0s 96us/sample - loss: 29.3528 - accuracy:
Epoch 1570/2000
1845/1845 [=====] - 0s 93us/sample - loss: 33.0315 - accuracy:
Epoch 1571/2000
1845/1845 [=====] - 0s 94us/sample - loss: 36.4865 - accuracy:
Epoch 1572/2000
1845/1845 [=====] - 0s 91us/sample - loss: 30.9038 - accuracy:
Epoch 1573/2000
1845/1845 [=====] - 0s 100us/sample - loss: 30.5642 - accuracy
Epoch 1574/2000
1845/1845 [=====] - 0s 93us/sample - loss: 40.8822 - accuracy:
Epoch 1575/2000
1845/1845 [=====] - 0s 92us/sample - loss: 26.8550 - accuracy:
Epoch 1576/2000
```

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1845/1845 [=====] - 0s 92us/sample - loss: 34.3363 - accuracy:
Epoch 1577/2000
1845/1845 [=====] - 0s 148us/sample - loss: 29.4354 - accuracy
Epoch 1578/2000
1845/1845 [=====] - 0s 118us/sample - loss: 30.8332 - accuracy
Epoch 1579/2000
1845/1845 [=====] - 0s 115us/sample - loss: 32.2515 - accuracy
Epoch 1580/2000
1845/1845 [=====] - 0s 109us/sample - loss: 30.7862 - accuracy
Epoch 1581/2000
1845/1845 [=====] - 0s 111us/sample - loss: 27.7309 - accuracy
Epoch 1582/2000
1845/1845 [=====] - 0s 95us/sample - loss: 26.1331 - accuracy:
Epoch 1583/2000
1845/1845 [=====] - 0s 102us/sample - loss: 30.8502 - accuracy
Epoch 1584/2000
1845/1845 [=====] - 0s 96us/sample - loss: 29.6859 - accuracy:
Epoch 1585/2000
1845/1845 [=====] - 0s 96us/sample - loss: 28.4347 - accuracy:
Epoch 1586/2000
1845/1845 [=====] - 0s 90us/sample - loss: 27.2782 - accuracy:
Epoch 1587/2000
1845/1845 [=====] - 0s 93us/sample - loss: 52.3959 - accuracy:
Epoch 1588/2000
1845/1845 [=====] - 0s 106us/sample - loss: 31.9054 - accuracy
Epoch 1589/2000
1845/1845 [=====] - 0s 135us/sample - loss: 31.7241 - accuracy
Epoch 1590/2000
1845/1845 [=====] - 0s 147us/sample - loss: 28.0648 - accuracy
Epoch 1591/2000
1845/1845 [=====] - 0s 148us/sample - loss: 34.8945 - accuracy
Epoch 1592/2000
1845/1845 [=====] - 0s 140us/sample - loss: 29.2343 - accuracy
Epoch 1593/2000
1845/1845 [=====] - 0s 139us/sample - loss: 29.9454 - accuracy
Epoch 1594/2000
1845/1845 [=====] - 0s 121us/sample - loss: 30.7288 - accuracy
Epoch 1595/2000
1845/1845 [=====] - 0s 108us/sample - loss: 34.6713 - accuracy
Epoch 1596/2000
1845/1845 [=====] - 0s 155us/sample - loss: 27.5342 - accuracy
Epoch 1597/2000
1845/1845 [=====] - 0s 135us/sample - loss: 34.0446 - accuracy
Epoch 1598/2000
1845/1845 [=====] - 0s 131us/sample - loss: 28.0086 - accuracy
Epoch 1599/2000
1845/1845 [=====] - 0s 121us/sample - loss: 28.0204 - accuracy
Epoch 1600/2000
1845/1845 [=====] - 0s 116us/sample - loss: 27.7420 - accuracy
Epoch 1601/2000
1845/1845 [=====] - 0s 148us/sample - loss: 29.4461 - accuracy
Epoch 1602/2000
1845/1845 [=====] - 0s 154us/sample - loss: 32.0059 - accuracy
Epoch 1603/2000
1845/1845 [=====] - 0s 148us/sample - loss: 37.6562 - accuracy
Epoch 1604/2000
1845/1845 [=====] - 0s 149us/sample - loss: 30.6764 - accuracy
Epoch 1605/2000
```

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1845/1845 [=====] - 0s 149us/sample - loss: 32.2482 - accuracy
Epoch 1606/2000
1845/1845 [=====] - 0s 157us/sample - loss: 28.6908 - accuracy
Epoch 1607/2000
1845/1845 [=====] - 0s 129us/sample - loss: 29.6807 - accuracy
Epoch 1608/2000
1845/1845 [=====] - 0s 127us/sample - loss: 26.1501 - accuracy
Epoch 1609/2000
1845/1845 [=====] - 0s 121us/sample - loss: 27.1169 - accuracy
Epoch 1610/2000
1845/1845 [=====] - 0s 121us/sample - loss: 29.7149 - accuracy
Epoch 1611/2000
1845/1845 [=====] - 0s 135us/sample - loss: 28.3620 - accuracy
Epoch 1612/2000
1845/1845 [=====] - 0s 129us/sample - loss: 26.0324 - accuracy
Epoch 1613/2000
1845/1845 [=====] - 0s 123us/sample - loss: 27.7548 - accuracy
Epoch 1614/2000
1845/1845 [=====] - 0s 146us/sample - loss: 25.6902 - accuracy
Epoch 1615/2000
1845/1845 [=====] - 0s 146us/sample - loss: 31.3996 - accuracy
Epoch 1616/2000
1845/1845 [=====] - 0s 152us/sample - loss: 31.2871 - accuracy
Epoch 1617/2000
1845/1845 [=====] - 0s 134us/sample - loss: 29.1252 - accuracy
Epoch 1618/2000
1845/1845 [=====] - 0s 121us/sample - loss: 29.1993 - accuracy
Epoch 1619/2000
1845/1845 [=====] - 0s 138us/sample - loss: 29.5138 - accuracy
Epoch 1620/2000
1845/1845 [=====] - 0s 124us/sample - loss: 28.5444 - accuracy
Epoch 1621/2000
1845/1845 [=====] - 0s 129us/sample - loss: 30.8552 - accuracy
Epoch 1622/2000
1845/1845 [=====] - 0s 126us/sample - loss: 39.2856 - accuracy
Epoch 1623/2000
1845/1845 [=====] - 0s 123us/sample - loss: 42.6864 - accuracy
Epoch 1624/2000
1845/1845 [=====] - 0s 120us/sample - loss: 30.6693 - accuracy
Epoch 1625/2000
1845/1845 [=====] - 0s 148us/sample - loss: 31.3148 - accuracy
Epoch 1626/2000
1845/1845 [=====] - 0s 122us/sample - loss: 28.4719 - accuracy
Epoch 1627/2000
1845/1845 [=====] - 0s 154us/sample - loss: 26.6693 - accuracy
Epoch 1628/2000
1845/1845 [=====] - 0s 161us/sample - loss: 27.0393 - accuracy
Epoch 1629/2000
1845/1845 [=====] - 0s 156us/sample - loss: 26.9773 - accuracy
Epoch 1630/2000
1845/1845 [=====] - 0s 161us/sample - loss: 29.3344 - accuracy
Epoch 1631/2000
1845/1845 [=====] - 0s 157us/sample - loss: 31.1366 - accuracy
Epoch 1632/2000
1845/1845 [=====] - 0s 133us/sample - loss: 27.4745 - accuracy
Epoch 1633/2000
1845/1845 [=====] - 0s 109us/sample - loss: 29.0744 - accuracy
Epoch 1634/2000
```

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Epoch 1634/2000
1845/1845 [=====] - 0s 106us/sample - loss: 30.3250 - accuracy
Epoch 1635/2000
1845/1845 [=====] - 0s 97us/sample - loss: 31.7047 - accuracy:
Epoch 1636/2000
1845/1845 [=====] - 0s 97us/sample - loss: 25.6927 - accuracy:
Epoch 1637/2000
1845/1845 [=====] - 0s 107us/sample - loss: 31.2622 - accuracy
Epoch 1638/2000
1845/1845 [=====] - 0s 99us/sample - loss: 30.6578 - accuracy:
Epoch 1639/2000
1845/1845 [=====] - 0s 104us/sample - loss: 28.6933 - accuracy
Epoch 1640/2000
1845/1845 [=====] - 0s 94us/sample - loss: 28.2731 - accuracy:
Epoch 1641/2000
1845/1845 [=====] - 0s 100us/sample - loss: 32.5125 - accuracy
Epoch 1642/2000
1845/1845 [=====] - 0s 100us/sample - loss: 31.6631 - accuracy
Epoch 1643/2000
1845/1845 [=====] - 0s 128us/sample - loss: 29.4361 - accuracy
Epoch 1644/2000
1845/1845 [=====] - 0s 132us/sample - loss: 28.5199 - accuracy
Epoch 1645/2000
1845/1845 [=====] - 0s 115us/sample - loss: 31.0068 - accuracy
Epoch 1646/2000
1845/1845 [=====] - 0s 98us/sample - loss: 35.1257 - accuracy:
Epoch 1647/2000
1845/1845 [=====] - 0s 94us/sample - loss: 36.5257 - accuracy:
Epoch 1648/2000
1845/1845 [=====] - 0s 95us/sample - loss: 28.0695 - accuracy:
Epoch 1649/2000
1845/1845 [=====] - 0s 93us/sample - loss: 29.2085 - accuracy:
Epoch 1650/2000
1845/1845 [=====] - 0s 92us/sample - loss: 31.7360 - accuracy:
Epoch 1651/2000
1845/1845 [=====] - 0s 93us/sample - loss: 26.5334 - accuracy:
Epoch 1652/2000
1845/1845 [=====] - 0s 105us/sample - loss: 25.1873 - accuracy
Epoch 1653/2000
1845/1845 [=====] - 0s 96us/sample - loss: 26.2900 - accuracy:
Epoch 1654/2000
1845/1845 [=====] - 0s 92us/sample - loss: 30.8406 - accuracy:
Epoch 1655/2000
1845/1845 [=====] - 0s 91us/sample - loss: 27.9377 - accuracy:
Epoch 1656/2000
1845/1845 [=====] - 0s 90us/sample - loss: 27.6091 - accuracy:
Epoch 1657/2000
1845/1845 [=====] - 0s 100us/sample - loss: 28.5780 - accuracy
Epoch 1658/2000
1845/1845 [=====] - 0s 108us/sample - loss: 35.1597 - accuracy
Epoch 1659/2000
1845/1845 [=====] - 0s 110us/sample - loss: 29.7755 - accuracy
Epoch 1660/2000
1845/1845 [=====] - 0s 104us/sample - loss: 27.9168 - accuracy
Epoch 1661/2000
1845/1845 [=====] - 0s 100us/sample - loss: 26.1140 - accuracy
Epoch 1662/2000
1845/1845 [=====] - 0s 89us/sample - loss: 28.3262 - accuracy:
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Epoch 1663/2000
1845/1845 [=====] - 0s 109us/sample - loss: 31.0745 - accuracy
Epoch 1664/2000
1845/1845 [=====] - 0s 106us/sample - loss: 32.5478 - accuracy
Epoch 1665/2000
1845/1845 [=====] - 0s 91us/sample - loss: 32.6890 - accuracy:
Epoch 1666/2000
1845/1845 [=====] - 0s 90us/sample - loss: 32.7591 - accuracy:
Epoch 1667/2000
1845/1845 [=====] - 0s 90us/sample - loss: 30.4189 - accuracy:
Epoch 1668/2000
1845/1845 [=====] - 0s 88us/sample - loss: 26.8434 - accuracy:
Epoch 1669/2000
1845/1845 [=====] - 0s 95us/sample - loss: 29.4172 - accuracy:
Epoch 1670/2000
1845/1845 [=====] - 0s 88us/sample - loss: 27.5119 - accuracy:
Epoch 1671/2000
1845/1845 [=====] - 0s 163us/sample - loss: 29.8988 - accuracy
Epoch 1672/2000
1845/1845 [=====] - 0s 140us/sample - loss: 31.4583 - accuracy
Epoch 1673/2000
1845/1845 [=====] - 0s 125us/sample - loss: 30.6463 - accuracy
Epoch 1674/2000
1845/1845 [=====] - 0s 113us/sample - loss: 29.5183 - accuracy
Epoch 1675/2000
1845/1845 [=====] - 0s 162us/sample - loss: 26.5255 - accuracy
Epoch 1676/2000
1845/1845 [=====] - 0s 130us/sample - loss: 26.0658 - accuracy
Epoch 1677/2000
1845/1845 [=====] - 0s 136us/sample - loss: 31.2380 - accuracy
Epoch 1678/2000
1845/1845 [=====] - 0s 111us/sample - loss: 30.6804 - accuracy
Epoch 1679/2000
1845/1845 [=====] - 0s 102us/sample - loss: 29.7532 - accuracy
Epoch 1680/2000
1845/1845 [=====] - 0s 133us/sample - loss: 27.3913 - accuracy
Epoch 1681/2000
1845/1845 [=====] - 0s 126us/sample - loss: 26.8224 - accuracy
Epoch 1682/2000
1845/1845 [=====] - 0s 161us/sample - loss: 37.3198 - accuracy
Epoch 1683/2000
1845/1845 [=====] - 0s 110us/sample - loss: 26.5810 - accuracy
Epoch 1684/2000
1845/1845 [=====] - 0s 116us/sample - loss: 27.0935 - accuracy
Epoch 1685/2000
1845/1845 [=====] - 0s 102us/sample - loss: 27.8694 - accuracy
Epoch 1686/2000
1845/1845 [=====] - 0s 105us/sample - loss: 30.8653 - accuracy
Epoch 1687/2000
1845/1845 [=====] - 0s 134us/sample - loss: 29.9584 - accuracy
Epoch 1688/2000
1845/1845 [=====] - 0s 150us/sample - loss: 26.5766 - accuracy
Epoch 1689/2000
1845/1845 [=====] - 0s 127us/sample - loss: 29.0556 - accuracy
Epoch 1690/2000
1845/1845 [=====] - 0s 158us/sample - loss: 27.8408 - accuracy
Epoch 1691/2000
1845/1845 [=====] - 0s 143us/sample - loss: 29.8957 - accuracy
```

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Epoch 1693/2000
1845/1845 [=====] - 0s 87us/sample - loss: 28.9465 - accuracy:
Epoch 1694/2000
1845/1845 [=====] - 0s 81us/sample - loss: 29.8268 - accuracy:
Epoch 1695/2000
1845/1845 [=====] - 0s 65us/sample - loss: 32.2864 - accuracy:
Epoch 1696/2000
1845/1845 [=====] - 0s 73us/sample - loss: 30.4821 - accuracy:
Epoch 1697/2000
1845/1845 [=====] - 0s 86us/sample - loss: 29.6808 - accuracy:
Epoch 1698/2000
1845/1845 [=====] - 0s 91us/sample - loss: 26.3351 - accuracy:
Epoch 1699/2000
1845/1845 [=====] - 0s 84us/sample - loss: 29.5154 - accuracy:
Epoch 1700/2000
1845/1845 [=====] - 0s 88us/sample - loss: 30.7661 - accuracy:
Epoch 1701/2000
1845/1845 [=====] - 0s 75us/sample - loss: 28.1186 - accuracy:
Epoch 1702/2000
1845/1845 [=====] - 0s 79us/sample - loss: 30.4509 - accuracy:
Epoch 1703/2000
1845/1845 [=====] - 0s 76us/sample - loss: 30.0329 - accuracy:
Epoch 1704/2000
1845/1845 [=====] - 0s 74us/sample - loss: 27.4584 - accuracy:
Epoch 1705/2000
1845/1845 [=====] - 0s 95us/sample - loss: 26.6217 - accuracy:
Epoch 1706/2000
1845/1845 [=====] - 0s 82us/sample - loss: 28.5499 - accuracy:
Epoch 1707/2000
1845/1845 [=====] - 0s 82us/sample - loss: 30.9575 - accuracy:
Epoch 1708/2000
1845/1845 [=====] - 0s 84us/sample - loss: 32.1759 - accuracy:
Epoch 1709/2000
1845/1845 [=====] - 0s 94us/sample - loss: 29.5239 - accuracy:
Epoch 1710/2000
1845/1845 [=====] - 0s 92us/sample - loss: 28.6484 - accuracy:
Epoch 1711/2000
1845/1845 [=====] - 0s 82us/sample - loss: 29.7248 - accuracy:
Epoch 1712/2000
1845/1845 [=====] - 0s 77us/sample - loss: 33.6624 - accuracy:
Epoch 1713/2000
1845/1845 [=====] - 0s 78us/sample - loss: 26.8981 - accuracy:
Epoch 1714/2000
1845/1845 [=====] - 0s 76us/sample - loss: 28.6564 - accuracy:
Epoch 1715/2000
1845/1845 [=====] - 0s 71us/sample - loss: 29.7115 - accuracy:
Epoch 1716/2000
1845/1845 [=====] - 0s 81us/sample - loss: 32.5636 - accuracy:
Epoch 1717/2000
1845/1845 [=====] - 0s 77us/sample - loss: 28.5710 - accuracy:
Epoch 1718/2000
1845/1845 [=====] - 0s 76us/sample - loss: 27.0235 - accuracy:
Epoch 1719/2000
1845/1845 [=====] - 0s 66us/sample - loss: 26.6790 - accuracy:
Epoch 1720/2000
1845/1845 [=====] - 0s 62us/sample - loss: 28.0073 - accuracy:
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1845/1845 [=====] - 0s 62us/sample - loss: 28.0973 - accuracy:
Epoch 1721/2000
1845/1845 [=====] - 0s 63us/sample - loss: 29.7360 - accuracy:
Epoch 1722/2000
1845/1845 [=====] - 0s 76us/sample - loss: 33.5963 - accuracy:
Epoch 1723/2000
1845/1845 [=====] - 0s 78us/sample - loss: 30.1098 - accuracy:
Epoch 1724/2000
1845/1845 [=====] - 0s 73us/sample - loss: 31.8707 - accuracy:
Epoch 1725/2000
1845/1845 [=====] - 0s 73us/sample - loss: 28.5851 - accuracy:
Epoch 1726/2000
1845/1845 [=====] - 0s 75us/sample - loss: 29.5626 - accuracy:
Epoch 1727/2000
1845/1845 [=====] - 0s 60us/sample - loss: 28.1905 - accuracy:
Epoch 1728/2000
1845/1845 [=====] - 0s 66us/sample - loss: 27.9491 - accuracy:
Epoch 1729/2000
1845/1845 [=====] - 0s 68us/sample - loss: 26.0426 - accuracy:
Epoch 1730/2000
1845/1845 [=====] - 0s 70us/sample - loss: 31.9413 - accuracy:
Epoch 1731/2000
1845/1845 [=====] - 0s 76us/sample - loss: 34.8249 - accuracy:
Epoch 1732/2000
1845/1845 [=====] - 0s 76us/sample - loss: 29.4270 - accuracy:
Epoch 1733/2000
1845/1845 [=====] - 0s 106us/sample - loss: 28.0653 - accuracy:
Epoch 1734/2000
1845/1845 [=====] - 0s 154us/sample - loss: 28.3235 - accuracy:
Epoch 1735/2000
1845/1845 [=====] - 0s 137us/sample - loss: 32.6185 - accuracy:
Epoch 1736/2000
1845/1845 [=====] - 0s 141us/sample - loss: 30.3621 - accuracy:
Epoch 1737/2000
1845/1845 [=====] - 0s 122us/sample - loss: 27.6452 - accuracy:
Epoch 1738/2000
1845/1845 [=====] - 0s 107us/sample - loss: 31.1951 - accuracy:
Epoch 1739/2000
1845/1845 [=====] - 0s 120us/sample - loss: 29.1515 - accuracy:
Epoch 1740/2000
1845/1845 [=====] - 0s 77us/sample - loss: 28.5037 - accuracy:
Epoch 1741/2000
1845/1845 [=====] - 0s 76us/sample - loss: 28.0879 - accuracy:
Epoch 1742/2000
1845/1845 [=====] - 0s 75us/sample - loss: 30.1032 - accuracy:
Epoch 1743/2000
1845/1845 [=====] - 0s 71us/sample - loss: 28.0417 - accuracy:
Epoch 1744/2000
1845/1845 [=====] - 0s 66us/sample - loss: 25.4269 - accuracy:
Epoch 1745/2000
1845/1845 [=====] - 0s 66us/sample - loss: 29.8719 - accuracy:
Epoch 1746/2000
1845/1845 [=====] - 0s 66us/sample - loss: 32.5016 - accuracy:
Epoch 1747/2000
1845/1845 [=====] - 0s 64us/sample - loss: 29.0633 - accuracy:
Epoch 1748/2000
1845/1845 [=====] - 0s 69us/sample - loss: 25.5174 - accuracy:
Epoch 1749/2000
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1845/1845 [=====] - 0s 72us/sample - loss: 28.8525 - accuracy:  
Epoch 1750/2000  
1845/1845 [=====] - 0s 78us/sample - loss: 30.9260 - accuracy:  
Epoch 1751/2000  
1845/1845 [=====] - 0s 77us/sample - loss: 29.7645 - accuracy:  
Epoch 1752/2000  
1845/1845 [=====] - 0s 73us/sample - loss: 25.6194 - accuracy:  
Epoch 1753/2000  
1845/1845 [=====] - 0s 67us/sample - loss: 28.0859 - accuracy:  
Epoch 1754/2000  
1845/1845 [=====] - 0s 68us/sample - loss: 28.9570 - accuracy:  
Epoch 1755/2000  
1845/1845 [=====] - 0s 69us/sample - loss: 32.5843 - accuracy:  
Epoch 1756/2000  
1845/1845 [=====] - 0s 68us/sample - loss: 31.1713 - accuracy:  
Epoch 1757/2000  
1845/1845 [=====] - 0s 68us/sample - loss: 26.0056 - accuracy:  
Epoch 1758/2000  
1845/1845 [=====] - 0s 62us/sample - loss: 27.1927 - accuracy:  
Epoch 1759/2000  
1845/1845 [=====] - 0s 60us/sample - loss: 31.1951 - accuracy:  
Epoch 1760/2000  
1845/1845 [=====] - 0s 62us/sample - loss: 30.5430 - accuracy:  
Epoch 1761/2000  
1845/1845 [=====] - 0s 64us/sample - loss: 25.9998 - accuracy:  
Epoch 1762/2000  
1845/1845 [=====] - 0s 83us/sample - loss: 28.2453 - accuracy:  
Epoch 1763/2000  
1845/1845 [=====] - 0s 106us/sample - loss: 29.3590 - accuracy:  
Epoch 1764/2000  
1845/1845 [=====] - 0s 121us/sample - loss: 33.0587 - accuracy:  
Epoch 1765/2000  
1845/1845 [=====] - 0s 183us/sample - loss: 28.2809 - accuracy:  
Epoch 1766/2000  
1845/1845 [=====] - 0s 133us/sample - loss: 29.8850 - accuracy:  
Epoch 1767/2000  
1845/1845 [=====] - 0s 153us/sample - loss: 28.5205 - accuracy:  
Epoch 1768/2000  
1845/1845 [=====] - 0s 188us/sample - loss: 30.8803 - accuracy:  
Epoch 1769/2000  
1845/1845 [=====] - 0s 209us/sample - loss: 31.5820 - accuracy:  
Epoch 1770/2000  
1845/1845 [=====] - 0s 180us/sample - loss: 27.0548 - accuracy:  
Epoch 1771/2000  
1845/1845 [=====] - 0s 177us/sample - loss: 28.3856 - accuracy:  
Epoch 1772/2000  
1845/1845 [=====] - 0s 117us/sample - loss: 26.9862 - accuracy:  
Epoch 1773/2000  
1845/1845 [=====] - 0s 133us/sample - loss: 27.8495 - accuracy:  
Epoch 1774/2000  
1845/1845 [=====] - 0s 125us/sample - loss: 28.1170 - accuracy:  
Epoch 1775/2000  
1845/1845 [=====] - 0s 144us/sample - loss: 28.2913 - accuracy:  
Epoch 1776/2000  
1845/1845 [=====] - 0s 124us/sample - loss: 27.0890 - accuracy:  
Epoch 1777/2000  
1845/1845 [=====] - 0s 118us/sample - loss: 30.1533 - accuracy:  
Epoch 1778/2000



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1845/1845 [=====] - 0s 120us/sample - loss: 27.5663 - accuracy
Epoch 1779/2000
1845/1845 [=====] - 0s 144us/sample - loss: 29.0071 - accuracy
Epoch 1780/2000
1845/1845 [=====] - 0s 122us/sample - loss: 27.5690 - accuracy
Epoch 1781/2000
1845/1845 [=====] - 0s 121us/sample - loss: 29.3339 - accuracy
Epoch 1782/2000
1845/1845 [=====] - 0s 121us/sample - loss: 29.6190 - accuracy
Epoch 1783/2000
1845/1845 [=====] - 0s 116us/sample - loss: 27.3894 - accuracy
Epoch 1784/2000
1845/1845 [=====] - 0s 113us/sample - loss: 26.5866 - accuracy
Epoch 1785/2000
1845/1845 [=====] - 0s 106us/sample - loss: 34.9628 - accuracy
Epoch 1786/2000
1845/1845 [=====] - 0s 106us/sample - loss: 28.6795 - accuracy
Epoch 1787/2000
1845/1845 [=====] - 0s 106us/sample - loss: 27.6660 - accuracy
Epoch 1788/2000
1845/1845 [=====] - 0s 108us/sample - loss: 27.2689 - accuracy
Epoch 1789/2000
1845/1845 [=====] - 0s 111us/sample - loss: 26.2635 - accuracy
Epoch 1790/2000
1845/1845 [=====] - 0s 111us/sample - loss: 32.3790 - accuracy
Epoch 1791/2000
1845/1845 [=====] - 0s 106us/sample - loss: 28.5329 - accuracy
Epoch 1792/2000
1845/1845 [=====] - 0s 100us/sample - loss: 29.7627 - accuracy
Epoch 1793/2000
1845/1845 [=====] - 0s 92us/sample - loss: 27.9127 - accuracy:
Epoch 1794/2000
1845/1845 [=====] - 0s 92us/sample - loss: 36.1844 - accuracy:
Epoch 1795/2000
1845/1845 [=====] - 0s 103us/sample - loss: 27.8685 - accuracy
Epoch 1796/2000
1845/1845 [=====] - 0s 109us/sample - loss: 29.8443 - accuracy
Epoch 1797/2000
1845/1845 [=====] - 0s 107us/sample - loss: 27.7973 - accuracy
Epoch 1798/2000
1845/1845 [=====] - 0s 89us/sample - loss: 25.6870 - accuracy:
Epoch 1799/2000
1845/1845 [=====] - 0s 95us/sample - loss: 27.4652 - accuracy:
Epoch 1800/2000
1845/1845 [=====] - 0s 89us/sample - loss: 27.0382 - accuracy:
Epoch 1801/2000
1845/1845 [=====] - 0s 88us/sample - loss: 32.4736 - accuracy:
Epoch 1802/2000
1845/1845 [=====] - 0s 132us/sample - loss: 30.5448 - accuracy
Epoch 1803/2000
1845/1845 [=====] - 0s 120us/sample - loss: 26.2628 - accuracy
Epoch 1804/2000
1845/1845 [=====] - 0s 93us/sample - loss: 27.7006 - accuracy:
Epoch 1805/2000
1845/1845 [=====] - 0s 98us/sample - loss: 28.5069 - accuracy:
Epoch 1806/2000
1845/1845 [=====] - 0s 101us/sample - loss: 28.2124 - accuracy
Epoch 1807/2000
```

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Epoch 1800/2000
1845/1845 [=====] - 0s 123us/sample - loss: 30.0380 - accuracy
Epoch 1808/2000
1845/1845 [=====] - 0s 119us/sample - loss: 31.2282 - accuracy
Epoch 1809/2000
1845/1845 [=====] - 0s 109us/sample - loss: 27.4387 - accuracy
Epoch 1810/2000
1845/1845 [=====] - 0s 98us/sample - loss: 27.6851 - accuracy:
Epoch 1811/2000
1845/1845 [=====] - 0s 139us/sample - loss: 32.1346 - accuracy
Epoch 1812/2000
1845/1845 [=====] - 0s 147us/sample - loss: 27.0863 - accuracy
Epoch 1813/2000
1845/1845 [=====] - 0s 156us/sample - loss: 33.7951 - accuracy
Epoch 1814/2000
1845/1845 [=====] - 0s 150us/sample - loss: 28.6512 - accuracy
Epoch 1815/2000
1845/1845 [=====] - 0s 142us/sample - loss: 26.3041 - accuracy
Epoch 1816/2000
1845/1845 [=====] - 0s 176us/sample - loss: 38.3595 - accuracy
Epoch 1817/2000
1845/1845 [=====] - 0s 163us/sample - loss: 24.6925 - accuracy
Epoch 1818/2000
1845/1845 [=====] - 0s 172us/sample - loss: 32.0039 - accuracy
Epoch 1819/2000
1845/1845 [=====] - 0s 149us/sample - loss: 35.2524 - accuracy
Epoch 1820/2000
1845/1845 [=====] - 0s 161us/sample - loss: 31.2442 - accuracy
Epoch 1821/2000
1845/1845 [=====] - 0s 161us/sample - loss: 28.5674 - accuracy
Epoch 1822/2000
1845/1845 [=====] - 0s 143us/sample - loss: 26.7593 - accuracy
Epoch 1823/2000
1845/1845 [=====] - 0s 147us/sample - loss: 29.7573 - accuracy
Epoch 1824/2000
1845/1845 [=====] - 0s 174us/sample - loss: 30.3499 - accuracy
Epoch 1825/2000
1845/1845 [=====] - 0s 157us/sample - loss: 29.5849 - accuracy
Epoch 1826/2000
1845/1845 [=====] - 0s 168us/sample - loss: 26.4446 - accuracy
Epoch 1827/2000
1845/1845 [=====] - 0s 119us/sample - loss: 28.2064 - accuracy
Epoch 1828/2000
1845/1845 [=====] - 0s 140us/sample - loss: 31.6588 - accuracy
Epoch 1829/2000
1845/1845 [=====] - 0s 111us/sample - loss: 29.7145 - accuracy
Epoch 1830/2000
1845/1845 [=====] - 0s 121us/sample - loss: 28.9776 - accuracy
Epoch 1831/2000
1845/1845 [=====] - 0s 114us/sample - loss: 29.2807 - accuracy
Epoch 1832/2000
1845/1845 [=====] - 0s 122us/sample - loss: 26.1556 - accuracy
Epoch 1833/2000
1845/1845 [=====] - 0s 118us/sample - loss: 28.1574 - accuracy
Epoch 1834/2000
1845/1845 [=====] - 0s 134us/sample - loss: 28.7649 - accuracy
Epoch 1835/2000
1845/1845 [=====] - 0s 158us/sample - loss: 27.2184 - accuracy
```

Epoch 1836/2000  
1845/1845 [=====] - 0s 144us/sample - loss: 29.2874 - accuracy  
Epoch 1837/2000  
1845/1845 [=====] - 0s 167us/sample - loss: 26.9635 - accuracy  
Epoch 1838/2000  
1845/1845 [=====] - 0s 113us/sample - loss: 26.6351 - accuracy  
Epoch 1839/2000  
1845/1845 [=====] - 0s 168us/sample - loss: 32.1859 - accuracy  
Epoch 1840/2000  
1845/1845 [=====] - 0s 118us/sample - loss: 28.0932 - accuracy  
Epoch 1841/2000  
1845/1845 [=====] - 0s 119us/sample - loss: 27.2944 - accuracy  
Epoch 1842/2000  
1845/1845 [=====] - 0s 141us/sample - loss: 24.3023 - accuracy  
Epoch 1843/2000  
1845/1845 [=====] - 0s 135us/sample - loss: 26.5265 - accuracy  
Epoch 1844/2000  
1845/1845 [=====] - 0s 134us/sample - loss: 27.2128 - accuracy  
Epoch 1845/2000  
1845/1845 [=====] - 0s 119us/sample - loss: 27.2140 - accuracy  
Epoch 1846/2000  
1845/1845 [=====] - 0s 120us/sample - loss: 27.1088 - accuracy  
Epoch 1847/2000  
1845/1845 [=====] - 0s 107us/sample - loss: 31.1696 - accuracy  
Epoch 1848/2000  
1845/1845 [=====] - 0s 120us/sample - loss: 27.1398 - accuracy  
Epoch 1849/2000  
1845/1845 [=====] - 0s 111us/sample - loss: 28.0390 - accuracy  
Epoch 1850/2000  
1845/1845 [=====] - 0s 114us/sample - loss: 26.7932 - accuracy  
Epoch 1851/2000  
1845/1845 [=====] - 0s 104us/sample - loss: 26.9343 - accuracy  
Epoch 1852/2000  
1845/1845 [=====] - 0s 97us/sample - loss: 28.2398 - accuracy:  
Epoch 1853/2000  
1845/1845 [=====] - 0s 103us/sample - loss: 32.1492 - accuracy  
Epoch 1854/2000  
1845/1845 [=====] - 0s 131us/sample - loss: 28.2715 - accuracy  
Epoch 1855/2000  
1845/1845 [=====] - 0s 137us/sample - loss: 27.1864 - accuracy  
Epoch 1856/2000  
1845/1845 [=====] - 0s 106us/sample - loss: 27.6345 - accuracy  
Epoch 1857/2000  
1845/1845 [=====] - 0s 101us/sample - loss: 29.8609 - accuracy  
Epoch 1858/2000  
1845/1845 [=====] - 0s 96us/sample - loss: 26.2276 - accuracy:  
Epoch 1859/2000  
1845/1845 [=====] - 0s 95us/sample - loss: 28.1475 - accuracy:  
Epoch 1860/2000  
1845/1845 [=====] - 0s 96us/sample - loss: 25.5695 - accuracy:  
Epoch 1861/2000  
1845/1845 [=====] - 0s 112us/sample - loss: 29.0822 - accuracy  
Epoch 1862/2000  
1845/1845 [=====] - 0s 105us/sample - loss: 26.8377 - accuracy  
Epoch 1863/2000  
1845/1845 [=====] - 0s 95us/sample - loss: 24.9292 - accuracy:  
Epoch 1864/2000  
1845/1845 [=====] - 0s 105us/sample - loss: 33.2581 - accuracy

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Epoch 1865/2000
1845/1845 [=====] - 0s 116us/sample - loss: 29.9403 - accuracy
Epoch 1866/2000
1845/1845 [=====] - 0s 107us/sample - loss: 28.7513 - accuracy
Epoch 1867/2000
1845/1845 [=====] - 0s 99us/sample - loss: 26.9561 - accuracy:
Epoch 1868/2000
1845/1845 [=====] - 0s 94us/sample - loss: 26.4546 - accuracy:
Epoch 1869/2000
1845/1845 [=====] - 0s 88us/sample - loss: 28.1790 - accuracy:
Epoch 1870/2000
1845/1845 [=====] - 0s 87us/sample - loss: 27.4467 - accuracy:
Epoch 1871/2000
1845/1845 [=====] - 0s 95us/sample - loss: 25.5805 - accuracy:
Epoch 1872/2000
1845/1845 [=====] - 0s 100us/sample - loss: 27.6643 - accuracy
Epoch 1873/2000
1845/1845 [=====] - 0s 94us/sample - loss: 29.2172 - accuracy:
Epoch 1874/2000
1845/1845 [=====] - 0s 128us/sample - loss: 26.9673 - accuracy
Epoch 1875/2000
1845/1845 [=====] - 0s 108us/sample - loss: 32.5043 - accuracy
Epoch 1876/2000
1845/1845 [=====] - 0s 94us/sample - loss: 32.0060 - accuracy:
Epoch 1877/2000
1845/1845 [=====] - 0s 103us/sample - loss: 33.8742 - accuracy
Epoch 1878/2000
1845/1845 [=====] - 0s 103us/sample - loss: 27.2560 - accuracy
Epoch 1879/2000
1845/1845 [=====] - 0s 91us/sample - loss: 28.1402 - accuracy:
Epoch 1880/2000
1845/1845 [=====] - 0s 91us/sample - loss: 27.4390 - accuracy:
Epoch 1881/2000
1845/1845 [=====] - 0s 97us/sample - loss: 25.2781 - accuracy:
Epoch 1882/2000
1845/1845 [=====] - 0s 95us/sample - loss: 24.9819 - accuracy:
Epoch 1883/2000
1845/1845 [=====] - 0s 96us/sample - loss: 30.1219 - accuracy:
Epoch 1884/2000
1845/1845 [=====] - 0s 98us/sample - loss: 28.2030 - accuracy:
Epoch 1885/2000
1845/1845 [=====] - 0s 95us/sample - loss: 29.8919 - accuracy:
Epoch 1886/2000
1845/1845 [=====] - 0s 91us/sample - loss: 26.6265 - accuracy:
Epoch 1887/2000
1845/1845 [=====] - 0s 97us/sample - loss: 31.0830 - accuracy:
Epoch 1888/2000
1845/1845 [=====] - 0s 107us/sample - loss: 28.6497 - accuracy
Epoch 1889/2000
1845/1845 [=====] - 0s 132us/sample - loss: 30.9565 - accuracy
Epoch 1890/2000
1845/1845 [=====] - 0s 119us/sample - loss: 28.5160 - accuracy
Epoch 1891/2000
1845/1845 [=====] - 0s 140us/sample - loss: 27.6081 - accuracy
Epoch 1892/2000
1845/1845 [=====] - 0s 124us/sample - loss: 30.4660 - accuracy
Epoch 1893/2000
```

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1845/1845 [=====] - 0s 126us/sample - loss: 29.2200 - accuracy
Epoch 1894/2000
1845/1845 [=====] - 0s 116us/sample - loss: 26.2527 - accuracy
Epoch 1895/2000
1845/1845 [=====] - 0s 98us/sample - loss: 25.3379 - accuracy:
Epoch 1896/2000
1845/1845 [=====] - 0s 102us/sample - loss: 29.0573 - accuracy
Epoch 1897/2000
1845/1845 [=====] - 0s 126us/sample - loss: 30.3772 - accuracy
Epoch 1898/2000
1845/1845 [=====] - 0s 148us/sample - loss: 24.8031 - accuracy
Epoch 1899/2000
1845/1845 [=====] - 0s 108us/sample - loss: 26.6189 - accuracy
Epoch 1900/2000
1845/1845 [=====] - 0s 114us/sample - loss: 27.0908 - accuracy
Epoch 1901/2000
1845/1845 [=====] - 0s 99us/sample - loss: 27.3583 - accuracy:
Epoch 1902/2000
1845/1845 [=====] - 0s 94us/sample - loss: 31.9437 - accuracy:
Epoch 1903/2000
1845/1845 [=====] - 0s 92us/sample - loss: 27.9938 - accuracy:
Epoch 1904/2000
1845/1845 [=====] - 0s 92us/sample - loss: 26.9139 - accuracy:
Epoch 1905/2000
1845/1845 [=====] - 0s 96us/sample - loss: 26.2791 - accuracy:
Epoch 1906/2000
1845/1845 [=====] - 0s 100us/sample - loss: 27.8305 - accuracy
Epoch 1907/2000
1845/1845 [=====] - 0s 101us/sample - loss: 26.1951 - accuracy
Epoch 1908/2000
1845/1845 [=====] - 0s 98us/sample - loss: 25.3396 - accuracy:
Epoch 1909/2000
1845/1845 [=====] - 0s 104us/sample - loss: 25.7779 - accuracy
Epoch 1910/2000
1845/1845 [=====] - 0s 115us/sample - loss: 28.8308 - accuracy
Epoch 1911/2000
1845/1845 [=====] - 0s 127us/sample - loss: 27.0028 - accuracy
Epoch 1912/2000
1845/1845 [=====] - 0s 154us/sample - loss: 26.6186 - accuracy
Epoch 1913/2000
1845/1845 [=====] - 0s 153us/sample - loss: 26.5986 - accuracy
Epoch 1914/2000
1845/1845 [=====] - 0s 117us/sample - loss: 32.3981 - accuracy
Epoch 1915/2000
1845/1845 [=====] - 0s 117us/sample - loss: 30.0042 - accuracy
Epoch 1916/2000
1845/1845 [=====] - 0s 120us/sample - loss: 25.7784 - accuracy
Epoch 1917/2000
1845/1845 [=====] - 0s 121us/sample - loss: 25.7526 - accuracy
Epoch 1918/2000
1845/1845 [=====] - 0s 118us/sample - loss: 30.0727 - accuracy
Epoch 1919/2000
1845/1845 [=====] - 0s 118us/sample - loss: 27.8752 - accuracy
Epoch 1920/2000
1845/1845 [=====] - 0s 116us/sample - loss: 27.9505 - accuracy
Epoch 1921/2000
1845/1845 [=====] - 0s 118us/sample - loss: 31.5160 - accuracy
Epoch 1922/2000
```

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1845/1845 [=====] - 0s 136us/sample - loss: 27.9062 - accuracy
Epoch 1923/2000
1845/1845 [=====] - 0s 152us/sample - loss: 28.7975 - accuracy
Epoch 1924/2000
1845/1845 [=====] - 0s 133us/sample - loss: 24.1333 - accuracy
Epoch 1925/2000
1845/1845 [=====] - 0s 117us/sample - loss: 33.8498 - accuracy
Epoch 1926/2000
1845/1845 [=====] - 0s 116us/sample - loss: 28.2672 - accuracy
Epoch 1927/2000
1845/1845 [=====] - 0s 111us/sample - loss: 28.6437 - accuracy
Epoch 1928/2000
1845/1845 [=====] - 0s 112us/sample - loss: 32.7672 - accuracy
Epoch 1929/2000
1845/1845 [=====] - 0s 112us/sample - loss: 32.2545 - accuracy
Epoch 1930/2000
1845/1845 [=====] - 0s 118us/sample - loss: 30.8765 - accuracy
Epoch 1931/2000
1845/1845 [=====] - 0s 116us/sample - loss: 28.3426 - accuracy
Epoch 1932/2000
1845/1845 [=====] - 0s 109us/sample - loss: 25.5827 - accuracy
Epoch 1933/2000
1845/1845 [=====] - 0s 112us/sample - loss: 28.1206 - accuracy
Epoch 1934/2000
1845/1845 [=====] - 0s 109us/sample - loss: 25.6177 - accuracy
Epoch 1935/2000
1845/1845 [=====] - 0s 104us/sample - loss: 27.2282 - accuracy
Epoch 1936/2000
1845/1845 [=====] - 0s 117us/sample - loss: 30.5135 - accuracy
Epoch 1937/2000
1845/1845 [=====] - 0s 103us/sample - loss: 27.0910 - accuracy
Epoch 1938/2000
1845/1845 [=====] - 0s 102us/sample - loss: 27.9084 - accuracy
Epoch 1939/2000
1845/1845 [=====] - 0s 99us/sample - loss: 29.0803 - accuracy:
Epoch 1940/2000
1845/1845 [=====] - 0s 92us/sample - loss: 25.0481 - accuracy:
Epoch 1941/2000
1845/1845 [=====] - 0s 91us/sample - loss: 28.1271 - accuracy:
Epoch 1942/2000
1845/1845 [=====] - 0s 93us/sample - loss: 28.3134 - accuracy:
Epoch 1943/2000
1845/1845 [=====] - 0s 94us/sample - loss: 34.0278 - accuracy:
Epoch 1944/2000
1845/1845 [=====] - 0s 89us/sample - loss: 27.1165 - accuracy:
Epoch 1945/2000
1845/1845 [=====] - 0s 97us/sample - loss: 29.1690 - accuracy:
Epoch 1946/2000
1845/1845 [=====] - 0s 96us/sample - loss: 29.0572 - accuracy:
Epoch 1947/2000
1845/1845 [=====] - 0s 96us/sample - loss: 32.0446 - accuracy:
Epoch 1948/2000
1845/1845 [=====] - 0s 93us/sample - loss: 27.2285 - accuracy:
Epoch 1949/2000
1845/1845 [=====] - 0s 94us/sample - loss: 29.7055 - accuracy:
Epoch 1950/2000
1845/1845 [=====] - 0s 98us/sample - loss: 24.7799 - accuracy:
Epoch 1951/2000
```

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Epoch 1951/2000
1845/1845 [=====] - 0s 94us/sample - loss: 27.7484 - accuracy:
Epoch 1952/2000
1845/1845 [=====] - 0s 94us/sample - loss: 27.3066 - accuracy:
Epoch 1953/2000
1845/1845 [=====] - 0s 101us/sample - loss: 27.0415 - accuracy
Epoch 1954/2000
1845/1845 [=====] - 0s 98us/sample - loss: 27.1041 - accuracy:
Epoch 1955/2000
1845/1845 [=====] - 0s 94us/sample - loss: 26.0829 - accuracy:
Epoch 1956/2000
1845/1845 [=====] - 0s 90us/sample - loss: 28.4076 - accuracy:
Epoch 1957/2000
1845/1845 [=====] - 0s 101us/sample - loss: 28.0524 - accuracy
Epoch 1958/2000
1845/1845 [=====] - 0s 93us/sample - loss: 26.0790 - accuracy:
Epoch 1959/2000
1845/1845 [=====] - 0s 99us/sample - loss: 29.1049 - accuracy:
Epoch 1960/2000
1845/1845 [=====] - 0s 92us/sample - loss: 29.8022 - accuracy:
Epoch 1961/2000
1845/1845 [=====] - 0s 92us/sample - loss: 27.4965 - accuracy:
Epoch 1962/2000
1845/1845 [=====] - 0s 105us/sample - loss: 25.6580 - accuracy
Epoch 1963/2000
1845/1845 [=====] - 0s 95us/sample - loss: 28.2299 - accuracy:
Epoch 1964/2000
1845/1845 [=====] - 0s 89us/sample - loss: 32.7388 - accuracy:
Epoch 1965/2000
1845/1845 [=====] - 0s 98us/sample - loss: 32.8494 - accuracy:
Epoch 1966/2000
1845/1845 [=====] - 0s 105us/sample - loss: 27.9110 - accuracy
Epoch 1967/2000
1845/1845 [=====] - 0s 147us/sample - loss: 25.5269 - accuracy
Epoch 1968/2000
1845/1845 [=====] - 0s 132us/sample - loss: 26.5529 - accuracy
Epoch 1969/2000
1845/1845 [=====] - 0s 161us/sample - loss: 26.5126 - accuracy
Epoch 1970/2000
1845/1845 [=====] - 0s 154us/sample - loss: 27.4064 - accuracy
Epoch 1971/2000
1845/1845 [=====] - 0s 137us/sample - loss: 27.5988 - accuracy
Epoch 1972/2000
1845/1845 [=====] - 0s 128us/sample - loss: 28.0077 - accuracy
Epoch 1973/2000
1845/1845 [=====] - 0s 127us/sample - loss: 27.2144 - accuracy
Epoch 1974/2000
1845/1845 [=====] - 0s 155us/sample - loss: 26.8223 - accuracy
Epoch 1975/2000
1845/1845 [=====] - 0s 137us/sample - loss: 30.3370 - accuracy
Epoch 1976/2000
1845/1845 [=====] - 0s 157us/sample - loss: 28.3913 - accuracy
Epoch 1977/2000
1845/1845 [=====] - 0s 174us/sample - loss: 27.1977 - accuracy
Epoch 1978/2000
1845/1845 [=====] - 0s 165us/sample - loss: 28.9617 - accuracy
Epoch 1979/2000
1845/1845 [=====] - 0s 152us/sample - loss: 26.7447 - accuracy
```

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Epoch 1980/2000
1845/1845 [=====] - 0s 133us/sample - loss: 27.7930 - accuracy
Epoch 1981/2000
1845/1845 [=====] - 0s 133us/sample - loss: 26.8380 - accuracy
Epoch 1982/2000
1845/1845 [=====] - 0s 153us/sample - loss: 26.9939 - accuracy
Epoch 1983/2000
1845/1845 [=====] - 0s 129us/sample - loss: 27.5505 - accuracy
Epoch 1984/2000
1845/1845 [=====] - 0s 147us/sample - loss: 29.5621 - accuracy
Epoch 1985/2000
1845/1845 [=====] - 0s 228us/sample - loss: 26.5836 - accuracy
Epoch 1986/2000
1845/1845 [=====] - 0s 170us/sample - loss: 25.3285 - accuracy
Epoch 1987/2000
1845/1845 [=====] - 0s 113us/sample - loss: 28.0125 - accuracy
Epoch 1988/2000
1845/1845 [=====] - 0s 117us/sample - loss: 29.1215 - accuracy
Epoch 1989/2000
1845/1845 [=====] - 0s 107us/sample - loss: 30.2888 - accuracy
Epoch 1990/2000
1845/1845 [=====] - 0s 91us/sample - loss: 27.4494 - accuracy:
Epoch 1991/2000
1845/1845 [=====] - 0s 92us/sample - loss: 29.5609 - accuracy:
Epoch 1992/2000
1845/1845 [=====] - 0s 88us/sample - loss: 25.8771 - accuracy:
Epoch 1993/2000
1845/1845 [=====] - 0s 88us/sample - loss: 35.4748 - accuracy:
Epoch 1994/2000
1845/1845 [=====] - 0s 90us/sample - loss: 26.5161 - accuracy:

```

```
y_pred= regressor.predict(X_test)
```

```
Epoch 1996/2000
```

```
print(y_pred)
```

```

[[ 206.60094  202.20723  204.5889   204.6792 ]
 [ 226.30411  221.57132  224.13359  224.24864]
 [1538.0339   1510.7263   1525.3126   1527.0753 ]
 ...
 [ 166.46767  162.76465  164.77843  164.81833]
 [ 121.72673  118.79372  120.39738  120.38106]
 [ 868.5279   852.7425   861.1917   862.1134  ]]
```

```
print(y_test)
```

```

[[ 229.08000183  221.94999695  223.91000366  226.69000244]
 [ 262.         256.73999023  261.73999023  257.47000122]
 [1638.09997559  1567.39001465  1634.01000977  1572.61999512]
 ...
 [ 177.69999695  174.8999939   176.94999695  175.3999939 ]
 [ 127.66999817  120.76000214  125.59999847  121.43000031]
 [ 862.79998779  841.30999756   858.84002686  843.20001221]]
```

```
import numpy as np
```

```
y_pred_mod=[]
```



```

y_test_mod=[]

for i in range(0,4):
    j=0
    y_pred_temp=[]
    y_test_temp=[]

    while(j<len(y_test)):
        y_pred_temp.append(y_pred[j][i])
        y_test_temp.append(y_test[j][i])
        j+=1

    y_pred_mod.append(np.array(y_pred_temp))
    y_test_mod.append(np.array(y_test_temp))

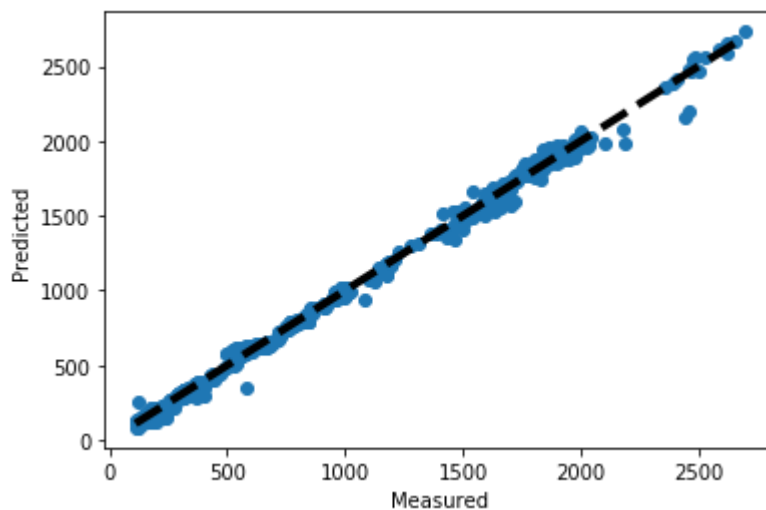
```

## ▼ High

```

fig, ax = plt.subplots()
ax.scatter(y_test_mod[0], y_pred_mod[0])
ax.plot([y_test_mod[0].min(),y_test_mod[0].max()], [y_test_mod[0].min(), y_test_mod[0].max()])
ax.set_xlabel('Measured')
ax.set_ylabel('Predicted')
plt.show()

```



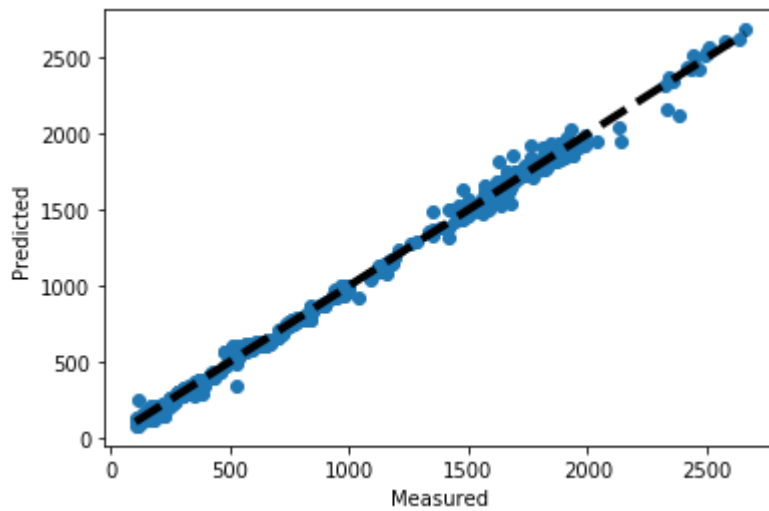
## ▼ Low

```

fig, ax = plt.subplots()
ax.scatter(y_test_mod[1], y_pred_mod[1])
ax.plot([y_test_mod[1].min(),y_test_mod[1].max()], [y_test_mod[1].min(), y_test_mod[1].max()])
ax.set_xlabel('Measured')
ax.set_ylabel('Predicted')

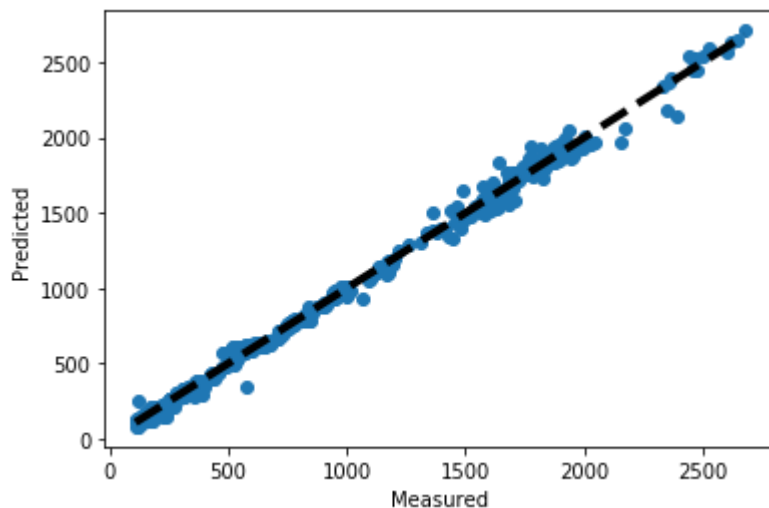
```

```
plt.show()
```



## ▼ Open

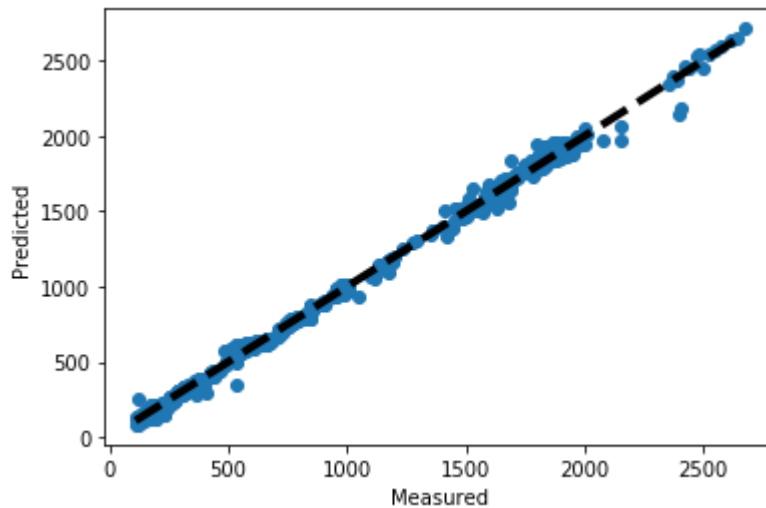
```
fig, ax = plt.subplots()
ax.scatter(y_test_mod[2], y_pred_mod[2])
ax.plot([y_test_mod[2].min(), y_test_mod[2].max()], [y_test_mod[2].min(), y_test_mod[2].max()])
ax.set_xlabel('Measured')
ax.set_ylabel('Predicted')
plt.show()
```



## ▼ Close

```
fig, ax = plt.subplots()
ax.scatter(y_test_mod[3], y_pred_mod[3])
ax.plot([y_test_mod[3].min(), y_test_mod[3].max()], [y_test_mod[3].min(), y_test_mod[3].max()])
ax.set_xlabel('Measured')
ax.set_ylabel('Predicted')
```

```
plt.show()
```



```
### Regression Complete
```

## ▼ Applying RNN

```
import datetime as dt
from sklearn import model_selection
from sklearn.metrics import confusion_matrix
from sklearn.preprocessing import StandardScaler
from sklearn.model_selection import train_test_split
import numpy as np
import pandas as pd
from sklearn.preprocessing import MinMaxScaler
from tensorflow.keras.models import Sequential
from tensorflow.keras.layers import Dense
from tensorflow.keras.layers import LSTM
from tensorflow.keras.layers import Dropout
```

```
df1=pd.read_csv('dataset_target.csv')
```

```
print(df1.head())
```



```

      Date      High      Low      Open      Close      Volume \
0  2009-12-31  137.279999  134.520004  137.089996  134.520004  4523000
1  2010-01-04  136.610001  133.139999  136.250000  133.899994  7599900
2  2010-01-05  135.479996  131.809998  133.429993  134.690002  8851900
3  2010-01-06  134.729996  131.649994  134.600006  132.250000  7178800
4  2010-01-07  132.320007  128.800003  132.009995  130.000000  11030200

df2=pd.read_csv('dataset_target_2.csv')

```

```
print(df2.head())
```

```

      High      Low      Open      Close      Volume      Adj Close \
0  137.279999  134.520004  137.089996  134.520004  4523000  134.520004
1  136.610001  133.139999  136.250000  133.899994  7599900  133.899994
2  135.479996  131.809998  133.429993  134.690002  8851900  134.690002
3  134.729996  131.649994  134.600006  132.250000  7178800  132.250000
4  132.320007  128.800003  132.009995  130.000000  11030200  130.000000

      Moving_av  Increase_in_vol  Increase_in_adj_close      Date
0  134.520004          0.0          0.000000  2009-12-31
1  134.209999      3076900.0          -0.620010  2010-01-04
2  134.370000      1252000.0          0.790009  2010-01-05
3  133.840000     -1673100.0          -2.440002  2010-01-06
4  133.072000      3851400.0          -2.250000  2010-01-07

```

```
df_main=df2.drop(['Date'],axis=1)
```

```
print(df_main.head())
```

```

      High      Low      Open      Close      Volume      Adj Close \
0  137.279999  134.520004  137.089996  134.520004  4523000  134.520004
1  136.610001  133.139999  136.250000  133.899994  7599900  133.899994
2  135.479996  131.809998  133.429993  134.690002  8851900  134.690002
3  134.729996  131.649994  134.600006  132.250000  7178800  132.250000
4  132.320007  128.800003  132.009995  130.000000  11030200  130.000000

      Moving_av  Increase_in_vol  Increase_in_adj_close
0  134.520004          0.0          0.000000
1  134.209999      3076900.0          -0.620010
2  134.370000      1252000.0          0.790009
3  133.840000     -1673100.0          -2.440002
4  133.072000      3851400.0          -2.250000

```

```
print(len(df_main))
```

```
2636
```

```
df_train=df_main[:2200]
```

```
print(df_train.head())
```

	High	Low	Open	Close	Volume	Adj Close \
0	137.279999	134.520004	137.089996	134.520004	4523000	134.520004
1	136.610001	133.139999	136.250000	133.899994	7599900	133.899994
2	135.479996	131.809998	133.429993	134.690002	8851900	134.690002
3	134.729996	131.649994	134.600006	132.250000	7178800	132.250000
4	132.320007	128.800003	132.009995	130.000000	11030200	130.000000

	Moving_av	Increase_in_vol	Increase_in_adj_close
0	134.520004	0.0	0.000000
1	134.209999	3076900.0	-0.620010
2	134.370000	1252000.0	0.790009

```
sc = MinMaxScaler(feature_range = (0, 1))
```

```
df_target=df_train[['High','Low','Open','Close']]
```

```
target_set=df_target.values
```

```
train_set=df_train.values
```

```
training_set_scaled = sc.fit_transform(train_set)
```

```
target_set_scaled = sc.fit_transform(target_set)
```

```
X_train = []
```

```
y_train = []
```


```
for i in range(50,len(train_set)):
```

```
    X_train.append(training_set_scaled[i-50:i,:])
```


```
    y_train.append(target_set_scaled[i,:])
```

```
X_train, y_train = np.array(X_train), np.array(y_train)
```

```
print(X_train.shape)
```

 (2150, 50, 9)

```
print(y_train.shape)
```

 (2150, 4)

```
from sklearn.metrics import accuracy_score
```

```
from tensorflow.keras.layers import BatchNormalization
```

```
def model():
```

```
    mod=Sequential()
```

```
    mod.add(LSTM(units = 64, return_sequences = True, input_shape = (X_train.shape[1], 9)))
```

```
    mod.add(Dropout(0.2))
```

```

mod.add(BatchNormalization())
mod.add(LSTM(units = 64, return_sequences = True))
mod.add(Dropout(0.1))
mod.add(BatchNormalization())

mod.add((LSTM(units = 64)))
mod.add(Dropout(0.1))
mod.add(BatchNormalization())
mod.add((Dense(units = 16, activation='tanh'))))
mod.add(BatchNormalization())
mod.add((Dense(units = 4, activation='tanh'))))
mod.compile(loss='mean_squared_error', optimizer='adam', metrics=['accuracy', 'mean_square
mod.summary()

return mod

```

RNN\_model=model()



Model: "sequential\_16"

Layer (type)	Output Shape	Param #
lstm_28 (LSTM)	(None, 50, 64)	18944
dropout_26 (Dropout)	(None, 50, 64)	0
batch_normalization_10 (Batch Normalization)	(None, 50, 64)	256
lstm_29 (LSTM)	(None, 50, 64)	33024
dropout_27 (Dropout)	(None, 50, 64)	0
batch_normalization_11 (Batch Normalization)	(None, 50, 64)	256
lstm_30 (LSTM)	(None, 64)	33024
dropout_28 (Dropout)	(None, 64)	0
batch_normalization_12 (Batch Normalization)	(None, 64)	256
dense_46 (Dense)	(None, 16)	1040
batch_normalization_13 (Batch Normalization)	(None, 16)	64
dense_47 (Dense)	(None, 4)	68
Total params: 86,932		
Trainable params: 86,516		
Non-trainable params: 416		

```

import tensorflow as tf
callback=tf.keras.callbacks.ModelCheckpoint(filepath='./RNN_model.h5',

```

```
monitor='mean_squared_error',  
verbose=0,  
save_best_only=True,  
save_weights_only=False,  
mode='auto',  
save_freq='epoch')  
RNN_model.fit(X_train, y_train, epochs = 2000, batch_size = 32, callbacks=[callback])
```



Train on 2150 samples

Epoch 1/2000

2150/2150 [=====] - 8s 4ms/sample - loss: 0.1472 - accuracy: 0

Epoch 2/2000

2150/2150 [=====] - 4s 2ms/sample - loss: 0.0161 - accuracy: 0

Epoch 3/2000

2150/2150 [=====] - 4s 2ms/sample - loss: 0.0111 - accuracy: 0

Epoch 4/2000

2150/2150 [=====] - 4s 2ms/sample - loss: 0.0089 - accuracy: 0

Epoch 5/2000

2150/2150 [=====] - 4s 2ms/sample - loss: 0.0077 - accuracy: 0

Epoch 6/2000

2150/2150 [=====] - 4s 2ms/sample - loss: 0.0073 - accuracy: 0

Epoch 7/2000

2150/2150 [=====] - 4s 2ms/sample - loss: 0.0072 - accuracy: 0

Epoch 8/2000

2150/2150 [=====] - 4s 2ms/sample - loss: 0.0112 - accuracy: 0

Epoch 9/2000

2150/2150 [=====] - 4s 2ms/sample - loss: 0.0091 - accuracy: 0

Epoch 10/2000

2150/2150 [=====] - 3s 2ms/sample - loss: 0.0070 - accuracy: 0

Epoch 11/2000

2150/2150 [=====] - 4s 2ms/sample - loss: 0.0078 - accuracy: 0

Epoch 12/2000

2150/2150 [=====] - 4s 2ms/sample - loss: 0.0090 - accuracy: 0

Epoch 13/2000

2150/2150 [=====] - 4s 2ms/sample - loss: 0.0057 - accuracy: 0

Epoch 14/2000

2150/2150 [=====] - 4s 2ms/sample - loss: 0.0052 - accuracy: 0

Epoch 15/2000

2150/2150 [=====] - 4s 2ms/sample - loss: 0.0054 - accuracy: 0

Epoch 16/2000

2150/2150 [=====] - 4s 2ms/sample - loss: 0.0055 - accuracy: 0

Epoch 17/2000

2150/2150 [=====] - 3s 2ms/sample - loss: 0.0054 - accuracy: 0

Epoch 18/2000

2150/2150 [=====] - 4s 2ms/sample - loss: 0.0047 - accuracy: 0

Epoch 19/2000

2150/2150 [=====] - 4s 2ms/sample - loss: 0.0052 - accuracy: 0

Epoch 20/2000

2150/2150 [=====] - 4s 2ms/sample - loss: 0.0057 - accuracy: 0

Epoch 21/2000

2150/2150 [=====] - 4s 2ms/sample - loss: 0.0050 - accuracy: 0

Epoch 22/2000

2150/2150 [=====] - 4s 2ms/sample - loss: 0.0062 - accuracy: 0

Epoch 23/2000

2150/2150 [=====] - 4s 2ms/sample - loss: 0.0076 - accuracy: 0

Epoch 24/2000

2150/2150 [=====] - 4s 2ms/sample - loss: 0.0057 - accuracy: 0

Epoch 25/2000

2150/2150 [=====] - 4s 2ms/sample - loss: 0.0053 - accuracy: 0

Epoch 26/2000

2150/2150 [=====] - 4s 2ms/sample - loss: 0.0053 - accuracy: 0

Epoch 27/2000

2150/2150 [=====] - 4s 2ms/sample - loss: 0.0047 - accuracy: 0

Epoch 28/2000

2150/2150 [=====] - 4s 2ms/sample - loss: 0.0059 - accuracy: 0



```
Epoch 29/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0045 - accuracy: 0
Epoch 30/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0053 - accuracy: 0
Epoch 31/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0107 - accuracy: 0
Epoch 32/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0064 - accuracy: 0
Epoch 33/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0053 - accuracy: 0
Epoch 34/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0068 - accuracy: 0
Epoch 35/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0053 - accuracy: 0
Epoch 36/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0052 - accuracy: 0
Epoch 37/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0043 - accuracy: 0
Epoch 38/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0041 - accuracy: 0
Epoch 39/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0040 - accuracy: 0
Epoch 40/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0044 - accuracy: 0
Epoch 41/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0036 - accuracy: 0
Epoch 42/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0036 - accuracy: 0
Epoch 43/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0037 - accuracy: 0
Epoch 44/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0044 - accuracy: 0
Epoch 45/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0043 - accuracy: 0
Epoch 46/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0041 - accuracy: 0
Epoch 47/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0038 - accuracy: 0
Epoch 48/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0054 - accuracy: 0
Epoch 49/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0046 - accuracy: 0
Epoch 50/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0049 - accuracy: 0
Epoch 51/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0047 - accuracy: 0
Epoch 52/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0074 - accuracy: 0
Epoch 53/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0064 - accuracy: 0
Epoch 54/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0041 - accuracy: 0
Epoch 55/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0044 - accuracy: 0
Epoch 56/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0040 - accuracy: 0
Epoch 57/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0041 - accuracy: 0
```

```
Epoch 58/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0051 - accuracy: 0
Epoch 59/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0062 - accuracy: 0
Epoch 60/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0049 - accuracy: 0
Epoch 61/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0040 - accuracy: 0
Epoch 62/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0047 - accuracy: 0
Epoch 63/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0040 - accuracy: 0
Epoch 64/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0042 - accuracy: 0
Epoch 65/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0037 - accuracy: 0
Epoch 66/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0031 - accuracy: 0
Epoch 67/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0038 - accuracy: 0
Epoch 68/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0038 - accuracy: 0
Epoch 69/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0031 - accuracy: 0
Epoch 70/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0036 - accuracy: 0
Epoch 71/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0038 - accuracy: 0
Epoch 72/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0029 - accuracy: 0
Epoch 73/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0038 - accuracy: 0
Epoch 74/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0039 - accuracy: 0
Epoch 75/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0030 - accuracy: 0
Epoch 76/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0033 - accuracy: 0
Epoch 77/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0030 - accuracy: 0
Epoch 78/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0037 - accuracy: 0
Epoch 79/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0034 - accuracy: 0
Epoch 80/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0052 - accuracy: 0
Epoch 81/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0065 - accuracy: 0
Epoch 82/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0044 - accuracy: 0
Epoch 83/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0039 - accuracy: 0
Epoch 84/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0034 - accuracy: 0
Epoch 85/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0037 - accuracy: 0
Epoch 86/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0039 - accuracy: 0
```

```
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0033 - accuracy: 0
Epoch 87/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0041 - accuracy: 0
Epoch 88/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0036 - accuracy: 0
Epoch 89/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0032 - accuracy: 0
Epoch 90/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0035 - accuracy: 0
Epoch 91/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0026 - accuracy: 0
Epoch 92/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0033 - accuracy: 0
Epoch 93/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0031 - accuracy: 0
Epoch 94/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0031 - accuracy: 0
Epoch 95/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0023 - accuracy: 0
Epoch 96/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0033 - accuracy: 0
Epoch 97/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0027 - accuracy: 0
Epoch 98/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 99/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0034 - accuracy: 0
Epoch 100/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0032 - accuracy: 0
Epoch 101/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0038 - accuracy: 0
Epoch 102/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0036 - accuracy: 0
Epoch 103/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0036 - accuracy: 0
Epoch 104/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0031 - accuracy: 0
Epoch 105/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0039 - accuracy: 0
Epoch 106/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0036 - accuracy: 0
Epoch 107/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0026 - accuracy: 0
Epoch 108/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0027 - accuracy: 0
Epoch 109/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0023 - accuracy: 0
Epoch 110/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0031 - accuracy: 0
Epoch 111/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0039 - accuracy: 0
Epoch 112/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0031 - accuracy: 0
Epoch 113/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0029 - accuracy: 0
Epoch 114/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0032 - accuracy: 0
Epoch 115/2000
```

```
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0027 - accuracy: 0
Epoch 116/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0036 - accuracy: 0
Epoch 117/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0027 - accuracy: 0
Epoch 118/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0033 - accuracy: 0
Epoch 119/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0027 - accuracy: 0
Epoch 120/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0027 - accuracy: 0
Epoch 121/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0034 - accuracy: 0
Epoch 122/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0032 - accuracy: 0
Epoch 123/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0026 - accuracy: 0
Epoch 124/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0039 - accuracy: 0
Epoch 125/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0033 - accuracy: 0
Epoch 126/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0051 - accuracy: 0
Epoch 127/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0038 - accuracy: 0
Epoch 128/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0041 - accuracy: 0
Epoch 129/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0035 - accuracy: 0
Epoch 130/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0029 - accuracy: 0
Epoch 131/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0048 - accuracy: 0
Epoch 132/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0062 - accuracy: 0
Epoch 133/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0037 - accuracy: 0
Epoch 134/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0040 - accuracy: 0
Epoch 135/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0030 - accuracy: 0
Epoch 136/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0031 - accuracy: 0
Epoch 137/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0033 - accuracy: 0
Epoch 138/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0035 - accuracy: 0
Epoch 139/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0030 - accuracy: 0
Epoch 140/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0026 - accuracy: 0
Epoch 141/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0036 - accuracy: 0
Epoch 142/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0036 - accuracy: 0
Epoch 143/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0021 - accuracy: 0
Epoch 144/2000
```

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2150/2150 [=====] - 3s 2ms/sample - loss: 0.0036 - accuracy: 0
Epoch 145/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0032 - accuracy: 0
Epoch 146/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0024 - accuracy: 0
Epoch 147/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0026 - accuracy: 0
Epoch 148/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0026 - accuracy: 0
Epoch 149/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0028 - accuracy: 0
Epoch 150/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0023 - accuracy: 0
Epoch 151/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0026 - accuracy: 0
Epoch 152/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0025 - accuracy: 0
Epoch 153/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0032 - accuracy: 0
Epoch 154/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0025 - accuracy: 0
Epoch 155/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0026 - accuracy: 0
Epoch 156/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0028 - accuracy: 0
Epoch 157/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0027 - accuracy: 0
Epoch 158/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0028 - accuracy: 0
Epoch 159/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0023 - accuracy: 0
Epoch 160/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0024 - accuracy: 0
Epoch 161/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0027 - accuracy: 0
Epoch 162/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0030 - accuracy: 0
Epoch 163/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0026 - accuracy: 0
Epoch 164/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0029 - accuracy: 0
Epoch 165/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0029 - accuracy: 0
Epoch 166/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0023 - accuracy: 0
Epoch 167/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0021 - accuracy: 0
Epoch 168/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0026 - accuracy: 0
Epoch 169/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0024 - accuracy: 0
Epoch 170/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0030 - accuracy: 0
Epoch 171/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0023 - accuracy: 0
Epoch 172/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0027 - accuracy: 0
Epoch 173/2000
```

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Epoch 173/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0024 - accuracy: 0
Epoch 174/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 175/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 176/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0033 - accuracy: 0
Epoch 177/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0025 - accuracy: 0
Epoch 178/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0024 - accuracy: 0
Epoch 179/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 180/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0032 - accuracy: 0
Epoch 181/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0030 - accuracy: 0
Epoch 182/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0026 - accuracy: 0
Epoch 183/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0023 - accuracy: 0
Epoch 184/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0030 - accuracy: 0
Epoch 185/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0024 - accuracy: 0
Epoch 186/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0026 - accuracy: 0
Epoch 187/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 188/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0024 - accuracy: 0
Epoch 189/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0024 - accuracy: 0
Epoch 190/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 191/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0030 - accuracy: 0
Epoch 192/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0035 - accuracy: 0
Epoch 193/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0029 - accuracy: 0
Epoch 194/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0023 - accuracy: 0
Epoch 195/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0029 - accuracy: 0
Epoch 196/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0026 - accuracy: 0
Epoch 197/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 198/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0026 - accuracy: 0
Epoch 199/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0027 - accuracy: 0
Epoch 200/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0027 - accuracy: 0
Epoch 201/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0020 - accuracy: 0
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Epoch 202/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0020 - accuracy: 0  
Epoch 203/2000  
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0028 - accuracy: 0  
Epoch 204/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0023 - accuracy: 0  
Epoch 205/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0023 - accuracy: 0  
Epoch 206/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0023 - accuracy: 0  
Epoch 207/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0026 - accuracy: 0  
Epoch 208/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0  
Epoch 209/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0027 - accuracy: 0  
Epoch 210/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0036 - accuracy: 0  
Epoch 211/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0  
Epoch 212/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0024 - accuracy: 0  
Epoch 213/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0027 - accuracy: 0  
Epoch 214/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0  
Epoch 215/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0024 - accuracy: 0  
Epoch 216/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0029 - accuracy: 0  
Epoch 217/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0029 - accuracy: 0  
Epoch 218/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0031 - accuracy: 0  
Epoch 219/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0025 - accuracy: 0  
Epoch 220/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0023 - accuracy: 0  
Epoch 221/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0027 - accuracy: 0  
Epoch 222/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0  
Epoch 223/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0029 - accuracy: 0  
Epoch 224/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0  
Epoch 225/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0023 - accuracy: 0  
Epoch 226/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0025 - accuracy: 0  
Epoch 227/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0023 - accuracy: 0  
Epoch 228/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0023 - accuracy: 0  
Epoch 229/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0027 - accuracy: 0  
Epoch 230/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0022 - accuracy: 0

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Epoch 231/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 232/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 233/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 234/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0028 - accuracy: 0
Epoch 235/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0023 - accuracy: 0
Epoch 236/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 237/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0023 - accuracy: 0
Epoch 238/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0025 - accuracy: 0
Epoch 239/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0025 - accuracy: 0
Epoch 240/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 241/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0024 - accuracy: 0
Epoch 242/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0025 - accuracy: 0
Epoch 243/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0028 - accuracy: 0
Epoch 244/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0027 - accuracy: 0
Epoch 245/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0024 - accuracy: 0
Epoch 246/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0031 - accuracy: 0
Epoch 247/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 248/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0027 - accuracy: 0
Epoch 249/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 250/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 251/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 252/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0023 - accuracy: 0
Epoch 253/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0023 - accuracy: 0
Epoch 254/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 255/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 256/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0023 - accuracy: 0
Epoch 257/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 258/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 259/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0022 - accuracy: 0
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2150/2150 [=====] - 4s 2ms/sample - loss: 0.0023 - accuracy: 0
Epoch 260/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0023 - accuracy: 0
Epoch 261/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 262/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 263/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 264/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 265/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 266/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 267/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 268/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0023 - accuracy: 0
Epoch 269/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0023 - accuracy: 0
Epoch 270/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 271/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 272/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 273/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0026 - accuracy: 0
Epoch 274/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 275/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0027 - accuracy: 0
Epoch 276/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 277/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0026 - accuracy: 0
Epoch 278/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0024 - accuracy: 0
Epoch 279/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 280/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 281/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 282/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 283/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0026 - accuracy: 0
Epoch 284/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0022 - accuracy: 0
Epoch 285/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0027 - accuracy: 0
Epoch 286/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0023 - accuracy: 0
Epoch 287/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0020 - accuracy: 0
Epoch 288/2000
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2150/2150 [=====] - 3s 1ms/sample - loss: 0.0022 - accuracy: 0
Epoch 289/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0030 - accuracy: 0
Epoch 290/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0027 - accuracy: 0
Epoch 291/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0024 - accuracy: 0
Epoch 292/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0027 - accuracy: 0
Epoch 293/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0030 - accuracy: 0
Epoch 294/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 295/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 296/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0024 - accuracy: 0
Epoch 297/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 298/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 299/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0028 - accuracy: 0
Epoch 300/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0025 - accuracy: 0
Epoch 301/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0031 - accuracy: 0
Epoch 302/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0024 - accuracy: 0
Epoch 303/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0026 - accuracy: 0
Epoch 304/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0026 - accuracy: 0
Epoch 305/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0026 - accuracy: 0
Epoch 306/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 307/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 308/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 309/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0023 - accuracy: 0
Epoch 310/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 311/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 312/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 313/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0024 - accuracy: 0
Epoch 314/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 315/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0023 - accuracy: 0
Epoch 316/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 317/2000
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2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 318/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 319/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 320/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 321/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0026 - accuracy: 0
Epoch 322/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 323/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0025 - accuracy: 0
Epoch 324/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0025 - accuracy: 0
Epoch 325/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0023 - accuracy: 0
Epoch 326/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 327/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0025 - accuracy: 0
Epoch 328/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 329/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 330/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0027 - accuracy: 0
Epoch 331/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 332/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0013 - accuracy: 0
Epoch 333/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 334/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 335/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0027 - accuracy: 0
Epoch 336/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0025 - accuracy: 0
Epoch 337/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 338/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 339/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 340/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 341/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0025 - accuracy: 0
Epoch 342/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 343/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 344/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 345/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 346/2000
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Epoch 346/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 347/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 348/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0024 - accuracy: 0
Epoch 349/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 350/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 351/2000
2150/2150 [=====] - 5s 3ms/sample - loss: 0.0022 - accuracy: 0
Epoch 352/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 353/2000
2150/2150 [=====] - 5s 3ms/sample - loss: 0.0016 - accuracy: 0
Epoch 354/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 355/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 356/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 357/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0028 - accuracy: 0
Epoch 358/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 359/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 360/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 361/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 362/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 363/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 364/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 365/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0013 - accuracy: 0
Epoch 366/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 367/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 368/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0023 - accuracy: 0
Epoch 369/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 370/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 371/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 372/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 373/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 374/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0025 - accuracy: 0
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Epoch 375/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0  
Epoch 376/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0  
Epoch 377/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0  
Epoch 378/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0023 - accuracy: 0  
Epoch 379/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0014 - accuracy: 0  
Epoch 380/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0024 - accuracy: 0  
Epoch 381/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0  
Epoch 382/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0  
Epoch 383/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0  
Epoch 384/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0024 - accuracy: 0  
Epoch 385/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0016 - accuracy: 0  
Epoch 386/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0023 - accuracy: 0  
Epoch 387/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0031 - accuracy: 0  
Epoch 388/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0033 - accuracy: 0  
Epoch 389/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0023 - accuracy: 0  
Epoch 390/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0  
Epoch 391/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0036 - accuracy: 0  
Epoch 392/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0  
Epoch 393/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0025 - accuracy: 0  
Epoch 394/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0  
Epoch 395/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0022 - accuracy: 0  
Epoch 396/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0023 - accuracy: 0  
Epoch 397/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0021 - accuracy: 0  
Epoch 398/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0014 - accuracy: 0  
Epoch 399/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0  
Epoch 400/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0017 - accuracy: 0  
Epoch 401/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0026 - accuracy: 0  
Epoch 402/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0020 - accuracy: 0  
Epoch 403/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0025 - accuracy: 0

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Epoch 404/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 405/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0033 - accuracy: 0
Epoch 406/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 407/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 408/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0027 - accuracy: 0
Epoch 409/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0027 - accuracy: 0
Epoch 410/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 411/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0026 - accuracy: 0
Epoch 412/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 413/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 414/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0023 - accuracy: 0
Epoch 415/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 416/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0024 - accuracy: 0
Epoch 417/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 418/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 419/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 420/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 421/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0026 - accuracy: 0
Epoch 422/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0025 - accuracy: 0
Epoch 423/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0024 - accuracy: 0
Epoch 424/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0027 - accuracy: 0
Epoch 425/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 426/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0023 - accuracy: 0
Epoch 427/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0026 - accuracy: 0
Epoch 428/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 429/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0026 - accuracy: 0
Epoch 430/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 431/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 432/2000
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2150/2150 [=====] - 5s 2ms/sample - loss: 0.0023 - accuracy: 0
Epoch 433/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 434/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0029 - accuracy: 0
Epoch 435/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 436/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 437/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 438/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 439/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 440/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 441/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 442/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0024 - accuracy: 0
Epoch 443/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 444/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0023 - accuracy: 0
Epoch 445/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 446/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 447/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 448/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0036 - accuracy: 0
Epoch 449/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 450/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0012 - accuracy: 0
Epoch 451/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0024 - accuracy: 0
Epoch 452/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 453/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0015 - accuracy: 0
Epoch 454/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0024 - accuracy: 0
Epoch 455/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 456/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 457/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 458/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 459/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0015 - accuracy: 0
Epoch 460/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 461/2000
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2150/2150 [=====] - 4s 2ms/sample - loss: 0.0023 - accuracy: 0  
Epoch 462/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0  
Epoch 463/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0  
Epoch 464/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0  
Epoch 465/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0  
Epoch 466/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0  
Epoch 467/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0019 - accuracy: 0  
Epoch 468/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0  
Epoch 469/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0  
Epoch 470/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0022 - accuracy: 0  
Epoch 471/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0  
Epoch 472/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0  
Epoch 473/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0  
Epoch 474/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0024 - accuracy: 0  
Epoch 475/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0025 - accuracy: 0  
Epoch 476/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0022 - accuracy: 0  
Epoch 477/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0  
Epoch 478/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0  
Epoch 479/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0013 - accuracy: 0  
Epoch 480/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0022 - accuracy: 0  
Epoch 481/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0023 - accuracy: 0  
Epoch 482/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0  
Epoch 483/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0  
Epoch 484/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0  
Epoch 485/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0025 - accuracy: 0  
Epoch 486/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0  
Epoch 487/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0  
Epoch 488/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0023 - accuracy: 0  
Epoch 489/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0  
Epoch 490/2000



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Epoch 490/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 491/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0013 - accuracy: 0
Epoch 492/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0012 - accuracy: 0
Epoch 493/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 494/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 495/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 496/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0023 - accuracy: 0
Epoch 497/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0026 - accuracy: 0
Epoch 498/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0014 - accuracy: 0
Epoch 499/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0023 - accuracy: 0
Epoch 500/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 501/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 502/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 503/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 504/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 505/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 506/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0020 - accuracy: 0
Epoch 507/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 508/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0020 - accuracy: 0
Epoch 509/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 510/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0012 - accuracy: 0
Epoch 511/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0023 - accuracy: 0
Epoch 512/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0025 - accuracy: 0
Epoch 513/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0027 - accuracy: 0
Epoch 514/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 515/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 516/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 517/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 518/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0
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Epoch 519/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0  
Epoch 520/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0023 - accuracy: 0  
Epoch 521/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0035 - accuracy: 0  
Epoch 522/2000  
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0025 - accuracy: 0  
Epoch 523/2000  
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0032 - accuracy: 0  
Epoch 524/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0  
Epoch 525/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0014 - accuracy: 0  
Epoch 526/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0024 - accuracy: 0  
Epoch 527/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0025 - accuracy: 0  
Epoch 528/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0  
Epoch 529/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0  
Epoch 530/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0  
Epoch 531/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0022 - accuracy: 0  
Epoch 532/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0  
Epoch 533/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0  
Epoch 534/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0  
Epoch 535/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0  
Epoch 536/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0  
Epoch 537/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0  
Epoch 538/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0  
Epoch 539/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0024 - accuracy: 0  
Epoch 540/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0  
Epoch 541/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0  
Epoch 542/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0  
Epoch 543/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0024 - accuracy: 0  
Epoch 544/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0023 - accuracy: 0  
Epoch 545/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0  
Epoch 546/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0  
Epoch 547/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0

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Epoch 548/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 549/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 550/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 551/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0023 - accuracy: 0
Epoch 552/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 553/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 554/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0
Epoch 555/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 556/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0013 - accuracy: 0
Epoch 557/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 558/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0
Epoch 559/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0
Epoch 560/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 561/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0022 - accuracy: 0
Epoch 562/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 563/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0025 - accuracy: 0
Epoch 564/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 565/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0026 - accuracy: 0
Epoch 566/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 567/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0
Epoch 568/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 569/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0020 - accuracy: 0
Epoch 570/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0025 - accuracy: 0
Epoch 571/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 572/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0013 - accuracy: 0
Epoch 573/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 574/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 575/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0
Epoch 576/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0021 - accuracy: 0
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2150/2150 [=====] - 3s 1ms/sample - loss: 0.0021 - accuracy: 0
Epoch 577/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 578/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 579/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 580/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 581/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0
Epoch 582/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 583/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 584/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0015 - accuracy: 0
Epoch 585/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0021 - accuracy: 0
Epoch 586/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 587/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0013 - accuracy: 0
Epoch 588/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 589/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0013 - accuracy: 0
Epoch 590/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 591/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0022 - accuracy: 0
Epoch 592/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 593/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 594/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 595/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 596/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 597/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 598/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 599/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0015 - accuracy: 0
Epoch 600/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0020 - accuracy: 0
Epoch 601/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0022 - accuracy: 0
Epoch 602/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0023 - accuracy: 0
Epoch 603/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 604/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 605/2000
```

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2150/2150 [=====] - 3s 1ms/sample - loss: 0.0025 - accuracy: 0
Epoch 606/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 607/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 608/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 609/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 610/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 611/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0028 - accuracy: 0
Epoch 612/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 613/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0022 - accuracy: 0
Epoch 614/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 615/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0
Epoch 616/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0020 - accuracy: 0
Epoch 617/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 618/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0021 - accuracy: 0
Epoch 619/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0022 - accuracy: 0
Epoch 620/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 621/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 622/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 623/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0024 - accuracy: 0
Epoch 624/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 625/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 626/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0021 - accuracy: 0
Epoch 627/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 628/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 629/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0026 - accuracy: 0
Epoch 630/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 631/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0026 - accuracy: 0
Epoch 632/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0021 - accuracy: 0
Epoch 633/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 634/2000
```

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2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 635/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 636/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 637/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 638/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0015 - accuracy: 0
Epoch 639/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 640/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 641/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 642/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0023 - accuracy: 0
Epoch 643/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0020 - accuracy: 0
Epoch 644/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0022 - accuracy: 0
Epoch 645/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0020 - accuracy: 0
Epoch 646/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0022 - accuracy: 0
Epoch 647/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0021 - accuracy: 0
Epoch 648/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 649/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0020 - accuracy: 0
Epoch 650/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0015 - accuracy: 0
Epoch 651/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 652/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0023 - accuracy: 0
Epoch 653/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 654/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 655/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0025 - accuracy: 0
Epoch 656/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0
Epoch 657/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0013 - accuracy: 0
Epoch 658/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0013 - accuracy: 0
Epoch 659/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 660/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 661/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 662/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 663/2000
```

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Epoch 663/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0011 - accuracy: 0
Epoch 664/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 665/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 666/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0
Epoch 667/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0031 - accuracy: 0
Epoch 668/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0021 - accuracy: 0
Epoch 669/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0
Epoch 670/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 671/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0024 - accuracy: 0
Epoch 672/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 673/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0023 - accuracy: 0
Epoch 674/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0023 - accuracy: 0
Epoch 675/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0014 - accuracy: 0
Epoch 676/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0020 - accuracy: 0
Epoch 677/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 678/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0033 - accuracy: 0
Epoch 679/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0021 - accuracy: 0
Epoch 680/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0020 - accuracy: 0
Epoch 681/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 682/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0025 - accuracy: 0
Epoch 683/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 684/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 685/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0015 - accuracy: 0
Epoch 686/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 687/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0015 - accuracy: 0
Epoch 688/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0026 - accuracy: 0
Epoch 689/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0021 - accuracy: 0
Epoch 690/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 691/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0016 - accuracy: 0
```

Epoch 692/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0019 - accuracy: 0  
Epoch 693/2000  
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0  
Epoch 694/2000  
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0  
Epoch 695/2000  
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0021 - accuracy: 0  
Epoch 696/2000  
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0  
Epoch 697/2000  
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0014 - accuracy: 0  
Epoch 698/2000  
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0  
Epoch 699/2000  
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0013 - accuracy: 0  
Epoch 700/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0020 - accuracy: 0  
Epoch 701/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0024 - accuracy: 0  
Epoch 702/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0016 - accuracy: 0  
Epoch 703/2000  
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0  
Epoch 704/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0  
Epoch 705/2000  
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0  
Epoch 706/2000  
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0  
Epoch 707/2000  
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0014 - accuracy: 0  
Epoch 708/2000  
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0  
Epoch 709/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0017 - accuracy: 0  
Epoch 710/2000  
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0  
Epoch 711/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0016 - accuracy: 0  
Epoch 712/2000  
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0022 - accuracy: 0  
Epoch 713/2000  
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0  
Epoch 714/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0012 - accuracy: 0  
Epoch 715/2000  
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0020 - accuracy: 0  
Epoch 716/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0022 - accuracy: 0  
Epoch 717/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0019 - accuracy: 0  
Epoch 718/2000  
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0023 - accuracy: 0  
Epoch 719/2000  
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0023 - accuracy: 0  
Epoch 720/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0



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Epoch 721/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0014 - accuracy: 0
Epoch 722/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 723/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 724/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0020 - accuracy: 0
Epoch 725/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0
Epoch 726/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0020 - accuracy: 0
Epoch 727/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 728/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 729/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 730/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0013 - accuracy: 0
Epoch 731/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0021 - accuracy: 0
Epoch 732/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0023 - accuracy: 0
Epoch 733/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0022 - accuracy: 0
Epoch 734/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 735/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 736/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 737/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0024 - accuracy: 0
Epoch 738/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 739/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 740/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0020 - accuracy: 0
Epoch 741/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 742/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 743/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 744/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0020 - accuracy: 0
Epoch 745/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0013 - accuracy: 0
Epoch 746/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 747/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0
Epoch 748/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 749/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0013 - accuracy: 0
```

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2150/2150 [=====] - 3s 2ms/sample - loss: 0.0012 - accuracy: 0
Epoch 750/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0020 - accuracy: 0
Epoch 751/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 752/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 753/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0029 - accuracy: 0
Epoch 754/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 755/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 756/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 757/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 758/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 759/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 760/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 761/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 762/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 763/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 764/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0023 - accuracy: 0
Epoch 765/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0024 - accuracy: 0
Epoch 766/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0026 - accuracy: 0
Epoch 767/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 768/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 769/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 770/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 771/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 772/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 773/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 774/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 775/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 776/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 777/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 778/2000
```

2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0  
Epoch 779/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0014 - accuracy: 0  
Epoch 780/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0012 - accuracy: 0  
Epoch 781/2000  
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0012 - accuracy: 0  
Epoch 782/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0019 - accuracy: 0  
Epoch 783/2000  
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0  
Epoch 784/2000  
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0021 - accuracy: 0  
Epoch 785/2000  
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0012 - accuracy: 0  
Epoch 786/2000  
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0020 - accuracy: 0  
Epoch 787/2000  
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0  
Epoch 788/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0015 - accuracy: 0  
Epoch 789/2000  
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0022 - accuracy: 0  
Epoch 790/2000  
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0  
Epoch 791/2000  
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0025 - accuracy: 0  
Epoch 792/2000  
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0022 - accuracy: 0  
Epoch 793/2000  
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0023 - accuracy: 0  
Epoch 794/2000  
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0014 - accuracy: 0  
Epoch 795/2000  
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0  
Epoch 796/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0  
Epoch 797/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0014 - accuracy: 0  
Epoch 798/2000  
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0014 - accuracy: 0  
Epoch 799/2000  
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0  
Epoch 800/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0023 - accuracy: 0  
Epoch 801/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0  
Epoch 802/2000  
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0  
Epoch 803/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0  
Epoch 804/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0019 - accuracy: 0  
Epoch 805/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0  
Epoch 806/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0  
Epoch 807/2000

```
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0028 - accuracy: 0
Epoch 808/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 809/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 810/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 811/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 812/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0014 - accuracy: 0
Epoch 813/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0015 - accuracy: 0
Epoch 814/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 815/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0013 - accuracy: 0
Epoch 816/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 817/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 818/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 819/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0013 - accuracy: 0
Epoch 820/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0024 - accuracy: 0
Epoch 821/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0023 - accuracy: 0
Epoch 822/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0023 - accuracy: 0
Epoch 823/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0020 - accuracy: 0
Epoch 824/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 825/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 826/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0025 - accuracy: 0
Epoch 827/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 828/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0021 - accuracy: 0
Epoch 829/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 830/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0014 - accuracy: 0
Epoch 831/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0015 - accuracy: 0
Epoch 832/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 833/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 834/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 835/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 836/2000
```

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Epoch 836/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 837/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 838/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 839/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 840/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 841/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 842/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 843/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 844/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0
Epoch 845/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0011 - accuracy: 0
Epoch 846/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 847/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 848/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 849/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 850/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0023 - accuracy: 0
Epoch 851/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0022 - accuracy: 0
Epoch 852/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 853/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 854/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0033 - accuracy: 0
Epoch 855/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0022 - accuracy: 0
Epoch 856/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0013 - accuracy: 0
Epoch 857/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 858/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 859/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 860/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0023 - accuracy: 0
Epoch 861/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0
Epoch 862/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 863/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 864/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0017 - accuracy: 0
```

Epoch 865/2000  
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0  
Epoch 866/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0  
Epoch 867/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0  
Epoch 868/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0  
Epoch 869/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0014 - accuracy: 0  
Epoch 870/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0  
Epoch 871/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0017 - accuracy: 0  
Epoch 872/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0016 - accuracy: 0  
Epoch 873/2000  
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0  
Epoch 874/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0019 - accuracy: 0  
Epoch 875/2000  
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0021 - accuracy: 0  
Epoch 876/2000  
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0  
Epoch 877/2000  
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0021 - accuracy: 0  
Epoch 878/2000  
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0014 - accuracy: 0  
Epoch 879/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0017 - accuracy: 0  
Epoch 880/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0  
Epoch 881/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0  
Epoch 882/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0023 - accuracy: 0  
Epoch 883/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0022 - accuracy: 0  
Epoch 884/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0017 - accuracy: 0  
Epoch 885/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0016 - accuracy: 0  
Epoch 886/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0014 - accuracy: 0  
Epoch 887/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0025 - accuracy: 0  
Epoch 888/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0022 - accuracy: 0  
Epoch 889/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0022 - accuracy: 0  
Epoch 890/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0020 - accuracy: 0  
Epoch 891/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0070 - accuracy: 0  
Epoch 892/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0027 - accuracy: 0  
Epoch 893/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0028 - accuracy: 0

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Epoch 894/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0025 - accuracy: 0
Epoch 895/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 896/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 897/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0025 - accuracy: 0
Epoch 898/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 899/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 900/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 901/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 902/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 903/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 904/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 905/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 906/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0013 - accuracy: 0
Epoch 907/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 908/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 909/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 910/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 911/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 912/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0024 - accuracy: 0
Epoch 913/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 914/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 915/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 916/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 917/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 918/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 919/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 920/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 921/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0024 - accuracy: 0
Epoch 922/2000
```

```
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 923/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 924/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0025 - accuracy: 0
Epoch 925/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0012 - accuracy: 0
Epoch 926/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 927/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 928/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 929/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 930/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 931/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 932/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 933/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0
Epoch 934/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 935/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0031 - accuracy: 0
Epoch 936/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 937/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 938/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0023 - accuracy: 0
Epoch 939/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0026 - accuracy: 0
Epoch 940/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 941/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0023 - accuracy: 0
Epoch 942/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 943/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 944/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 945/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 946/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0022 - accuracy: 0
Epoch 947/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0020 - accuracy: 0
Epoch 948/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 949/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0
Epoch 950/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0030 - accuracy: 0
Epoch 951/2000
```



```
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0014 - accuracy: 0
Epoch 952/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 953/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0025 - accuracy: 0
Epoch 954/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0020 - accuracy: 0
Epoch 955/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0011 - accuracy: 0
Epoch 956/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 957/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 958/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0015 - accuracy: 0
Epoch 959/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0022 - accuracy: 0
Epoch 960/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0015 - accuracy: 0
Epoch 961/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 962/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 963/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0025 - accuracy: 0
Epoch 964/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 965/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0012 - accuracy: 0
Epoch 966/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 967/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 968/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 969/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0
Epoch 970/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 971/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 972/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0014 - accuracy: 0
Epoch 973/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0013 - accuracy: 0
Epoch 974/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0011 - accuracy: 0
Epoch 975/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 976/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 977/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0021 - accuracy: 0
Epoch 978/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 979/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 980/2000
```

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Epoch 980/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0023 - accuracy: 0
Epoch 981/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 982/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 983/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 984/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0025 - accuracy: 0
Epoch 985/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0
Epoch 986/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 987/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0015 - accuracy: 0
Epoch 988/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0013 - accuracy: 0
Epoch 989/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 990/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 991/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 992/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0013 - accuracy: 0
Epoch 993/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 994/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 995/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0021 - accuracy: 0
Epoch 996/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 997/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0026 - accuracy: 0
Epoch 998/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 999/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0023 - accuracy: 0
Epoch 1000/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1001/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1002/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1003/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1004/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1005/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1006/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1007/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1008/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0025 - accuracy: 0
```

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Epoch 1009/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 1010/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1011/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1012/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0023 - accuracy: 0
Epoch 1013/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0021 - accuracy: 0
Epoch 1014/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0024 - accuracy: 0
Epoch 1015/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0021 - accuracy: 0
Epoch 1016/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1017/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 1018/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0025 - accuracy: 0
Epoch 1019/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0023 - accuracy: 0
Epoch 1020/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1021/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0012 - accuracy: 0
Epoch 1022/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1023/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1024/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1025/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0013 - accuracy: 0
Epoch 1026/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1027/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1028/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0023 - accuracy: 0
Epoch 1029/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1030/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1031/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1032/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0011 - accuracy: 0
Epoch 1033/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1034/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0012 - accuracy: 0
Epoch 1035/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1036/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1037/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0013 - accuracy: 0
```

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Epoch 1038/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0025 - accuracy: 0
Epoch 1039/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1040/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1041/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1042/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1043/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1044/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1045/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1046/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1047/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1048/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0021 - accuracy: 0
Epoch 1049/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1050/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1051/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1052/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1053/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0012 - accuracy: 0
Epoch 1054/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1055/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1056/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0024 - accuracy: 0
Epoch 1057/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1058/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1059/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1060/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1061/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1062/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1063/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1064/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1065/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1066/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0025 - accuracy: 0
```

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2150/2150 [=====] - 3s 1ms/sample - loss: 0.0025 - accuracy: 0
Epoch 1067/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1068/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0027 - accuracy: 0
Epoch 1069/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0025 - accuracy: 0
Epoch 1070/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1071/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0021 - accuracy: 0
Epoch 1072/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0012 - accuracy: 0
Epoch 1073/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1074/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1075/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0024 - accuracy: 0
Epoch 1076/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1077/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1078/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1079/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1080/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 1081/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 1082/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1083/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1084/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1085/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1086/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1087/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0022 - accuracy: 0
Epoch 1088/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1089/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1090/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0012 - accuracy: 0
Epoch 1091/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1092/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 1093/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1094/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0022 - accuracy: 0
Epoch 1095/2000
```

```
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0021 - accuracy: 0
Epoch 1096/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1097/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1098/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0021 - accuracy: 0
Epoch 1099/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1100/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1101/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1102/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0028 - accuracy: 0
Epoch 1103/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0023 - accuracy: 0
Epoch 1104/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1105/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1106/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1107/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1108/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1109/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1110/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1111/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0011 - accuracy: 0
Epoch 1112/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0025 - accuracy: 0
Epoch 1113/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1114/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1115/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1116/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1117/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1118/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1119/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0023 - accuracy: 0
Epoch 1120/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1121/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1122/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1123/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0012 - accuracy: 0
Epoch 1124/2000
```

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2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1125/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0023 - accuracy: 0
Epoch 1126/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1127/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1128/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1129/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1130/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1131/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1132/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1133/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1134/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0022 - accuracy: 0
Epoch 1135/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1136/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1137/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1138/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1139/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1140/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1141/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1142/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1143/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1144/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1145/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1146/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1147/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1148/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1149/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0026 - accuracy: 0
Epoch 1150/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0011 - accuracy: 0
Epoch 1151/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0021 - accuracy: 0
Epoch 1152/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 1153/2000
```

Epoch 1153/2000

2150/2150 [=====] - 3s 1ms/sample - loss: 0.0023 - accuracy: 0

Epoch 1154/2000

2150/2150 [=====] - 3s 1ms/sample - loss: 0.0025 - accuracy: 0

Epoch 1155/2000

2150/2150 [=====] - 3s 2ms/sample - loss: 0.0031 - accuracy: 0

Epoch 1156/2000

2150/2150 [=====] - 3s 1ms/sample - loss: 0.0022 - accuracy: 0

Epoch 1157/2000

2150/2150 [=====] - 3s 1ms/sample - loss: 0.0028 - accuracy: 0

Epoch 1158/2000

2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0

Epoch 1159/2000

2150/2150 [=====] - 3s 1ms/sample - loss: 0.0022 - accuracy: 0

Epoch 1160/2000

2150/2150 [=====] - 3s 2ms/sample - loss: 0.0019 - accuracy: 0

Epoch 1161/2000

2150/2150 [=====] - 3s 2ms/sample - loss: 0.0023 - accuracy: 0

Epoch 1162/2000

2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0

Epoch 1163/2000

2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0

Epoch 1164/2000

2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0

Epoch 1165/2000

2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0

Epoch 1166/2000

2150/2150 [=====] - 3s 2ms/sample - loss: 0.0020 - accuracy: 0

Epoch 1167/2000

2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0

Epoch 1168/2000

2150/2150 [=====] - 3s 1ms/sample - loss: 0.0027 - accuracy: 0

Epoch 1169/2000

2150/2150 [=====] - 3s 2ms/sample - loss: 0.0017 - accuracy: 0

Epoch 1170/2000

2150/2150 [=====] - 3s 2ms/sample - loss: 0.0016 - accuracy: 0

Epoch 1171/2000

2150/2150 [=====] - 3s 2ms/sample - loss: 0.0014 - accuracy: 0

Epoch 1172/2000

2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0

Epoch 1173/2000

2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0

Epoch 1174/2000

2150/2150 [=====] - 3s 2ms/sample - loss: 0.0021 - accuracy: 0

Epoch 1175/2000

2150/2150 [=====] - 3s 2ms/sample - loss: 0.0019 - accuracy: 0

Epoch 1176/2000

2150/2150 [=====] - 3s 2ms/sample - loss: 0.0020 - accuracy: 0

Epoch 1177/2000

2150/2150 [=====] - 3s 2ms/sample - loss: 0.0024 - accuracy: 0

Epoch 1178/2000

2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0

Epoch 1179/2000

2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0

Epoch 1180/2000

2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0

Epoch 1181/2000

2150/2150 [=====] - 3s 1ms/sample - loss: 0.0023 - accuracy: 0



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Epoch 1182/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1183/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0021 - accuracy: 0
Epoch 1184/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1185/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1186/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1187/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0025 - accuracy: 0
Epoch 1188/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1189/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1190/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0021 - accuracy: 0
Epoch 1191/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1192/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1193/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 1194/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1195/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0022 - accuracy: 0
Epoch 1196/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0023 - accuracy: 0
Epoch 1197/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1198/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0012 - accuracy: 0
Epoch 1199/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1200/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1201/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0022 - accuracy: 0
Epoch 1202/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0021 - accuracy: 0
Epoch 1203/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 1204/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1205/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0024 - accuracy: 0
Epoch 1206/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1207/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0026 - accuracy: 0
Epoch 1208/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0021 - accuracy: 0
Epoch 1209/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1210/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0014 - accuracy: 0
```

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Epoch 1211/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0021 - accuracy: 0
Epoch 1212/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1213/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1214/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1215/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0013 - accuracy: 0
Epoch 1216/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0026 - accuracy: 0
Epoch 1217/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1218/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1219/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1220/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1221/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1222/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0012 - accuracy: 0
Epoch 1223/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1224/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1225/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0013 - accuracy: 0
Epoch 1226/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1227/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1228/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1229/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1230/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1231/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1232/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0023 - accuracy: 0
Epoch 1233/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1234/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0012 - accuracy: 0
Epoch 1235/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1236/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1237/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0012 - accuracy: 0
Epoch 1238/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1239/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
```

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2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1240/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1241/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0022 - accuracy: 0
Epoch 1242/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1243/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0022 - accuracy: 0
Epoch 1244/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1245/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1246/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0026 - accuracy: 0
Epoch 1247/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1248/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1249/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1250/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0022 - accuracy: 0
Epoch 1251/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1252/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0023 - accuracy: 0
Epoch 1253/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1254/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1255/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1256/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1257/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1258/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1259/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1260/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1261/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0013 - accuracy: 0
Epoch 1262/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1263/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1264/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1265/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0012 - accuracy: 0
Epoch 1266/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0013 - accuracy: 0
Epoch 1267/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1268/2000
```

```
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1269/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1270/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 1271/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0022 - accuracy: 0
Epoch 1272/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1273/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1274/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1275/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0012 - accuracy: 0
Epoch 1276/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0022 - accuracy: 0
Epoch 1277/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1278/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1279/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1280/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1281/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1282/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1283/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0013 - accuracy: 0
Epoch 1284/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1285/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1286/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0013 - accuracy: 0
Epoch 1287/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1288/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1289/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1290/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0026 - accuracy: 0
Epoch 1291/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0025 - accuracy: 0
Epoch 1292/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0023 - accuracy: 0
Epoch 1293/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0024 - accuracy: 0
Epoch 1294/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1295/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1296/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0022 - accuracy: 0
Epoch 1297/2000
```

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-----
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 1298/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 1299/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0023 - accuracy: 0
Epoch 1300/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0023 - accuracy: 0
Epoch 1301/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0013 - accuracy: 0
Epoch 1302/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1303/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1304/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1305/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0023 - accuracy: 0
Epoch 1306/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0021 - accuracy: 0
Epoch 1307/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1308/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0024 - accuracy: 0
Epoch 1309/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0022 - accuracy: 0
Epoch 1310/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0013 - accuracy: 0
Epoch 1311/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1312/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1313/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1314/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1315/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1316/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1317/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1318/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1319/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1320/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1321/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1322/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1323/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1324/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0013 - accuracy: 0
Epoch 1325/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1326/2000
```

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Epoch 1326/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1327/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1328/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1329/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1330/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1331/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1332/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1333/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1334/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1335/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1336/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1337/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1338/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1339/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1340/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1341/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0021 - accuracy: 0
Epoch 1342/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1343/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1344/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0027 - accuracy: 0
Epoch 1345/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1346/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 1347/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0023 - accuracy: 0
Epoch 1348/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1349/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1350/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1351/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1352/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1353/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1354/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
```

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Epoch 1355/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1356/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1357/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0012 - accuracy: 0
Epoch 1358/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0013 - accuracy: 0
Epoch 1359/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1360/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1361/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1362/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 1363/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1364/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1365/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1366/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1367/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1368/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1369/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1370/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1371/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1372/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1373/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1374/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0021 - accuracy: 0
Epoch 1375/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1376/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0011 - accuracy: 0
Epoch 1377/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1378/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1379/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1380/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0028 - accuracy: 0
Epoch 1381/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0022 - accuracy: 0
Epoch 1382/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1383/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0021 - accuracy: 0
```

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Epoch 1384/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1385/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1386/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1387/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1388/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1389/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1390/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1391/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1392/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0012 - accuracy: 0
Epoch 1393/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0013 - accuracy: 0
Epoch 1394/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1395/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1396/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0013 - accuracy: 0
Epoch 1397/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1398/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0013 - accuracy: 0
Epoch 1399/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1400/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1401/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1402/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1403/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 1404/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0012 - accuracy: 0
Epoch 1405/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0012 - accuracy: 0
Epoch 1406/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 1407/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1408/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 1409/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 1410/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1411/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1412/2000
```



```
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 1413/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1414/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1415/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1416/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1417/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1418/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1419/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1420/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 1421/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1422/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1423/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1424/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0013 - accuracy: 0
Epoch 1425/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1426/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1427/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1428/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1429/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 8.8081e-04 - accuracy: 0
Epoch 1430/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1431/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1432/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1433/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1434/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1435/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0013 - accuracy: 0
Epoch 1436/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 1437/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1438/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1439/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 1440/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1441/2000
```

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2150/2150 [=====] - 3s 2ms/sample - loss: 0.0013 - accuracy: 0
Epoch 1442/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1443/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1444/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 1445/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1446/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1447/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1448/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1449/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 1450/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1451/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1452/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1453/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1454/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0013 - accuracy: 0
Epoch 1455/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1456/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1457/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1458/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1459/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1460/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1461/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 1462/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1463/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1464/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1465/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1466/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 1467/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1468/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0023 - accuracy: 0
Epoch 1469/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1470/2000
```

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Epoch 1470/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1471/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1472/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1473/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1474/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1475/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1476/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1477/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1478/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0023 - accuracy: 0
Epoch 1479/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1480/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1481/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1482/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1483/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1484/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1485/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1486/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1487/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1488/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0013 - accuracy: 0
Epoch 1489/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 1490/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1491/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1492/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1493/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 1494/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1495/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0025 - accuracy: 0
Epoch 1496/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0013 - accuracy: 0
Epoch 1497/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0026 - accuracy: 0
Epoch 1498/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0023 - accuracy: 0
```

Epoch 1499/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0  
Epoch 1500/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0013 - accuracy: 0  
Epoch 1501/2000  
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0018 - accuracy: 0  
Epoch 1502/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0015 - accuracy: 0  
Epoch 1503/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0011 - accuracy: 0  
Epoch 1504/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0013 - accuracy: 0  
Epoch 1505/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0020 - accuracy: 0  
Epoch 1506/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0  
Epoch 1507/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0022 - accuracy: 0  
Epoch 1508/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0  
Epoch 1509/2000  
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0  
Epoch 1510/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0020 - accuracy: 0  
Epoch 1511/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0  
Epoch 1512/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0020 - accuracy: 0  
Epoch 1513/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0012 - accuracy: 0  
Epoch 1514/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0025 - accuracy: 0  
Epoch 1515/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0023 - accuracy: 0  
Epoch 1516/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0011 - accuracy: 0  
Epoch 1517/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0  
Epoch 1518/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0022 - accuracy: 0  
Epoch 1519/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0017 - accuracy: 0  
Epoch 1520/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0  
Epoch 1521/2000  
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0019 - accuracy: 0  
Epoch 1522/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0017 - accuracy: 0  
Epoch 1523/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0016 - accuracy: 0  
Epoch 1524/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0014 - accuracy: 0  
Epoch 1525/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0  
Epoch 1526/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0  
Epoch 1527/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0023 - accuracy: 0

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Epoch 1528/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1529/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1530/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1531/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1532/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1533/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1534/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1535/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1536/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1537/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1538/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1539/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1540/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1541/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0023 - accuracy: 0
Epoch 1542/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1543/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1544/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1545/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1546/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1547/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 1548/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0011 - accuracy: 0
Epoch 1549/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1550/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1551/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1552/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1553/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1554/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1555/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1556/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0015 - accuracy: 0
```

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2150/2150 [=====] - 3s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1557/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1558/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0023 - accuracy: 0
Epoch 1559/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1560/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 1561/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1562/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0013 - accuracy: 0
Epoch 1563/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0010 - accuracy: 0
Epoch 1564/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1565/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1566/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0024 - accuracy: 0
Epoch 1567/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 1568/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1569/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1570/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1571/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0026 - accuracy: 0
Epoch 1572/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1573/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 1574/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1575/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 1576/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 1577/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1578/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1579/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1580/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1581/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0012 - accuracy: 0
Epoch 1582/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1583/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1584/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1585/2000
```

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2150/2150 [=====] - 3s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1586/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1587/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1588/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1589/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1590/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1591/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1592/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1593/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0013 - accuracy: 0
Epoch 1594/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1595/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0013 - accuracy: 0
Epoch 1596/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1597/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 1598/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0010 - accuracy: 0
Epoch 1599/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1600/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1601/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1602/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0012 - accuracy: 0
Epoch 1603/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0023 - accuracy: 0
Epoch 1604/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0026 - accuracy: 0
Epoch 1605/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1606/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1607/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1608/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1609/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 1610/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1611/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0012 - accuracy: 0
Epoch 1612/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1613/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1614/2000
```

```
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 1615/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1616/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0023 - accuracy: 0
Epoch 1617/2000
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1618/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1619/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1620/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1621/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1622/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 1623/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0012 - accuracy: 0
Epoch 1624/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1625/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1626/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0023 - accuracy: 0
Epoch 1627/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1628/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1629/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0013 - accuracy: 0
Epoch 1630/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 1631/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 1632/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1633/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1634/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1635/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1636/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1637/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1638/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1639/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1640/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1641/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1642/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 1643/2000
```



Epoch 1643/2000

2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0

Epoch 1644/2000

2150/2150 [=====] - 4s 2ms/sample - loss: 0.0012 - accuracy: 0

Epoch 1645/2000

2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0

Epoch 1646/2000

2150/2150 [=====] - 3s 2ms/sample - loss: 0.0022 - accuracy: 0

Epoch 1647/2000

2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0

Epoch 1648/2000

2150/2150 [=====] - 4s 2ms/sample - loss: 0.0013 - accuracy: 0

Epoch 1649/2000

2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0

Epoch 1650/2000

2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0

Epoch 1651/2000

2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0

Epoch 1652/2000

2150/2150 [=====] - 4s 2ms/sample - loss: 0.0023 - accuracy: 0

Epoch 1653/2000

2150/2150 [=====] - 3s 1ms/sample - loss: 0.0013 - accuracy: 0

Epoch 1654/2000

2150/2150 [=====] - 5s 2ms/sample - loss: 0.0018 - accuracy: 0

Epoch 1655/2000

2150/2150 [=====] - 5s 2ms/sample - loss: 0.0019 - accuracy: 0

Epoch 1656/2000

2150/2150 [=====] - 5s 2ms/sample - loss: 0.0021 - accuracy: 0

Epoch 1657/2000

2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0

Epoch 1658/2000

2150/2150 [=====] - 4s 2ms/sample - loss: 0.0024 - accuracy: 0

Epoch 1659/2000

2150/2150 [=====] - 4s 2ms/sample - loss: 0.0014 - accuracy: 0

Epoch 1660/2000

2150/2150 [=====] - 3s 2ms/sample - loss: 0.0017 - accuracy: 0

Epoch 1661/2000

2150/2150 [=====] - 3s 1ms/sample - loss: 0.0021 - accuracy: 0

Epoch 1662/2000

2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0

Epoch 1663/2000

2150/2150 [=====] - 6s 3ms/sample - loss: 0.0017 - accuracy: 0

Epoch 1664/2000

2150/2150 [=====] - 5s 2ms/sample - loss: 0.0019 - accuracy: 0

Epoch 1665/2000

2150/2150 [=====] - 5s 3ms/sample - loss: 0.0016 - accuracy: 0

Epoch 1666/2000

2150/2150 [=====] - 5s 2ms/sample - loss: 0.0012 - accuracy: 0

Epoch 1667/2000

2150/2150 [=====] - 5s 2ms/sample - loss: 0.0019 - accuracy: 0

Epoch 1668/2000

2150/2150 [=====] - 5s 2ms/sample - loss: 0.0019 - accuracy: 0

Epoch 1669/2000

2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0

Epoch 1670/2000

2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0

Epoch 1671/2000

2150/2150 [=====] - 4s 2ms/sample - loss: 0.0013 - accuracy: 0

Epoch 1672/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0014 - accuracy: 0  
Epoch 1673/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0013 - accuracy: 0  
Epoch 1674/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0  
Epoch 1675/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0  
Epoch 1676/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0016 - accuracy: 0  
Epoch 1677/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0016 - accuracy: 0  
Epoch 1678/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0016 - accuracy: 0  
Epoch 1679/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0014 - accuracy: 0  
Epoch 1680/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0  
Epoch 1681/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0019 - accuracy: 0  
Epoch 1682/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0022 - accuracy: 0  
Epoch 1683/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0018 - accuracy: 0  
Epoch 1684/2000  
2150/2150 [=====] - 5s 3ms/sample - loss: 0.0020 - accuracy: 0  
Epoch 1685/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0024 - accuracy: 0  
Epoch 1686/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0020 - accuracy: 0  
Epoch 1687/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0  
Epoch 1688/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0013 - accuracy: 0  
Epoch 1689/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0015 - accuracy: 0  
Epoch 1690/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0015 - accuracy: 0  
Epoch 1691/2000  
2150/2150 [=====] - 5s 3ms/sample - loss: 0.0014 - accuracy: 0  
Epoch 1692/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0015 - accuracy: 0  
Epoch 1693/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0  
Epoch 1694/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0021 - accuracy: 0  
Epoch 1695/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0  
Epoch 1696/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0016 - accuracy: 0  
Epoch 1697/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 9.4807e-04 - accuracy: 0  
Epoch 1698/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0012 - accuracy: 0  
Epoch 1699/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0014 - accuracy: 0  
Epoch 1700/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0019 - accuracy: 0

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Epoch 1701/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1702/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1703/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1704/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1705/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1706/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0013 - accuracy: 0
Epoch 1707/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1708/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 1709/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1710/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1711/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1712/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1713/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 1714/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1715/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1716/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1717/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0011 - accuracy: 0
Epoch 1718/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 1719/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1720/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1721/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1722/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1723/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1724/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1725/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1726/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1727/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1728/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1729/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0016 - accuracy: 0
```

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2150/2150 [=====] - 5s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1730/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1731/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1732/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0010 - accuracy: 0
Epoch 1733/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0012 - accuracy: 0
Epoch 1734/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1735/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1736/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1737/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1738/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0013 - accuracy: 0
Epoch 1739/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 9.5432e-04 - accuracy: 0
Epoch 1740/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1741/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0013 - accuracy: 0
Epoch 1742/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 1743/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1744/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0013 - accuracy: 0
Epoch 1745/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1746/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0013 - accuracy: 0
Epoch 1747/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0013 - accuracy: 0
Epoch 1748/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 1749/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1750/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1751/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1752/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0013 - accuracy: 0
Epoch 1753/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 1754/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1755/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1756/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1757/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1758/2000
```

2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0  
Epoch 1759/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0014 - accuracy: 0  
Epoch 1760/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0016 - accuracy: 0  
Epoch 1761/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0014 - accuracy: 0  
Epoch 1762/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0013 - accuracy: 0  
Epoch 1763/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0  
Epoch 1764/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0  
Epoch 1765/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0  
Epoch 1766/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0  
Epoch 1767/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0013 - accuracy: 0  
Epoch 1768/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0  
Epoch 1769/2000  
2150/2150 [=====] - 6s 3ms/sample - loss: 0.0015 - accuracy: 0  
Epoch 1770/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0016 - accuracy: 0  
Epoch 1771/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0017 - accuracy: 0  
Epoch 1772/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0012 - accuracy: 0  
Epoch 1773/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0016 - accuracy: 0  
Epoch 1774/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0013 - accuracy: 0  
Epoch 1775/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0018 - accuracy: 0  
Epoch 1776/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0017 - accuracy: 0  
Epoch 1777/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0015 - accuracy: 0  
Epoch 1778/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0  
Epoch 1779/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0  
Epoch 1780/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0014 - accuracy: 0  
Epoch 1781/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0  
Epoch 1782/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0016 - accuracy: 0  
Epoch 1783/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0  
Epoch 1784/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0010 - accuracy: 0  
Epoch 1785/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0  
Epoch 1786/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0  
Epoch 1787/2000

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2150/2150 [=====] - 4s 2ms/sample - loss: 0.0023 - accuracy: 0
Epoch 1788/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0013 - accuracy: 0
Epoch 1789/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1790/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1791/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1792/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1793/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1794/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1795/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1796/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1797/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0013 - accuracy: 0
Epoch 1798/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0024 - accuracy: 0
Epoch 1799/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1800/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1801/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1802/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0013 - accuracy: 0
Epoch 1803/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1804/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1805/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1806/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1807/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 1808/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1809/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1810/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0045 - accuracy: 0
Epoch 1811/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0012 - accuracy: 0
Epoch 1812/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 1813/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1814/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0013 - accuracy: 0
Epoch 1815/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1816/2000
```

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Epoch 1816/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1817/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1818/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1819/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1820/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1821/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1822/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1823/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1824/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0013 - accuracy: 0
Epoch 1825/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 1826/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1827/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1828/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1829/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1830/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1831/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1832/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1833/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0012 - accuracy: 0
Epoch 1834/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1835/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1836/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1837/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1838/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 9.7869e-04 - accuracy: 0
Epoch 1839/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0013 - accuracy: 0
Epoch 1840/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0024 - accuracy: 0
Epoch 1841/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1842/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1843/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1844/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0014 - accuracy: 0
```

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Epoch 1845/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1846/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1847/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1848/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1849/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1850/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1851/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1852/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1853/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0010 - accuracy: 0
Epoch 1854/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1855/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0013 - accuracy: 0
Epoch 1856/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1857/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1858/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1859/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1860/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1861/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0013 - accuracy: 0
Epoch 1862/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1863/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 1864/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0012 - accuracy: 0
Epoch 1865/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0013 - accuracy: 0
Epoch 1866/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0013 - accuracy: 0
Epoch 1867/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1868/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1869/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1870/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0012 - accuracy: 0
Epoch 1871/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1872/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0013 - accuracy: 0
Epoch 1873/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0020 - accuracy: 0
```



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Epoch 1874/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1875/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1876/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1877/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1878/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1879/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0011 - accuracy: 0
Epoch 1880/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1881/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1882/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1883/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1884/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1885/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1886/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1887/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1888/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1889/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1890/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1891/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1892/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1893/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0024 - accuracy: 0
Epoch 1894/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1895/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1896/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1897/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1898/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1899/2000
2150/2150 [=====] - 5s 3ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1900/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1901/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0012 - accuracy: 0
Epoch 1902/2000
```

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2150/2150 [=====] - 4s 2ms/sample - loss: 0.0013 - accuracy: 0
Epoch 1903/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0013 - accuracy: 0
Epoch 1904/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 1905/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0024 - accuracy: 0
Epoch 1906/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 1907/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1908/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1909/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1910/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1911/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0012 - accuracy: 0
Epoch 1912/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0013 - accuracy: 0
Epoch 1913/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1914/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1915/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1916/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1917/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0023 - accuracy: 0
Epoch 1918/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1919/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1920/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1921/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1922/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1923/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0
Epoch 1924/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1925/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1926/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1927/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0022 - accuracy: 0
Epoch 1928/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1929/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1930/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1931/2000
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2150/2150 [=====] - 3s 2ms/sample - loss: 0.0014 - accuracy: 0  
Epoch 1932/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0017 - accuracy: 0  
Epoch 1933/2000  
2150/2150 [=====] - 3s 1ms/sample - loss: 0.0022 - accuracy: 0  
Epoch 1934/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0013 - accuracy: 0  
Epoch 1935/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0017 - accuracy: 0  
Epoch 1936/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0014 - accuracy: 0  
Epoch 1937/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0  
Epoch 1938/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0  
Epoch 1939/2000  
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0016 - accuracy: 0  
Epoch 1940/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0  
Epoch 1941/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0023 - accuracy: 0  
Epoch 1942/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0017 - accuracy: 0  
Epoch 1943/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0016 - accuracy: 0  
Epoch 1944/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0020 - accuracy: 0  
Epoch 1945/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0015 - accuracy: 0  
Epoch 1946/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0022 - accuracy: 0  
Epoch 1947/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0011 - accuracy: 0  
Epoch 1948/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0  
Epoch 1949/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0  
Epoch 1950/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0  
Epoch 1951/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0  
Epoch 1952/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0  
Epoch 1953/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0  
Epoch 1954/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0012 - accuracy: 0  
Epoch 1955/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0022 - accuracy: 0  
Epoch 1956/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0016 - accuracy: 0  
Epoch 1957/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0014 - accuracy: 0  
Epoch 1958/2000  
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0016 - accuracy: 0  
Epoch 1959/2000  
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0  
Epoch 1960/2000

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Epoch 1960/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0012 - accuracy: 0
Epoch 1961/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1962/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0020 - accuracy: 0
Epoch 1963/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1964/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1965/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1966/2000
2150/2150 [=====] - 3s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1967/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0017 - accuracy: 0
Epoch 1968/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1969/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0013 - accuracy: 0
Epoch 1970/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0024 - accuracy: 0
Epoch 1971/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0021 - accuracy: 0
Epoch 1972/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0016 - accuracy: 0
Epoch 1973/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1974/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0018 - accuracy: 0
Epoch 1975/2000
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0015 - accuracy: 0
Epoch 1976/2000
2150/2150 [=====] - 5s 2ms/sample - loss: 0.0014 - accuracy: 0
Epoch 1977/2000

df_test=df_main[2200:]

2150/2150 [=====] - 5s 2ms/sample - loss: 0.0019 - accuracy: 0
df_target_test=df_test[['High','Low','Open','Close']]

Epoch 1980/2000
target_set_test=df_target_test.values

2150/2150 [=====] - 4s 2ms/sample - loss: 0.0012 - accuracy: 0
test_set=df_test.values

Epoch 1983/2000
test_set_scaled = sc.fit_transform(test_set)
target_set_scaled = sc.fit_transform(target_set_test)

Epoch 1985/2000
X_test = []
y_test = []
for i in range(50,len(test_set)):
    X_test.append(test_set_scaled[i-50:i,:])
    y_test.append(target_set_scaled[i,:])

```

```
X_test, y_test = np.array(X_test), np.array(y_test)
```

```
Epoch 1991/2000
```

```
predicted_stock_price = RNN_model.predict(X_test)
```

```
2150/2150 [=====] - 5s 3ms/sample - loss: 0.0015 - accuracy: 0
```

```
Epoch 1994/2000
```

```
predicted_stock_price = sc.inverse_transform(predicted_stock_price)
```

```
2150/2150 [=====] - 4s 2ms/sample - loss: 0.0019 - accuracy: 0
```

```
predicted_stock_price
```

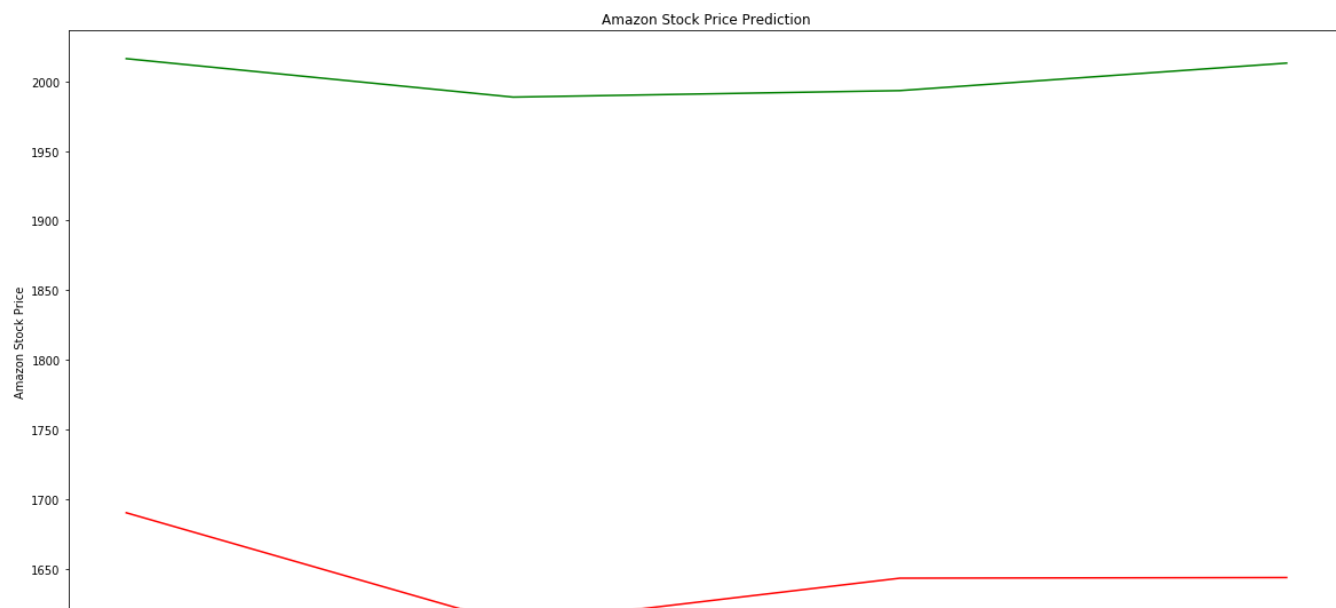
```
array([[1690.364 , 1610.5382, 1643.4277, 1643.8912],
       [1687.384 , 1607.5323, 1640.3225, 1640.7366],
       [1688.7346, 1608.965 , 1641.6777, 1642.0984],
       ...,
       [2567.6138, 2510.703 , 2522.8406, 2538.787 ],
       [2576.5056, 2519.5195, 2531.803 , 2547.9304],
       [2578.5886, 2521.65 , 2533.9177, 2550.0896]], dtype=float32)
```

```
<tensorflow.python.keras.callbacks.History at 0x7fa6ac1e98d0>
```

## ▼ High

```
plt.figure(figsize=(20,10))
plt.plot(target_set_test[0], color = 'green', label = 'Real Amazon stock')
plt.plot(predicted_stock_price[0], color = 'red', label = 'Predicted Amazon Stock Price')
plt.title('Amazon Stock Price Prediction')
plt.xlabel('Trading Day')
plt.ylabel('Amazon Stock Price')
plt.legend()
plt.show()
```

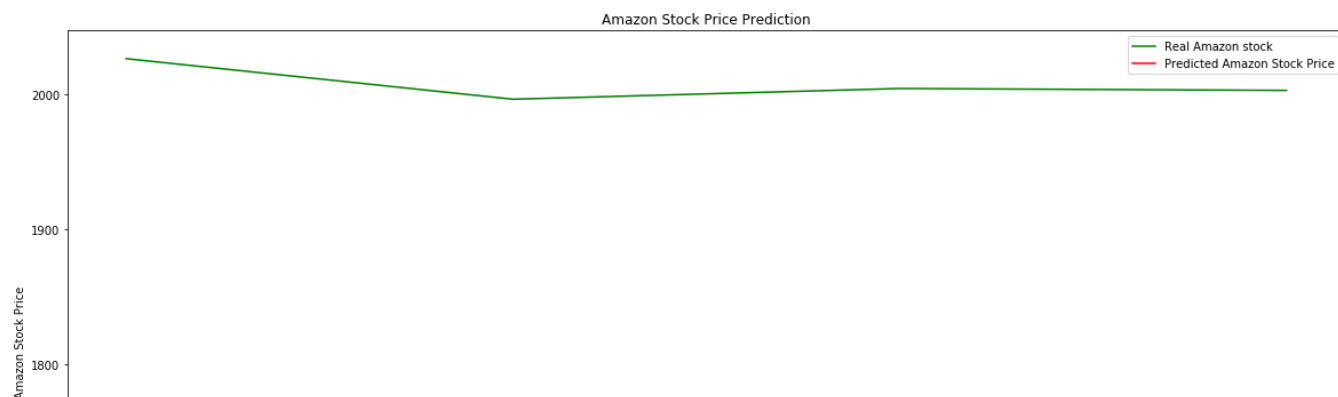




▼ Low

```
plt.figure(figsize=(20,10))
plt.plot(target_set_test[1], color = 'green', label = 'Real Amazon stock')
plt.plot(predicted_stock_price[1], color = 'red', label = 'Predicted Amazon Stock Price')
plt.title('Amazon Stock Price Prediction')
plt.xlabel('Trading Day')
plt.ylabel('Amazon Stock Price')
plt.legend()
plt.show()
```





## ▼ Open

```
plt.figure(figsize=(20,10))
plt.plot(target_set_test[2], color = 'green', label = 'Real Amazon stock')
plt.plot(predicted_stock_price[2], color = 'red', label = 'Predicted Amazon Stock Price')
plt.title('Amazon Stock Price Prediction')
plt.xlabel('Trading Day')
plt.ylabel('Amazon Stock Price')
plt.legend()
plt.show()
```

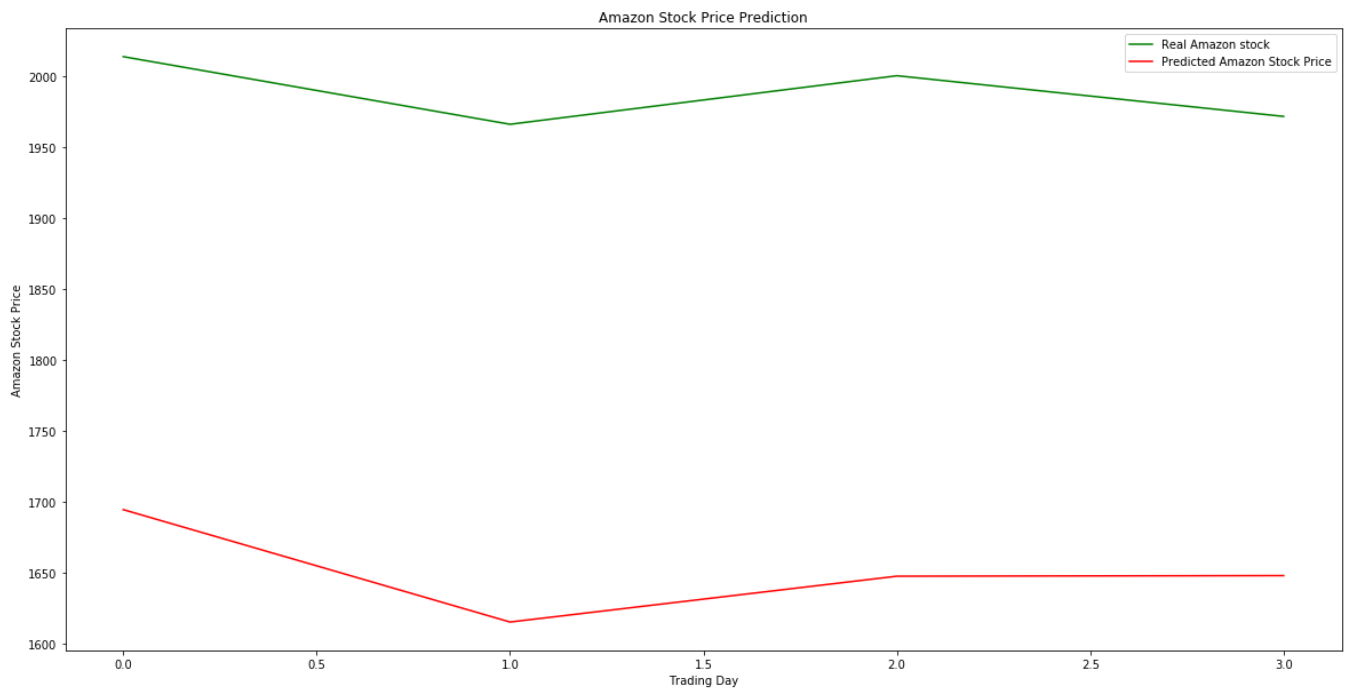




▼ Close

× Pr

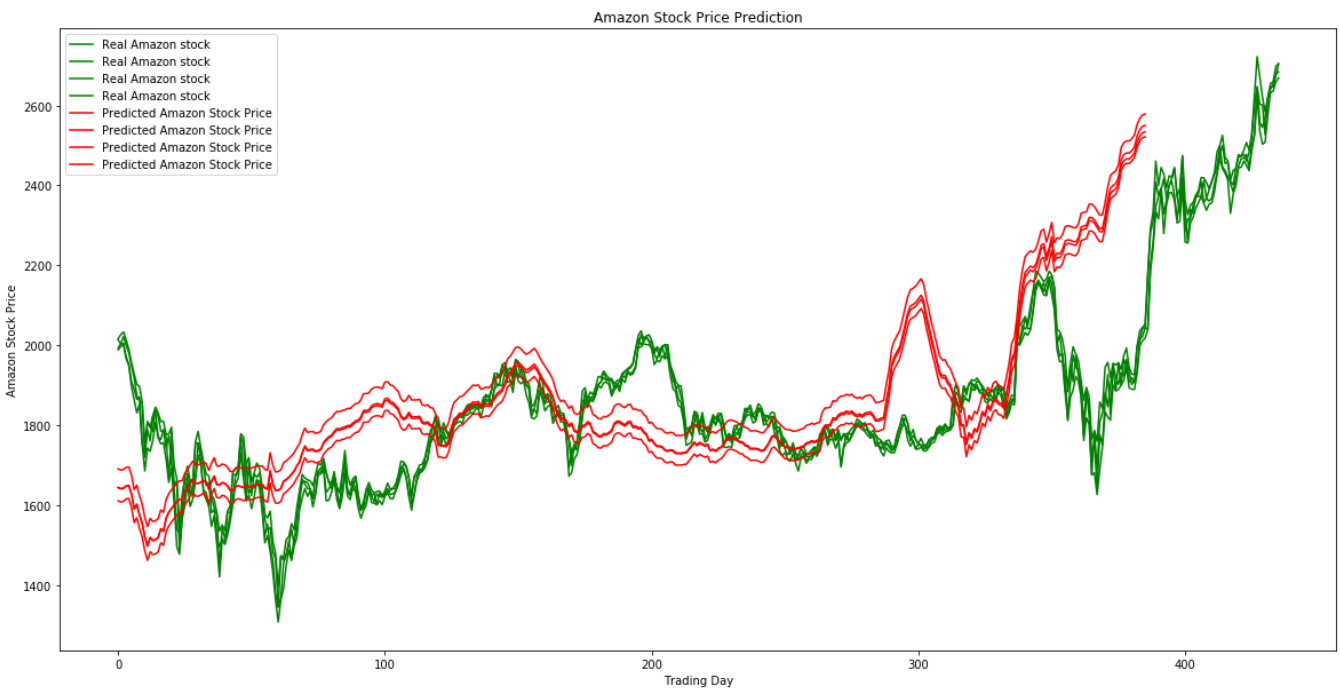
```
plt.figure(figsize=(20,10))
plt.plot(target_set_test[3], color = 'green', label = 'Real Amazon stock')
plt.plot(predicted_stock_price[3], color = 'red', label = 'Predicted Amazon Stock Price')
plt.title('Amazon Stock Price Prediction')
plt.xlabel('Trading Day')
plt.ylabel('Amazon Stock Price')
plt.legend()
plt.show()
```





## ▼ All over

```
plt.figure(figsize=(20,10))
plt.plot(target_set_test, color = 'green', label = 'Real Amazon stock')
plt.plot(predicted_stock_price, color = 'red', label = 'Predicted Amazon Stock Price')
plt.title('Amazon Stock Price Prediction')
plt.xlabel('Trading Day')
plt.ylabel('Amazon Stock Price')
plt.legend()
plt.show()
```



### RNN Complete

## ▼ Covering ANN

```
import pandas as pd

df1=pd.read_csv("dataset_target_2.csv")
df2=pd.read_csv("dataset_target.csv")
df3=pd.read_csv('Dataset_main.csv')

df3.fillna(0, inplace=True)

y_df=df3[['High', 'Low', 'Open', 'Close', 'Volume', 'Adj Close']]

col_y=y_df.columns
print(col_y)

Index(['High', 'Low', 'Open', 'Close', 'Volume', 'Adj Close'], dtype='object')

y_df_mod=y_df.drop(['Adj Close','Volume'],axis=1)

Drop_cols=col_y

Drop_cols=Drop_cols.tolist()

Drop_cols.append('Date')

X_df=df3.drop(Drop_cols,axis=1)

X=X_df.values

saved_model_regressor=tf.keras.models.load_model('Regressor_model.h5')

Regressor_prediction=saved_model_regressor(X)

Regressor_prediction
```



```
<tf.Tensor: shape=(2636, 4), dtype=float32, numpy=
array([[ 133.82632 ,  131.14365 ,  132.12865 ,  132.77518 ],
```

```
Regressor_prediction.shape
```



```
TensorShape([2636, 4])
```

```
[[2555.7427 , 2520.0652 , 2529.258 , 2545.203 , 1.
```

```
import numpy as np
```

```
y_pred_mod=[]
```

```
for i in range(0,4):
```

```
    j=0
```

```
    y_pred_temp=[]
```

```
    while(j<len(Regressor_prediction)):
```

```
        y_pred_temp.append(Regressor_prediction[j][i])
```

```
        j+=1
```

```
    y_pred_mod.append(np.array(y_pred_temp))
```

```
y_pred_mod
```



```
[array([ 133.82632, 128.77527, 132.49725, ..., 2723.3738 , 2555.7427 ,
        2904.4836 ], dtype=float32),
 array([ 131.14365 , 126.161415, 129.83269 , ..., 2685.4128 ,
        2520.0652 , 2864.0552 ], dtype=float32),
 array([ 132.12865 , 127.129295, 130.81319 , ..., 2695.1738 ,
        2529.258 , 2874.43 ], dtype=float32),
 array([ 132.77518, 127.74392, 131.45132, ..., 2712.1775 , 2545.203 ,
        2892.5776 ], dtype=float32)]
```

```
Y_pred=pd.DataFrame(list(zip(y_pred_mod[0],y_pred_mod[1],y_pred_mod[2],y_pred_mod[3])),column
```

```
Y_pred.head()
```



	High_regress	Low_regress	Open_regress	Close_regress
0	133.826324	131.143646	132.128647	132.775177
1	128.775269	126.161415	127.129295	127.743919
2	132.497253	129.832687	130.813187	131.451324
3	172.551865	169.341629	170.457855	171.348999
4	125.700699	123.128731	124.086189	124.681396

```
Y_pred.to_csv('Regressor_results.csv',index=False)

df_main=df1.drop(['Date'],axis=1)

main_set=df_main.values

main_set_scaled = sc.transform(main_set)

X_test = []

for i in range(50,len(main_set)):
    X_test.append(main_set[i-50:i,:])

X_test = np.array(X_test)

saved_model_RNN=tf.keras.models.load_model('RNN_model.h5')

RNN_prediction=RNN_model.predict(X_test)

len(RNN_prediction)

2586

import numpy as np
y_pred_mod=[]

for i in range(0,4):
    j=0
    y_pred_temp=[]


    while(j<len(RNN_prediction)):
        y_pred_temp.append(RNN_prediction[j][i])

        j+=1

    y_pred_mod.append(np.array(y_pred_temp))
```

```
Y_pred=pd.DataFrame(list(zip(y_pred_mod[0],y_pred_mod[1],y_pred_mod[2],y_pred_mod[3])),column
```

```
Y_pred.head()
```



	High_RNN	Low_RNN	Open_RNN	Close_RNN
0	-0.730683	-0.702834	-0.701247	-0.697405
1	0.331519	0.342548	0.321756	0.335208
2	-0.249825	-0.212222	-0.208299	-0.198306
3	-0.115043	-0.102053	-0.110373	-0.095470
4	-0.054895	-0.038586	-0.049983	-0.035920

```
Y_pred.to_csv('RNN_results.csv',index=False)
```


```
df1=pd.read_csv('Regressor_results.csv')
df2=pd.read_csv('RNN_results.csv')
```

```
df1=df1[50:]
df1.to_csv('Regressor_results_mod.csv',index=False)
```

```
df1=pd.read_csv('Regressor_results_mod.csv')
```

```
df=pd.concat([df1,df2],axis=1)
```

```
df.head()
```



	High_regress	Low_regress	Open_regress	Close_regress	High_RNN	Low_RNN	Open_RNN
0	176.166031	172.906555	174.035049	174.949005	-0.730683	-0.702834	-0.701247
1	135.153732	132.452988	133.442474	134.097382	0.331519	0.342548	0.321756
2	134.276260	131.587463	132.573990	133.223358	-0.249825	-0.212222	-0.208299
3	127.860909	125.259506	126.224289	126.833145	-0.115043	-0.102053	-0.110373
4	163.309052	160.224731	161.309647	162.142395	-0.054895	-0.038586	-0.049983

```
df1=pd.read_csv("dataset_target_2.csv")
```

```
target_high=[]
target_low=[]
i=50
while i<len(df1):
```

```

while i<len(UT1):
    target_high.append(df1.iloc[i]['High'])
    target_low.append(df1.iloc[i]['Low'])
    i+=1

```

```
len(target_high)
```

 2586

```


df['Target_high']=target_high
df['Target_low']=target_low

```

```
df.to_csv('feature.csv',index=False)
```

```
df_main=pd.read_csv('feature.csv')
```

```
print(df_main.head())
```



	High_regress	Low_regress	Open_regress	Close_regress	High_RNN	Low_RNN	\
0	176.166031	172.906555	174.035049	174.949005	-0.730683	-0.702834	
1	135.153732	132.452988	133.442474	134.097382	0.331519	0.342548	
2	134.276260	131.587463	132.573990	133.223358	-0.249825	-0.212222	
3	127.860909	125.259506	126.224289	126.833145	-0.115043	-0.102053	
4	163.309052	160.224731	161.309647	162.142395	-0.054895	-0.038586	

	Open_RNN	Close_RNN	Target_high	Target_low
0	-0.701247	-0.697405	132.289993	130.500000
1	0.321756	0.335208	132.690002	131.220001
2	-0.208299	-0.198306	132.850006	130.440002
3	-0.110373	-0.095470	133.710007	129.660004
4	-0.049983	-0.035920	130.960007	128.639999

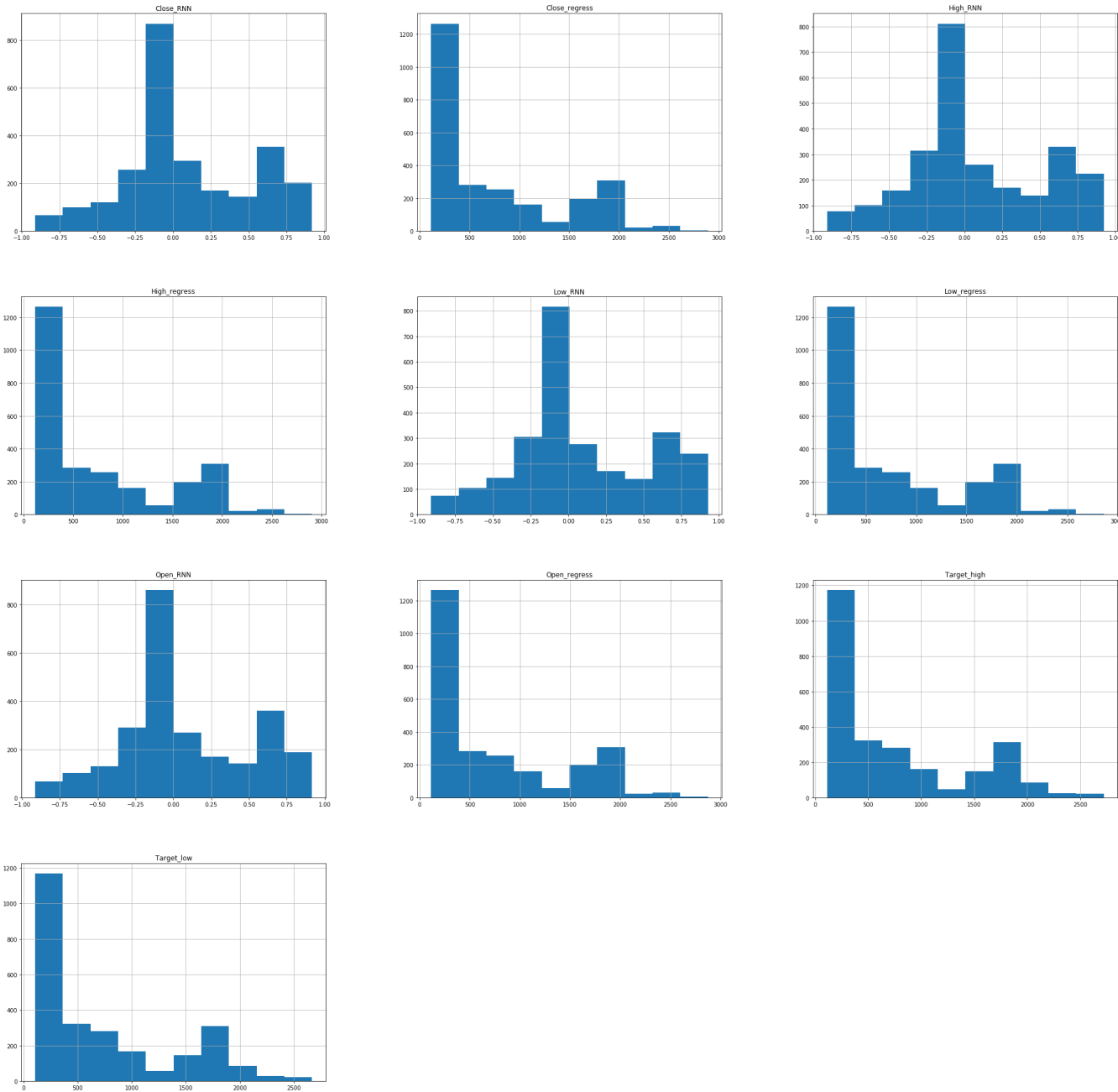
```
X_Df=df_main[['High_regress','Low_regress','Open_regress','Close_regress','High_RNN','Low_RNN
```

```

df_main.hist(figsize = (35,35))
plt.show()

```





```
y_Df=df_main[['Target_high','Target_low']].values
```

```
sc_2 = MinMaxScaler(feature_range = (0, 1))
```

```
from sklearn.model_selection import train_test_split  
X_train, X_test, y_train, y_test = train_test_split(X_Df, y_Df, test_size=0.3)
```

```
X_train_scaled=sc_2.fit_transform(X_train)
```

```
from tensorflow.keras.callbacks import ModelCheckpoint  
from tensorflow.keras.models import Sequential  
from tensorflow.keras.layers import Dense, Activation, Flatten  
from sklearn.model_selection import train_test_split  
from sklearn.ensemble import RandomForestRegressor  
from sklearn.metrics import mean_absolute_error  
from sklearn.metrics import accuracy_score
```

```
def model():
```

```
    model = Sequential()
```



```
mod=Sequential()  
mod.add(Dense(32, kernel_initializer='normal',input_dim = 8, activation='relu'))  
mod.add(Dense(64, kernel_initializer='normal',activation='relu'))  
mod.add(Dense(128, kernel_initializer='normal',activation='relu'))  
mod.add(Dense(2, kernel_initializer='normal',activation='linear'))  
  
mod.compile(loss='mean_absolute_error', optimizer='adam', metrics=['accuracy','mean_absol  
mod.summary()  
  
return mod  
  
import tensorflow as tf  
model_ANN=model()  
callback=tf.keras.callbacks.ModelCheckpoint(filepath='ANN_model.h5',  
                                             monitor='mean_absolute_error',  
                                             verbose=0,  
                                             save_best_only=True,  
                                             save_weights_only=False,  
                                             mode='auto')  
results=model_ANN.fit(X_train,y_train, epochs = 2000, batch_size = 32,callbacks=[callback])
```



Model: "sequential\_20"

Layer (type)	Output Shape	Param #
dense_60 (Dense)	(None, 32)	288
dense_61 (Dense)	(None, 64)	2112
dense_62 (Dense)	(None, 128)	8320
dense_63 (Dense)	(None, 2)	258
Total params: 10,978		
Trainable params: 10,978		
Non-trainable params: 0		

Train on 1810 samples

Epoch 1/2000

1810/1810 [=====] - 0s 207us/sample - loss: 481.1092 - accuracy:

Epoch 2/2000

1810/1810 [=====] - 0s 61us/sample - loss: 38.1014 - accuracy:

Epoch 3/2000

1810/1810 [=====] - 0s 56us/sample - loss: 35.0003 - accuracy:

Epoch 4/2000

1810/1810 [=====] - 0s 51us/sample - loss: 34.7129 - accuracy:

Epoch 5/2000

1810/1810 [=====] - 0s 48us/sample - loss: 36.1535 - accuracy:

Epoch 6/2000

1810/1810 [=====] - 0s 54us/sample - loss: 36.4422 - accuracy:

Epoch 7/2000

1810/1810 [=====] - 0s 46us/sample - loss: 35.7319 - accuracy:

Epoch 8/2000

1810/1810 [=====] - 0s 64us/sample - loss: 35.0576 - accuracy:

Epoch 9/2000

1810/1810 [=====] - 0s 54us/sample - loss: 34.7582 - accuracy:

Epoch 10/2000

1810/1810 [=====] - 0s 59us/sample - loss: 36.7533 - accuracy:

Epoch 11/2000

1810/1810 [=====] - 0s 48us/sample - loss: 36.9303 - accuracy:

Epoch 12/2000

1810/1810 [=====] - 0s 55us/sample - loss: 36.3877 - accuracy:

Epoch 13/2000

1810/1810 [=====] - 0s 47us/sample - loss: 35.0025 - accuracy:

Epoch 14/2000

1810/1810 [=====] - 0s 57us/sample - loss: 35.4985 - accuracy:

Epoch 15/2000

1810/1810 [=====] - 0s 50us/sample - loss: 34.9603 - accuracy:

Epoch 16/2000

1810/1810 [=====] - 0s 99us/sample - loss: 36.0434 - accuracy:

Epoch 17/2000

1810/1810 [=====] - 0s 67us/sample - loss: 36.1927 - accuracy:

Epoch 18/2000

1810/1810 [=====] - 0s 72us/sample - loss: 34.9053 - accuracy:

Epoch 19/2000

1810/1810 [=====] - 0s 79us/sample - loss: 35.3520 - accuracy:

Epoch 20/2000

1810/1810 [=====] - 0s 76us/sample - loss: 36.1584 - accuracy:

```
Epoch 21/2000
1810/1810 [=====] - 0s 80us/sample - loss: 35.0596 - accuracy:
Epoch 22/2000
1810/1810 [=====] - 0s 74us/sample - loss: 36.0171 - accuracy:
Epoch 23/2000
1810/1810 [=====] - 0s 67us/sample - loss: 37.1061 - accuracy:
Epoch 24/2000
1810/1810 [=====] - 0s 49us/sample - loss: 36.2559 - accuracy:
Epoch 25/2000
1810/1810 [=====] - 0s 57us/sample - loss: 35.4398 - accuracy:
Epoch 26/2000
1810/1810 [=====] - 0s 48us/sample - loss: 35.2494 - accuracy:
Epoch 27/2000
1810/1810 [=====] - 0s 76us/sample - loss: 35.0491 - accuracy:
Epoch 28/2000
1810/1810 [=====] - 0s 80us/sample - loss: 37.5490 - accuracy:
Epoch 29/2000
1810/1810 [=====] - 0s 72us/sample - loss: 35.2592 - accuracy:
Epoch 30/2000
1810/1810 [=====] - 0s 78us/sample - loss: 34.0065 - accuracy:
Epoch 31/2000
1810/1810 [=====] - 0s 47us/sample - loss: 35.1597 - accuracy:
Epoch 32/2000
1810/1810 [=====] - 0s 55us/sample - loss: 37.0871 - accuracy:
Epoch 33/2000
1810/1810 [=====] - 0s 48us/sample - loss: 35.8772 - accuracy:
Epoch 34/2000
1810/1810 [=====] - 0s 50us/sample - loss: 35.0602 - accuracy:
Epoch 35/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.5296 - accuracy:
Epoch 36/2000
1810/1810 [=====] - 0s 51us/sample - loss: 36.9999 - accuracy:
Epoch 37/2000
1810/1810 [=====] - 0s 54us/sample - loss: 34.8627 - accuracy:
Epoch 38/2000
1810/1810 [=====] - 0s 53us/sample - loss: 34.9830 - accuracy:
Epoch 39/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.7459 - accuracy:
Epoch 40/2000
1810/1810 [=====] - 0s 57us/sample - loss: 35.3825 - accuracy:
Epoch 41/2000
1810/1810 [=====] - 0s 74us/sample - loss: 35.9694 - accuracy:
Epoch 42/2000
1810/1810 [=====] - 0s 67us/sample - loss: 34.8344 - accuracy:
Epoch 43/2000
1810/1810 [=====] - 0s 61us/sample - loss: 34.8634 - accuracy:
Epoch 44/2000
1810/1810 [=====] - 0s 65us/sample - loss: 34.8896 - accuracy:
Epoch 45/2000
1810/1810 [=====] - 0s 66us/sample - loss: 36.3278 - accuracy:
Epoch 46/2000
1810/1810 [=====] - 0s 60us/sample - loss: 35.2841 - accuracy:
Epoch 47/2000
1810/1810 [=====] - 0s 57us/sample - loss: 34.1506 - accuracy:
Epoch 48/2000
1810/1810 [=====] - 0s 56us/sample - loss: 35.0197 - accuracy:
Epoch 49/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.9107 - accuracy:
```

```
Epoch 50/2000
1810/1810 [=====] - 0s 56us/sample - loss: 34.7664 - accuracy:
Epoch 51/2000
1810/1810 [=====] - 0s 49us/sample - loss: 35.9117 - accuracy:
Epoch 52/2000
1810/1810 [=====] - 0s 53us/sample - loss: 36.9656 - accuracy:
Epoch 53/2000
1810/1810 [=====] - 0s 52us/sample - loss: 34.8571 - accuracy:
Epoch 54/2000
1810/1810 [=====] - 0s 46us/sample - loss: 36.0819 - accuracy:
Epoch 55/2000
1810/1810 [=====] - 0s 42us/sample - loss: 35.4723 - accuracy:
Epoch 56/2000
1810/1810 [=====] - 0s 49us/sample - loss: 35.0254 - accuracy:
Epoch 57/2000
1810/1810 [=====] - 0s 51us/sample - loss: 35.4870 - accuracy:
Epoch 58/2000
1810/1810 [=====] - 0s 38us/sample - loss: 36.2244 - accuracy:
Epoch 59/2000
1810/1810 [=====] - 0s 45us/sample - loss: 35.0548 - accuracy:
Epoch 60/2000
1810/1810 [=====] - 0s 44us/sample - loss: 35.0943 - accuracy:
Epoch 61/2000
1810/1810 [=====] - 0s 50us/sample - loss: 35.1482 - accuracy:
Epoch 62/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.9196 - accuracy:
Epoch 63/2000
1810/1810 [=====] - 0s 46us/sample - loss: 35.1537 - accuracy:
Epoch 64/2000
1810/1810 [=====] - 0s 50us/sample - loss: 36.2488 - accuracy:
Epoch 65/2000
1810/1810 [=====] - 0s 50us/sample - loss: 35.2981 - accuracy:
Epoch 66/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.4178 - accuracy:
Epoch 67/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.8713 - accuracy:
Epoch 68/2000
1810/1810 [=====] - 0s 49us/sample - loss: 36.3083 - accuracy:
Epoch 69/2000
1810/1810 [=====] - 0s 51us/sample - loss: 34.8904 - accuracy:
Epoch 70/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.7566 - accuracy:
Epoch 71/2000
1810/1810 [=====] - 0s 89us/sample - loss: 34.5960 - accuracy:
Epoch 72/2000
1810/1810 [=====] - 0s 96us/sample - loss: 36.1946 - accuracy:
Epoch 73/2000
1810/1810 [=====] - 0s 70us/sample - loss: 35.8998 - accuracy:
Epoch 74/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.4380 - accuracy:
Epoch 75/2000
1810/1810 [=====] - 0s 54us/sample - loss: 34.8772 - accuracy:
Epoch 76/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.1999 - accuracy:
Epoch 77/2000
1810/1810 [=====] - 0s 73us/sample - loss: 38.8408 - accuracy:
Epoch 78/2000
1810/1810 [=====] - 0s 71us/sample - loss: 35.0690 - accuracy:
```

```
1810/1810 [-----] - 0s 71us/sample - loss: 35.0090 - accuracy:
Epoch 79/2000
1810/1810 [=====] - 0s 57us/sample - loss: 35.8833 - accuracy:
Epoch 80/2000
1810/1810 [=====] - 0s 57us/sample - loss: 36.5268 - accuracy:
Epoch 81/2000
1810/1810 [=====] - 0s 50us/sample - loss: 36.0054 - accuracy:
Epoch 82/2000
1810/1810 [=====] - 0s 59us/sample - loss: 34.6404 - accuracy:
Epoch 83/2000
1810/1810 [=====] - 0s 55us/sample - loss: 36.2677 - accuracy:
Epoch 84/2000
1810/1810 [=====] - 0s 51us/sample - loss: 35.9064 - accuracy:
Epoch 85/2000
1810/1810 [=====] - 0s 45us/sample - loss: 36.0789 - accuracy:
Epoch 86/2000
1810/1810 [=====] - 0s 56us/sample - loss: 36.0424 - accuracy:
Epoch 87/2000
1810/1810 [=====] - 0s 61us/sample - loss: 36.1018 - accuracy:
Epoch 88/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.7831 - accuracy:
Epoch 89/2000
1810/1810 [=====] - 0s 58us/sample - loss: 35.0859 - accuracy:
Epoch 90/2000
1810/1810 [=====] - 0s 53us/sample - loss: 35.4939 - accuracy:
Epoch 91/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.2972 - accuracy:
Epoch 92/2000
1810/1810 [=====] - 0s 56us/sample - loss: 34.6136 - accuracy:
Epoch 93/2000
1810/1810 [=====] - 0s 78us/sample - loss: 34.1467 - accuracy:
Epoch 94/2000
1810/1810 [=====] - 0s 56us/sample - loss: 34.2001 - accuracy:
Epoch 95/2000
1810/1810 [=====] - 0s 55us/sample - loss: 35.2288 - accuracy:
Epoch 96/2000
1810/1810 [=====] - 0s 69us/sample - loss: 37.4104 - accuracy:
Epoch 97/2000
1810/1810 [=====] - 0s 81us/sample - loss: 40.4677 - accuracy:
Epoch 98/2000
1810/1810 [=====] - 0s 55us/sample - loss: 36.0264 - accuracy:
Epoch 99/2000
1810/1810 [=====] - 0s 56us/sample - loss: 35.1368 - accuracy:
Epoch 100/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.8250 - accuracy:
Epoch 101/2000
1810/1810 [=====] - 0s 63us/sample - loss: 34.7881 - accuracy:
Epoch 102/2000
1810/1810 [=====] - 0s 61us/sample - loss: 34.9835 - accuracy:
Epoch 103/2000
1810/1810 [=====] - 0s 61us/sample - loss: 34.8777 - accuracy:
Epoch 104/2000
1810/1810 [=====] - 0s 57us/sample - loss: 35.4838 - accuracy:
Epoch 105/2000
1810/1810 [=====] - 0s 64us/sample - loss: 35.0069 - accuracy:
Epoch 106/2000
1810/1810 [=====] - 0s 68us/sample - loss: 35.5140 - accuracy:
Epoch 107/2000
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1810/1810 [=====] - 0s 53us/sample - loss: 35.2597 - accuracy:  
Epoch 108/2000  
1810/1810 [=====] - 0s 55us/sample - loss: 34.6059 - accuracy:  
Epoch 109/2000  
1810/1810 [=====] - 0s 50us/sample - loss: 35.1364 - accuracy:  
Epoch 110/2000  
1810/1810 [=====] - 0s 61us/sample - loss: 34.7943 - accuracy:  
Epoch 111/2000  
1810/1810 [=====] - 0s 58us/sample - loss: 35.3104 - accuracy:  
Epoch 112/2000  
1810/1810 [=====] - 0s 62us/sample - loss: 36.7443 - accuracy:  
Epoch 113/2000  
1810/1810 [=====] - 0s 56us/sample - loss: 34.9828 - accuracy:  
Epoch 114/2000  
1810/1810 [=====] - 0s 58us/sample - loss: 36.3362 - accuracy:  
Epoch 115/2000  
1810/1810 [=====] - 0s 56us/sample - loss: 34.5018 - accuracy:  
Epoch 116/2000  
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Epoch 117/2000  
1810/1810 [=====] - 0s 60us/sample - loss: 36.7682 - accuracy:  
Epoch 118/2000  
1810/1810 [=====] - 0s 54us/sample - loss: 36.3663 - accuracy:  
Epoch 119/2000  
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Epoch 122/2000  
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Epoch 124/2000  
1810/1810 [=====] - 0s 49us/sample - loss: 35.3958 - accuracy:  
Epoch 125/2000  
1810/1810 [=====] - 0s 53us/sample - loss: 34.5149 - accuracy:  
Epoch 126/2000  
1810/1810 [=====] - 0s 41us/sample - loss: 34.6841 - accuracy:  
Epoch 127/2000  
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Epoch 129/2000  
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Epoch 130/2000  
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1810/1810 [=====] - 0s 70us/sample - loss: 35.8255 - accuracy:  
Epoch 132/2000  
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Epoch 133/2000  
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Epoch 134/2000  
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Epoch 135/2000  
1810/1810 [=====] - 0s 47us/sample - loss: 34.2636 - accuracy:  
Epoch 136/2000

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Epoch 141/2000  
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Epoch 142/2000  
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Epoch 143/2000  
1810/1810 [=====] - 0s 69us/sample - loss: 34.6907 - accuracy:  
Epoch 144/2000  
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Epoch 145/2000  
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Epoch 146/2000  
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Epoch 148/2000  
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Epoch 149/2000  
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Epoch 150/2000  
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Epoch 151/2000  
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Epoch 152/2000  
1810/1810 [=====] - 0s 49us/sample - loss: 35.3382 - accuracy:  
Epoch 153/2000  
1810/1810 [=====] - 0s 52us/sample - loss: 35.0602 - accuracy:  
Epoch 154/2000  
1810/1810 [=====] - 0s 43us/sample - loss: 35.0847 - accuracy:  
Epoch 155/2000  
1810/1810 [=====] - 0s 49us/sample - loss: 34.9572 - accuracy:  
Epoch 156/2000  
1810/1810 [=====] - 0s 52us/sample - loss: 37.7017 - accuracy:  
Epoch 157/2000  
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1810/1810 [=====] - 0s 48us/sample - loss: 36.0101 - accuracy:  
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1810/1810 [=====] - 0s 50us/sample - loss: 35.2585 - accuracy:  
Epoch 161/2000  
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Epoch 162/2000  
1810/1810 [=====] - 0s 41us/sample - loss: 35.3668 - accuracy:  
Epoch 163/2000  
1810/1810 [=====] - 0s 52us/sample - loss: 34.6549 - accuracy:  
Epoch 164/2000  
1810/1810 [=====] - 0s 49us/sample - loss: 35.2696 - accuracy:  
Epoch 165/2000

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Epoch 165/2000
1810/1810 [=====] - 0s 54us/sample - loss: 35.8335 - accuracy:
Epoch 166/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.9997 - accuracy:
Epoch 167/2000
1810/1810 [=====] - 0s 57us/sample - loss: 35.7123 - accuracy:
Epoch 168/2000
1810/1810 [=====] - 0s 46us/sample - loss: 35.4310 - accuracy:
Epoch 169/2000
1810/1810 [=====] - 0s 52us/sample - loss: 37.0989 - accuracy:
Epoch 170/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.8757 - accuracy:
Epoch 171/2000
1810/1810 [=====] - 0s 63us/sample - loss: 36.4607 - accuracy:
Epoch 172/2000
1810/1810 [=====] - 0s 75us/sample - loss: 35.7019 - accuracy:
Epoch 173/2000
1810/1810 [=====] - 0s 56us/sample - loss: 35.2238 - accuracy:
Epoch 174/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.7732 - accuracy:
Epoch 175/2000
1810/1810 [=====] - 0s 48us/sample - loss: 35.2904 - accuracy:
Epoch 176/2000
1810/1810 [=====] - 0s 77us/sample - loss: 35.3830 - accuracy:
Epoch 177/2000
1810/1810 [=====] - 0s 73us/sample - loss: 36.3977 - accuracy:
Epoch 178/2000
1810/1810 [=====] - 0s 53us/sample - loss: 34.8947 - accuracy:
Epoch 179/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.4102 - accuracy:
Epoch 180/2000
1810/1810 [=====] - 0s 44us/sample - loss: 35.2668 - accuracy:
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1810/1810 [=====] - 0s 50us/sample - loss: 35.1979 - accuracy:
Epoch 182/2000
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Epoch 183/2000
1810/1810 [=====] - 0s 43us/sample - loss: 35.2175 - accuracy:
Epoch 184/2000
1810/1810 [=====] - 0s 44us/sample - loss: 34.6080 - accuracy:
Epoch 185/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.6065 - accuracy:
Epoch 186/2000
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Epoch 187/2000
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Epoch 188/2000
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Epoch 189/2000
1810/1810 [=====] - 0s 59us/sample - loss: 37.3836 - accuracy:
Epoch 190/2000
1810/1810 [=====] - 0s 53us/sample - loss: 35.7932 - accuracy:
Epoch 191/2000
1810/1810 [=====] - 0s 56us/sample - loss: 33.9992 - accuracy:
Epoch 192/2000
1810/1810 [=====] - 0s 38us/sample - loss: 35.3724 - accuracy:
Epoch 193/2000
1810/1810 [=====] - 0s 44us/sample - loss: 35.9656 - accuracy:
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Epoch 199/2000  
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Epoch 200/2000  
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Epoch 201/2000  
1810/1810 [=====] - 0s 48us/sample - loss: 35.2800 - accuracy:  
Epoch 202/2000  
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Epoch 203/2000  
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Epoch 204/2000  
1810/1810 [=====] - 0s 45us/sample - loss: 38.1187 - accuracy:  
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Epoch 206/2000  
1810/1810 [=====] - 0s 55us/sample - loss: 34.4670 - accuracy:  
Epoch 207/2000  
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Epoch 208/2000  
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Epoch 210/2000  
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Epoch 211/2000  
1810/1810 [=====] - 0s 56us/sample - loss: 34.8280 - accuracy:  
Epoch 212/2000  
1810/1810 [=====] - 0s 52us/sample - loss: 34.8031 - accuracy:  
Epoch 213/2000  
1810/1810 [=====] - 0s 51us/sample - loss: 36.6048 - accuracy:  
Epoch 214/2000  
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Epoch 215/2000  
1810/1810 [=====] - 0s 46us/sample - loss: 35.8393 - accuracy:  
Epoch 216/2000  
1810/1810 [=====] - 0s 47us/sample - loss: 35.4822 - accuracy:  
Epoch 217/2000  
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Epoch 218/2000  
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Epoch 219/2000  
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Epoch 220/2000  
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Epoch 221/2000  
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Epoch 222/2000  
1810/1810 [=====] - 0s 47us/sample - loss: 35.9209 - accuracy:

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Epoch 223/2000
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Epoch 225/2000
1810/1810 [=====] - 0s 43us/sample - loss: 35.8509 - accuracy:
Epoch 226/2000
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Epoch 227/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.4520 - accuracy:
Epoch 228/2000
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Epoch 229/2000
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Epoch 231/2000
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Epoch 232/2000
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Epoch 233/2000
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Epoch 234/2000
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Epoch 235/2000
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Epoch 241/2000
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Epoch 245/2000
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Epoch 247/2000
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Epoch 248/2000
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Epoch 250/2000
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1810/1810 [=====] - 0s 71us/sample - loss: 35.1824 - accuracy:
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Epoch 252/2000
1810/1810 [=====] - 0s 80us/sample - loss: 34.6306 - accuracy:
Epoch 253/2000
1810/1810 [=====] - 0s 63us/sample - loss: 34.5512 - accuracy:
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Epoch 260/2000
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Epoch 262/2000
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Epoch 267/2000
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Epoch 268/2000
1810/1810 [=====] - 0s 68us/sample - loss: 35.2692 - accuracy:
Epoch 269/2000
1810/1810 [=====] - 0s 65us/sample - loss: 34.8009 - accuracy:
Epoch 270/2000
1810/1810 [=====] - 0s 73us/sample - loss: 35.9905 - accuracy:
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Epoch 272/2000
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Epoch 276/2000
1810/1810 [=====] - 0s 58us/sample - loss: 34.6252 - accuracy:
Epoch 277/2000
1810/1810 [=====] - 0s 49us/sample - loss: 36.1619 - accuracy:
Epoch 278/2000
1810/1810 [=====] - 0s 56us/sample - loss: 36.7030 - accuracy:
Epoch 279/2000
1810/1810 [=====] - 0s 53us/sample - loss: 34.6102 - accuracy:
Epoch 280/2000
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Epoch 281/2000  
1810/1810 [=====] - 0s 53us/sample - loss: 35.7407 - accuracy:  
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Epoch 288/2000  
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Epoch 289/2000  
1810/1810 [=====] - 0s 48us/sample - loss: 34.9506 - accuracy:  
Epoch 290/2000  
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Epoch 291/2000  
1810/1810 [=====] - 0s 54us/sample - loss: 33.9922 - accuracy:  
Epoch 292/2000  
1810/1810 [=====] - 0s 38us/sample - loss: 35.5405 - accuracy:  
Epoch 293/2000  
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Epoch 294/2000  
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Epoch 295/2000  
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Epoch 296/2000  
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Epoch 297/2000  
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1810/1810 [=====] - 0s 82us/sample - loss: 35.3139 - accuracy:  
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1810/1810 [=====] - 0s 66us/sample - loss: 35.1601 - accuracy:  
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1810/1810 [=====] - 0s 62us/sample - loss: 34.4411 - accuracy:  
Epoch 307/2000  
1810/1810 [=====] - 0s 92us/sample - loss: 33.9955 - accuracy:  
Epoch 308/2000  
1810/1810 [=====] - 0s 58us/sample - loss: 34.1359 - accuracy:  
Epoch 309/2000

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1810/1810 [=====] - 0s 66us/sample - loss: 34.3048 - accuracy:
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1810/1810 [=====] - 0s 63us/sample - loss: 35.2809 - accuracy:
Epoch 312/2000
1810/1810 [=====] - 0s 63us/sample - loss: 35.0138 - accuracy:
Epoch 313/2000
1810/1810 [=====] - 0s 66us/sample - loss: 34.5926 - accuracy:
Epoch 314/2000
1810/1810 [=====] - 0s 54us/sample - loss: 34.6104 - accuracy:
Epoch 315/2000
1810/1810 [=====] - 0s 52us/sample - loss: 36.1961 - accuracy:
Epoch 316/2000
1810/1810 [=====] - 0s 52us/sample - loss: 35.2040 - accuracy:
Epoch 317/2000
1810/1810 [=====] - 0s 53us/sample - loss: 35.0191 - accuracy:
Epoch 318/2000
1810/1810 [=====] - 0s 48us/sample - loss: 35.3291 - accuracy:
Epoch 319/2000
1810/1810 [=====] - 0s 51us/sample - loss: 35.0785 - accuracy:
Epoch 320/2000
1810/1810 [=====] - 0s 41us/sample - loss: 34.6606 - accuracy:
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1810/1810 [=====] - 0s 51us/sample - loss: 35.1243 - accuracy:
Epoch 322/2000
1810/1810 [=====] - 0s 51us/sample - loss: 34.5533 - accuracy:
Epoch 323/2000
1810/1810 [=====] - 0s 44us/sample - loss: 35.2329 - accuracy:
Epoch 324/2000
1810/1810 [=====] - 0s 60us/sample - loss: 34.1279 - accuracy:
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1810/1810 [=====] - 0s 51us/sample - loss: 35.5357 - accuracy:
Epoch 326/2000
1810/1810 [=====] - 0s 55us/sample - loss: 34.9568 - accuracy:
Epoch 327/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.8536 - accuracy:
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1810/1810 [=====] - 0s 45us/sample - loss: 34.9779 - accuracy:
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1810/1810 [=====] - 0s 53us/sample - loss: 34.6371 - accuracy:
Epoch 331/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.7466 - accuracy:
Epoch 332/2000
1810/1810 [=====] - 0s 54us/sample - loss: 34.7208 - accuracy:
Epoch 333/2000
1810/1810 [=====] - 0s 70us/sample - loss: 34.7612 - accuracy:
Epoch 334/2000
1810/1810 [=====] - 0s 71us/sample - loss: 34.9635 - accuracy:
Epoch 335/2000
1810/1810 [=====] - 0s 55us/sample - loss: 34.5594 - accuracy:
Epoch 336/2000
1810/1810 [=====] - 0s 53us/sample - loss: 34.9013 - accuracy:
Epoch 337/2000
1810/1810 [=====] - 0s 67us/sample - loss: 34.7353 - accuracy:
Epoch 338/2000
```

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Epoch 338/2000
1810/1810 [=====] - 0s 53us/sample - loss: 35.8380 - accuracy:
Epoch 339/2000
1810/1810 [=====] - 0s 62us/sample - loss: 35.2108 - accuracy:
Epoch 340/2000
1810/1810 [=====] - 0s 68us/sample - loss: 34.2788 - accuracy:
Epoch 341/2000
1810/1810 [=====] - 0s 60us/sample - loss: 35.3937 - accuracy:
Epoch 342/2000
1810/1810 [=====] - 0s 67us/sample - loss: 33.9433 - accuracy:
Epoch 343/2000
1810/1810 [=====] - 0s 56us/sample - loss: 35.7830 - accuracy:
Epoch 344/2000
1810/1810 [=====] - 0s 65us/sample - loss: 34.9411 - accuracy:
Epoch 345/2000
1810/1810 [=====] - 0s 59us/sample - loss: 36.1099 - accuracy:
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1810/1810 [=====] - 0s 49us/sample - loss: 35.4925 - accuracy:
Epoch 348/2000
1810/1810 [=====] - 0s 55us/sample - loss: 34.3958 - accuracy:
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1810/1810 [=====] - 0s 61us/sample - loss: 37.2646 - accuracy:
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1810/1810 [=====] - 0s 55us/sample - loss: 34.5927 - accuracy:
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1810/1810 [=====] - 0s 53us/sample - loss: 34.8680 - accuracy:
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1810/1810 [=====] - 0s 59us/sample - loss: 34.6315 - accuracy:
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1810/1810 [=====] - 0s 51us/sample - loss: 35.0830 - accuracy:
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Epoch 355/2000
1810/1810 [=====] - 0s 60us/sample - loss: 34.7369 - accuracy:
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1810/1810 [=====] - 0s 67us/sample - loss: 34.3299 - accuracy:
Epoch 357/2000
1810/1810 [=====] - 0s 66us/sample - loss: 35.2684 - accuracy:
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1810/1810 [=====] - 0s 58us/sample - loss: 35.3542 - accuracy:
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1810/1810 [=====] - 0s 55us/sample - loss: 34.8194 - accuracy:
Epoch 360/2000
1810/1810 [=====] - 0s 51us/sample - loss: 34.9912 - accuracy:
Epoch 361/2000
1810/1810 [=====] - 0s 58us/sample - loss: 34.9591 - accuracy:
Epoch 362/2000
1810/1810 [=====] - 0s 60us/sample - loss: 35.0651 - accuracy:
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1810/1810 [=====] - 0s 48us/sample - loss: 34.6664 - accuracy:
Epoch 364/2000
1810/1810 [=====] - 0s 54us/sample - loss: 34.6695 - accuracy:
Epoch 365/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.4665 - accuracy:
Epoch 366/2000
1810/1810 [=====] - 0s 53us/sample - loss: 34.4059 - accuracy:
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Epoch 367/2000  
1810/1810 [=====] - 0s 42us/sample - loss: 34.7674 - accuracy:  
Epoch 368/2000  
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Epoch 369/2000  
1810/1810 [=====] - 0s 52us/sample - loss: 34.7161 - accuracy:  
Epoch 370/2000  
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Epoch 372/2000  
1810/1810 [=====] - 0s 57us/sample - loss: 34.7797 - accuracy:  
Epoch 373/2000  
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Epoch 374/2000  
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Epoch 375/2000  
1810/1810 [=====] - 0s 52us/sample - loss: 35.1013 - accuracy:  
Epoch 376/2000  
1810/1810 [=====] - 0s 52us/sample - loss: 34.5816 - accuracy:  
Epoch 377/2000  
1810/1810 [=====] - 0s 61us/sample - loss: 36.1373 - accuracy:  
Epoch 378/2000  
1810/1810 [=====] - 0s 50us/sample - loss: 35.0306 - accuracy:  
Epoch 379/2000  
1810/1810 [=====] - 0s 49us/sample - loss: 34.4525 - accuracy:  
Epoch 380/2000  
1810/1810 [=====] - 0s 55us/sample - loss: 35.2588 - accuracy:  
Epoch 381/2000  
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Epoch 383/2000  
1810/1810 [=====] - 0s 50us/sample - loss: 34.5323 - accuracy:  
Epoch 384/2000  
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Epoch 385/2000  
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Epoch 386/2000  
1810/1810 [=====] - 0s 47us/sample - loss: 36.5072 - accuracy:  
Epoch 387/2000  
1810/1810 [=====] - 0s 54us/sample - loss: 35.8812 - accuracy:  
Epoch 388/2000  
1810/1810 [=====] - 0s 44us/sample - loss: 35.2583 - accuracy:  
Epoch 389/2000  
1810/1810 [=====] - 0s 49us/sample - loss: 35.3695 - accuracy:  
Epoch 390/2000  
1810/1810 [=====] - 0s 55us/sample - loss: 35.3382 - accuracy:  
Epoch 391/2000  
1810/1810 [=====] - 0s 48us/sample - loss: 34.9868 - accuracy:  
Epoch 392/2000  
1810/1810 [=====] - 0s 53us/sample - loss: 35.1907 - accuracy:  
Epoch 393/2000  
1810/1810 [=====] - 0s 42us/sample - loss: 35.0492 - accuracy:  
Epoch 394/2000  
1810/1810 [=====] - 0s 54us/sample - loss: 35.4782 - accuracy:  
Epoch 395/2000  
1810/1810 [=====] - 0s 43us/sample - loss: 34.6322 - accuracy:

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Epoch 396/2000
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1810/1810 [=====] - 0s 48us/sample - loss: 35.5039 - accuracy:
Epoch 399/2000
1810/1810 [=====] - 0s 48us/sample - loss: 35.3578 - accuracy:
Epoch 400/2000
1810/1810 [=====] - 0s 53us/sample - loss: 36.2214 - accuracy:
Epoch 401/2000
1810/1810 [=====] - 0s 43us/sample - loss: 35.0921 - accuracy:
Epoch 402/2000
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Epoch 403/2000
1810/1810 [=====] - 0s 37us/sample - loss: 35.4062 - accuracy:
Epoch 404/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.9293 - accuracy:
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Epoch 407/2000
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Epoch 408/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.6897 - accuracy:
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Epoch 417/2000
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Epoch 418/2000
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Epoch 419/2000
1810/1810 [=====] - 0s 43us/sample - loss: 35.0407 - accuracy:
Epoch 420/2000
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Epoch 421/2000
1810/1810 [=====] - 0s 27us/sample - loss: 35.6457 - accuracy:
Epoch 422/2000
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Epoch 423/2000
1810/1810 [=====] - 0s 27us/sample - loss: 34.6396 - accuracy:
Epoch 424/2000
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Epoch 425/2000
1810/1810 [=====] - 0s 28us/sample - loss: 35.0347 - accuracy:
Epoch 426/2000
1810/1810 [=====] - 0s 53us/sample - loss: 35.5295 - accuracy:
Epoch 427/2000
1810/1810 [=====] - 0s 79us/sample - loss: 34.9688 - accuracy:
Epoch 428/2000
1810/1810 [=====] - 0s 39us/sample - loss: 35.6581 - accuracy:
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1810/1810 [=====] - 0s 36us/sample - loss: 36.8926 - accuracy:
Epoch 430/2000
1810/1810 [=====] - 0s 34us/sample - loss: 35.3703 - accuracy:
Epoch 431/2000
1810/1810 [=====] - 0s 45us/sample - loss: 35.7484 - accuracy:
Epoch 432/2000
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Epoch 433/2000
1810/1810 [=====] - 0s 75us/sample - loss: 35.8679 - accuracy:
Epoch 434/2000
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Epoch 435/2000
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Epoch 436/2000
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Epoch 438/2000
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Epoch 439/2000
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Epoch 440/2000
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1810/1810 [=====] - 0s 85us/sample - loss: 37.0132 - accuracy:
Epoch 442/2000
1810/1810 [=====] - 0s 84us/sample - loss: 34.1096 - accuracy:
Epoch 443/2000
1810/1810 [=====] - 0s 86us/sample - loss: 34.4978 - accuracy:
Epoch 444/2000
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Epoch 447/2000
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Epoch 449/2000
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Epoch 452/2000
1810/1810 [=====] - 0s 51us/sample - loss: 35.4754 - accuracy:
Epoch 453/2000
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Epoch 454/2000
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Epoch 455/2000
1810/1810 [=====] - 0s 55us/sample - loss: 35.4207 - accuracy:
Epoch 456/2000
1810/1810 [=====] - 0s 54us/sample - loss: 35.2482 - accuracy:
Epoch 457/2000
1810/1810 [=====] - 0s 58us/sample - loss: 35.1433 - accuracy:
Epoch 458/2000
1810/1810 [=====] - 0s 49us/sample - loss: 35.6911 - accuracy:
Epoch 459/2000
1810/1810 [=====] - 0s 60us/sample - loss: 35.0395 - accuracy:
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Epoch 461/2000
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Epoch 466/2000
1810/1810 [=====] - 0s 51us/sample - loss: 35.3152 - accuracy:
Epoch 467/2000
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Epoch 469/2000
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Epoch 472/2000
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Epoch 473/2000
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1810/1810 [=====] - 0s 51us/sample - loss: 36.7034 - accuracy:
Epoch 480/2000
1810/1810 [=====] - 0s 49us/sample - loss: 35.1439 - accuracy:
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1810/1810 [=====] - 0s 56us/sample - loss: 34.1801 - accuracy:
Epoch 482/2000
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Epoch 510/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.1761 - accuracy:
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1810/1810 [=====] - 0s 49us/sample - loss: 34.9473 - accuracy:  
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Epoch 517/2000  
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Epoch 520/2000  
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Epoch 523/2000  
1810/1810 [=====] - 0s 48us/sample - loss: 34.5608 - accuracy:  
Epoch 524/2000  
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Epoch 525/2000  
1810/1810 [=====] - 0s 49us/sample - loss: 34.9881 - accuracy:  
Epoch 526/2000  
1810/1810 [=====] - 0s 44us/sample - loss: 34.4231 - accuracy:  
Epoch 527/2000  
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Epoch 529/2000  
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Epoch 533/2000  
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Epoch 534/2000  
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Epoch 535/2000  
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Epoch 536/2000  
1810/1810 [=====] - 0s 51us/sample - loss: 35.1847 - accuracy:  
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Epoch 538/2000  
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Epoch 539/2000  
1810/1810 [=====] - 0s 54us/sample - loss: 34.2095 - accuracy:

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Epoch 543/2000
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Epoch 545/2000
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Epoch 547/2000
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Epoch 549/2000
1810/1810 [=====] - 0s 44us/sample - loss: 34.3562 - accuracy:
Epoch 550/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.7548 - accuracy:
Epoch 551/2000
1810/1810 [=====] - 0s 48us/sample - loss: 35.1186 - accuracy:
Epoch 552/2000
1810/1810 [=====] - 0s 51us/sample - loss: 34.6848 - accuracy:
Epoch 553/2000
1810/1810 [=====] - 0s 44us/sample - loss: 34.6579 - accuracy:
Epoch 554/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.6068 - accuracy:
Epoch 555/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.8304 - accuracy:
Epoch 556/2000
1810/1810 [=====] - 0s 51us/sample - loss: 34.2989 - accuracy:
Epoch 557/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.3010 - accuracy:
Epoch 558/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.8145 - accuracy:
Epoch 559/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.7922 - accuracy:
Epoch 560/2000
1810/1810 [=====] - 0s 49us/sample - loss: 35.2748 - accuracy:
Epoch 561/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.4934 - accuracy:
Epoch 562/2000
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Epoch 563/2000
1810/1810 [=====] - 0s 51us/sample - loss: 35.0265 - accuracy:
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Epoch 565/2000
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Epoch 567/2000
1810/1810 [=====] - 0s 49us/sample - loss: 35.9236 - accuracy:
Epoch 568/2000
1810/1810 [=====] - 0s 47us/sample - loss: 35.9697 - accuracy:
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1810/1810 [-----] - 0s 47us/sample - loss: 33.9097 - accuracy:
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1810/1810 [=====] - 0s 49us/sample - loss: 34.9304 - accuracy:
Epoch 570/2000
1810/1810 [=====] - 0s 47us/sample - loss: 35.3422 - accuracy:
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1810/1810 [=====] - 0s 42us/sample - loss: 35.1946 - accuracy:
Epoch 573/2000
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Epoch 574/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.2604 - accuracy:
Epoch 575/2000
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Epoch 576/2000
1810/1810 [=====] - 0s 44us/sample - loss: 34.2229 - accuracy:
Epoch 577/2000
1810/1810 [=====] - 0s 51us/sample - loss: 34.3979 - accuracy:
Epoch 578/2000
1810/1810 [=====] - 0s 43us/sample - loss: 35.4770 - accuracy:
Epoch 579/2000
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Epoch 580/2000
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Epoch 582/2000
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Epoch 583/2000
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Epoch 584/2000
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1810/1810 [=====] - 0s 44us/sample - loss: 34.8208 - accuracy:
Epoch 586/2000
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Epoch 587/2000
1810/1810 [=====] - 0s 47us/sample - loss: 35.2125 - accuracy:
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Epoch 589/2000
1810/1810 [=====] - 0s 42us/sample - loss: 34.2603 - accuracy:
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Epoch 591/2000
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Epoch 592/2000
1810/1810 [=====] - 0s 38us/sample - loss: 34.5407 - accuracy:
Epoch 593/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.0290 - accuracy:
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1810/1810 [=====] - 0s 47us/sample - loss: 35.0346 - accuracy:
Epoch 595/2000
1810/1810 [=====] - 0s 47us/sample - loss: 36.8887 - accuracy:
Epoch 596/2000
1810/1810 [=====] - 0s 46us/sample - loss: 37.6925 - accuracy:
Epoch 597/2000
```

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Epoch 600/2000
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Epoch 601/2000
1810/1810 [=====] - 0s 40us/sample - loss: 35.4136 - accuracy:
Epoch 602/2000
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Epoch 605/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.0360 - accuracy:
Epoch 606/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.5910 - accuracy:
Epoch 607/2000
1810/1810 [=====] - 0s 52us/sample - loss: 34.3162 - accuracy:
Epoch 608/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.4827 - accuracy:
Epoch 609/2000
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Epoch 610/2000
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Epoch 611/2000
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Epoch 612/2000
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Epoch 613/2000
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Epoch 616/2000
1810/1810 [=====] - 0s 51us/sample - loss: 34.5970 - accuracy:
Epoch 617/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.8531 - accuracy:
Epoch 618/2000
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Epoch 619/2000
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Epoch 620/2000
1810/1810 [=====] - 0s 46us/sample - loss: 35.0240 - accuracy:
Epoch 621/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.4633 - accuracy:
Epoch 622/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.5293 - accuracy:
Epoch 623/2000
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Epoch 624/2000
1810/1810 [=====] - 0s 53us/sample - loss: 34.3320 - accuracy:
Epoch 625/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.1506 - accuracy:
Epoch 626/2000
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Epoch 627/2000  
1810/1810 [=====] - 0s 47us/sample - loss: 35.7577 - accuracy:  
Epoch 628/2000  
1810/1810 [=====] - 0s 75us/sample - loss: 34.0059 - accuracy:  
Epoch 629/2000  
1810/1810 [=====] - 0s 60us/sample - loss: 34.7560 - accuracy:  
Epoch 630/2000  
1810/1810 [=====] - 0s 47us/sample - loss: 35.1657 - accuracy:  
Epoch 631/2000  
1810/1810 [=====] - 0s 37us/sample - loss: 34.4564 - accuracy:  
Epoch 632/2000  
1810/1810 [=====] - 0s 43us/sample - loss: 34.5091 - accuracy:  
Epoch 633/2000  
1810/1810 [=====] - 0s 47us/sample - loss: 34.8898 - accuracy:  
Epoch 634/2000  
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Epoch 635/2000  
1810/1810 [=====] - 0s 46us/sample - loss: 34.6501 - accuracy:  
Epoch 636/2000  
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Epoch 637/2000  
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Epoch 638/2000  
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Epoch 639/2000  
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Epoch 640/2000  
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Epoch 644/2000  
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Epoch 645/2000  
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Epoch 646/2000  
1810/1810 [=====] - 0s 58us/sample - loss: 34.4708 - accuracy:  
Epoch 647/2000  
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Epoch 648/2000  
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Epoch 649/2000  
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Epoch 650/2000  
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Epoch 651/2000  
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Epoch 652/2000  
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Epoch 653/2000  
1810/1810 [=====] - 0s 45us/sample - loss: 34.7918 - accuracy:  
Epoch 654/2000  
1810/1810 [=====] - 0s 50us/sample - loss: 34.9551 - accuracy:  
Epoch 655/2000



Epoch 655/2000

1810/1810 [=====] - 0s 45us/sample - loss: 34.4582 - accuracy:

Epoch 656/2000

1810/1810 [=====] - 0s 46us/sample - loss: 34.9553 - accuracy:

Epoch 657/2000

1810/1810 [=====] - 0s 54us/sample - loss: 38.1513 - accuracy:

Epoch 658/2000

1810/1810 [=====] - 0s 50us/sample - loss: 35.9726 - accuracy:

Epoch 659/2000

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Epoch 660/2000

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Epoch 661/2000

1810/1810 [=====] - 0s 51us/sample - loss: 35.2967 - accuracy:

Epoch 662/2000

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Epoch 663/2000

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Epoch 664/2000

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Epoch 665/2000

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Epoch 666/2000

1810/1810 [=====] - 0s 46us/sample - loss: 34.3004 - accuracy:

Epoch 667/2000

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Epoch 668/2000

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Epoch 669/2000

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Epoch 670/2000

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Epoch 671/2000

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Epoch 672/2000

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Epoch 673/2000

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Epoch 674/2000

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Epoch 675/2000

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Epoch 676/2000

1810/1810 [=====] - 0s 43us/sample - loss: 35.7133 - accuracy:

Epoch 677/2000

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Epoch 678/2000

1810/1810 [=====] - 0s 52us/sample - loss: 33.7931 - accuracy:

Epoch 679/2000

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Epoch 680/2000

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Epoch 681/2000

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Epoch 682/2000

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Epoch 683/2000

1810/1810 [=====] - 0s 51us/sample - loss: 34.2017 - accuracy:

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1810/1810 [=====] - 0s 44us/sample - loss: 34.2701 - accuracy:  
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Epoch 689/2000  
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1810/1810 [=====] - 0s 47us/sample - loss: 34.4215 - accuracy:  
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1810/1810 [=====] - 0s 57us/sample - loss: 37.2586 - accuracy:  
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1810/1810 [=====] - 0s 61us/sample - loss: 34.9506 - accuracy:  
Epoch 694/2000  
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Epoch 695/2000  
1810/1810 [=====] - 0s 55us/sample - loss: 34.2638 - accuracy:  
Epoch 696/2000  
1810/1810 [=====] - 0s 56us/sample - loss: 35.5918 - accuracy:  
Epoch 697/2000  
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Epoch 699/2000  
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Epoch 705/2000  
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Epoch 707/2000  
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Epoch 710/2000  
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Epoch 712/2000  
1810/1810 [=====] - 0s 44us/sample - loss: 34.6989 - accuracy:

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Epoch 717/2000
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Epoch 719/2000
1810/1810 [=====] - 0s 51us/sample - loss: 35.7704 - accuracy:
Epoch 720/2000
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1810/1810 [=====] - 0s 48us/sample - loss: 34.9771 - accuracy:
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Epoch 727/2000
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1810/1810 [=====] - 0s 53us/sample - loss: 34.1205 - accuracy:
Epoch 733/2000
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Epoch 734/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.2354 - accuracy:
Epoch 735/2000
1810/1810 [=====] - 0s 42us/sample - loss: 34.2089 - accuracy:
Epoch 736/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.0573 - accuracy:
Epoch 737/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.0798 - accuracy:
Epoch 738/2000
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Epoch 739/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.0954 - accuracy:
Epoch 740/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.3678 - accuracy:
Epoch 741/2000
1810/1810 [=====] - 0s 46us/sample - loss: 35.5327 - accuracy:
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Epoch 743/2000
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Epoch 745/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.2342 - accuracy:
Epoch 746/2000
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Epoch 747/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.1656 - accuracy:
Epoch 748/2000
1810/1810 [=====] - 0s 41us/sample - loss: 34.4164 - accuracy:
Epoch 749/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.3592 - accuracy:
Epoch 750/2000
1810/1810 [=====] - 0s 51us/sample - loss: 34.1440 - accuracy:
Epoch 751/2000
1810/1810 [=====] - 0s 38us/sample - loss: 34.3426 - accuracy:
Epoch 752/2000
1810/1810 [=====] - 0s 43us/sample - loss: 34.2047 - accuracy:
Epoch 753/2000
1810/1810 [=====] - 0s 52us/sample - loss: 34.4201 - accuracy:
Epoch 754/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.3156 - accuracy:
Epoch 755/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.1604 - accuracy:
Epoch 756/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.4627 - accuracy:
Epoch 757/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.0673 - accuracy:
Epoch 758/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.7348 - accuracy:
Epoch 759/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.1478 - accuracy:
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1810/1810 [=====] - 0s 49us/sample - loss: 34.1443 - accuracy:
Epoch 761/2000
1810/1810 [=====] - 0s 51us/sample - loss: 35.0317 - accuracy:
Epoch 762/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.1607 - accuracy:
Epoch 763/2000
1810/1810 [=====] - 0s 45us/sample - loss: 33.8977 - accuracy:
Epoch 764/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.7517 - accuracy:
Epoch 765/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.6968 - accuracy:
Epoch 766/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.3502 - accuracy:
Epoch 767/2000
1810/1810 [=====] - 0s 51us/sample - loss: 34.1942 - accuracy:
Epoch 768/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.3527 - accuracy:
Epoch 769/2000
1810/1810 [=====] - 0s 42us/sample - loss: 35.9204 - accuracy:
Epoch 770/2000
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1810/1810 [=====] - 0s 42us/sample - loss: 34.0213 - accuracy:
Epoch 772/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.5217 - accuracy:
Epoch 773/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.8499 - accuracy:
Epoch 774/2000
1810/1810 [=====] - 0s 64us/sample - loss: 34.6932 - accuracy:
Epoch 775/2000
1810/1810 [=====] - 0s 54us/sample - loss: 34.3885 - accuracy:
Epoch 776/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.6380 - accuracy:
Epoch 777/2000
1810/1810 [=====] - 0s 51us/sample - loss: 33.9222 - accuracy:
Epoch 778/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.2328 - accuracy:
Epoch 779/2000
1810/1810 [=====] - 0s 43us/sample - loss: 34.1249 - accuracy:
Epoch 780/2000
1810/1810 [=====] - 0s 44us/sample - loss: 33.8730 - accuracy:
Epoch 781/2000
1810/1810 [=====] - 0s 48us/sample - loss: 35.8591 - accuracy:
Epoch 782/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.2328 - accuracy:
Epoch 783/2000
1810/1810 [=====] - 0s 53us/sample - loss: 35.0196 - accuracy:
Epoch 784/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.5112 - accuracy:
Epoch 785/2000
1810/1810 [=====] - 0s 44us/sample - loss: 34.2571 - accuracy:
Epoch 786/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.9739 - accuracy:
Epoch 787/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.2376 - accuracy:
Epoch 788/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.1384 - accuracy:
Epoch 789/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.2643 - accuracy:
Epoch 790/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.4053 - accuracy:
Epoch 791/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.6512 - accuracy:
Epoch 792/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.9241 - accuracy:
Epoch 793/2000
1810/1810 [=====] - 0s 46us/sample - loss: 35.6460 - accuracy:
Epoch 794/2000
1810/1810 [=====] - 0s 53us/sample - loss: 34.3398 - accuracy:
Epoch 795/2000
1810/1810 [=====] - 0s 54us/sample - loss: 34.1740 - accuracy:
Epoch 796/2000
1810/1810 [=====] - 0s 42us/sample - loss: 35.1321 - accuracy:
Epoch 797/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.4057 - accuracy:
Epoch 798/2000
1810/1810 [=====] - 0s 51us/sample - loss: 36.5008 - accuracy:
Epoch 799/2000
```

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1810/1810 [=====] - 0s 41us/sample - loss: 34.1294 - accuracy:
Epoch 800/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.8813 - accuracy:
Epoch 801/2000
1810/1810 [=====] - 0s 44us/sample - loss: 34.1170 - accuracy:
Epoch 802/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.5971 - accuracy:
Epoch 803/2000
1810/1810 [=====] - 0s 52us/sample - loss: 34.0816 - accuracy:
Epoch 804/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.4897 - accuracy:
Epoch 805/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.7777 - accuracy:
Epoch 806/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.5419 - accuracy:
Epoch 807/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.4292 - accuracy:
Epoch 808/2000
1810/1810 [=====] - 0s 44us/sample - loss: 34.8262 - accuracy:
Epoch 809/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.3826 - accuracy:
Epoch 810/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.5792 - accuracy:
Epoch 811/2000
1810/1810 [=====] - 0s 54us/sample - loss: 34.5237 - accuracy:
Epoch 812/2000
1810/1810 [=====] - 0s 41us/sample - loss: 34.8215 - accuracy:
Epoch 813/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.1260 - accuracy:
Epoch 814/2000
1810/1810 [=====] - 0s 45us/sample - loss: 35.0117 - accuracy:
Epoch 815/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.6164 - accuracy:
Epoch 816/2000
1810/1810 [=====] - 0s 46us/sample - loss: 33.9196 - accuracy:
Epoch 817/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.6955 - accuracy:
Epoch 818/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.3856 - accuracy:
Epoch 819/2000
1810/1810 [=====] - 0s 49us/sample - loss: 35.3398 - accuracy:
Epoch 820/2000
1810/1810 [=====] - 0s 49us/sample - loss: 35.0737 - accuracy:
Epoch 821/2000
1810/1810 [=====] - 0s 38us/sample - loss: 34.9887 - accuracy:
Epoch 822/2000
1810/1810 [=====] - 0s 47us/sample - loss: 35.1521 - accuracy:
Epoch 823/2000
1810/1810 [=====] - 0s 51us/sample - loss: 34.1589 - accuracy:
Epoch 824/2000
1810/1810 [=====] - 0s 44us/sample - loss: 34.5283 - accuracy:
Epoch 825/2000
1810/1810 [=====] - 0s 44us/sample - loss: 34.0558 - accuracy:
Epoch 826/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.3738 - accuracy:
Epoch 827/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.2325 - accuracy:
Epoch 828/2000
```

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Epoch 828/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.9833 - accuracy:
Epoch 829/2000
1810/1810 [=====] - 0s 47us/sample - loss: 35.0358 - accuracy:
Epoch 830/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.3200 - accuracy:
Epoch 831/2000
1810/1810 [=====] - 0s 51us/sample - loss: 35.1479 - accuracy:
Epoch 832/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.1435 - accuracy:
Epoch 833/2000
1810/1810 [=====] - 0s 56us/sample - loss: 34.4867 - accuracy:
Epoch 834/2000
1810/1810 [=====] - 0s 52us/sample - loss: 34.1103 - accuracy:
Epoch 835/2000
1810/1810 [=====] - 0s 59us/sample - loss: 35.2143 - accuracy:
Epoch 836/2000
1810/1810 [=====] - 0s 47us/sample - loss: 35.1745 - accuracy:
Epoch 837/2000
1810/1810 [=====] - 0s 43us/sample - loss: 34.7897 - accuracy:
Epoch 838/2000
1810/1810 [=====] - 0s 51us/sample - loss: 33.8955 - accuracy:
Epoch 839/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.8183 - accuracy:
Epoch 840/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.4544 - accuracy:
Epoch 841/2000
1810/1810 [=====] - 0s 44us/sample - loss: 34.1755 - accuracy:
Epoch 842/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.3751 - accuracy:
Epoch 843/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.8229 - accuracy:
Epoch 844/2000
1810/1810 [=====] - 0s 51us/sample - loss: 34.5501 - accuracy:
Epoch 845/2000
1810/1810 [=====] - 0s 39us/sample - loss: 34.4294 - accuracy:
Epoch 846/2000
1810/1810 [=====] - 0s 45us/sample - loss: 36.2754 - accuracy:
Epoch 847/2000
1810/1810 [=====] - 0s 46us/sample - loss: 37.5072 - accuracy:
Epoch 848/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.4562 - accuracy:
Epoch 849/2000
1810/1810 [=====] - 0s 51us/sample - loss: 34.8971 - accuracy:
Epoch 850/2000
1810/1810 [=====] - 0s 42us/sample - loss: 34.6056 - accuracy:
Epoch 851/2000
1810/1810 [=====] - 0s 52us/sample - loss: 34.8264 - accuracy:
Epoch 852/2000
1810/1810 [=====] - 0s 50us/sample - loss: 35.6817 - accuracy:
Epoch 853/2000
1810/1810 [=====] - 0s 45us/sample - loss: 35.1052 - accuracy:
Epoch 854/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.4847 - accuracy:
Epoch 855/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.6502 - accuracy:
Epoch 856/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.7342 - accuracy:
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Epoch 857/2000
1810/1810 [=====] - 0s 55us/sample - loss: 34.6890 - accuracy:
Epoch 858/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.1948 - accuracy:
Epoch 859/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.3685 - accuracy:
Epoch 860/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.5062 - accuracy:
Epoch 861/2000
1810/1810 [=====] - 0s 51us/sample - loss: 34.4579 - accuracy:
Epoch 862/2000
1810/1810 [=====] - 0s 44us/sample - loss: 35.3669 - accuracy:
Epoch 863/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.4395 - accuracy:
Epoch 864/2000
1810/1810 [=====] - 0s 47us/sample - loss: 35.0173 - accuracy:
Epoch 865/2000
1810/1810 [=====] - 0s 51us/sample - loss: 35.2462 - accuracy:
Epoch 866/2000
1810/1810 [=====] - 0s 43us/sample - loss: 35.3051 - accuracy:
Epoch 867/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.7001 - accuracy:
Epoch 868/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.3282 - accuracy:
Epoch 869/2000
1810/1810 [=====] - 0s 50us/sample - loss: 35.9110 - accuracy:
Epoch 870/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.7955 - accuracy:
Epoch 871/2000
1810/1810 [=====] - 0s 44us/sample - loss: 35.3902 - accuracy:
Epoch 872/2000
1810/1810 [=====] - 0s 52us/sample - loss: 35.0988 - accuracy:
Epoch 873/2000
1810/1810 [=====] - 0s 48us/sample - loss: 35.3754 - accuracy:
Epoch 874/2000
1810/1810 [=====] - 0s 44us/sample - loss: 34.1249 - accuracy:
Epoch 875/2000
1810/1810 [=====] - 0s 46us/sample - loss: 35.1267 - accuracy:
Epoch 876/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.3500 - accuracy:
Epoch 877/2000
1810/1810 [=====] - 0s 48us/sample - loss: 36.0409 - accuracy:
Epoch 878/2000
1810/1810 [=====] - 0s 53us/sample - loss: 35.0773 - accuracy:
Epoch 879/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.7070 - accuracy:
Epoch 880/2000
1810/1810 [=====] - 0s 39us/sample - loss: 34.6429 - accuracy:
Epoch 881/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.6266 - accuracy:
Epoch 882/2000
1810/1810 [=====] - 0s 49us/sample - loss: 37.2011 - accuracy:
Epoch 883/2000
1810/1810 [=====] - 0s 39us/sample - loss: 34.8567 - accuracy:
Epoch 884/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.3818 - accuracy:
Epoch 885/2000
1810/1810 [=====] - 0s 51us/sample - loss: 34.1141 - accuracy:
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Epoch 886/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.4106 - accuracy:
Epoch 887/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.4394 - accuracy:
Epoch 888/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.2589 - accuracy:
Epoch 889/2000
1810/1810 [=====] - 0s 53us/sample - loss: 34.6994 - accuracy:
Epoch 890/2000
1810/1810 [=====] - 0s 47us/sample - loss: 35.4638 - accuracy:
Epoch 891/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.8988 - accuracy:
Epoch 892/2000
1810/1810 [=====] - 0s 57us/sample - loss: 34.8958 - accuracy:
Epoch 893/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.1046 - accuracy:
Epoch 894/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.5512 - accuracy:
Epoch 895/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.5605 - accuracy:
Epoch 896/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.4369 - accuracy:
Epoch 897/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.5244 - accuracy:
Epoch 898/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.4500 - accuracy:
Epoch 899/2000
1810/1810 [=====] - 0s 41us/sample - loss: 34.8566 - accuracy:
Epoch 900/2000
1810/1810 [=====] - 0s 45us/sample - loss: 35.9245 - accuracy:
Epoch 901/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.2675 - accuracy:
Epoch 902/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.3375 - accuracy:
Epoch 903/2000
1810/1810 [=====] - 0s 45us/sample - loss: 35.0891 - accuracy:
Epoch 904/2000
1810/1810 [=====] - 0s 52us/sample - loss: 34.5959 - accuracy:
Epoch 905/2000
1810/1810 [=====] - 0s 47us/sample - loss: 35.9766 - accuracy:
Epoch 906/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.8326 - accuracy:
Epoch 907/2000
1810/1810 [=====] - 0s 42us/sample - loss: 35.4042 - accuracy:
Epoch 908/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.0545 - accuracy:
Epoch 909/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.5748 - accuracy:
Epoch 910/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.1168 - accuracy:
Epoch 911/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.5896 - accuracy:
Epoch 912/2000
1810/1810 [=====] - 0s 50us/sample - loss: 35.0936 - accuracy:
Epoch 913/2000
1810/1810 [=====] - 0s 44us/sample - loss: 34.9582 - accuracy:
Epoch 914/2000
```

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1810/1810 [=====] - 0s 46us/sample - loss: 34.0550 - accuracy:
Epoch 915/2000
1810/1810 [=====] - 0s 44us/sample - loss: 35.4584 - accuracy:
Epoch 916/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.7137 - accuracy:
Epoch 917/2000
1810/1810 [=====] - 0s 47us/sample - loss: 35.7996 - accuracy:
Epoch 918/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.6991 - accuracy:
Epoch 919/2000
1810/1810 [=====] - 0s 50us/sample - loss: 36.1979 - accuracy:
Epoch 920/2000
1810/1810 [=====] - 0s 42us/sample - loss: 34.4651 - accuracy:
Epoch 921/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.6984 - accuracy:
Epoch 922/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.7848 - accuracy:
Epoch 923/2000
1810/1810 [=====] - 0s 52us/sample - loss: 34.3573 - accuracy:
Epoch 924/2000
1810/1810 [=====] - 0s 53us/sample - loss: 34.5134 - accuracy:
Epoch 925/2000
1810/1810 [=====] - 0s 37us/sample - loss: 34.7038 - accuracy:
Epoch 926/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.8732 - accuracy:
Epoch 927/2000
1810/1810 [=====] - 0s 52us/sample - loss: 34.7127 - accuracy:
Epoch 928/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.3983 - accuracy:
Epoch 929/2000
1810/1810 [=====] - 0s 50us/sample - loss: 33.8517 - accuracy:
Epoch 930/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.2105 - accuracy:
Epoch 931/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.1697 - accuracy:
Epoch 932/2000
1810/1810 [=====] - 0s 47us/sample - loss: 35.6762 - accuracy:
Epoch 933/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.6610 - accuracy:
Epoch 934/2000
1810/1810 [=====] - 0s 48us/sample - loss: 35.1525 - accuracy:
Epoch 935/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.9612 - accuracy:
Epoch 936/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.5424 - accuracy:
Epoch 937/2000
1810/1810 [=====] - 0s 51us/sample - loss: 34.0265 - accuracy:
Epoch 938/2000
1810/1810 [=====] - 0s 47us/sample - loss: 35.0964 - accuracy:
Epoch 939/2000
1810/1810 [=====] - 0s 44us/sample - loss: 35.0058 - accuracy:
Epoch 940/2000
1810/1810 [=====] - 0s 44us/sample - loss: 34.2289 - accuracy:
Epoch 941/2000
1810/1810 [=====] - 0s 45us/sample - loss: 35.0801 - accuracy:
Epoch 942/2000
1810/1810 [=====] - 0s 45us/sample - loss: 35.0730 - accuracy:
Epoch 943/2000
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1810/1810 [=====] - 0s 46us/sample - loss: 33.8795 - accuracy:
Epoch 944/2000
1810/1810 [=====] - 0s 51us/sample - loss: 34.0705 - accuracy:
Epoch 945/2000
1810/1810 [=====] - 0s 39us/sample - loss: 34.6555 - accuracy:
Epoch 946/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.4855 - accuracy:
Epoch 947/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.3343 - accuracy:
Epoch 948/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.4579 - accuracy:
Epoch 949/2000
1810/1810 [=====] - 0s 42us/sample - loss: 34.0069 - accuracy:
Epoch 950/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.4222 - accuracy:
Epoch 951/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.3230 - accuracy:
Epoch 952/2000
1810/1810 [=====] - 0s 56us/sample - loss: 34.2229 - accuracy:
Epoch 953/2000
1810/1810 [=====] - 0s 52us/sample - loss: 34.4844 - accuracy:
Epoch 954/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.9580 - accuracy:
Epoch 955/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.6226 - accuracy:
Epoch 956/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.8747 - accuracy:
Epoch 957/2000
1810/1810 [=====] - 0s 47us/sample - loss: 33.9313 - accuracy:
Epoch 958/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.5410 - accuracy:
Epoch 959/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.6678 - accuracy:
Epoch 960/2000
1810/1810 [=====] - 0s 47us/sample - loss: 35.4718 - accuracy:
Epoch 961/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.9783 - accuracy:
Epoch 962/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.1385 - accuracy:
Epoch 963/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.1904 - accuracy:
Epoch 964/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.4290 - accuracy:
Epoch 965/2000
1810/1810 [=====] - 0s 43us/sample - loss: 34.8303 - accuracy:
Epoch 966/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.4949 - accuracy:
Epoch 967/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.4586 - accuracy:
Epoch 968/2000
1810/1810 [=====] - 0s 47us/sample - loss: 37.3739 - accuracy:
Epoch 969/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.2198 - accuracy:
Epoch 970/2000
1810/1810 [=====] - 0s 44us/sample - loss: 35.0153 - accuracy:
Epoch 971/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.7155 - accuracy:
Epoch 972/2000
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Epoch 972/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.2534 - accuracy:
Epoch 973/2000
1810/1810 [=====] - 0s 66us/sample - loss: 34.0206 - accuracy:
Epoch 974/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.1458 - accuracy:
Epoch 975/2000
1810/1810 [=====] - 0s 42us/sample - loss: 34.1594 - accuracy:
Epoch 976/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.4647 - accuracy:
Epoch 977/2000
1810/1810 [=====] - 0s 48us/sample - loss: 35.6051 - accuracy:
Epoch 978/2000
1810/1810 [=====] - 0s 42us/sample - loss: 34.4916 - accuracy:
Epoch 979/2000
1810/1810 [=====] - 0s 46us/sample - loss: 35.4285 - accuracy:
Epoch 980/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.7236 - accuracy:
Epoch 981/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.0770 - accuracy:
Epoch 982/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.0549 - accuracy:
Epoch 983/2000
1810/1810 [=====] - 0s 46us/sample - loss: 35.1352 - accuracy:
Epoch 984/2000
1810/1810 [=====] - 0s 44us/sample - loss: 35.4637 - accuracy:
Epoch 985/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.8801 - accuracy:
Epoch 986/2000
1810/1810 [=====] - 0s 44us/sample - loss: 34.7236 - accuracy:
Epoch 987/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.8191 - accuracy:
Epoch 988/2000
1810/1810 [=====] - 0s 43us/sample - loss: 34.2741 - accuracy:
Epoch 989/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.0720 - accuracy:
Epoch 990/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.0080 - accuracy:
Epoch 991/2000
1810/1810 [=====] - 0s 54us/sample - loss: 34.0220 - accuracy:
Epoch 992/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.8463 - accuracy:
Epoch 993/2000
1810/1810 [=====] - 0s 46us/sample - loss: 36.3651 - accuracy:
Epoch 994/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.3543 - accuracy:
Epoch 995/2000
1810/1810 [=====] - 0s 39us/sample - loss: 34.8857 - accuracy:
Epoch 996/2000
1810/1810 [=====] - 0s 51us/sample - loss: 34.4783 - accuracy:
Epoch 997/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.1033 - accuracy:
Epoch 998/2000
1810/1810 [=====] - 0s 52us/sample - loss: 34.1085 - accuracy:
Epoch 999/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.6680 - accuracy:
Epoch 1000/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.1684 - accuracy:
```

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Epoch 1001/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.2741 - accuracy:
Epoch 1002/2000
1810/1810 [=====] - 0s 52us/sample - loss: 34.3417 - accuracy:
Epoch 1003/2000
1810/1810 [=====] - 0s 39us/sample - loss: 34.3977 - accuracy:
Epoch 1004/2000
1810/1810 [=====] - 0s 46us/sample - loss: 36.0105 - accuracy:
Epoch 1005/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.5002 - accuracy:
Epoch 1006/2000
1810/1810 [=====] - 0s 53us/sample - loss: 34.2676 - accuracy:
Epoch 1007/2000
1810/1810 [=====] - 0s 49us/sample - loss: 35.2224 - accuracy:
Epoch 1008/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.3949 - accuracy:
Epoch 1009/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.8196 - accuracy:
Epoch 1010/2000
1810/1810 [=====] - 0s 53us/sample - loss: 34.4343 - accuracy:
Epoch 1011/2000
1810/1810 [=====] - 0s 47us/sample - loss: 35.1081 - accuracy:
Epoch 1012/2000
1810/1810 [=====] - 0s 52us/sample - loss: 34.9935 - accuracy:
Epoch 1013/2000
1810/1810 [=====] - 0s 44us/sample - loss: 34.7342 - accuracy:
Epoch 1014/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.2376 - accuracy:
Epoch 1015/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.6999 - accuracy:
Epoch 1016/2000
1810/1810 [=====] - 0s 52us/sample - loss: 34.4281 - accuracy:
Epoch 1017/2000
1810/1810 [=====] - 0s 51us/sample - loss: 34.5288 - accuracy:
Epoch 1018/2000
1810/1810 [=====] - 0s 38us/sample - loss: 34.5344 - accuracy:
Epoch 1019/2000
1810/1810 [=====] - 0s 70us/sample - loss: 35.7603 - accuracy:
Epoch 1020/2000
1810/1810 [=====] - 0s 52us/sample - loss: 34.9725 - accuracy:
Epoch 1021/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.6380 - accuracy:
Epoch 1022/2000
1810/1810 [=====] - 0s 52us/sample - loss: 34.4460 - accuracy:
Epoch 1023/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.9694 - accuracy:
Epoch 1024/2000
1810/1810 [=====] - 0s 43us/sample - loss: 34.5638 - accuracy:
Epoch 1025/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.1030 - accuracy:
Epoch 1026/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.7420 - accuracy:
Epoch 1027/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.5277 - accuracy:
Epoch 1028/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.2817 - accuracy:
Epoch 1029/2000
1810/1810 [=====] - 0s 48us/sample - loss: 35.6473 - accuracy:
```

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Epoch 1030/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.2537 - accuracy:
Epoch 1031/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.7113 - accuracy:
Epoch 1032/2000
1810/1810 [=====] - 0s 43us/sample - loss: 34.0097 - accuracy:
Epoch 1033/2000
1810/1810 [=====] - 0s 47us/sample - loss: 35.0578 - accuracy:
Epoch 1034/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.4140 - accuracy:
Epoch 1035/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.8408 - accuracy:
Epoch 1036/2000
1810/1810 [=====] - 0s 52us/sample - loss: 34.3058 - accuracy:
Epoch 1037/2000
1810/1810 [=====] - 0s 39us/sample - loss: 34.3509 - accuracy:
Epoch 1038/2000
1810/1810 [=====] - 0s 44us/sample - loss: 34.7036 - accuracy:
Epoch 1039/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.9496 - accuracy:
Epoch 1040/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.6923 - accuracy:
Epoch 1041/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.2446 - accuracy:
Epoch 1042/2000
1810/1810 [=====] - 0s 51us/sample - loss: 34.4818 - accuracy:
Epoch 1043/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.4465 - accuracy:
Epoch 1044/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.1278 - accuracy:
Epoch 1045/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.4112 - accuracy:
Epoch 1046/2000
1810/1810 [=====] - 0s 44us/sample - loss: 34.2196 - accuracy:
Epoch 1047/2000
1810/1810 [=====] - 0s 52us/sample - loss: 35.5935 - accuracy:
Epoch 1048/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.6734 - accuracy:
Epoch 1049/2000
1810/1810 [=====] - 0s 39us/sample - loss: 35.6482 - accuracy:
Epoch 1050/2000
1810/1810 [=====] - 0s 48us/sample - loss: 36.3473 - accuracy:
Epoch 1051/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.2398 - accuracy:
Epoch 1052/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.6674 - accuracy:
Epoch 1053/2000
1810/1810 [=====] - 0s 48us/sample - loss: 33.8405 - accuracy:
Epoch 1054/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.5912 - accuracy:
Epoch 1055/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.8793 - accuracy:
Epoch 1056/2000
1810/1810 [=====] - 0s 48us/sample - loss: 35.0001 - accuracy:
Epoch 1057/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.9830 - accuracy:
Epoch 1058/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.4266 - accuracy:
```

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1810/1810 [-----] - 0s 47us/sample - loss: 34.4200 - accuracy:
Epoch 1059/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.0422 - accuracy:
Epoch 1060/2000
1810/1810 [=====] - 0s 50us/sample - loss: 35.1328 - accuracy:
Epoch 1061/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.9430 - accuracy:
Epoch 1062/2000
1810/1810 [=====] - 0s 44us/sample - loss: 35.8516 - accuracy:
Epoch 1063/2000
1810/1810 [=====] - 0s 47us/sample - loss: 35.4509 - accuracy:
Epoch 1064/2000
1810/1810 [=====] - 0s 46us/sample - loss: 35.1482 - accuracy:
Epoch 1065/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.4218 - accuracy:
Epoch 1066/2000
1810/1810 [=====] - 0s 46us/sample - loss: 35.3403 - accuracy:
Epoch 1067/2000
1810/1810 [=====] - 0s 44us/sample - loss: 34.1304 - accuracy:
Epoch 1068/2000
1810/1810 [=====] - 0s 47us/sample - loss: 36.0010 - accuracy:
Epoch 1069/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.1319 - accuracy:
Epoch 1070/2000
1810/1810 [=====] - 0s 52us/sample - loss: 34.6894 - accuracy:
Epoch 1071/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.0415 - accuracy:
Epoch 1072/2000
1810/1810 [=====] - 0s 53us/sample - loss: 34.9716 - accuracy:
Epoch 1073/2000
1810/1810 [=====] - 0s 37us/sample - loss: 35.6041 - accuracy:
Epoch 1074/2000
1810/1810 [=====] - 0s 44us/sample - loss: 33.8603 - accuracy:
Epoch 1075/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.4384 - accuracy:
Epoch 1076/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.2277 - accuracy:
Epoch 1077/2000
1810/1810 [=====] - 0s 50us/sample - loss: 35.7990 - accuracy:
Epoch 1078/2000
1810/1810 [=====] - 0s 51us/sample - loss: 34.3770 - accuracy:
Epoch 1079/2000
1810/1810 [=====] - 0s 41us/sample - loss: 34.3567 - accuracy:
Epoch 1080/2000
1810/1810 [=====] - 0s 44us/sample - loss: 34.3590 - accuracy:
Epoch 1081/2000
1810/1810 [=====] - 0s 49us/sample - loss: 35.3302 - accuracy:
Epoch 1082/2000
1810/1810 [=====] - 0s 45us/sample - loss: 35.4799 - accuracy:
Epoch 1083/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.3496 - accuracy:
Epoch 1084/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.7756 - accuracy:
Epoch 1085/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.6886 - accuracy:
Epoch 1086/2000
1810/1810 [=====] - 0s 43us/sample - loss: 34.3113 - accuracy:
Epoch 1087/2000
```

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1810/1810 [=====] - 0s 47us/sample - loss: 33.9555 - accuracy:
Epoch 1088/2000
1810/1810 [=====] - 0s 52us/sample - loss: 35.3712 - accuracy:
Epoch 1089/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.2098 - accuracy:
Epoch 1090/2000
1810/1810 [=====] - 0s 40us/sample - loss: 34.5926 - accuracy:
Epoch 1091/2000
1810/1810 [=====] - 0s 45us/sample - loss: 35.0717 - accuracy:
Epoch 1092/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.1163 - accuracy:
Epoch 1093/2000
1810/1810 [=====] - 0s 46us/sample - loss: 33.9126 - accuracy:
Epoch 1094/2000
1810/1810 [=====] - 0s 53us/sample - loss: 34.3740 - accuracy:
Epoch 1095/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.9642 - accuracy:
Epoch 1096/2000
1810/1810 [=====] - 0s 46us/sample - loss: 35.2173 - accuracy:
Epoch 1097/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.6109 - accuracy:
Epoch 1098/2000
1810/1810 [=====] - 0s 51us/sample - loss: 35.2482 - accuracy:
Epoch 1099/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.8713 - accuracy:
Epoch 1100/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.9635 - accuracy:
Epoch 1101/2000
1810/1810 [=====] - 0s 49us/sample - loss: 33.9507 - accuracy:
Epoch 1102/2000
1810/1810 [=====] - 0s 48us/sample - loss: 33.9908 - accuracy:
Epoch 1103/2000
1810/1810 [=====] - 0s 47us/sample - loss: 35.9042 - accuracy:
Epoch 1104/2000
1810/1810 [=====] - 0s 48us/sample - loss: 35.9453 - accuracy:
Epoch 1105/2000
1810/1810 [=====] - 0s 48us/sample - loss: 35.5668 - accuracy:
Epoch 1106/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.5247 - accuracy:
Epoch 1107/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.5011 - accuracy:
Epoch 1108/2000
1810/1810 [=====] - 0s 46us/sample - loss: 35.0305 - accuracy:
Epoch 1109/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.0756 - accuracy:
Epoch 1110/2000
1810/1810 [=====] - 0s 46us/sample - loss: 33.9441 - accuracy:
Epoch 1111/2000
1810/1810 [=====] - 0s 53us/sample - loss: 34.8030 - accuracy:
Epoch 1112/2000
1810/1810 [=====] - 0s 41us/sample - loss: 34.4765 - accuracy:
Epoch 1113/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.2645 - accuracy:
Epoch 1114/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.5409 - accuracy:
Epoch 1115/2000
1810/1810 [=====] - 0s 43us/sample - loss: 34.3174 - accuracy:
Epoch 1116/2000
```



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1810/1810 [=====] - 0s 47us/sample - loss: 34.8725 - accuracy:
Epoch 1117/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.5117 - accuracy:
Epoch 1118/2000
1810/1810 [=====] - 0s 40us/sample - loss: 34.3060 - accuracy:
Epoch 1119/2000
1810/1810 [=====] - 0s 44us/sample - loss: 34.2575 - accuracy:
Epoch 1120/2000
1810/1810 [=====] - 0s 50us/sample - loss: 36.0218 - accuracy:
Epoch 1121/2000
1810/1810 [=====] - 0s 49us/sample - loss: 35.5396 - accuracy:
Epoch 1122/2000
1810/1810 [=====] - 0s 39us/sample - loss: 34.0526 - accuracy:
Epoch 1123/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.2529 - accuracy:
Epoch 1124/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.6141 - accuracy:
Epoch 1125/2000
1810/1810 [=====] - 0s 52us/sample - loss: 34.4223 - accuracy:
Epoch 1126/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.0652 - accuracy:
Epoch 1127/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.3023 - accuracy:
Epoch 1128/2000
1810/1810 [=====] - 0s 38us/sample - loss: 36.2455 - accuracy:
Epoch 1129/2000
1810/1810 [=====] - 0s 53us/sample - loss: 34.7778 - accuracy:
Epoch 1130/2000
1810/1810 [=====] - 0s 43us/sample - loss: 34.4673 - accuracy:
Epoch 1131/2000
1810/1810 [=====] - 0s 51us/sample - loss: 35.0231 - accuracy:
Epoch 1132/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.2157 - accuracy:
Epoch 1133/2000
1810/1810 [=====] - 0s 51us/sample - loss: 34.8005 - accuracy:
Epoch 1134/2000
1810/1810 [=====] - 0s 41us/sample - loss: 34.5683 - accuracy:
Epoch 1135/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.1558 - accuracy:
Epoch 1136/2000
1810/1810 [=====] - 0s 47us/sample - loss: 33.9239 - accuracy:
Epoch 1137/2000
1810/1810 [=====] - 0s 53us/sample - loss: 34.3654 - accuracy:
Epoch 1138/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.2773 - accuracy:
Epoch 1139/2000
1810/1810 [=====] - 0s 37us/sample - loss: 34.6453 - accuracy:
Epoch 1140/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.5600 - accuracy:
Epoch 1141/2000
1810/1810 [=====] - 0s 48us/sample - loss: 35.1303 - accuracy:
Epoch 1142/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.2494 - accuracy:
Epoch 1143/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.5736 - accuracy:
Epoch 1144/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.0893 - accuracy:
Epoch 1145/2000
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Epoch 1145/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.4802 - accuracy:
Epoch 1146/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.7510 - accuracy:
Epoch 1147/2000
1810/1810 [=====] - 0s 46us/sample - loss: 35.0498 - accuracy:
Epoch 1148/2000
1810/1810 [=====] - 0s 43us/sample - loss: 34.1887 - accuracy:
Epoch 1149/2000
1810/1810 [=====] - 0s 44us/sample - loss: 34.6971 - accuracy:
Epoch 1150/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.5805 - accuracy:
Epoch 1151/2000
1810/1810 [=====] - 0s 48us/sample - loss: 33.9980 - accuracy:
Epoch 1152/2000
1810/1810 [=====] - 0s 55us/sample - loss: 34.3336 - accuracy:
Epoch 1153/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.2851 - accuracy:
Epoch 1154/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.1940 - accuracy:
Epoch 1155/2000
1810/1810 [=====] - 0s 43us/sample - loss: 34.6900 - accuracy:
Epoch 1156/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.4765 - accuracy:
Epoch 1157/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.4598 - accuracy:
Epoch 1158/2000
1810/1810 [=====] - 0s 45us/sample - loss: 35.3036 - accuracy:
Epoch 1159/2000
1810/1810 [=====] - 0s 44us/sample - loss: 33.9268 - accuracy:
Epoch 1160/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.0207 - accuracy:
Epoch 1161/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.1248 - accuracy:
Epoch 1162/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.6749 - accuracy:
Epoch 1163/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.7884 - accuracy:
Epoch 1164/2000
1810/1810 [=====] - 0s 50us/sample - loss: 35.2561 - accuracy:
Epoch 1165/2000
1810/1810 [=====] - 0s 44us/sample - loss: 34.9208 - accuracy:
Epoch 1166/2000
1810/1810 [=====] - 0s 44us/sample - loss: 34.3295 - accuracy:
Epoch 1167/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.3161 - accuracy:
Epoch 1168/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.8181 - accuracy:
Epoch 1169/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.7862 - accuracy:
Epoch 1170/2000
1810/1810 [=====] - 0s 50us/sample - loss: 33.9687 - accuracy:
Epoch 1171/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.8079 - accuracy:
Epoch 1172/2000
1810/1810 [=====] - 0s 48us/sample - loss: 33.9063 - accuracy:
Epoch 1173/2000
1810/1810 [=====] - 0s 48us/sample - loss: 33.9089 - accuracy:
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Epoch 1174/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.5015 - accuracy:
Epoch 1175/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.8499 - accuracy:
Epoch 1176/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.9775 - accuracy:
Epoch 1177/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.2221 - accuracy:
Epoch 1178/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.7028 - accuracy:
Epoch 1179/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.4722 - accuracy:
Epoch 1180/2000
1810/1810 [=====] - 0s 47us/sample - loss: 33.9161 - accuracy:
Epoch 1181/2000
1810/1810 [=====] - 0s 50us/sample - loss: 35.4937 - accuracy:
Epoch 1182/2000
1810/1810 [=====] - 0s 40us/sample - loss: 34.3104 - accuracy:
Epoch 1183/2000
1810/1810 [=====] - 0s 45us/sample - loss: 35.1085 - accuracy:
Epoch 1184/2000
1810/1810 [=====] - 0s 47us/sample - loss: 35.1862 - accuracy:
Epoch 1185/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.3988 - accuracy:
Epoch 1186/2000
1810/1810 [=====] - 0s 38us/sample - loss: 34.3553 - accuracy:
Epoch 1187/2000
1810/1810 [=====] - 0s 46us/sample - loss: 35.1057 - accuracy:
Epoch 1188/2000
1810/1810 [=====] - 0s 51us/sample - loss: 34.0233 - accuracy:
Epoch 1189/2000
1810/1810 [=====] - 0s 44us/sample - loss: 34.2116 - accuracy:
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1810/1810 [=====] - 0s 47us/sample - loss: 35.3335 - accuracy:
Epoch 1191/2000
1810/1810 [=====] - 0s 44us/sample - loss: 34.3878 - accuracy:
Epoch 1192/2000
1810/1810 [=====] - 0s 48us/sample - loss: 35.0235 - accuracy:
Epoch 1193/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.7948 - accuracy:
Epoch 1194/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.3776 - accuracy:
Epoch 1195/2000
1810/1810 [=====] - 0s 42us/sample - loss: 34.2118 - accuracy:
Epoch 1196/2000
1810/1810 [=====] - 0s 46us/sample - loss: 35.1017 - accuracy:
Epoch 1197/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.8007 - accuracy:
Epoch 1198/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.3622 - accuracy:
Epoch 1199/2000
1810/1810 [=====] - 0s 44us/sample - loss: 35.2636 - accuracy:
Epoch 1200/2000
1810/1810 [=====] - 0s 49us/sample - loss: 35.1251 - accuracy:
Epoch 1201/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.1542 - accuracy:
Epoch 1202/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.6932 - accuracy:
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Epoch 1203/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.0124 - accuracy:
Epoch 1204/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.3758 - accuracy:
Epoch 1205/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.6904 - accuracy:
Epoch 1206/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.0723 - accuracy:
Epoch 1207/2000
1810/1810 [=====] - 0s 42us/sample - loss: 34.0111 - accuracy:
Epoch 1208/2000
1810/1810 [=====] - 0s 44us/sample - loss: 35.1077 - accuracy:
Epoch 1209/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.0821 - accuracy:
Epoch 1210/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.5010 - accuracy:
Epoch 1211/2000
1810/1810 [=====] - 0s 47us/sample - loss: 35.4103 - accuracy:
Epoch 1212/2000
1810/1810 [=====] - 0s 52us/sample - loss: 35.0825 - accuracy:
Epoch 1213/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.3663 - accuracy:
Epoch 1214/2000
1810/1810 [=====] - 0s 44us/sample - loss: 34.0642 - accuracy:
Epoch 1215/2000
1810/1810 [=====] - 0s 47us/sample - loss: 35.2093 - accuracy:
Epoch 1216/2000
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Epoch 1217/2000
1810/1810 [=====] - 0s 44us/sample - loss: 34.4396 - accuracy:
Epoch 1218/2000
1810/1810 [=====] - 0s 44us/sample - loss: 34.3132 - accuracy:
Epoch 1219/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.3630 - accuracy:
Epoch 1220/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.9509 - accuracy:
Epoch 1221/2000
1810/1810 [=====] - 0s 40us/sample - loss: 35.4619 - accuracy:
Epoch 1222/2000
1810/1810 [=====] - 0s 43us/sample - loss: 33.9706 - accuracy:
Epoch 1223/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.5218 - accuracy:
Epoch 1224/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.5335 - accuracy:
Epoch 1225/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.0045 - accuracy:
Epoch 1226/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.1384 - accuracy:
Epoch 1227/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.0192 - accuracy:
Epoch 1228/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.3444 - accuracy:
Epoch 1229/2000
1810/1810 [=====] - 0s 44us/sample - loss: 34.9193 - accuracy:
Epoch 1230/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.4148 - accuracy:
Epoch 1231/2000
1810/1810 [=====] - 0s 45us/sample - loss: 35.1482 - accuracy:
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1810/1810 [=====] - 0s 45us/sample - loss: 35.1482 - accuracy:
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Epoch 1233/2000
1810/1810 [=====] - 0s 49us/sample - loss: 35.2033 - accuracy:
Epoch 1234/2000
1810/1810 [=====] - 0s 40us/sample - loss: 34.2975 - accuracy:
Epoch 1235/2000
1810/1810 [=====] - 0s 46us/sample - loss: 35.2309 - accuracy:
Epoch 1236/2000
1810/1810 [=====] - 0s 48us/sample - loss: 35.2043 - accuracy:
Epoch 1237/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.7905 - accuracy:
Epoch 1238/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.1725 - accuracy:
Epoch 1239/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.0645 - accuracy:
Epoch 1240/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.0731 - accuracy:
Epoch 1241/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.5303 - accuracy:
Epoch 1242/2000
1810/1810 [=====] - 0s 57us/sample - loss: 33.7838 - accuracy:
Epoch 1243/2000
1810/1810 [=====] - 0s 36us/sample - loss: 34.9450 - accuracy:
Epoch 1244/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.0056 - accuracy:
Epoch 1245/2000
1810/1810 [=====] - 0s 49us/sample - loss: 33.8629 - accuracy:
Epoch 1246/2000
1810/1810 [=====] - 0s 52us/sample - loss: 35.2059 - accuracy:
Epoch 1247/2000
1810/1810 [=====] - 0s 44us/sample - loss: 34.5101 - accuracy:
Epoch 1248/2000
1810/1810 [=====] - 0s 51us/sample - loss: 34.5987 - accuracy:
Epoch 1249/2000
1810/1810 [=====] - 0s 57us/sample - loss: 34.7631 - accuracy:
Epoch 1250/2000
1810/1810 [=====] - 0s 44us/sample - loss: 34.4949 - accuracy:
Epoch 1251/2000
1810/1810 [=====] - 0s 52us/sample - loss: 34.0563 - accuracy:
Epoch 1252/2000
1810/1810 [=====] - 0s 60us/sample - loss: 33.6768 - accuracy:
Epoch 1253/2000
1810/1810 [=====] - 0s 37us/sample - loss: 34.0986 - accuracy:
Epoch 1254/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.1325 - accuracy:
Epoch 1255/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.1163 - accuracy:
Epoch 1256/2000
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Epoch 1257/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.1080 - accuracy:
Epoch 1258/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.0395 - accuracy:
Epoch 1259/2000
1810/1810 [=====] - 0s 55us/sample - loss: 34.4152 - accuracy:
Epoch 1260/2000
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Epoch 1261/2000  
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Epoch 1262/2000  
1810/1810 [=====] - 0s 52us/sample - loss: 34.1459 - accuracy:  
Epoch 1263/2000  
1810/1810 [=====] - 0s 50us/sample - loss: 34.5400 - accuracy:  
Epoch 1264/2000  
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Epoch 1265/2000  
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Epoch 1266/2000  
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Epoch 1267/2000  
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Epoch 1268/2000  
1810/1810 [=====] - 0s 57us/sample - loss: 33.9077 - accuracy:  
Epoch 1269/2000  
1810/1810 [=====] - 0s 55us/sample - loss: 34.5549 - accuracy:  
Epoch 1270/2000  
1810/1810 [=====] - 0s 53us/sample - loss: 34.5763 - accuracy:  
Epoch 1271/2000  
1810/1810 [=====] - 0s 41us/sample - loss: 34.1185 - accuracy:  
Epoch 1272/2000  
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Epoch 1273/2000  
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Epoch 1274/2000  
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Epoch 1275/2000  
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Epoch 1276/2000  
1810/1810 [=====] - 0s 49us/sample - loss: 34.9878 - accuracy:  
Epoch 1277/2000  
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Epoch 1278/2000  
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Epoch 1279/2000  
1810/1810 [=====] - 0s 38us/sample - loss: 34.5074 - accuracy:  
Epoch 1280/2000  
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Epoch 1281/2000  
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Epoch 1282/2000  
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Epoch 1283/2000  
1810/1810 [=====] - 0s 48us/sample - loss: 34.5316 - accuracy:  
Epoch 1284/2000  
1810/1810 [=====] - 0s 46us/sample - loss: 34.4909 - accuracy:  
Epoch 1285/2000  
1810/1810 [=====] - 0s 44us/sample - loss: 34.7877 - accuracy:  
Epoch 1286/2000  
1810/1810 [=====] - 0s 42us/sample - loss: 35.0830 - accuracy:  
Epoch 1287/2000  
1810/1810 [=====] - 0s 45us/sample - loss: 34.8084 - accuracy:  
Epoch 1288/2000  
1810/1810 [=====] - 0s 51us/sample - loss: 34.2232 - accuracy:  
Epoch 1289/2000

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1810/1810 [=====] - 0s 47us/sample - loss: 34.0533 - accuracy:
Epoch 1290/2000
1810/1810 [=====] - 0s 52us/sample - loss: 34.3330 - accuracy:
Epoch 1291/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.2770 - accuracy:
Epoch 1292/2000
1810/1810 [=====] - 0s 46us/sample - loss: 35.2686 - accuracy:
Epoch 1293/2000
1810/1810 [=====] - 0s 45us/sample - loss: 35.2092 - accuracy:
Epoch 1294/2000
1810/1810 [=====] - 0s 44us/sample - loss: 33.9632 - accuracy:
Epoch 1295/2000
1810/1810 [=====] - 0s 46us/sample - loss: 35.7079 - accuracy:
Epoch 1296/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.3161 - accuracy:
Epoch 1297/2000
1810/1810 [=====] - 0s 39us/sample - loss: 33.7186 - accuracy:
Epoch 1298/2000
1810/1810 [=====] - 0s 44us/sample - loss: 34.5658 - accuracy:
Epoch 1299/2000
1810/1810 [=====] - 0s 51us/sample - loss: 34.4036 - accuracy:
Epoch 1300/2000
1810/1810 [=====] - 0s 53us/sample - loss: 34.6470 - accuracy:
Epoch 1301/2000
1810/1810 [=====] - 0s 44us/sample - loss: 34.7480 - accuracy:
Epoch 1302/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.4785 - accuracy:
Epoch 1303/2000
1810/1810 [=====] - 0s 51us/sample - loss: 34.5043 - accuracy:
Epoch 1304/2000
1810/1810 [=====] - 0s 41us/sample - loss: 33.9082 - accuracy:
Epoch 1305/2000
1810/1810 [=====] - 0s 42us/sample - loss: 34.0925 - accuracy:
Epoch 1306/2000
1810/1810 [=====] - 0s 52us/sample - loss: 33.9391 - accuracy:
Epoch 1307/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.3248 - accuracy:
Epoch 1308/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.8690 - accuracy:
Epoch 1309/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.1339 - accuracy:
Epoch 1310/2000
1810/1810 [=====] - 0s 53us/sample - loss: 34.5347 - accuracy:
Epoch 1311/2000
1810/1810 [=====] - 0s 46us/sample - loss: 35.2337 - accuracy:
Epoch 1312/2000
1810/1810 [=====] - 0s 80us/sample - loss: 35.6448 - accuracy:
Epoch 1313/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.2718 - accuracy:
Epoch 1314/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.0612 - accuracy:
Epoch 1315/2000
1810/1810 [=====] - 0s 50us/sample - loss: 33.8940 - accuracy:
Epoch 1316/2000
1810/1810 [=====] - 0s 51us/sample - loss: 34.4169 - accuracy:
Epoch 1317/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.7081 - accuracy:
Epoch 1318/2000
```

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Epoch 1318/2000
1810/1810 [=====] - 0s 71us/sample - loss: 34.6766 - accuracy:
Epoch 1319/2000
1810/1810 [=====] - 0s 62us/sample - loss: 34.6618 - accuracy:
Epoch 1320/2000
1810/1810 [=====] - 0s 60us/sample - loss: 33.9660 - accuracy:
Epoch 1321/2000
1810/1810 [=====] - 0s 52us/sample - loss: 34.4384 - accuracy:
Epoch 1322/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.0992 - accuracy:
Epoch 1323/2000
1810/1810 [=====] - 0s 49us/sample - loss: 36.6782 - accuracy:
Epoch 1324/2000
1810/1810 [=====] - 0s 40us/sample - loss: 34.4297 - accuracy:
Epoch 1325/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.8894 - accuracy:
Epoch 1326/2000
1810/1810 [=====] - 0s 48us/sample - loss: 33.9836 - accuracy:
Epoch 1327/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.5807 - accuracy:
Epoch 1328/2000
1810/1810 [=====] - 0s 40us/sample - loss: 34.1184 - accuracy:
Epoch 1329/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.4398 - accuracy:
Epoch 1330/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.2498 - accuracy:
Epoch 1331/2000
1810/1810 [=====] - 0s 38us/sample - loss: 34.8970 - accuracy:
Epoch 1332/2000
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Epoch 1333/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.5890 - accuracy:
Epoch 1334/2000
1810/1810 [=====] - 0s 44us/sample - loss: 33.8456 - accuracy:
Epoch 1335/2000
1810/1810 [=====] - 0s 53us/sample - loss: 35.0023 - accuracy:
Epoch 1336/2000
1810/1810 [=====] - 0s 43us/sample - loss: 35.4871 - accuracy:
Epoch 1337/2000
1810/1810 [=====] - 0s 53us/sample - loss: 34.4300 - accuracy:
Epoch 1338/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.3118 - accuracy:
Epoch 1339/2000
1810/1810 [=====] - 0s 39us/sample - loss: 34.6002 - accuracy:
Epoch 1340/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.4931 - accuracy:
Epoch 1341/2000
1810/1810 [=====] - 0s 51us/sample - loss: 34.2112 - accuracy:
Epoch 1342/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.2318 - accuracy:
Epoch 1343/2000
1810/1810 [=====] - 0s 52us/sample - loss: 34.5976 - accuracy:
Epoch 1344/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.7645 - accuracy:
Epoch 1345/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.7592 - accuracy:
Epoch 1346/2000
1810/1810 [=====] - 0s 52us/sample - loss: 35.2966 - accuracy:
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1810/1810 [=====] - 0s 46us/sample - loss: 34.6768 - accuracy:  
Epoch 1348/2000  
1810/1810 [=====] - 0s 48us/sample - loss: 34.0658 - accuracy:  
Epoch 1349/2000  
1810/1810 [=====] - 0s 49us/sample - loss: 34.3586 - accuracy:  
Epoch 1350/2000  
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Epoch 1351/2000  
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Epoch 1352/2000  
1810/1810 [=====] - 0s 49us/sample - loss: 34.5507 - accuracy:  
Epoch 1353/2000  
1810/1810 [=====] - 0s 52us/sample - loss: 34.4581 - accuracy:  
Epoch 1354/2000  
1810/1810 [=====] - 0s 40us/sample - loss: 34.4946 - accuracy:  
Epoch 1355/2000  
1810/1810 [=====] - 0s 43us/sample - loss: 34.4369 - accuracy:  
Epoch 1356/2000  
1810/1810 [=====] - 0s 47us/sample - loss: 34.0793 - accuracy:  
Epoch 1357/2000  
1810/1810 [=====] - 0s 51us/sample - loss: 34.5015 - accuracy:  
Epoch 1358/2000  
1810/1810 [=====] - 0s 39us/sample - loss: 34.1126 - accuracy:  
Epoch 1359/2000  
1810/1810 [=====] - 0s 44us/sample - loss: 34.1271 - accuracy:  
Epoch 1360/2000  
1810/1810 [=====] - 0s 49us/sample - loss: 34.3993 - accuracy:  
Epoch 1361/2000  
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Epoch 1362/2000  
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Epoch 1363/2000  
1810/1810 [=====] - 0s 45us/sample - loss: 34.2224 - accuracy:  
Epoch 1364/2000  
1810/1810 [=====] - 0s 56us/sample - loss: 34.5704 - accuracy:  
Epoch 1365/2000  
1810/1810 [=====] - 0s 44us/sample - loss: 34.8006 - accuracy:  
Epoch 1366/2000  
1810/1810 [=====] - 0s 47us/sample - loss: 35.9935 - accuracy:  
Epoch 1367/2000  
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Epoch 1368/2000  
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Epoch 1369/2000  
1810/1810 [=====] - 0s 50us/sample - loss: 34.2230 - accuracy:  
Epoch 1370/2000  
1810/1810 [=====] - 0s 47us/sample - loss: 34.1778 - accuracy:  
Epoch 1371/2000  
1810/1810 [=====] - 0s 49us/sample - loss: 34.1759 - accuracy:  
Epoch 1372/2000  
1810/1810 [=====] - 0s 49us/sample - loss: 33.9327 - accuracy:  
Epoch 1373/2000  
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Epoch 1374/2000  
1810/1810 [=====] - 0s 49us/sample - loss: 34.2877 - accuracy:  
Epoch 1375/2000  
1810/1810 [=====] - 0s 44us/sample - loss: 34.2770 - accuracy:

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Epoch 1376/2000
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1810/1810 [=====] - 0s 47us/sample - loss: 35.2223 - accuracy:
Epoch 1378/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.5109 - accuracy:
Epoch 1379/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.5062 - accuracy:
Epoch 1380/2000
1810/1810 [=====] - 0s 47us/sample - loss: 35.0860 - accuracy:
Epoch 1381/2000
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Epoch 1382/2000
1810/1810 [=====] - 0s 38us/sample - loss: 34.4358 - accuracy:
Epoch 1383/2000
1810/1810 [=====] - 0s 45us/sample - loss: 33.9899 - accuracy:
Epoch 1384/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.8701 - accuracy:
Epoch 1385/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.6639 - accuracy:
Epoch 1386/2000
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Epoch 1387/2000
1810/1810 [=====] - 0s 44us/sample - loss: 34.7497 - accuracy:
Epoch 1388/2000
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Epoch 1389/2000
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Epoch 1390/2000
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Epoch 1392/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.0452 - accuracy:
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1810/1810 [=====] - 0s 51us/sample - loss: 34.0830 - accuracy:
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1810/1810 [=====] - 0s 43us/sample - loss: 33.8943 - accuracy:
Epoch 1395/2000
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Epoch 1396/2000
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Epoch 1397/2000
1810/1810 [=====] - 0s 51us/sample - loss: 34.3239 - accuracy:
Epoch 1398/2000
1810/1810 [=====] - 0s 49us/sample - loss: 35.1346 - accuracy:
Epoch 1399/2000
1810/1810 [=====] - 0s 37us/sample - loss: 34.1278 - accuracy:
Epoch 1400/2000
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1810/1810 [=====] - 0s 49us/sample - loss: 33.9968 - accuracy:
Epoch 1402/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.0119 - accuracy:
Epoch 1403/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.2920 - accuracy:
Epoch 1404/2000
```

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1810/1810 [=====] - 0s 54us/sample - loss: 34.0868 - accuracy:
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1810/1810 [=====] - 0s 46us/sample - loss: 34.2647 - accuracy:
Epoch 1408/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.4813 - accuracy:
Epoch 1409/2000
1810/1810 [=====] - 0s 53us/sample - loss: 34.7107 - accuracy:
Epoch 1410/2000
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Epoch 1411/2000
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Epoch 1413/2000
1810/1810 [=====] - 0s 47us/sample - loss: 35.1881 - accuracy:
Epoch 1414/2000
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Epoch 1415/2000
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Epoch 1416/2000
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Epoch 1417/2000
1810/1810 [=====] - 0s 46us/sample - loss: 33.9078 - accuracy:
Epoch 1418/2000
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Epoch 1419/2000
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Epoch 1420/2000
1810/1810 [=====] - 0s 39us/sample - loss: 34.0631 - accuracy:
Epoch 1421/2000
1810/1810 [=====] - 0s 44us/sample - loss: 34.3685 - accuracy:
Epoch 1422/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.0101 - accuracy:
Epoch 1423/2000
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Epoch 1424/2000
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Epoch 1425/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.2671 - accuracy:
Epoch 1426/2000
1810/1810 [=====] - 0s 53us/sample - loss: 34.3623 - accuracy:
Epoch 1427/2000
1810/1810 [=====] - 0s 52us/sample - loss: 34.1461 - accuracy:
Epoch 1428/2000
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Epoch 1429/2000
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Epoch 1430/2000
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Epoch 1431/2000
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Epoch 1432/2000
1810/1810 [=====] - 0s 47us/sample - loss: 35.1714 - accuracy:
Epoch 1433/2000
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Epoch 1434/2000  
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Epoch 1435/2000  
1810/1810 [=====] - 0s 47us/sample - loss: 34.1699 - accuracy:  
Epoch 1436/2000  
1810/1810 [=====] - 0s 49us/sample - loss: 35.1078 - accuracy:  
Epoch 1437/2000  
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Epoch 1438/2000  
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Epoch 1439/2000  
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Epoch 1440/2000  
1810/1810 [=====] - 0s 51us/sample - loss: 34.4900 - accuracy:  
Epoch 1441/2000  
1810/1810 [=====] - 0s 47us/sample - loss: 34.9089 - accuracy:  
Epoch 1442/2000  
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Epoch 1443/2000  
1810/1810 [=====] - 0s 51us/sample - loss: 34.3854 - accuracy:  
Epoch 1444/2000  
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Epoch 1445/2000  
1810/1810 [=====] - 0s 52us/sample - loss: 34.3223 - accuracy:  
Epoch 1446/2000  
1810/1810 [=====] - 0s 50us/sample - loss: 34.4803 - accuracy:  
Epoch 1447/2000  
1810/1810 [=====] - 0s 39us/sample - loss: 34.6956 - accuracy:  
Epoch 1448/2000  
1810/1810 [=====] - 0s 44us/sample - loss: 34.7012 - accuracy:  
Epoch 1449/2000  
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Epoch 1450/2000  
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Epoch 1451/2000  
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Epoch 1452/2000  
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Epoch 1453/2000  
1810/1810 [=====] - 0s 44us/sample - loss: 34.1517 - accuracy:  
Epoch 1454/2000  
1810/1810 [=====] - 0s 44us/sample - loss: 33.9640 - accuracy:  
Epoch 1455/2000  
1810/1810 [=====] - 0s 49us/sample - loss: 33.8152 - accuracy:  
Epoch 1456/2000  
1810/1810 [=====] - 0s 50us/sample - loss: 34.2917 - accuracy:  
Epoch 1457/2000  
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Epoch 1458/2000  
1810/1810 [=====] - 0s 48us/sample - loss: 34.8002 - accuracy:  
Epoch 1459/2000  
1810/1810 [=====] - 0s 40us/sample - loss: 35.0225 - accuracy:  
Epoch 1460/2000  
1810/1810 [=====] - 0s 48us/sample - loss: 33.9469 - accuracy:  
Epoch 1461/2000  
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Epoch 1462/2000

Epoch 1402/2000

1810/1810 [=====] - 0s 45us/sample - loss: 34.0936 - accuracy:

Epoch 1463/2000

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Epoch 1464/2000

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Epoch 1465/2000

1810/1810 [=====] - 0s 47us/sample - loss: 34.5239 - accuracy:

Epoch 1466/2000

1810/1810 [=====] - 0s 45us/sample - loss: 34.1226 - accuracy:

Epoch 1467/2000

1810/1810 [=====] - 0s 45us/sample - loss: 34.0430 - accuracy:

Epoch 1468/2000

1810/1810 [=====] - 0s 47us/sample - loss: 33.9869 - accuracy:

Epoch 1469/2000

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Epoch 1470/2000

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Epoch 1471/2000

1810/1810 [=====] - 0s 47us/sample - loss: 34.1567 - accuracy:

Epoch 1472/2000

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Epoch 1473/2000

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Epoch 1474/2000

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Epoch 1475/2000

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Epoch 1476/2000

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Epoch 1477/2000

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Epoch 1478/2000

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Epoch 1479/2000

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Epoch 1480/2000

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Epoch 1481/2000

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Epoch 1482/2000

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Epoch 1483/2000

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Epoch 1484/2000

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Epoch 1485/2000

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Epoch 1486/2000

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Epoch 1487/2000

1810/1810 [=====] - 0s 52us/sample - loss: 34.1933 - accuracy:

Epoch 1488/2000

1810/1810 [=====] - 0s 54us/sample - loss: 34.3265 - accuracy:

Epoch 1489/2000

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Epoch 1490/2000

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Epoch 1506/2000  
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Epoch 1509/2000  
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Epoch 1512/2000  
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Epoch 1516/2000  
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Epoch 1517/2000  
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Epoch 1518/2000  
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Epoch 1519/2000  
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Epoch 1526/2000
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Epoch 1531/2000
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Epoch 1545/2000
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Epoch 1547/2000
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Epoch 1548/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.5296 - accuracy:
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Epoch 1555/2000
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Epoch 1557/2000
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Epoch 1566/2000
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Epoch 1571/2000
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Epoch 1572/2000
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Epoch 1573/2000
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Epoch 1574/2000
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Epoch 1575/2000
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Epoch 1576/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.1793 - accuracy:
Epoch 1577/2000
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1810/1810 [=====] - 0s 47us/sample - loss: 35.1907 - accuracy:
Epoch 1583/2000
1810/1810 [=====] - 0s 51us/sample - loss: 34.0514 - accuracy:
Epoch 1584/2000
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Epoch 1586/2000
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Epoch 1587/2000
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Epoch 1595/2000
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Epoch 1597/2000
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1810/1810 [=====] - 0s 52us/sample - loss: 34.3229 - accuracy:
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Epoch 1603/2000
1810/1810 [=====] - 0s 42us/sample - loss: 33.9098 - accuracy:
Epoch 1604/2000
1810/1810 [=====] - 0s 54us/sample - loss: 34.6764 - accuracy:
Epoch 1605/2000
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Epoch 1606/2000
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Epoch 1609/2000
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Epoch 1635/2000
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Epoch 1643/2000
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Epoch 1644/2000
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Epoch 1645/2000
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Epoch 1648/2000
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Epoch 1649/2000
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Epoch 1662/2000
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Epoch 1663/2000
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Epoch 1682/2000
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Epoch 1692/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.9581 - accuracy:
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1810/1810 [=====] - 0s 50us/sample - loss: 34.0939 - accuracy:
Epoch 1698/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.7414 - accuracy:
Epoch 1699/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.2220 - accuracy:
Epoch 1700/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.1545 - accuracy:
Epoch 1701/2000
1810/1810 [=====] - 0s 44us/sample - loss: 34.7737 - accuracy:
Epoch 1702/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.6391 - accuracy:
Epoch 1703/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.1961 - accuracy:
Epoch 1704/2000
1810/1810 [=====] - 0s 37us/sample - loss: 33.8946 - accuracy:
Epoch 1705/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.4408 - accuracy:
Epoch 1706/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.2061 - accuracy:
Epoch 1707/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.6763 - accuracy:
Epoch 1708/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.2465 - accuracy:
Epoch 1709/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.4597 - accuracy:
Epoch 1710/2000
1810/1810 [=====] - 0s 51us/sample - loss: 34.8984 - accuracy:
Epoch 1711/2000
1810/1810 [=====] - 0s 41us/sample - loss: 34.3495 - accuracy:
Epoch 1712/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.1676 - accuracy:
Epoch 1713/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.3814 - accuracy:
Epoch 1714/2000
1810/1810 [=====] - 0s 51us/sample - loss: 34.3564 - accuracy:
Epoch 1715/2000
1810/1810 [=====] - 0s 41us/sample - loss: 34.5021 - accuracy:
Epoch 1716/2000
1810/1810 [=====] - 0s 51us/sample - loss: 34.5092 - accuracy:
Epoch 1717/2000
1810/1810 [=====] - 0s 44us/sample - loss: 34.4785 - accuracy:
Epoch 1718/2000
1810/1810 [=====] - 0s 52us/sample - loss: 34.1658 - accuracy:
Epoch 1719/2000
1810/1810 [=====] - 0s 50us/sample - loss: 33.8838 - accuracy:
Epoch 1720/2000
1810/1810 [=====] - 0s 43us/sample - loss: 34.3475 - accuracy:
Epoch 1721/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.2766 - accuracy:
```

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1810/1810 [=====] - 0s 50us/sample - loss: 34.2766 - accuracy:
Epoch 1722/2000
1810/1810 [=====] - 0s 48us/sample - loss: 35.3891 - accuracy:
Epoch 1723/2000
1810/1810 [=====] - 0s 48us/sample - loss: 35.0809 - accuracy:
Epoch 1724/2000
1810/1810 [=====] - 0s 48us/sample - loss: 33.9146 - accuracy:
Epoch 1725/2000
1810/1810 [=====] - 0s 52us/sample - loss: 34.3645 - accuracy:
Epoch 1726/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.1474 - accuracy:
Epoch 1727/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.4332 - accuracy:
Epoch 1728/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.8250 - accuracy:
Epoch 1729/2000
1810/1810 [=====] - 0s 48us/sample - loss: 33.9175 - accuracy:
Epoch 1730/2000
1810/1810 [=====] - 0s 50us/sample - loss: 35.5246 - accuracy:
Epoch 1731/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.4201 - accuracy:
Epoch 1732/2000
1810/1810 [=====] - 0s 44us/sample - loss: 33.9259 - accuracy:
Epoch 1733/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.1722 - accuracy:
Epoch 1734/2000
1810/1810 [=====] - 0s 48us/sample - loss: 33.9631 - accuracy:
Epoch 1735/2000
1810/1810 [=====] - 0s 43us/sample - loss: 33.8050 - accuracy:
Epoch 1736/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.2869 - accuracy:
Epoch 1737/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.5016 - accuracy:
Epoch 1738/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.4530 - accuracy:
Epoch 1739/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.2695 - accuracy:
Epoch 1740/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.0204 - accuracy:
Epoch 1741/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.2273 - accuracy:
Epoch 1742/2000
1810/1810 [=====] - 0s 55us/sample - loss: 34.1850 - accuracy:
Epoch 1743/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.2295 - accuracy:
Epoch 1744/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.1238 - accuracy:
Epoch 1745/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.5321 - accuracy:
Epoch 1746/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.3154 - accuracy:
Epoch 1747/2000
1810/1810 [=====] - 0s 51us/sample - loss: 34.7442 - accuracy:
Epoch 1748/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.9629 - accuracy:
Epoch 1749/2000
1810/1810 [=====] - 0s 45us/sample - loss: 33.9471 - accuracy:
Epoch 1750/2000
```

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1810/1810 [=====] - 0s 50us/sample - loss: 33.9496 - accuracy:
Epoch 1751/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.2618 - accuracy:
Epoch 1752/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.1665 - accuracy:
Epoch 1753/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.5041 - accuracy:
Epoch 1754/2000
1810/1810 [=====] - 0s 47us/sample - loss: 35.5403 - accuracy:
Epoch 1755/2000
1810/1810 [=====] - 0s 44us/sample - loss: 34.8857 - accuracy:
Epoch 1756/2000
1810/1810 [=====] - 0s 44us/sample - loss: 35.0971 - accuracy:
Epoch 1757/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.9472 - accuracy:
Epoch 1758/2000
1810/1810 [=====] - 0s 45us/sample - loss: 33.7973 - accuracy:
Epoch 1759/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.5892 - accuracy:
Epoch 1760/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.3296 - accuracy:
Epoch 1761/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.0470 - accuracy:
Epoch 1762/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.0398 - accuracy:
Epoch 1763/2000
1810/1810 [=====] - 0s 49us/sample - loss: 33.9209 - accuracy:
Epoch 1764/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.8935 - accuracy:
Epoch 1765/2000
1810/1810 [=====] - 0s 44us/sample - loss: 34.4161 - accuracy:
Epoch 1766/2000
1810/1810 [=====] - 0s 51us/sample - loss: 34.2844 - accuracy:
Epoch 1767/2000
1810/1810 [=====] - 0s 52us/sample - loss: 34.0982 - accuracy:
Epoch 1768/2000
1810/1810 [=====] - 0s 40us/sample - loss: 34.4007 - accuracy:
Epoch 1769/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.4363 - accuracy:
Epoch 1770/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.7389 - accuracy:
Epoch 1771/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.4594 - accuracy:
Epoch 1772/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.0992 - accuracy:
Epoch 1773/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.2162 - accuracy:
Epoch 1774/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.9097 - accuracy:
Epoch 1775/2000
1810/1810 [=====] - 0s 57us/sample - loss: 33.8860 - accuracy:
Epoch 1776/2000
1810/1810 [=====] - 0s 55us/sample - loss: 34.4123 - accuracy:
Epoch 1777/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.2987 - accuracy:
Epoch 1778/2000
1810/1810 [=====] - 0s 51us/sample - loss: 34.8665 - accuracy:
Epoch 1779/2000
```

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1810/1810 [=====] - 0s 51us/sample - loss: 35.1585 - accuracy:
Epoch 1780/2000
1810/1810 [=====] - 0s 40us/sample - loss: 33.9862 - accuracy:
Epoch 1781/2000
1810/1810 [=====] - 0s 47us/sample - loss: 35.4223 - accuracy:
Epoch 1782/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.0538 - accuracy:
Epoch 1783/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.1183 - accuracy:
Epoch 1784/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.9004 - accuracy:
Epoch 1785/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.5645 - accuracy:
Epoch 1786/2000
1810/1810 [=====] - 0s 44us/sample - loss: 34.1298 - accuracy:
Epoch 1787/2000
1810/1810 [=====] - 0s 51us/sample - loss: 35.3495 - accuracy:
Epoch 1788/2000
1810/1810 [=====] - 0s 50us/sample - loss: 35.0479 - accuracy:
Epoch 1789/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.2249 - accuracy:
Epoch 1790/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.1181 - accuracy:
Epoch 1791/2000
1810/1810 [=====] - 0s 44us/sample - loss: 35.6931 - accuracy:
Epoch 1792/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.3596 - accuracy:
Epoch 1793/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.9418 - accuracy:
Epoch 1794/2000
1810/1810 [=====] - 0s 45us/sample - loss: 35.1829 - accuracy:
Epoch 1795/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.0340 - accuracy:
Epoch 1796/2000
1810/1810 [=====] - 0s 45us/sample - loss: 33.9483 - accuracy:
Epoch 1797/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.7470 - accuracy:
Epoch 1798/2000
1810/1810 [=====] - 0s 42us/sample - loss: 34.2751 - accuracy:
Epoch 1799/2000
1810/1810 [=====] - 0s 47us/sample - loss: 33.8568 - accuracy:
Epoch 1800/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.0741 - accuracy:
Epoch 1801/2000
1810/1810 [=====] - 0s 45us/sample - loss: 33.9228 - accuracy:
Epoch 1802/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.3128 - accuracy:
Epoch 1803/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.0535 - accuracy:
Epoch 1804/2000
1810/1810 [=====] - 0s 48us/sample - loss: 33.7998 - accuracy:
Epoch 1805/2000
1810/1810 [=====] - 0s 51us/sample - loss: 34.5459 - accuracy:
Epoch 1806/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.1610 - accuracy:
Epoch 1807/2000
1810/1810 [=====] - 0s 42us/sample - loss: 34.7531 - accuracy:
Epoch 1808/2000
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Epoch 1808/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.6695 - accuracy:
Epoch 1809/2000
1810/1810 [=====] - 0s 41us/sample - loss: 34.4329 - accuracy:
Epoch 1810/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.4897 - accuracy:
Epoch 1811/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.0657 - accuracy:
Epoch 1812/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.6694 - accuracy:
Epoch 1813/2000
1810/1810 [=====] - 0s 39us/sample - loss: 34.1468 - accuracy:
Epoch 1814/2000
1810/1810 [=====] - 0s 44us/sample - loss: 34.1529 - accuracy:
Epoch 1815/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.3582 - accuracy:
Epoch 1816/2000
1810/1810 [=====] - 0s 51us/sample - loss: 34.2707 - accuracy:
Epoch 1817/2000
1810/1810 [=====] - 0s 48us/sample - loss: 33.9879 - accuracy:
Epoch 1818/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.3855 - accuracy:
Epoch 1819/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.1674 - accuracy:
Epoch 1820/2000
1810/1810 [=====] - 0s 51us/sample - loss: 33.9572 - accuracy:
Epoch 1821/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.5415 - accuracy:
Epoch 1822/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.4994 - accuracy:
Epoch 1823/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.0264 - accuracy:
Epoch 1824/2000
1810/1810 [=====] - 0s 50us/sample - loss: 35.0445 - accuracy:
Epoch 1825/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.4279 - accuracy:
Epoch 1826/2000
1810/1810 [=====] - 0s 51us/sample - loss: 33.6932 - accuracy:
Epoch 1827/2000
1810/1810 [=====] - 0s 40us/sample - loss: 34.2135 - accuracy:
Epoch 1828/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.4047 - accuracy:
Epoch 1829/2000
1810/1810 [=====] - 0s 52us/sample - loss: 34.9164 - accuracy:
Epoch 1830/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.2814 - accuracy:
Epoch 1831/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.1004 - accuracy:
Epoch 1832/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.1030 - accuracy:
Epoch 1833/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.7384 - accuracy:
Epoch 1834/2000
1810/1810 [=====] - 0s 51us/sample - loss: 35.1743 - accuracy:
Epoch 1835/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.0495 - accuracy:
Epoch 1836/2000
1810/1810 [=====] - 0s 52us/sample - loss: 34.5174 - accuracy:
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Epoch 1837/2000  
1810/1810 [=====] - 0s 44us/sample - loss: 34.7932 - accuracy:  
Epoch 1838/2000  
1810/1810 [=====] - 0s 46us/sample - loss: 34.4315 - accuracy:  
Epoch 1839/2000  
1810/1810 [=====] - 0s 50us/sample - loss: 34.9135 - accuracy:  
Epoch 1840/2000  
1810/1810 [=====] - 0s 50us/sample - loss: 34.1812 - accuracy:  
Epoch 1841/2000  
1810/1810 [=====] - 0s 46us/sample - loss: 34.5554 - accuracy:  
Epoch 1842/2000  
1810/1810 [=====] - 0s 47us/sample - loss: 34.3682 - accuracy:  
Epoch 1843/2000  
1810/1810 [=====] - 0s 47us/sample - loss: 34.2188 - accuracy:  
Epoch 1844/2000  
1810/1810 [=====] - 0s 50us/sample - loss: 34.1914 - accuracy:  
Epoch 1845/2000  
1810/1810 [=====] - 0s 48us/sample - loss: 34.0946 - accuracy:  
Epoch 1846/2000  
1810/1810 [=====] - 0s 48us/sample - loss: 34.3130 - accuracy:  
Epoch 1847/2000  
1810/1810 [=====] - 0s 51us/sample - loss: 34.4937 - accuracy:  
Epoch 1848/2000  
1810/1810 [=====] - 0s 50us/sample - loss: 34.5440 - accuracy:  
Epoch 1849/2000  
1810/1810 [=====] - 0s 51us/sample - loss: 34.3605 - accuracy:  
Epoch 1850/2000  
1810/1810 [=====] - 0s 47us/sample - loss: 33.9239 - accuracy:  
Epoch 1851/2000  
1810/1810 [=====] - 0s 46us/sample - loss: 34.1137 - accuracy:  
Epoch 1852/2000  
1810/1810 [=====] - 0s 51us/sample - loss: 34.1766 - accuracy:  
Epoch 1853/2000  
1810/1810 [=====] - 0s 48us/sample - loss: 34.0965 - accuracy:  
Epoch 1854/2000  
1810/1810 [=====] - 0s 47us/sample - loss: 34.0788 - accuracy:  
Epoch 1855/2000  
1810/1810 [=====] - 0s 46us/sample - loss: 33.8867 - accuracy:  
Epoch 1856/2000  
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Epoch 1857/2000  
1810/1810 [=====] - 0s 49us/sample - loss: 35.8697 - accuracy:  
Epoch 1858/2000  
1810/1810 [=====] - 0s 51us/sample - loss: 34.0000 - accuracy:  
Epoch 1859/2000  
1810/1810 [=====] - 0s 47us/sample - loss: 34.5476 - accuracy:  
Epoch 1860/2000  
1810/1810 [=====] - 0s 49us/sample - loss: 34.5796 - accuracy:  
Epoch 1861/2000  
1810/1810 [=====] - 0s 51us/sample - loss: 35.0113 - accuracy:  
Epoch 1862/2000  
1810/1810 [=====] - 0s 37us/sample - loss: 35.2165 - accuracy:  
Epoch 1863/2000  
1810/1810 [=====] - 0s 44us/sample - loss: 34.5392 - accuracy:  
Epoch 1864/2000  
1810/1810 [=====] - 0s 51us/sample - loss: 34.2209 - accuracy:  
Epoch 1865/2000  
1810/1810 [=====] - 0s 49us/sample - loss: 34.0085 - accuracy:

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Epoch 1866/2000
1810/1810 [=====] - 0s 44us/sample - loss: 34.1175 - accuracy:
Epoch 1867/2000
1810/1810 [=====] - 0s 51us/sample - loss: 35.3991 - accuracy:
Epoch 1868/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.0752 - accuracy:
Epoch 1869/2000
1810/1810 [=====] - 0s 48us/sample - loss: 33.8799 - accuracy:
Epoch 1870/2000
1810/1810 [=====] - 0s 50us/sample - loss: 33.9093 - accuracy:
Epoch 1871/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.4911 - accuracy:
Epoch 1872/2000
1810/1810 [=====] - 0s 52us/sample - loss: 34.3789 - accuracy:
Epoch 1873/2000
1810/1810 [=====] - 0s 44us/sample - loss: 34.1598 - accuracy:
Epoch 1874/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.7188 - accuracy:
Epoch 1875/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.3868 - accuracy:
Epoch 1876/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.2430 - accuracy:
Epoch 1877/2000
1810/1810 [=====] - 0s 51us/sample - loss: 34.9477 - accuracy:
Epoch 1878/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.4108 - accuracy:
Epoch 1879/2000
1810/1810 [=====] - 0s 51us/sample - loss: 34.5069 - accuracy:
Epoch 1880/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.1248 - accuracy:
Epoch 1881/2000
1810/1810 [=====] - 0s 51us/sample - loss: 34.0452 - accuracy:
Epoch 1882/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.5672 - accuracy:
Epoch 1883/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.0386 - accuracy:
Epoch 1884/2000
1810/1810 [=====] - 0s 47us/sample - loss: 33.9514 - accuracy:
Epoch 1885/2000
1810/1810 [=====] - 0s 51us/sample - loss: 34.2963 - accuracy:
Epoch 1886/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.3636 - accuracy:
Epoch 1887/2000
1810/1810 [=====] - 0s 46us/sample - loss: 35.5564 - accuracy:
Epoch 1888/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.3244 - accuracy:
Epoch 1889/2000
1810/1810 [=====] - 0s 41us/sample - loss: 34.7656 - accuracy:
Epoch 1890/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.3530 - accuracy:
Epoch 1891/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.3744 - accuracy:
Epoch 1892/2000
1810/1810 [=====] - 0s 51us/sample - loss: 35.1842 - accuracy:
Epoch 1893/2000
1810/1810 [=====] - 0s 61us/sample - loss: 34.4467 - accuracy:
Epoch 1894/2000
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1810/1810 [=====] - 0s 50us/sample - loss: 34.4187 - accuracy:
Epoch 1895/2000
1810/1810 [=====] - 0s 73us/sample - loss: 34.0559 - accuracy:
Epoch 1896/2000
1810/1810 [=====] - 0s 57us/sample - loss: 34.2302 - accuracy:
Epoch 1897/2000
1810/1810 [=====] - 0s 44us/sample - loss: 34.5474 - accuracy:
Epoch 1898/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.2176 - accuracy:
Epoch 1899/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.0003 - accuracy:
Epoch 1900/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.4533 - accuracy:
Epoch 1901/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.1728 - accuracy:
Epoch 1902/2000
1810/1810 [=====] - 0s 51us/sample - loss: 35.2550 - accuracy:
Epoch 1903/2000
1810/1810 [=====] - 0s 51us/sample - loss: 34.5256 - accuracy:
Epoch 1904/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.6063 - accuracy:
Epoch 1905/2000
1810/1810 [=====] - 0s 51us/sample - loss: 35.0623 - accuracy:
Epoch 1906/2000
1810/1810 [=====] - 0s 40us/sample - loss: 33.9927 - accuracy:
Epoch 1907/2000
1810/1810 [=====] - 0s 44us/sample - loss: 34.6334 - accuracy:
Epoch 1908/2000
1810/1810 [=====] - 0s 51us/sample - loss: 34.2792 - accuracy:
Epoch 1909/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.6872 - accuracy:
Epoch 1910/2000
1810/1810 [=====] - 0s 48us/sample - loss: 33.9614 - accuracy:
Epoch 1911/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.1240 - accuracy:
Epoch 1912/2000
1810/1810 [=====] - 0s 52us/sample - loss: 33.9013 - accuracy:
Epoch 1913/2000
1810/1810 [=====] - 0s 51us/sample - loss: 35.3724 - accuracy:
Epoch 1914/2000
1810/1810 [=====] - 0s 41us/sample - loss: 34.0279 - accuracy:
Epoch 1915/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.1139 - accuracy:
Epoch 1916/2000
1810/1810 [=====] - 0s 44us/sample - loss: 34.3495 - accuracy:
Epoch 1917/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.5529 - accuracy:
Epoch 1918/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.2644 - accuracy:
Epoch 1919/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.0740 - accuracy:
Epoch 1920/2000
1810/1810 [=====] - 0s 51us/sample - loss: 34.7002 - accuracy:
Epoch 1921/2000
1810/1810 [=====] - 0s 47us/sample - loss: 33.9367 - accuracy:
Epoch 1922/2000
1810/1810 [=====] - 0s 48us/sample - loss: 33.9431 - accuracy:
Epoch 1923/2000
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1810/1810 [=====] - 0s 49us/sample - loss: 33.8609 - accuracy:
Epoch 1924/2000
1810/1810 [=====] - 0s 51us/sample - loss: 34.0997 - accuracy:
Epoch 1925/2000
1810/1810 [=====] - 0s 41us/sample - loss: 35.1232 - accuracy:
Epoch 1926/2000
1810/1810 [=====] - 0s 44us/sample - loss: 33.9331 - accuracy:
Epoch 1927/2000
1810/1810 [=====] - 0s 47us/sample - loss: 35.4904 - accuracy:
Epoch 1928/2000
1810/1810 [=====] - 0s 52us/sample - loss: 34.1929 - accuracy:
Epoch 1929/2000
1810/1810 [=====] - 0s 40us/sample - loss: 34.7288 - accuracy:
Epoch 1930/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.0178 - accuracy:
Epoch 1931/2000
1810/1810 [=====] - 0s 48us/sample - loss: 33.8943 - accuracy:
Epoch 1932/2000
1810/1810 [=====] - 0s 37us/sample - loss: 34.0512 - accuracy:
Epoch 1933/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.1451 - accuracy:
Epoch 1934/2000
1810/1810 [=====] - 0s 52us/sample - loss: 33.9822 - accuracy:
Epoch 1935/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.4228 - accuracy:
Epoch 1936/2000
1810/1810 [=====] - 0s 53us/sample - loss: 34.3678 - accuracy:
Epoch 1937/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.9531 - accuracy:
Epoch 1938/2000
1810/1810 [=====] - 0s 49us/sample - loss: 33.9355 - accuracy:
Epoch 1939/2000
1810/1810 [=====] - 0s 43us/sample - loss: 34.2748 - accuracy:
Epoch 1940/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.0806 - accuracy:
Epoch 1941/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.1914 - accuracy:
Epoch 1942/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.2393 - accuracy:
Epoch 1943/2000
1810/1810 [=====] - 0s 44us/sample - loss: 34.7555 - accuracy:
Epoch 1944/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.0389 - accuracy:
Epoch 1945/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.0385 - accuracy:
Epoch 1946/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.1452 - accuracy:
Epoch 1947/2000
1810/1810 [=====] - 0s 50us/sample - loss: 35.2860 - accuracy:
Epoch 1948/2000
1810/1810 [=====] - 0s 40us/sample - loss: 34.2338 - accuracy:
Epoch 1949/2000
1810/1810 [=====] - 0s 38us/sample - loss: 34.1827 - accuracy:
Epoch 1950/2000
1810/1810 [=====] - 0s 43us/sample - loss: 34.4236 - accuracy:
Epoch 1951/2000
1810/1810 [=====] - 0s 55us/sample - loss: 34.4079 - accuracy:
Epoch 1952/2000
```

```
Epoch 1952/2000
1810/1810 [=====] - 0s 45us/sample - loss: 35.4219 - accuracy:
Epoch 1953/2000
1810/1810 [=====] - 0s 50us/sample - loss: 35.1847 - accuracy:
Epoch 1954/2000
1810/1810 [=====] - 0s 40us/sample - loss: 34.1076 - accuracy:
Epoch 1955/2000
1810/1810 [=====] - 0s 47us/sample - loss: 35.0591 - accuracy:
Epoch 1956/2000
1810/1810 [=====] - 0s 47us/sample - loss: 34.5713 - accuracy:
Epoch 1957/2000
1810/1810 [=====] - 0s 53us/sample - loss: 34.7156 - accuracy:
Epoch 1958/2000
1810/1810 [=====] - 0s 44us/sample - loss: 34.2332 - accuracy:
Epoch 1959/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.2097 - accuracy:
Epoch 1960/2000
1810/1810 [=====] - 0s 48us/sample - loss: 34.1370 - accuracy:
Epoch 1961/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.4599 - accuracy:
Epoch 1962/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.1271 - accuracy:
Epoch 1963/2000
1810/1810 [=====] - 0s 40us/sample - loss: 34.0874 - accuracy:
Epoch 1964/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.0409 - accuracy:
Epoch 1965/2000
1810/1810 [=====] - 0s 50us/sample - loss: 34.6497 - accuracy:
Epoch 1966/2000
1810/1810 [=====] - 0s 51us/sample - loss: 34.1258 - accuracy:
Epoch 1967/2000
1810/1810 [=====] - 0s 44us/sample - loss: 34.6134 - accuracy:
Epoch 1968/2000
1810/1810 [=====] - 0s 52us/sample - loss: 34.4571 - accuracy:
Epoch 1969/2000
1810/1810 [=====] - 0s 41us/sample - loss: 34.1771 - accuracy:
Epoch 1970/2000
1810/1810 [=====] - 0s 43us/sample - loss: 34.4747 - accuracy:
Epoch 1971/2000
1810/1810 [=====] - 0s 45us/sample - loss: 34.2366 - accuracy:
Epoch 1972/2000
1810/1810 [=====] - 0s 47us/sample - loss: 35.2944 - accuracy:
Epoch 1973/2000
1810/1810 [=====] - 0s 45us/sample - loss: 35.0653 - accuracy:
Epoch 1974/2000
1810/1810 [=====] - 0s 43us/sample - loss: 34.3630 - accuracy:
Epoch 1975/2000
1810/1810 [=====] - 0s 48us/sample - loss: 35.3842 - accuracy:
Epoch 1976/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.1106 - accuracy:
Epoch 1977/2000
1810/1810 [=====] - 0s 49us/sample - loss: 34.2476 - accuracy:
Epoch 1978/2000
1810/1810 [=====] - 0s 52us/sample - loss: 34.4670 - accuracy:
Epoch 1979/2000
1810/1810 [=====] - 0s 40us/sample - loss: 34.6448 - accuracy:
Epoch 1980/2000
1810/1810 [=====] - 0s 46us/sample - loss: 34.0541 - accuracy:
```

Epoch 1981/2000

1810/1810 [=====] - 0s 48us/sample - loss: 34.1628 - accuracy:

Epoch 1982/2000

1810/1810 [=====] - 0s 46us/sample - loss: 33.9021 - accuracy:

Epoch 1983/2000

1810/1810 [=====] - 0s 52us/sample - loss: 34.1763 - accuracy:

Epoch 1984/2000

X\_test\_scaled=sc\_2.transform(X\_test)

1810/1810 [=====] - 0s 44us/sample - loss: 33.9807 - accuracy:

y\_pred=model\_ANN.predict(X\_test)

Epoch 1987/2000

y\_pred

```
array([[788.94354, 776.93787],
       [856.6491 , 843.7177 ],
       [428.75418, 421.67236],
       ...,
       [319.30362, 313.71814],
       [130.0816 , 127.0829 ],
       [350.7245 , 344.70947]], dtype=float32)
```

1810/1810 [=====] - 0s 51us/sample - loss: 33.8948 - accuracy:

y\_test

```
array([[822.          , 811.67999268],
       [848.46002197, 843.75      ],
       [431.3500061 , 424.75      ],
       ...,
       [372.83999634, 358.3999939 ],
       [111.69000244, 106.69999695],
       [374.41000366, 367.20001221]])
```

Epoch 1998/2000

import numpy as np

y\_pred\_mod=[]

y\_test\_mod=[]

for i in range(0,2):

j=0

y\_pred\_temp=[]

y\_test\_temp=[]

while(j<len(y\_test)):

y\_pred\_temp.append(y\_pred[j][i])

y\_test\_temp.append(y\_test[j][i])

j+=1

y\_pred\_mod.append(np.array(y\_pred\_temp))

y\_test\_mod.append(np.array(y\_test\_temp))

df\_res=pd.DataFrame(list(zip(y\_pred\_mod[0],y\_pred\_mod[1],y\_test\_mod[0],y\_test\_mod[1])),column

```
df_res.head()
```



	Pred_high	Pred_low	Actual_high	Actual_low
0	788.943542	776.937866	822.000000	811.679993
1	856.649109	843.717712	848.460022	843.750000
2	428.754181	421.672363	431.350006	424.750000
3	500.153961	492.096252	540.440002	529.359985
4	393.484528	386.884949	638.059998	597.549988

```
df_res.to_csv('Results.csv',index=False)
```

```
df_res_2=df_res[500:600]
```

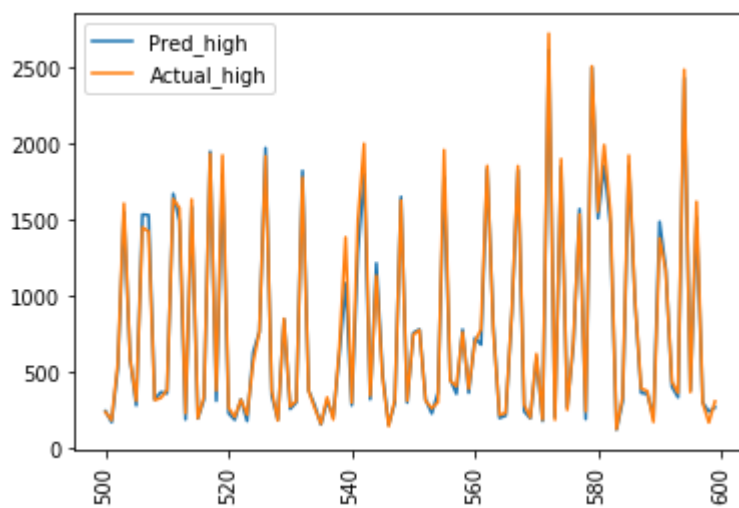
```
import matplotlib.pyplot as plt
```

```
ax1=plt.subplot2grid((4,1), (0,0), rowspan=5, colspan=1)
```

```
ax1.plot(df_res_2.index, df_res_2['Pred_high'], label="Pred_high")
ax1.plot(df_res_2.index, df_res_2['Actual_high'], label="Actual_high")
```

```
plt.legend(loc="upper left")
plt.xticks(rotation=90)
```

```
plt.show()
```



```
import matplotlib.pyplot as plt
```

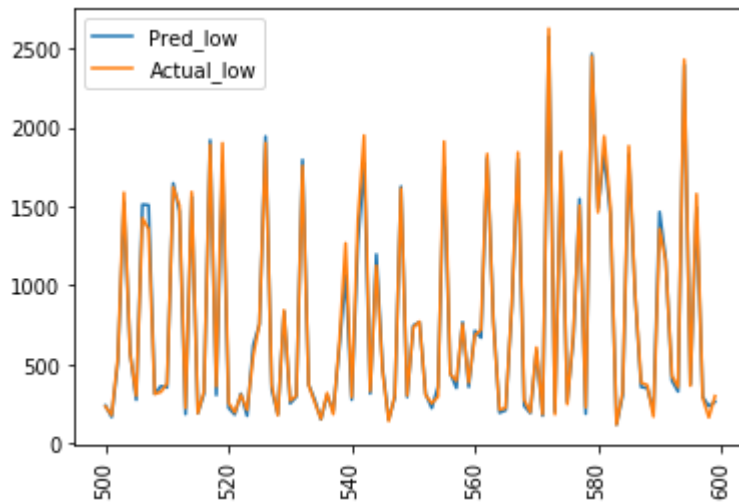


```
ax1=plt.subplot2grid((4,1), (0,0), rowspan=5, colspan=1)

ax1.plot(df_res_2.index, df_res_2['Pred_low'], label="Pred_low")
ax1.plot(df_res_2.index, df_res_2['Actual_low'], label="Actual_low")

plt.legend(loc="upper left")
plt.xticks(rotation=90)

plt.show()
```



```
df_res_2=df_res[200:300]
```

```
import matplotlib.pyplot as plt
```

```
ax1=plt.subplot2grid((4,1), (0,0), rowspan=5, colspan=1)

ax1.plot(df_res_2.index, df_res_2['Pred_high'], label="Pred_high")
ax1.plot(df_res_2.index, df_res_2['Actual_high'], label="Actual_high")

plt.legend(loc="upper left")
plt.xticks(rotation=90)

plt.show()
```





```
import matplotlib.pyplot as plt
```

```
ax1=plt.subplot2grid((4,1), (0,0), rowspan=5, colspan=1)
```

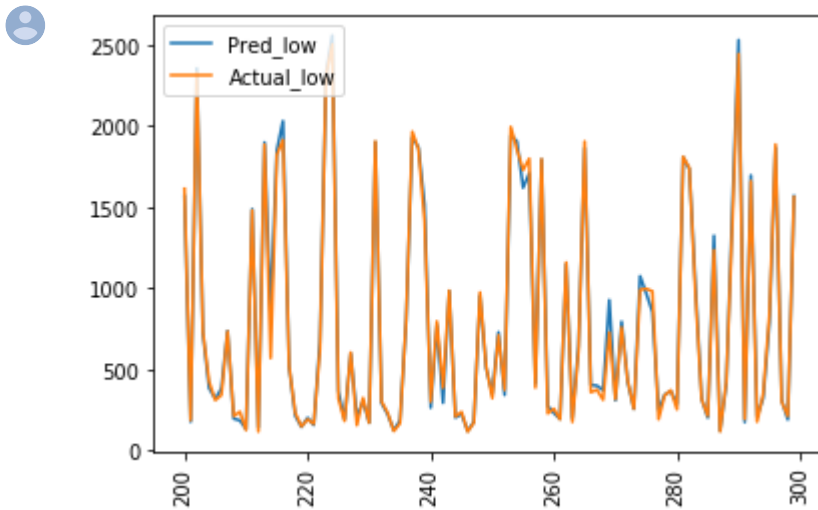
```
ax1.plot(df_res_2.index, df_res_2['Pred_low'], label="Pred_low")
```

```
ax1.plot(df_res_2.index, df_res_2['Actual_low'], label="Actual_low")
```

```
plt.legend(loc="upper left")
```

```
plt.xticks(rotation=90)
```

```
plt.show()
```



## ▼ Low\_ANN

```
fig, ax = plt.subplots()
```

```
ax.scatter(y_test_mod[1], y_pred_mod[1])
```

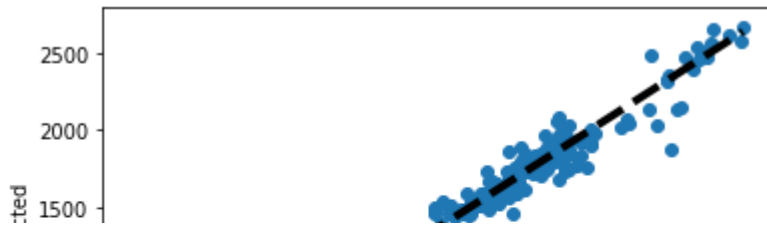
```
ax.plot([y_test_mod[1].min(),y_test_mod[1].max()], [y_test_mod[1].min(), y_test_mod[1].max()])
```

```
ax.set_xlabel('Measured')
```

```
ax.set_ylabel('Predicted')
```

```
plt.show()
```





## ▼ High\_ANN

```
fig, ax = plt.subplots()
ax.scatter(y_test_mod[0], y_pred_mod[0])
ax.plot([y_test_mod[0].min(), y_test_mod[0].max()], [y_test_mod[0].min(), y_test_mod[0].max()])
ax.set_xlabel('Measured')
ax.set_ylabel('Predicted')
plt.show()
```

